

fossils are discovered, description of the role of monitors, and measures to be taken until discoveries can be assessed and recovered. Administration of the PRAM to construction workers will help to ensure that fossils are recognized and handled properly in the event they should be encountered.

- **Measure PALEO-2:** Preparation of a Paleontological Evaluation Report (PER)/Proposed Mitigation Plan (PMP). The PER/PMP will be prepared using detailed design plans of the Preferred Build Alternative. The PER/PMP will include a monitoring plan, if necessary, that will provide (1) instructions for monitoring excavations, (2) a determination of the level of monitoring necessary at each excavation based on paleontological sensitivity of the sediment and excavation type, and (3) prescriptions for dealing with paleontological discoveries.

2.3 Biological Environment

The following analysis is based on the Natural Environment Study (NES) prepared for the Gleason Beach Roadway Realignment Project (Caltrans 2015d) and various other surveys completed for this project including wetland delineations and rare plant surveys. These studies and reports serve as the basis for establishing the environmental baseline for the proposed project.

2.3.1 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the federal Endangered Species Act are discussed below in the Threatened and Endangered Species Section 2.3.5. Wetlands and other waters are also discussed below in Section 2.3.2.

This section addresses common natural communities and natural communities of concern within the biological study area (BSA), which is approximately 29.8 acres and is identical to the EIR/EA study area (as shown in Figure 1-3). The BSA extends outside of the project area/footprint; this was done to account for potentially affected biological resources. The project area/footprint is approximately 12.1 acres for Alternative 19B, the largest alternative.

AFFECTED ENVIRONMENT

Some of the natural communities in the Gleason Beach BSA are protected under CEQA, the California Coastal Act (CCA), and the Sonoma County LCP. The CCA and Sonoma County LCP protect specific communities identified as environmentally sensitive habitat areas (ESHAs). An ESHA is any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem, and which could be easily disturbed or degraded by human activities and developments (CCA, Section 30107.5). The Sonoma County LCP (Sonoma County 2001) defines the habitat categories that qualify as an ESHA, and those natural communities that are considered ESHAs and are present within the project BSA are described in the following sections.

There are eight natural communities within the BSA. These are shown in Figure 2-28 and are listed in Table 2-17 with the corresponding acreages. The vegetated communities were classified primarily in accordance with the California Department of Fish and Wildlife (CDFW) List of Vegetation Alliances and Associations (CDFW 2010) and field observations during surveys. Vegetation types within the BSA include coastal terrace prairie, seasonal wetland, ruderal, northern coastal scrub, and mixed soft rush (*Juncus effusus*)/western rush (*Juncus occidentalis*) marsh. Coastal terrace prairie is the most abundant natural community within the BSA. Detailed descriptions of vegetation types along with the dominant plants observed are described in the NES (Caltrans 2015d). Ruderal habitat occurs along the edges of SR 1. The sandy beach and coastal bluff habitats found along the western portion of the BSA are largely devoid of vegetation.

Table 2-17 Total Area of Natural Communities within the Biological Study Area

Vegetation Type	Acreage
Coastal Terrace Prairie	20.22
Seasonal Wetland	2.29
Ruderal	1.51
Northern Coastal Scrub	1.39
Mixed Soft Rush/Western Rush Marsh	1.27
Coastal Bluff	0.04
Sandy Beach	0.04
Barren	0.03
Total	26.79

The natural communities within the BSA support wildlife movement. They connect adjacent habitats and allow for seasonal and juvenile dispersal. Specific wildlife use of the communities is noted in the individual sections as applicable. The Sonoma County LCP designated the Pacific View-Willow Creek-Russian River South Side Unit as an environmental resource area, a geographic area of particular local value. The unit includes the coastline of Gleason Beach and the riparian corridor of Scotty Creek and Kolmer Gulch Sanctuary-Preservation Area, which is located east of the BSA (Sonoma County 2001 and 2013). Habitat categories considered ESHAs by the Sonoma County LCP include the coastal terrace prairie (grassland between Freezeout Creek and Willow Creek), wetlands, Scotty Creek (anadromous fish stream), sandy beach, and coastal bluff. These sensitive communities are listed in Table 2-17.

Aquatic habitats in the BSA include Scotty Creek and two seasonal natural drainages, and are discussed in Section 2.3.2, Wetlands and Other Waters, which details jurisdictional wetlands and other waters within the BSA.

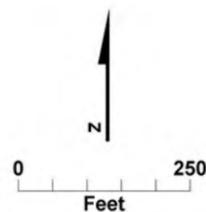
Coastal Terrace Prairie

Approximately 20.22 acres of coastal terrace prairie occur within the BSA. It is found on the flats and gentle slopes of upland and mesic areas within the BSA and includes patchily distributed natives. Dominant plant species in the coastal prairie within the BSA include native California oatgrass (*Danthonia californica*), coast clover (*Trifolium wormskioldii*), and prickly coyote thistle (*Eryngium armatum*), as well as nonnative sweet vernal grass (*Anthoxanthum odoratum*), velvet grass (*Holcus lanata*),



LEGEND

- | | |
|-----------------------------|------------------------------------|
| Biological Study Area (BSA) | Mixed Soft Rush/Western Rush Marsh |
| Parcel | Northern Coastal Scrub |
| Post Miles | Ruderal |
| Natural Communities | Sandy Beach |
| Barren | Seasonal Wetland |
| Coastal Bluff | Scotty Creek |
| Coastal Terrace Prairie | |



**FIGURE 2-28
NATURAL COMMUNITIES**
Gleason Beach Roadway Realignment Project
Environmental Impact Report /
Environmental Assessment
State Route 1
Post Mile 15.1-15.7, EA 0A0200
Sonoma County, California



white clover (*Trifolium repens*), and annual bluegrass (*Poa annua*). Patches of native Douglas iris (*Iris douglasiana*) and native common yarrow (*Achillea millefolium*), field sedge (*Carex praegracilis*), and California horkelia (*Horkelia californica*) also occur in the coastal terrace prairie in the BSA.

Many wildlife species use coastal terrace prairie for foraging, but some require special habitat features such as cliffs, caves, ponds, or habitats with woody plants for breeding, resting, and escape cover. These special habitat features are found sparsely within the BSA. Coastal terrace prairie within the BSA supports special-status wildlife species (e.g., the California red-legged frog [*Rana draytonii*] and the Myrtle's silverspot butterfly [*Speyeria zerene myrtleae*]). Common birds that may use this area during the nesting season include western meadowlark (*Sturnella neglecta*) and savannah sparrow (*Passerculus sandwichensis*). Coastal terrace prairie can also be potentially suitable habitat for golden larkspur (*Delphinium luteum*) and showy rancheria clover (*Trifolium amoenum*), which are both federally-listed endangered plants. However, the potential for these to occur within the BSA is considered low due to the disturbed nature of the site (agricultural grazing) and these federally-listed endangered plants were not observed during protocol-level botanical surveys conducted within the BSA.

Coastal terrace prairie is considered a highly imperiled native vegetation community (CDFW 2010). It is estimated that 99 percent of California's native grasslands have been lost since European settlement (Kraft et al. 2007). The prairie community within the BSA is heavily grazed and dominated by introduced annual grasses but retains important biological value due to the presence of some native grasses, and because it provides suitable breeding and foraging habitat for the Myrtle's silverspot butterfly, an endangered species with only four documented populations. It is also valuable for its connection to adjacent prairie habitat, which is important to species that require large open areas to support their needs.

Ruderal

There are approximately 1.51 acres of ruderal habitat within the BSA. Ruderal vegetation occurs along the roadside. Much of the roadside landscape has been affected by residential development and ongoing use of the roadway. In the BSA, these areas are dominated by wild oats (*Avena barbata*, *A. fatua*), common mustard (*Brassica rapa*), Italian thistle (*Carduus pycnocephalus*), iceplant (*Carpobrotus edulis*), hedgehog dogtail grass (*Cynosurus echinatus*), foxtail (*Hordeum murinum*),

burclover (*Medicago lupulina*), sour clover (*Melilotus indicus*), wild radish (*Rhaphanus sativus*), curly dock (*Rumex crispus*), and sowthistle (*Sonchus asper*).

Ruderal areas provide relatively low habitat value for wildlife because they are highly degraded communities dominated by non-native, weedy plants, often adjacent to developed areas such as roadsides. The ruderal habitat within the BSA may provide marginal upland habitat for the California red-legged frog (given the close proximity to inhospitable habitats, such as cliffs, the beach, and ocean) and foraging habitat for Myrtle's silverspot butterfly. Ruderal areas typically provide low-quality foraging habitat for most birds and small mammals, but can provide forage and cover for some species. Common wildlife species that may occur onsite in these areas include killdeer (*Charadrius vociferus*), Brewer's blackbird (*Euphagus cyanocephalus*), mourning dove (*Zenaida macroura*), and house finch (*Carpodacus mexicanus*).

Northern Coastal Scrub/Coastal Bluff

Northern coastal scrub and coastal bluff communities are found within the BSA. There are approximately 1.39 acres of northern coastal scrub and 0.04 acre of coastal bluff within the BSA. Northern coastal scrub is a low-lying plant community that forms continuous or scattered mats. Species commonly found in this community include coast buckwheat (*Eriogonum latifolium*) and seaside daisy (*Erigeron glaucus*). Coastal bluff typically extends from cliff edge to the highest high tide line as identified by the LCP, and tends to be sparsely vegetated.

Two small areas of northern coastal scrub were observed growing to the west of SR 1, primarily within the right-of-way. Dominant native species observed in these northern coastal bluff scrub patches include coyote brush (*Baccharis pilularis*) and lizard tail (*Eriophyllum staechadifolium*). Associated species observed in this community include coast angelica (*Angelica hendersonii*), powdery dudleya (*Dudleya farinose*), coast buckwheat, varied lupine (*Lupinus varicolor*), silver bur ragweed (*Ambrosia chamissonis*), seaside daisy, beach strawberry (*Fragaria chiloensis*), Douglas iris, sea plantain (*Plantago maritima*), and California blackberry (*Rubus ursinus*). Iceplant, a non-native invasive species, is also present within the northern coastal scrub patches.

The northern coastal scrub patches within the BSA may provide marginal upland habitat for the California red-legged frog. The scrub habitat provides foraging habitat for the Myrtle's silverspot butterfly. Common birds that may use the scrub habitat during the nesting season include house finch, bushtit (*Psaltriparus minimus*), western scrub-jay (*Aphelocoma californica*), white-crowned sparrow (*Zonotrichia leucophrys*), and American robin (*Turdus migratorius*).

Coastal bluff habitat is adjacent to the highway at the cliff edge. The steep, eroding bluff provides limited habitat value to animals due to exposure to predators, high waters and wind, as well as vulnerability to collapse. The habitat does provide some foraging opportunities for wildlife (e.g., song sparrow and Myrtle's silverspot butterfly).

No special-status plant species were observed in either habitat during protocol-level rare plant surveys.

Sandy Beach/Barren

Sandy beach comprises approximately 0.04 acre of the BSA. It is located west of SR 1 in the area of the proposed boardwalk/staircase. The majority of the beach is outside the BSA. The sandy beach is primarily devoid of vegetation; however, sparse patches of iceplant occur adjacent to the toe of the bluffs.

The beach supports shorebird foraging, but no nesting habitat is present, given the narrow and relatively short section of beach, lack of refuge from high tides, and human use. The public regularly uses the sandy beach for recreational purposes, accessing the area from SR 1. It is not used by marine mammals as a haul-out or rookery.

Within the BSA, a lagoon forms periodically along the beach at the mouth of Scotty Creek. This lagoon may support foraging wading birds, such as great egrets (*Ardea alba*) and green heron (*Butorides virescens*).

Barren habitat occurs adjacent to the sandy beach and is comprised of rock slope protection and natural rock along the beach-side edge of SR 1 adjacent to Scotty Creek. The small area, about 0.03 acre, may provide habitat for common reptile species such as the western fence lizard (*Sceloporus occidentalis*), but is not expected to support special-status species.

ENVIRONMENTAL CONSEQUENCES

The project's potential direct and indirect, temporary, and permanent effects on natural communities within the BSA are discussed below. As used throughout Section 2.3, Biological Environment, direct effects are those that are caused by the action and occur at the same time and place. Indirect effects are caused by the action but are later in time or farther removed in distance, but are still reasonably foreseeable. Temporary effects are those that are short in duration and can be restored to their pre-project condition or better. Effects to mixed soft rush/western rush marsh,

seasonal wetland habitats, and aquatic features are discussed in Section 2.3.2, Wetlands and Other Waters, which details jurisdictional wetlands and other waters within the BSA. The Sonoma County LCP provides management recommendations for ESHAs. A discussion of the project’s consistency with these policies is found in Section 2.1.1.1, Land Use.

No-Build Alternative

Under the No-Build Alternative, coastal bluff would continue to erode and retreat.

Build Alternatives

Project effects on natural communities are summarized in Table 2-18. Active construction would occur over a limited period of time. This project would result in both temporary (e.g., trampling and dust) and permanent effects (e.g., conversion of habitat, loss of wetlands) on biological resources. The operation phase refers to the use and maintenance of the proposed roadways and project facilities, and would also result in permanent effects to biological resources (e.g., wildlife mortalities due to collisions and potential spread of invasive species through the project area). These effects are discussed in greater detail below by natural community type.

Table 2-18 Project Effects on Natural Communities

Type of Effect	Effect Area (acreage)		
	Alternative 19A	Alternative 19B	Alternative 20
Coastal Terrace Prairie			
Temporary	3.14	2.70	2.47
Permanent	5.50	6.10	4.74
Ruderal			
Temporary	0.26	0.17	0.19
Permanent	0.28	0.27	0.41
Northern Coastal Scrub			
Temporary	0.29	0.34	0.14
Permanent	0.40	0.37	0.11
Coastal Bluff			
Temporary	Less than 0.01	Less than 0.01	Less than 0.01
Permanent	0.02	0.02	0.02
Sandy Beach			
Temporary	0.03	0.03	0.03
Permanent	0.01	0.01	0.01

Table 2-18 Project Effects on Natural Communities

Type of Effect	Effect Area (acreage)		
	Alternative 19A	Alternative 19B	Alternative 20
Barren			
Temporary	0.03	0.03	0.03
Permanent	0.00	0.00	0.00
TOTAL (temporary and permanent)	9.96	10.77	8.15
Temporary	3.75	4.00	2.86
Permanent	6.21	6.77	5.29

Note:

This table excludes effects on wetlands and waters, which are addressed in Table 2-20 in Section 2.3.2. Due to further project refinement, the Preferred Build Alternative (Alternative 19A) was updated to include a larger temporary impact area around the proposed bridge alignment.

Coastal Terrace Prairie

Construction Phase

Construction of the proposed project (all Build Alternatives) would result in temporary and permanent effects on coastal terrace prairie as indicated in Table 2-18. The areas of effect are identified in Table 2-18.

Alternative 19B would have the greatest effect on this community, reducing coastal terrace prairie habitat by up to 6.1 acres through conversion to paved surface.

Alternative 19A would result in the loss of up to 5.50 acres. Alternative 20 would have the least effect on this community, reducing coastal terrace prairie habitat by up to 4.74 acres. All three Build Alternatives would also fragment areas west of the new alignment due to the construction of three access roads.

Construction activities, such as earth moving or staging, would have direct temporary effects on approximately 3.14 acres of coastal terrace prairie.

Coastal terrace prairie is an ESHA and will be protected against significant disruption of habitat values, and only uses dependent on those resources (e.g., accessways, trails, nature education, and fishing) are allowed per the California Coastal Act and must not result in the significant disruption of habitat values. All three Build Alternatives would reduce the amount of coastal terrace prairie within the BSA. The project would have minimal effects on the habitat value for the majority of biological resource activities (e.g., nesting, foraging, and dispersal); however, it will diminish the suitability of the project site to support the Myrtle’s silverspot butterfly by removing

some of the species' limited breeding habitat and reducing the amount of foraging habitat within the BSA. The reduction in habitat value to the Myrtle's silverspot butterfly is considered substantial, given that the species is endangered and there are only four documented populations (as discussed below in Section 2.3.5).

Operation Phase

Fragmenting the terrace prairie habitat may lower the quality and value of the habitat to wildlife species that forage or disperse through it. The new roadway alignment and access roads may increase the incidence of wildlife-vehicle collisions, particularly where the road would be located at ground level as compared to along the bridge. The low traffic volumes at nighttime, when most ground-dwelling species are active, would limit the potential for such collisions. Maintenance or operation of the new realignment and access roads is not expected to have additional effects on coastal terrace prairie.

The Build Alternatives would adversely affect coastal terrace prairie, but enhancement of coastal terrace prairie within Sonoma County will be provided as part of mitigation for Myrtle's silverspot butterfly, as described in Mitigation Measure BIO-B in Section 2.3.5, Threatened and Endangered Species. Adverse effects to coastal terrace prairie would be further minimized by the implementation of the Avoidance, Minimization, and/or Mitigation Measures described in Section 2.3.1, Natural Communities.

Northern Coastal Scrub/Coastal Bluff

Construction Phase

Construction of the proposed project (all Build Alternatives) would result in temporary and permanent direct effects on northern coastal scrub, as shown in Table 2-18. Construction activities are expected to have up to approximately 0.29 acre of direct temporary effects on this vegetation community. The proposed project Build Alternatives would result in the direct conversion of up to 0.4 acre of northern coastal scrub and (for Alternative 19A) to paved access roads and drainage-related features.

Alternative 19A would result in less than 0.01 acre of temporary effects on coastal bluff habitat due to construction-related activities (e.g., rock slope protection), and Alternative 20 would result in as little as 0.11 acre. Approximately 0.02 acre of permanent effects on coastal bluff habitat due to development (all alternatives) would be permanently converted to the built environment (e.g., roads and drainage improvement materials).

Project construction would have a minimal effect on the vegetation community because of the small area affected and limited value of the narrow strip of northern coastal scrub and bluff habitat within the BSA. The remaining northern coastal scrub and bluff communities will continue to provide similar habitat values and biological functions. Northern coastal scrub will continue to support potential California red-legged frog dispersal; Myrtle's silverspot butterfly foraging; and bird foraging, dispersal, and nesting activities. Project effects would be further reduced by implementing the AMMs stated in Section 2.3.1, Natural Communities.

Operation Phase

Operation of the new realignment and access roads, such as roadway use and maintenance, is not expected to affect the habitat value of northern coastal scrub or coastal bluff.

Ruderal

Construction Phase

Construction of the Build Alternatives would result in temporary and permanent direct effects on ruderal habitat, as shown in Figure 2-29 and Figure 2-30. Since the circulation of the Draft EIR/EA, Alternative 19A has been identified as the Preferred Build Alternative and has undergone further refinement of project details.

The proposed project alternatives would have temporary effects up to 0.26 acre of ruderal habitat due to construction activities. The project would directly convert up to 0.41 acre of ruderal habitat to paved surface, as part of Alternative 20. Alternative 19A would directly convert up to 0.28 acre of ruderal habitat to paved surface. The ruderal habitat, located between the edge of prairie and bluff scrub habitat and the roadway edges, is unlikely to support wildlife breeding or nesting. This conversion is not expected to affect native plants or wildlife given the already disturbed nature of this habitat and its limited habitat value.

Operation Phase

Vehicle use of the new alignment and access roads may mobilize dust and contribute to an increase of ruderal habitat along the new roadway edge. This would be a reduction in habitat value for other natural communities. The new strip of ruderal habitat would not be expected to substantially reduce overall habitat values within the BSA due to the small area affected (i.e., limited to a narrow strip along the new roadways), compared with the amount of remaining habitat available to support native plants and wildlife.

Sandy Beach/Barren

Construction Phase

Construction of the proposed project (all Build Alternatives) would result in temporary and permanent direct effects on sandy beach, as listed in Table 2-18. The construction of the staircase down to the beach would result in the loss of up to 0.01 acre of sandy beach for all three alternatives. Construction activities are expected to temporarily affect up to 0.03 acre of beach. These effects are considered minimal because the affected area is small compared to the overall amount of beach habitat present (approximately 2.12 acres of adjacent beach). The beach is not used by special-status species, except by migratory birds for foraging purposes. Therefore, the project would not reduce the beach's value to special-status species. Implementation of project AMMs stated in Section 2.3.1, Natural Communities, would further reduce construction-related effects on the sandy beach. No indirect effects to these habitats are expected.

Approximately 0.03 acre of rock slope protection and naturally occurring rock located along the roadway embankment would be temporarily affected by construction activities. No permanent direct or indirect effects are expected.

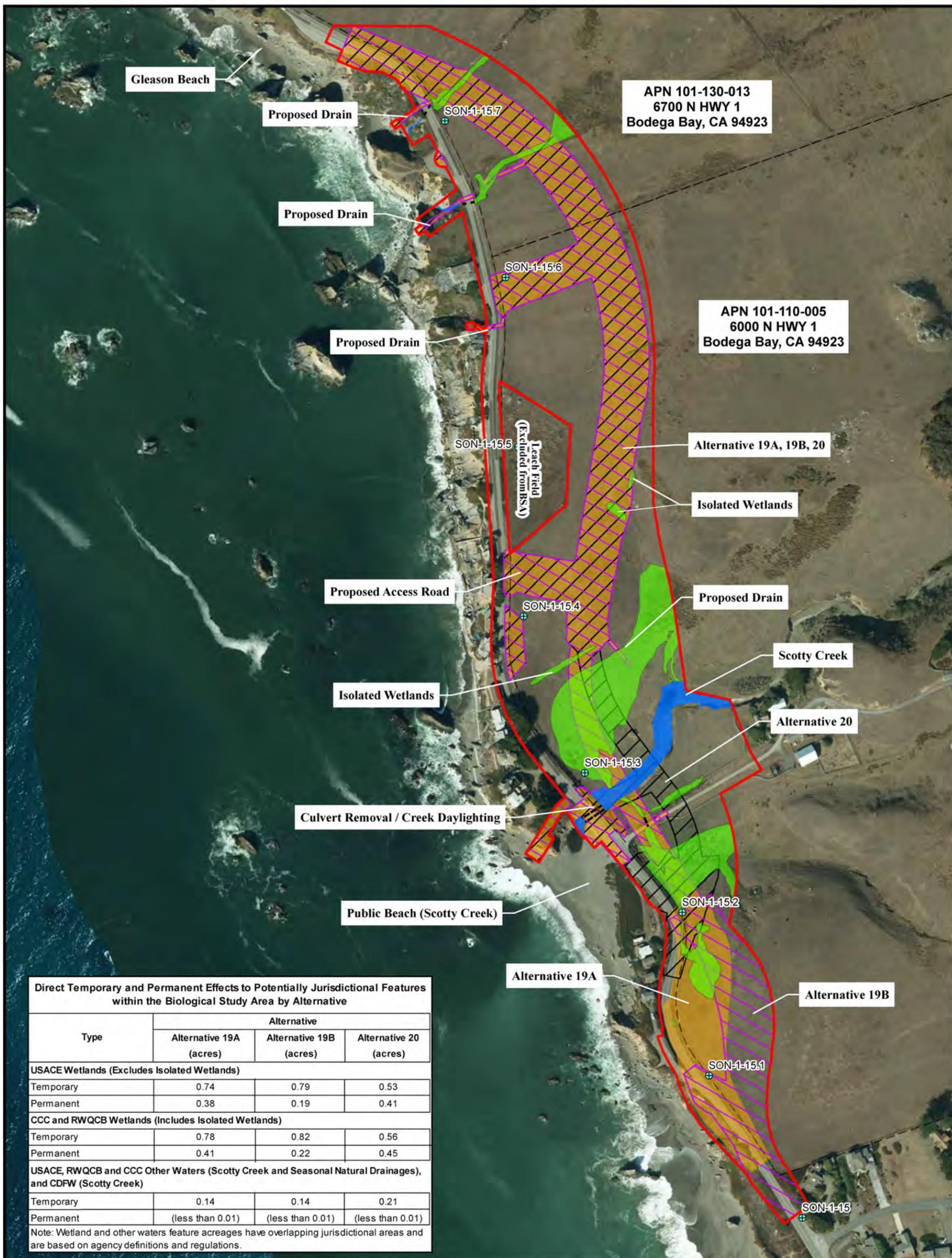
Operation Phase

Maintenance and operation of the new realignment and access roads are not expected to affect the sandy beach community. The Build Alternatives would not change how the beach is used. The beach at Scotty Creek and the immediately adjacent rocky habitat are already accessed by the public and no additional use or effects are expected to these habitats.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Coastal Terrace Prairie

The proposed project has been designed to minimize permanent effects to coastal terrace prairie by designing a bridge that spans the Scotty Creek floodplain, thereby reducing adverse effects to coastal prairie along the floodplain. Temporary effects on coastal terrace prairie will be limited by restricting project activities to the existing and new rights-of-way. Effects to coastal prairie habitat will be offset through the purchase or enhancement of coastal terrace prairie habitat, which is described in Mitigation Measure BIO-B: Compensatory Mitigation for Myrtle's Silverspot Butterfly in Section 2.3.5, Threatened and Endangered Species. Air Quality BMP 14-9.2, described in Measure AIR-1: Construction Period Best Management Practices in Appendix F, and Water Quality AMMs WATER-1: SWPPP and WATER-6: Design



Direct Temporary and Permanent Effects to Potentially Jurisdictional Features within the Biological Study Area by Alternative

Type	Alternative		
	Alternative 19A (acres)	Alternative 19B (acres)	Alternative 20 (acres)
USACE Wetlands (Excludes Isolated Wetlands)			
Temporary	0.74	0.79	0.53
Permanent	0.38	0.19	0.41
CCC and RWQCB Wetlands (Includes Isolated Wetlands)			
Temporary	0.78	0.82	0.56
Permanent	0.41	0.22	0.45
USACE, RWQCB and CCC Other Waters (Scotty Creek and Seasonal Natural Drainages), and CDFW (Scotty Creek)			
Temporary	0.14	0.14	0.21
Permanent	(less than 0.01)	(less than 0.01)	(less than 0.01)

Note: Wetland and other waters feature acreages have overlapping jurisdictional areas and are based on agency definitions and regulations.

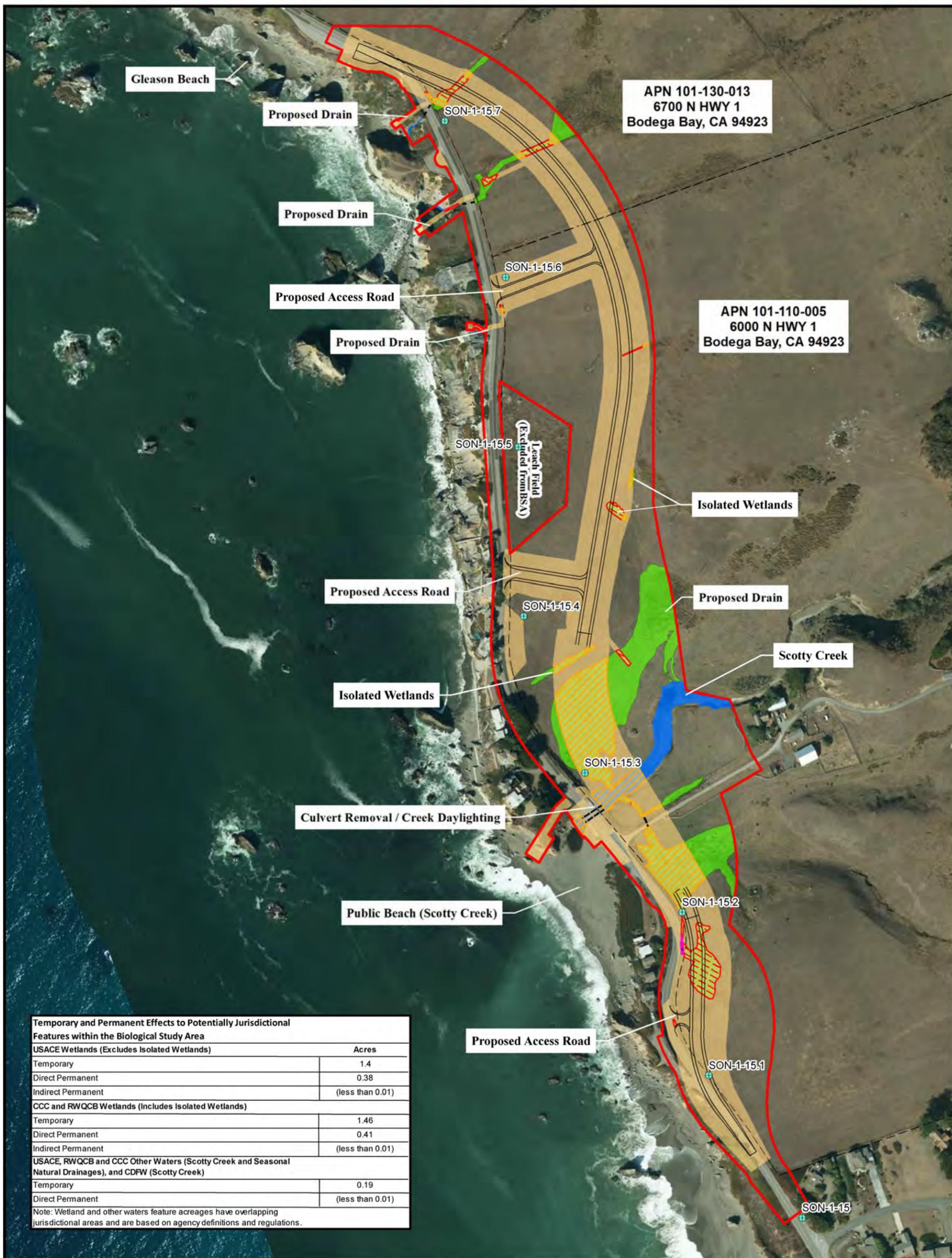
- LEGEND**
- Biological Study Area (BSA)
 - Parcels
 - Culvert
 - Project Area Alternate 19A
 - Project Area Alternate 19B
 - Project Area Alternate 20
 - + Post Miles

Wetlands (a Total of 3.56 acres in the BSA)
 Other Waters (a Total of 0.62 acres in the BSA)

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



FIGURE 2-29
PROJECT EFFECTS ON WETLANDS AND OTHER WATERS BY ALTERNATIVE
 Gleason Beach Roadway Realignment Project
 Environmental Impact Report / Environmental Assessment
 State Route 1
 Post Mile 15.1-15.7, EA 0A0200
 Sonoma County, California



Temporary and Permanent Effects to Potentially Jurisdictional Features within the Biological Study Area	
USACE Wetlands (Excludes Isolated Wetlands)	
	Acres
Temporary	1.4
Direct Permanent	0.38
Indirect Permanent	(less than 0.01)
CCC and RWQCB Wetlands (Includes Isolated Wetlands)	
Temporary	1.46
Direct Permanent	0.41
Indirect Permanent	(less than 0.01)
USACE, RWQCB and CCC Other Waters (Scotty Creek and Seasonal Natural Drainages), and CDFW (Scotty Creek)	
Temporary	0.19
Direct Permanent	(less than 0.01)

Note: Wetland and other waters feature acreages have overlapping jurisdictional areas and are based on agency definitions and regulations.

LEGEND

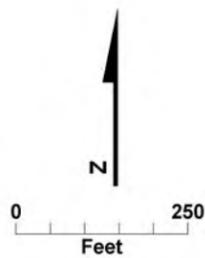
- Biological Study Area (BSA)
 - Parcels
 - Culvert
 - Project Area
 - + Post Miles
 - Roadway Realignment
- Wetland Impacts**
- Indirect Permanent
 - Direct Permanent
 - Temporary

■ Wetlands (3.56 acres meeting CCC definition, inclusive of 3.44 acres meeting USACE definition, in the BSA)

■ Other Waters (0.62 acre meeting CCC/USACE definition in the BSA)

Note: Since the circulation of the Draft EIR/EA, Alternative 19A was identified as the Preferred Build Alternative and has been further refined and analyzed.

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



**FIGURE 2-30
PROJECT EFFECTS ON WETLANDS
AND OTHER WATERS
ALTERNATIVE 19A**

Gleason Beach Roadway Realignment Project
Environmental Impact Report / Environmental Assessment
State Route 1
Post Mile 15.1-15.7, EA 0A0200
Sonoma County, California



Pollution Prevention Measures (Section 2.2.2) are designed to minimize construction-related pollutants and dust and their potential effects to coastal terrace prairie. The following AMMs will further minimize the project's effects on this community:

- **Measure BIO-1: Revegetation.** After construction activities are complete, any temporary fill or construction debris will be removed and disturbed areas restored to their pre-project conditions or improved through native plantings. An area subject to temporary disturbance includes any area that is disturbed during the project, but that, after project completion, will not be subject to further disturbance and has the potential to be re-vegetated. Appropriate methods and plant species used to re-vegetate such areas will be determined on a site-specific basis. All areas that are temporarily affected during construction will be re-vegetated with an assemblage of native species appropriate for the local area and fauna. Invasive, exotic plants will be controlled within the BSA to the maximum extent practicable pursuant to EO 13112.
- **Measure BIO-2: ESA Fencing.** The final construction plans will show all environmentally sensitive areas (ESAs), the equivalent to LCP ESHAs. These areas include features with high ecological value such as wetlands and patches of western dog violet (*Viola adunca*), discussed in Sections 2.3.3 and 2.3.5. Prior to the commencement of construction activities, high-visibility fencing and wildlife exclusion fencing, or a combination thereof, will be erected around active work areas. The fencing will help prevent the encroachment of construction personnel and equipment into sensitive areas during construction activities and to limit the entry of wildlife into the project site. The fencing shall be inspected and maintained by the contractor until the project is complete.

Northern Coastal Scrub/Coastal Bluff

To minimize direct permanent effects to northern coastal scrub and coastal bluff habitats, construction activities will be limited to the smallest area possible to complete the proposed work. The potential for accidental spills and indirect effects, such as erosion and dust, will be reduced by implementing Air Quality BMP 14-9.2 (Measure AIR-1: Construction Period Best Management Practices in Appendix F) and Water Quality AMMs WATER-1: SWPPP and WATER-6: Design Pollution Prevention Measures presented in Section 2.2.2.

Sandy Beach/Barren

The project minimizes effects to the beach and adjacent rocky habitat by limiting the staircase to the minimum needed to provide continued public access to the beach. The potential associated effects, such as erosion, dust, and potential for accidental spills, will be reduced by implementing Measure AIR-1: Construction Period Best Management Practices in Appendix F, and Water Quality AMMs WATER-1: SWPPP and WATER-6: Design Pollution Prevention Measures presented in Section 2.2.2. Temporarily disturbed areas will be revegetated if appropriate, in accordance with Measure BIO-1, Revegetation.

Ruderal Habitat

No additional avoidance and minimization measures or mitigation measures are proposed for ruderal habitat.

2.3.2 Wetlands and Other Waters

REGULATORY SETTING

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (33 USC 1344), is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the USACE with oversight by the U.S. Environmental Protection Agency (USEPA).

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General permits: Regional permits and Nationwide permits. Regional

permits are issued for a general category of activities when they are similar in nature and cause minimal environmental impacts. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal impacts.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with USEPA's Section 404(b)(1) Guidelines (Guidelines; 40 CFR Part 230), and whether permit approval is in the public interest. The Guidelines were developed by the USEPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative that would have less adverse impacts. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser impacts on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this EO states that a federal agency, such as the FHWA and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction, and 2) that the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the SWRCB, the RWQCBs, and the CDFW. In certain circumstances, as described in the following section, the CCC may also be involved. Sections 1600-1607 of the California Fish and Game Code (CFGC) require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities that may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. Please see Section 2.2.2, Water Quality and Stormwater Runoff, for more details.

AFFECTED ENVIRONMENT

The CCC, in partnership with coastal cities and counties, plans and regulates the use of land and water in the coastal zone. Development activities, which are broadly defined by the CCA to include (among others) construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a coastal permit from either the CCC or the local government. The most significant provisions of the federal law give state coastal management agencies regulatory control (federal consistency review authority) over all federal activities and federally licensed, permitted or assisted activities, wherever they may occur (i.e., landward or seaward of the respective coastal zone boundaries fixed under state law) if the activity affects coastal resources.

The CCA requires that development activities avoid and buffer coastal streams and wetlands. The jurisdictional boundary for streams is determined by measuring 100 feet landward from the top of the bank of any stream mapped by the USGS on the 7.5-minute quadrangle series, or identified in an LCP. Section 30231 of the CCA requires maintenance and restoration (if feasible) of the biological productivity and quality of wetlands appropriate to maintain optimum populations of marine organisms and for the protection of human health. Any wetland fill must be avoided unless there is no feasible less environmentally damaging alternative, and authorized fill must be fully mitigated.

The Sonoma County (2001) LCP states that projects that would result in the placement of fill in wetlands are prohibited unless otherwise permitted under Section 30233 of the CCA, which addresses diking, filling, and dredging activities. The Sonoma County LCP prohibits construction of agricultural, commercial, industrial and residential structure between 100 and 300 feet of wetlands unless an environment assessment finds the wetland would not be affected by such construction.

This section summarizes the analysis of wetlands and other waters found in the NES (Caltrans 2015d), the Final California Coastal Commission Wetland Delineation Report (Caltrans 2013d), and the USACE-verified jurisdictional determination (USACE 2010, currently under review again by USACE as reflected in Figure 2-29 and Figure 2-30.

Dan Martel of USACE conducted a wetland delineation within the BSA in November 2009. USACE issued an approved jurisdictional determination for the project in August 2010, which is appended to the NES (Caltrans 2015d). Biologists conducted a California Coastal Commission wetland and stream delineation on various dates between August 2010 and January 2013. These findings are summarized in a 2013 report (Caltrans 2013d) and appended to the NES (Caltrans 2015d).

The areas of waters and wetlands meeting the USACE and CCC definitions differed slightly: 3.44 acres as defined by the USACE and 3.56 acres meeting the CCC definition. Two wetland types occur within the BSA: approximately 2.22 acres of USACE seasonal wetlands and 2.29 acres of CCC seasonal wetlands, and approximately 1.22 acres of freshwater marsh (identified as mixed soft rush and western rush marsh) meeting USACE definition and 1.27 acres meeting CCC definition. Other waters identified within the BSA include an intermittent stream (Scotty Creek at 0.61 acre) and two seasonal natural drainages that together total 0.01 acre under both USACE and CCC definitions.

Table 2-19 also lists acreages of other areas under the jurisdiction of other agencies including RWQCB and CDFW. Detailed descriptions of wetlands and other waters are provided in the Final California Coastal Commission wetland delineation report (Caltrans 2013d). A description of the seasonal wetlands, marsh, Scotty Creek, and the seasonal natural drainages is provided below.

The seasonal wetlands and freshwater marsh found within the BSA are interspersed within the coastal terrace prairie. These wetlands provide valuable habitat to wildlife and also filter stormwater run-off, among other functions. These habitats are considered ESHAs because of their rarity and biological value.

Table 2-19 Potential Jurisdictional Water Features within the Biological Study Area By Agency

Feature Type	USACE Jurisdiction under Section 404 of CWA/RWQCB Jurisdiction under Section 401 of CWA (acres)	CCC Jurisdiction under CCA (acres)	RWQCB Jurisdiction Isolated Wetlands under Porter-Cologne Water Quality Control Act (acres)	CDFW Jurisdiction under Sections 1600–1607 of CFGC (acres)
Seasonal wetland	2.22	2.29	0.07	N/A
Mixed soft rush and western rush marsh (freshwater marsh)	1.22	1.27	0.05	N/A
Scotty Creek (stream; other waters)	0.61	0.61	N/A	0.61
Seasonal natural drainages (other waters)	0.01	0.01	N/A	N/A
Agency Jurisdictional Totals	4.06	4.18	0.12	0.61

Note:

Wetland and other waters feature acreages have overlapping jurisdictional areas and are based on agency definitions and regulations.

N/A = not applicable

Seasonal Wetland

In the BSA, seasonal wetlands are generally interspersed within coastal terrace prairie. Seasonal wetlands have been described as patches of vegetation that occur along the coast and in coastal valleys near river mouths and around the margins of lakes and springs (Holland 1986). This vegetation type is dominated by perennial, emergent hydrophytes (plants that grow under aquatic conditions). The majority of the seasonal wetlands were identified on the hillside slopes in the southern extent of the BSA, and within a weakly expressed swale on the low terrace north of Scotty Creek. Vegetation found within the seasonal wetlands included velvet grass, white clover, common plantain, annual bluegrass, common loosestrife (*Lythrum hyssopifolia*), iris-leaved rush (*Juncus xiphiodes*), dwarf spikerush (*Eleocharis parvula*), and cows clover (*Trifolium wormskioldii*).

The seasonal wetlands in the BSA may provide upland habitat for the California red-legged frog and larval and adult foraging habitat for Myrtle’s silverspot butterfly. Common birds that may use this area during the nesting season include red-winged blackbird (*Agelaius phoeniceus*), Brewer’s blackbird, song sparrow (*Melospiza melodia*), and Bullock’s oriole (*Icterus bullockii*). They may also provide potential

habitat for Sonoma alopecurus (*Alopecurus aequalis* var. *sonomensis*) and showy rancheria clover. However, these species were not detected within the BSA during rare plant surveys.

Mixed Soft Rush/Western Rush Marsh

Mixed soft and western rush marsh occurs within wet and moist areas in the BSA. The marsh in the BSA is supported by natural seasonal drainages and a natural perennial spring located outside of the BSA that feeds the marsh on the south side of Scotty Creek. The dominant species within these two marsh assemblages include soft rush and western rush. Other dominant species include slimhead mangrass (*Glyceria leptostachya*), pennyroyal (*Mentha pulegium*), velvet grass, iris-leaved rush, and common plantain (*Plantago major*).

Mixed soft and western rush habitat may provide upland habitat for the California red-legged frog and foraging habitat for Myrtle's silverspot butterfly. Common birds that may use the marsh during the nesting season include song sparrow, common yellowthroat (*Geothlypis trichas*), red-winged blackbird, Brewer's blackbird, and marsh wren (*Cistothorus palustris*).

Scotty Creek

Scotty Creek is an intermittent stream (USGS 2016) and has vertical eroding banks within the BSA. The creek flows towards the Pacific Ocean in an area that is part of the California Coastal National Monument (CCNM)⁶ via one 6-foot double-boxed culvert and one 8-foot double-boxed culvert under SR 1 (see also Photograph 2-1 in Section 2.2.2, Water Quality and Stormwater Runoff). Scotty Creek has intermittent flows, and a water pump 2,000 feet upstream of the BSA draws water from the creek for a nearby residential development in Sereno del Mar. The creek and its watershed have experienced disturbance for over a century from agricultural grazing (Gold Ridge Resource Conservation District [RCD] 2007). No woody riparian vegetation is present along Scotty Creek within or adjacent to the BSA. The tops of the banks support coastal terrace prairie. Scotty Creek usually dries up in the summer within the BSA; during the rainy season a lagoon forms where Scotty Creek empties onto the beach west of SR 1 and outside of the BSA. The height of the box culverts limits the

⁶ The California Coastal National Monument is located along the entire 1,100-mile coastline of California. Created in 2000 by Presidential proclamation under the Antiquities Act and expanded in 2014, the CCNM protects over 20,000 rocks, islands, islets, pinnacles, and reefs above mean high tide within 12 nautical miles of the shoreline. The CCNM Planning Area encompasses the Coastal Zone boundary, as defined by the California Coastal Commission.

extent of tidal influence within Scotty Creek (see Section 2.2.1, Hydrology and Floodplain).

In addition to being within the jurisdiction of the USACE, the RWQCB, and the CCC, Scotty Creek is protected under Sections 1600 to 1607 of the CFGC as a stream. Scotty Creek lacks riparian vegetation; thus, CDFW's jurisdiction would likely be limited to the bed and banks of Scotty Creek.

Seasonal Natural Drainages

Two seasonal natural drainages in the northern portion of the BSA convey flows down the cliff face and directly into the Pacific Ocean from culverts that cross under SR 1. These natural drainages are open water and lack riparian and wetland vegetation west of SR 1. Ruderal and northern coastal bluff scrub vegetation occur along the steep slopes of these natural drainages.

ENVIRONMENTAL CONSEQUENCES

In the absence of the project, existing wetland stressors would continue to occur. These include trampling of wetlands by cattle and water pollution caused by sedimentation of the creek and nitrogen loading by cattle that access and drink from the creek. Wetlands may also be affected by ongoing coastal erosion and flooding, which is projected to increase because of climate change and associated sea level rise.

The CCNM is located off the coast from the project area. The project will not affect the CCNM because project activities will not occur within the coastal waters west of the SR 1 realignment area.

Wetlands and Other Waters

The results of the waters and wetland delineations were used to inform the project development process; project modifications were made where feasible to avoid wetlands and waters. During the alternatives analysis phase of the project, it was determined that the primary avoidance and minimization measure for potential impacts was to elevate the roadway above the creek and its adjacent wetlands. The Scotty Creek floodplain is where the vast majority of the wetlands within the BSA are located. This design element applies to all three Build Alternatives.

All three Build Alternatives would result in some level of permanent and temporary impacts to wetlands and other waters. Caltrans would be required to obtain a Section 404 permit from the USACE. The project would likely qualify for a Nationwide Permit. The project would require a Section 401 Water Quality Certification (see also

Section 2.2.2, Water Quality and Stormwater Runoff) and a WDR from the North Coast RWQCB for non-USACE isolated features. A Coastal Development Permit would also be needed for impacts on wetlands and other waters within CCC’s jurisdiction, as well as a CDFW Lake or Streambed Alteration Agreement because of the proposed alteration of the bed and banks of Scotty Creek for the temporary water diversion.

Construction Phase

All of the Build Alternatives would result in direct temporary and direct and indirect permanent adverse impacts on wetlands and other waters. The extent of the impacts for each agency’s jurisdictional boundaries, including USACE, RWQCB, CCC, and CDFW, are listed in Table 2-20 and shown on Figures 2-29 and 2-30.

Table 2-20 Temporary and Permanent Project Impacts on Wetlands and Waters

Type	Area of Project Impacts ^a		
	Alternative 19A (acres) ^{a b}	Alternative 19B (acres)	Alternative 20 (acres)
USACE^c Wetlands			
Temporary	1.40	0.79	0.53
Direct Permanent	0.39	0.19	0.41
CCC and RWQCB Wetlands			
Temporary	1.46	0.82	0.56
Direct Permanent	0.42	0.22	0.45
USACE^c, RWQCB and CCC Other Waters (Scotty Creek and Seasonal Natural Drainages), and CDFW (Scotty Creek)			
Temporary	0.19	0.14	0.21
Permanent	(less than 0.01)	(less than 0.01)	(less than 0.01)

Notes:

^a Wetland and other waters’ acreages have overlapping jurisdictional areas and are based on agency definitions and regulations.

^b Since the circulation of the Draft EIR/EA, Caltrans has identified Alternative 19A as the Preferred Build Alternative and has conducted additional analysis to assess the potential for roadway construction to result in permanent and indirect impacts on wetlands.

^c The Build Alternatives would result in the total loss of less than 0.5 acre of USACE wetlands and other waters of the U.S.

Construction activities, such as cut and fill, would have temporary adverse impacts to adjacent wetlands. These activities could result in the trampling and dusting of

wetland vegetation. The temporary water diversion would have a direct temporary impact on portions of Scotty Creek within the BSA.

The short-term diversion system is needed to remove the existing SR 1 culverts at Scotty Creek and to daylight the creek. The Build Alternatives would minimize impacts on Scotty Creek by installing and removing the water diversion during periods of time when the creek typically has low to no flow, typically from late May through early November. Work within the creek will occur between June 15 and October 15. The exact work window will be determined during the project's permitting phase. Caltrans will implement erosion and dust control BMPs to minimize the temporary increase in erosion and transfer of sediment to the creek due to construction activities. The removal of the road to daylight the creek would result in an increase in the size of the Scotty Creek riparian corridor and would likely improve its function and quality, remove a fish passage barrier, and offset the temporary adverse impacts on Scotty Creek associated with the water diversion and culvert removal.

All of the Build Alternatives minimize direct permanent adverse impacts to wetlands and other waters by spanning a bridge across Scotty Creek and its floodplain and most of its adjacent wetlands, as listed in Table 2-20. The Build Alternatives would result in permanent direct impacts on wetlands adjacent to Scotty Creek and wetlands south of the Gleason-Mann-Ballard driveway due to the roadway realignment, associated cut and fill activities, and installation of the bridge structure and supporting columns. The Build Alternatives would also result in direct permanent impacts to two seasonal natural drainages located east of the current roadway. The majority of these impacts would result from culvert placement underneath the new roadway.

The project is also expected to result in indirect permanent impacts on wetlands adjacent to Scotty Creek because the existing hillside will be cut approximately 20 feet to construct the southernmost abutment of the bridge. This cut could alter the direction and amount of water flowing into the wetlands south of Scotty Creek.

Operation Phase

The Operation Phase of the Build Alternatives would result in the shading of Scotty Creek and some of the adjacent wetlands on the top of the bank in areas that were not previously shaded. Although the creek is currently shaded underneath the existing box culverts, the construction of the proposed bridge would result in the shading of a different area of the creek in a natural bottom area; this could change the composition

of emergent plant species in that area to favor more shade-tolerant plant species. Since the circulation of the Draft EIR/EA, Alternative 19A has been identified as the Preferred Build Alternative and has undergone further refinement of project details. Alternative 19A would include a pedestrian and bicycle bridge over Scotty Creek, if feasible, which would result in minor shading that is not expected to alter plant species or communities. In the long term, the creek would continue to support emergent shade-tolerant species. The benefits of the bridge and removal of the culverts are expected to offset the impacts of shading on the creek, because the surface area of the creek, natural bottom, and bank would increase and fish passage would be improved.

Although shaded, the adjacent wetlands would continue to function as wetlands (e.g., sediment retention and wildlife habitat) following implementation of the Build Alternatives. The water temperature would decrease in shaded areas. Some of the co-dominant species within the adjacent wetlands that would be shaded by the bridge component of the three Build Alternatives are shade-tolerant species, such as California gray rush (*Juncus patens*) in the marsh and white clover in the seasonal wetlands. However, other wetland species such as soft rush in the marsh favor direct sunlight and can only tolerate partial shade. In the short term, cover by wetland species such as soft rush may decrease in fully shaded areas that receive less than 4 to 6 hours of sunlight per day, as the community transitions to accommodate wetland plant species that can tolerate full and partial shade. More shade-tolerant wetland species may become established in the place of soft rush and maintain the quality and function of the wetlands in the long term.

The project is anticipated to result in long-term beneficial permanent impacts on Scotty Creek as a result of removing the culverts and bridge currently supporting the current SR 1 alignment over the creek, which would restore approximately 0.08 acre of streambed and waters under each Build Alternative within USACE, CCC, RWQCB, and CDFW jurisdictions. The replacement of the existing bridge box culverts with a full-span bridge would improve the function of Scotty Creek by restoring the natural creek bottom and daylighting the creek and improving fish and wildlife movement along the creek.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The potential for this project to result in adverse impacts due to erosion and sediment transport will be reduced by implementing temporary and permanent BMPs outlined in the SWPPP. Caltrans' erosion control BMPs will be implemented to minimize any

wind- or water-related erosion. Caltrans will implement the General AMMs identified in Measure AIR-1: Construction Period Best Management Practices in Appendix F, and Water Quality AMMs WATER-2: Temporary Creek Diversion, WATER-3: Stockpile Area, WATER-4: Regional Water Quality Control Board Agreements, WATER-6: Design Pollution Prevention Measures, and WATER-7: Treatment Measures provided in Section 2.2.2. Additionally, Section 2.3.1, Natural Communities includes Measures BIO-1: Revegetation and BIO-2: ESA Fencing. The following wetlands-specific AMMs and Mitigation Measure will also be implemented to further minimize and compensate for project impacts:

- **Measure BIO-3: Sonoma County Local Coastal Plan Management Measures.** Caltrans will implement measures from the Sonoma County LCP to avoid and minimize impacts on wetlands. These measures relevant to wetlands and other waters include, but are not limited to, excluding motor vehicles from wetlands except where critical to construction, limiting dredging to the smallest amount feasible, minimizing construction on land adjacent to wetlands, and prohibiting wetland vegetation removal unless it is essential to project implementation. Staging and access plans will be described in the project specifications and contract bid package and will clearly provide direction on how to avoid unnecessary access through, and work in, wetlands.
- **Measure BIO-4: Wetland Impact Minimization.** To minimize impacts to wetlands that cannot be avoided during construction, the Preferred Build Alternative will limit vehicle movement and include the use of protective matting where feasible.
- **Mitigation Measure BIO-A: Compensatory Mitigation for Jurisdictional Water Features.** Caltrans will mitigate for permanent adverse impacts to jurisdictional wetlands and other waters, which consist of conversion of wetlands to hardscaping. Following CWA and CCA guidance and CCC, USACE, CDFW, and RWQCB permitting requirements, Caltrans expects to mitigate impacts at a minimum ratio of 3:1 for permanent impacts to jurisdictional features (of all agencies). Feasible mitigation options include, but are not limited to, participation in/or funding of mitigation in coordination with local, state, and/or non-profit organizations to support the enhancement of wetlands along the Sonoma Coast, including habitat on lands owned by State Parks, The Wildlands Conservancy, or other similar entities. State Parks and The Wildlands Conservancy have expressed

an ability to, and an interest in, providing this enhancement. This mitigation will offset the project's reduction in wetlands so that there is no net loss of wetlands.

Mitigation ratios and a mitigation plan will be finalized during the permitting process through coordination with all applicable state and federal agencies, including USACE, the RWQCB, Sonoma County, and the CCC. Temporary adverse impacts to these resources will be mitigated through onsite habitat restoration. Funding enhancement of riparian and streambed habitat within and adjacent to the proposed project area will also be considered in the permitting stage of the project when Caltrans is able to engage in right-of-way coordination and to fully coordinate and implement this option.

WETLANDS ONLY PRACTICABLE ALTERNATIVE FINDING

The following analysis of the project alternatives, including the No-Build, and discussion of all practicable measures to minimize the extent of wetland impacts, is provided to satisfy the requirement of Executive Order 11990, Protection of Wetlands. The Build Alternatives will require a Section 404 Nationwide Permit from USACE, a 1602 Lake and Streambed Alteration Agreement from CDFW, a Section 401 Water Quality Certification from the RWQCB, and a Coastal Development Permit from CCC or Sonoma County. Additional permits and regulations that pertain to the project are discussed throughout this document and summarized in Section 1.4.

The alternatives considered and dismissed prior to the Draft EIR/EA are described in Table 1-2 and summarized here. Earlier project alternatives were evaluated in the Draft EIR/EA but dismissed for reasons described in Section 1.3, summarized in Table 2-21, and described below.

Alternatives were eliminated for a variety of reasons. Alternatives 1 and 2 would have resulted in more wetland impacts than later alternatives, because these alternatives included the construction of a new box culvert rather than a bridge. This culvert would not have spanned the Scotty Creek floodplain or avoided the wetlands along Scotty Creek. Alternative 17 would have required the relocation of the embankment supporting a ranch access road in the creek channel and would have resulted in more coastal wetland impacts than the Build Alternatives. Alternatives 3 through 6, 8, 8M, 16, and 18 were superseded by other alternatives because they did not meet the purpose and need (e.g., safety and access) of the project while minimizing unnecessary environmental harm.

Original Build Alternatives 19A, 19B, and 20 and the No-Build Alternative were evaluated in the Draft EIR/EA. The No-Build Alternative would call for routine repairs and emergency maintenance on SR 1 to be conducted within the project limits. No immediate wetland impacts would occur with ongoing maintenance activities. However, the No-Build Alternative would not meet the purpose and need of the project because it would not protect SR 1 from coastal erosion, or maintain SR 1’s long-term connectivity in this area. The relative impacts of Alternatives 19A, 19B, and 20 on various biological and cultural resources are summarized in Table 2-21.

Table 2-21 Wetlands Only Practicable Alternative Finding Summary

Impact Type	Alternative		
	Alternative 19A (Preferred Build Alternative) (acres)	Alternative 19B (Rejected Alternative) (acres)	Alternative 20 (Rejected Alternative) (acres)
Wetlands/Waters			
USACE Permanent	0.39	0.38 acre of direct and indirect impacts, in addition an unknown amount of indirect impacts to the marsh south of the Gleason-Mann-Ballard Ranch driveway and wetlands east of the BSA.	0.41
USACE Temporary	1.59	1.61	1.26
CCC/RWQCB Permanent	0.43	0.42 acre of direct and indirect impacts, in addition indirect impacts to the marsh South of the Gleason Mann-Ballard Ranch driveway and wetlands east of the BSA.	0.45
CCC/RWQCB Temporary	1.65	1.66	1.30
Myrtle’s Silverspot Butterfly			
Permanent	7.42	7.77	6.38
Temporary	4.57	4.91	2.96
California Red-legged Frog			
Permanent	6.40	6.79	5.51
Temporary	5.08	5.38	3.42
Domestic Water Supply			
Permanent	Roadway is located farthest from artesian well and is least likely to affect the well.	Greater potential to impact an artesian well due to proximity of roadway to the well and cut of the hillside.	Roadway would directly affect a well site. Also has a greater potential to affect an artesian well due to the substantial cut of the hillside. ^a

Table 2-21 Wetlands Only Practicable Alternative Finding Summary

Impact Type	Alternative		
	Alternative 19A (Preferred Build Alternative) (acres)	Alternative 19B (Rejected Alternative) (acres)	Alternative 20 (Rejected Alternative) (acres)
Cultural Resources			
<i>Historic Property</i> (County of Sonoma) Permanent	Substantial adverse change to the Gleason-Mann-Ballard property, although this alternative is farthest from the property.	Substantial adverse change to the Gleason-Mann-Ballard property.	Substantial adverse change to the Gleason-Mann-Ballard property, and this alternative is closest to the property.
<i>Archaeological</i> Permanent	Adverse effect to four archaeological properties.	Adverse effect to five archaeological properties.	Adverse effect to four archaeological properties.

Note:

^a Public comments expressed concern for Alternative 20's impacts to domestic water sources (see Section 4.3.3).

Although the three Draft EIR/EA Build Alternatives would result in a similar amount of wetland impacts, Alternative 20 was rejected because it would have fragmented the large marsh south of the Gleason-Mann-Ballard Ranch driveway. Caltrans also determined that this alternative would likely have resulted in more indirect impacts to wetlands. Alternative 20 would have required a substantial amount of cutting into the hillside terrace south of the Gleason-Mann-Ballard Ranch driveway, and this hillside supports perched groundwater that has the potential to be drained during construction of the southernmost bridge abutment. Alternative 20 would also directly overlap with the site of a proposed domestic well. Public comments also indicated that the public did not support the selection of Alternative 20. Lastly, while all three Build Alternatives would have substantial adverse effects on the Gleason-Mann-Ballard Ranch (see Section 2.1.7), considered a historic resource by the County of Sonoma, Alternative 20 would be sited nearest to the ranch. Alternative 20 was eliminated for these reasons.

Caltrans conducted additional analysis after publication of the Draft EIR/EA to assess the potential for roadway construction to result in permanent and indirect impacts on wetlands. Alternatives 19A and 19B were further evaluated to assess the potential for the cuts into the terrace south of Scotty Creek needed to construct the southernmost bridge abutment to result in indirect impacts on wetlands adjacent to the project limits and along Scotty Creek. These alternatives were also evaluated to assess the potential for the project to directly and indirectly impact a domestic well. Four piezometers

were installed in locations surrounding the southern bridge abutment. Groundwater table levels beneath the hillside terrace were obtained and the identified topographic contours were used to evaluate the potential flow of groundwater post-construction.

Alternative 19B would be more closely located to an artesian well and adjacent wetland east of the project than Alternative 19A, and grading and cutting would occur closer to this area as a result. The artesian well supplies the ranch with water and partially feeds the wetlands along Scotty Creek and south of the Gleason-Mann-Ballard driveway. Data from the piezometers indicated that grading for the new roadway and bridge abutment under Alternative 19B would cut into the water table at this location. The cut could therefore drain water away from the wetlands. Based on this information, it was determined that Alternative 19B would likely result in more permanent and indirect impacts on wetlands than Alternative 19A by reducing the supply of water to the wetlands along Scotty Creek. Alternative 19B would also have resulted in the loss of more Myrtle's silverspot butterfly and California red-legged frog habitat than Alternative 19A. While this draining of water away from the wetlands still could occur with Alternative 19A, the potential for this to happen is less likely because this alternative is located farther away from the artesian well than Alternative 19B.

Aside from biological resources, Alternative 19B would result in more adverse effects on cultural resources than Alternative 19A. Alternative 19B would adversely affect five archaeological properties as compared to Alternative 19A, which will adversely affect four archaeological properties. Alternative 19B is also situated closer to the Gleason-Mann-Ballard Ranch than Alternative 19A.

Finding

Because of Alternative 19A's location farther away from the artesian well and adjacent drainage, Caltrans determined that the cut for the southern bridge abutment for Alternative 19A would likely result in fewer indirect impacts on wetlands south of Scotty Creek. Overall, it was determined that Alternative 19A would result in the least amount of impacts on wetlands within and adjacent to the BSA.

Caltrans has incorporated all practicable measures to avoid and minimize harm to wetlands into the project design. Based on the above considerations, it has been determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands that may result from project implementation.

2.3.3 Plant Species

REGULATORY SETTING

USFWS and CDFW have regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special-status is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see Section 2.3.5, Threatened and Endangered Species, in this document for detailed information about these species.

This section of the document discusses all the other special-status plant species, including CDFW species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at 16 USC Section 1531, et seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found at CFGC Section 2050 et seq. Caltrans projects are also subject to the Native Plant Protection Act, found at Sections 1900-1913 of the CFGC, and CEQA, California PRC, Sections 2100-21177.

AFFECTED ENVIRONMENT

Multi-year botanical assessments and protocol-level surveys were conducted in the BSA between 2003 and 2013 as summarized in Appendix D, Table D-1 (Caltrans 2014f). The protocol-level surveys were floristic in nature; thus, the biologists identified all plant species encountered during the surveys to the taxonomic level necessary to determine rarity.

The California Natural Diversity Database (CNDDDB), CNPS, and USFWS websites were searched for special-status plant species with known occurrences in the USGS Duncans Mills 7.5-minute quadrangle and seven surrounding quadrangles. The results of these database searches are included in the NES (Caltrans 2015d). Fourteen plant species for which potential habitat was found in or adjacent to the BSA were identified (see Appendix D, Table D-1). The remaining special-status plant species identified during the database searches were excluded from the botanical surveys because the specific habitat types (e.g., vernal pools and seeps), certain elevation ranges, and soil requirements are lacking within the BSA. Federally listed plant

species are also evaluated as part of the results of the USFWS search regardless of their potential to occur in the project area (see Appendix D, Table D-1).

There were no locally rare or special-status plants observed within the BSA during the multi-year, protocol-level botanical surveys (Caltrans 2014f).

ENVIRONMENTAL CONSEQUENCES

The No-Build and Build Alternatives would not result in any direct, indirect, or cumulative effects on special-status plant species under the construction and operation phases of the project.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Although previous surveys have not identified any special-status plant species within the BSA, Caltrans will implement Measure BIO-5 (pre-construction plant surveys described below) to re-evaluate current conditions. In the event that special-status species are observed during pre-construction surveys, AMMs such as Measure BIO-2 (see Section 2.3.1) will help avoid effects to these plant species.

- **Measure BIO-5: Pre-Construction Plant Surveys.** Caltrans will conduct pre-construction surveys for special-status plant species within the BSA 1 year prior to construction during the appropriate period of identification for these species. In the unlikely event that a special-status plant species is identified within the BSA in future surveys, the appropriate agencies will be notified and Caltrans will identify and follow any necessary AMMs to avoid and minimize effects on these species. Such measures may include general avoidance or transplantation efforts.

2.3.4 Animal Species

REGULATORY SETTING

Many state and federal laws regulate effects to wildlife. USFWS, the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS), and CDFW are responsible for implementing these laws. This section discusses potential effects and permit requirements associated with animals not listed or proposed for listing under FESA and CESA. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5, Threatened and Endangered Species, below. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NMFS candidate species. Special-status species include those taxa

afforded protection or considered sensitive under various acts (e.g., CEQA, Migratory Bird Treaty Act [MBTA]) or under sections of the CFGC (e.g., nesting birds) or by the scientific community.

Federal laws and regulations relevant to wildlife include the following:

- NEPA
- MBTA
- Fish and Wildlife Coordination Act
- Coastal Zone Management Act (CZMA)

State laws and regulations relevant to wildlife include the following:

- CEQA
- Sections 1600 – 1603 of the CFGC
- Sections 4150 and 4152 of the CFGC
- California Coastal Act
- Sonoma County LCP

AFFECTED ENVIRONMENT

The following analysis is based on the NES prepared for the project (Caltrans 2015d) and surveys conducted in support of this project.

Habitats within the BSA support common species such as the common red-sided garter snake (*Thamnophis sirtalis infernalis*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), domestic cattle (*Bos primigenus*), and other species discussed in Section 2.3.1, Natural Communities. These species are common to undeveloped areas and pasturelands of the Sonoma Coast.

The CNDDDB (CDFW 2016a) lists 24 sensitive wildlife species as occurring within the Duncans Mills 7.5-minute USGS quadrangle and the eight surrounding quadrangles. The USFWS (2016a) and NMFS (2016) species lists (see Appendix I) include 31 federally listed species with a potential to occur in the Duncans Mills quadrangle. This information is combined into a table of special-status species that includes the name and legal status of each of these species, general description of the habitat requirements, and their potential to occur within the BSA (Appendix D, Table D-2). Figures depicting animal species occurrences within a 5-mile radius of the project are included in the NES (Caltrans 2015d).

Because of a lack of suitable habitat within the BSA, a majority of the special-status wildlife species included in the CNDDB and USFWS lists are not expected to occur onsite. Based on the presence of suitable habitat in the BSA and surveys conducted in support of this project, the five following special-status animal species are known or are considered likely to occur within the BSA: Myrtle's silverspot butterfly, steelhead (*Oncorhynchus mykiss*; Central California Coast distinct population segment [DPS]), California red-legged frog, tricolored blackbird (*Agelaius tricolor*), and American badger (*Taxidea taxus*). Additionally, there is a low potential for coho salmon (*Oncorhynchus kisutch*; Central California Coast Evolutionarily Significant Unit [ESU]), to occur in Scotty Creek. Species protected by the MBTA are also likely to occur within the BSA and are addressed as a group.

Species covered by the MBTA are described further below. For discussions on the Myrtle's silverspot butterfly, steelhead, Central California Coast DPS, coho salmon Central California Coast ESU, California red-legged frog, and tricolored blackbird, refer to Section 2.3.5, Threatened and Endangered Species.

Marine mammals, such as harbor seals (*Phoca vitulina*), do not occur within the BSA and are not expected to be affected by the project. Construction-related noises would be below or similar to existing background levels (Illingworth and Rodkin 2016) and construction-related activities (including staging) would be at a distance and are not expected to flush or otherwise disturb marine mammals. Marine mammals are not discussed further in this document.

Migratory Birds

Under the MBTA and CFGC (Sections 3503–3505, 3513, and 3800), migratory birds, their nests, and eggs are protected from disturbance or destruction. Removal or disturbance of active nests during the project would be in violation of these regulations. Most birds are protected under the MBTA and CFGC except for non-native species that have been introduced into the U.S. or its territories and select other species. For example, two common non-native species, the European starling (*Sturnus vulgaris*) and house sparrow (*Passer domesticus*), are not protected under the MBTA.

Many biological surveys have been conducted in the BSA for the project. Biologists conducted a migratory bird survey in the project area on April 21, 2015, during the migratory bird breeding season, to assess the potential for the site to support nesting bird activity. The survey did not identify any old nests or any bird activity under the double box culverts where one may expect a greater likelihood of nesting activity

(Caltrans 2015d). No nests have been observed within the BSA to date, including during other biological surveys. The following bird species were observed foraging within the BSA in April 2015: great egret, western scrub-jay, European starling, song sparrow, red-winged blackbird, and Brewer's blackbird. Overall, the area is not highly suitable for nesting bird activity. While coastal terrace prairie, northern coastal bluff scrub, and wetlands may provide nesting and foraging habitat, grazing within the BSA reduces the suitability of the area for nesting birds because of the low stature of vegetation and limited vegetative cover.

During the April 2015 survey, a peregrine falcon (*Falco peregrinus*) was observed perched on an offshore rock west of the BSA but no nest was detected (Caltrans 2015d). The peregrine falcon is a fully protected species under state law and take of these species is not authorized. An individual tricolored blackbird, which is a State CESA Candidate, was observed within the BSA in November 2014, but this individual was foraging and no blackbird nests have been observed.

Pelagic (i.e., living in the open ocean) and other seabirds have not been observed and are not expected to occur in the BSA. They do occur along coastal waters and offshore rocks to the west of the proposed project and some species may use these rocks for nesting.

American Badger

American badgers occur throughout the state except for the humid coastal forests of northwestern California. They prefer dry, open grasslands, fields, and pastures (Long 1999). Territory size varies but tends to be about 1 square mile in prime open habitat but can be much larger (closer to 25 square miles) where suitable habitat is more patchy (NatureServe 2016).

Badgers are solitary animals, mainly active at night, and tend to be inactive during the winter months.

Badgers feed primarily on small mammals. They also prey on ground-nesting birds, lizards, amphibians, carrion, fish, insects, and some plant food (Long 1999 and Sullivan 1996). The population is estimated at several hundred thousand in the U.S. and is believed to be threatened by vehicle collisions and conversion of forest and grassland habitat (NatureServe 2016).

The BSA contains coastal terrace prairie and northern coastal bluff scrub, which could potentially be used by the American badger for foraging or denning. A badger

den with scratch markings was observed within the BSA in 2012 and again in 2014 on the terrace at the south end of the BSA. A badger skeleton was observed within the BSA during archaeological surveys conducted in December 2013.

ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

Under the No-Build Alternative, the proposed project would not be implemented. The No-Build Alternative would have minimal effects on animal species. The risk of wildlife vehicle collisions would continue and grazing would continue to affect habitat suitability. Additionally, coastal erosion will continue to alter habitats within the BSA.

Build Alternatives

The potential direct and indirect effects on migratory birds and American badger within the BSA under the three Build Alternatives are discussed below.

Migratory Birds

Construction Phase

Construction of the proposed project (all Build Alternatives) would have direct permanent effects on suitable nesting and foraging habitat for migratory birds. Since the circulation of the Draft EIR/EA, Alternative 19A has been identified as the Preferred Build Alternative and has undergone further refinement of project details. The construction footprint has increased as the project design has progressed. Alternative 19A would convert 6.62 acres (consisting of coastal terrace prairie, ruderal, northern coastal scrub, sandy beach, and wetlands). Alternative 19B would convert a total of 6.77 acres of suitable foraging and marginal nesting habitat, and Alternative 20 would convert 5.29 acres. Direct temporary effects in the form of vegetation clearing and noise disturbance would total approximately 3.27 acres under Alternative 19B, 5.21 acres under Alternative 19A, or 2.86 acres under Alternative 20. These effects are outlined in Tables 2-18 and 2-20.

Based on a bioacoustics analysis conducted in 2016, project construction activities are not expected to affect pelagic birds or other seabirds. Birds are generally not considered to be sensitive to roadway or construction noise unless it is 50 decibels or greater, louder than normal background conditions (Dooling and Popper 2007). Although the rocks and coastal waters are relatively close to the highway, the noise generated from the project would be less than or similar to the background noise of ocean waves (Illingworth and Rodkin 2016).

Pre-construction nesting surveys would be conducted within the BSA prior to project implementation and during the breeding season to identify any active nests and establish construction-free buffer zones until the nests are no longer active. As a result, direct effects (e.g., nest abandonment, nest destruction, or bird mortality) to migratory birds are not anticipated during project implementation.

Operation Phase

The operation of the proposed project is not expected to affect nesting birds, as use of the new roadway and access roads is not expected to reduce the number of nesting locations or result in birds flushing from their nests.

American Badger

Construction Phase

Construction of the proposed project (all Build Alternatives) would permanently affect up to 6.1 acres of suitable coastal terrace prairie habitat and 0.4 acre of northern coastal bluff scrub, which would reduce the amount of space available for badger foraging and denning activities. The new roads would further fragment the area, reducing the overall value to the species. This would have a permanent direct effect on the badger.

Construction activities such as initial site preparation, use of heavy equipment for cutting and filling and excavation and backfill activities could have a temporary direct effect on the badger, potentially displacing the badger during construction.

Construction could also result in the injury or fatality of a badger. However, the badger's large territorial requirements and the BSA's location on the coast make it unlikely that there is a high density of badgers that would occur in or disperse through the BSA. The presence of a biological monitor would further reduce the probability of such an encounter.

Operation Phase

The project could result in indirect operational effects on the badger. Following construction, vehicle traffic on the new SR 1 alignment at grade level, and along access roads, could result in American badger fatalities. The position of the new SR 1 roadway (with the exception of the bridge) and access roads between patches of grassland could increase the likelihood of a badger being hit by a motor vehicle. However, as stated earlier, the BSA only supports a limited number of badgers and vehicular traffic in this area is lowest in the evening when badgers are most active. Therefore, no population-level effect is expected. All Build Alternatives would have a minimal effect on the American badger.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Migratory Bird Treaty Act Species/American Badger

The avoidance and minimization efforts described in Section 2.3.1, such as Measure BIO-2, ESA Fencing, would reduce effects to migratory birds and American badgers during project construction, as will the following additional AMMs:

- **Measure BIO-6: Worker Environmental Awareness Training.** A resource agency-approved biologist will conduct an employee environmental awareness training for all construction employees. All construction crews will be required to attend a presentation that addresses listed and special-status species that have the potential to occur within the project limits, AMMs, terms of the biological opinion and project permits, ESAs, and other related matters. Upon completion of training, employees will sign a form stating that they attended the training and understand all the conservation and protection measures. Project employees will be provided with written guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.
- **Measure BIO-7: Pre-construction Wildlife Surveys.** A qualified biologist will conduct pre-construction surveys for special-status wildlife species no more than 72 hours prior to the installation of fencing and no more than 2 weeks prior to ground disturbing activities. If an active badger den or bird nest is found, a qualified biologist in conjunction with the resource agencies, will determine the appropriate buffer size and delineate the buffer zone using methods such as ESA fencing, visual screens, yellow caution tape, etc. Construction within the buffer zone will be prohibited until the qualified biologist determines the den or nest is no longer active. If establishment of the buffer around any badger den or bird nest is not feasible, the agencies will be contacted for further avoidance and minimization guidelines. General pre-construction surveys will also be conducted by an agency-approved qualified biologist prior to installing fencing and (no more than 2 weeks before) initial ground disturbing activities in a given area for all life stages of the California red-legged frog, the Myrtle's silverspot butterfly, and the butterfly's host plant western dog violet (*Viola adunca*). Surveys will also be conducted no more than 1 day before initial ground-disturbing activity of any western dog violet. Larvae will be avoided where possible.
- **Measure BIO-8: Biological Monitoring.** A Caltrans- and resource agency-approved, qualified biological monitor shall be assigned to the project. The biological monitor will be onsite to monitor all initial ground-disturbing activities

during project construction and restoration activities and other actions that may reasonably result in a “take” of the listed species. At a minimum, the USFWS-approved biologist will visit the project site weekly to assess compliance with the Biological Opinion. The biologist will perform a clearance survey and mark any badger dens and active bird nests during the nesting season for avoidance, as feasible. The USFWS-approved biologist will have the authority to halt work through coordination with the Resident Engineer.

2.3.5 Threatened and Endangered Species

REGULATORY SETTING

The primary federal law protecting threatened and endangered species is the FESA (16 USC 1531, et seq.; see also 50 CFR 402). This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as FHWA, are required to consult with USFWS and NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take Statement, a Letter of Concurrence, or documentation of a No Effect Finding. Section 3 of FESA defines “take” as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

California has enacted a similar law at the state level—CESA (CFGC Section 2050, et seq.). CESA emphasizes early consultation to avoid potential effects to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. CDFW is the agency responsible for implementing CESA. Section 2081 of the CFGC prohibits take of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the CFGC as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA allows for take incidental to otherwise lawful development projects; for these actions, an Incidental Take Permit is issued by CDFW. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, CDFW may also

authorize effects to CESA species by issuing a Consistency Determination under Section 2080.1 of the CFGC.

Another federal law—the Magnuson-Stevens Fishery Conservation and Management Act of 1976—was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (1) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (2) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

AFFECTED ENVIRONMENT

The following analysis is based on the NES (Caltrans 2015d), rare plant surveys (Caltrans 2014f), Myrtle’s silverspot butterfly surveys (Entomological Consulting Services, Ltd. 2011 and Arnold 2014), and California red-legged frog surveys (Jennings 2010). Various agencies have been consulted on the project to discuss environmental resources and permitting needs at the project location. Table 4-1 in Chapter 4 summarizes the agency and professional personnel who were consulted in the process of conducting field studies and preparing the NES and environmental document.

Tables D-1 and D-2 (Appendix D) list the special-status plant and wildlife species considered in this analysis and their potential to occur within the BSA based on habitat suitability and geographic range. These species tables were compiled based on the following databases and coordination: USFWS and NMFS species lists for the USGS Duncan Mills 7.5-minute quadrangle and Sonoma County (USFWS 2016a and NMFS 2016; see Appendix I); the CNDDDB (CDFW 2016a) and Biogeographic Information and Observation System (BIOS; CDFW 2016b); Special Animals List, Natural Heritage Division (CDFW 2016c); CNPS Online Inventory of Rare and Endangered Plants (CNPS 2016); field surveys; and discussions and communications with resource agency personnel and with local biological experts. These species lists and species tables have been updated routinely during development of this Final EIR/EA with FONSI to remain current.

There were no federal- or state-listed plant species observed within the BSA. There is no critical habitat for listed plants within the BSA. Because of a lack of suitable habitat within the BSA and nearby source populations and because none were found

during protocol-level rare plant surveys of the BSA, federal- or state-listed plant species are not expected to occur in the proposed project BSA.

The Myrtle's silverspot butterfly, California red-legged frog, and tricolored blackbird are known to occur within the BSA. Scotty Creek is known to support steelhead (Central California Coast DPS) and the species is considered present in the BSA. Coho salmon (Central California Coast ESU) have been identified at Scotty Creek and have a potential to occur in the BSA. These five species are discussed below.

Caltrans has conducted formal consultation with USFWS, and submitted a Supplemental Biological Assessment dated February 2016 (Caltrans 2016). The Amended Biological Opinion was received on May 24, 2016, and a copy is found in Appendix K. This consultation is pursuant to Section 7 of FESA to obtain take coverage for the Myrtle's silverspot butterfly and the California red-legged frog. Project effects to steelhead and coho salmon will be covered under a Programmatic Biological Opinion between NMFS and Caltrans (NMFS 2013). CDFW may also be consulted for effects to coho salmon.

Myrtle's Silverspot Butterfly

The Myrtle's silverspot butterfly was listed as an endangered species on June 22, 1992 (USFWS 1992). There is no federally designated critical habitat for this species. A recovery plan for the butterfly was finalized on September 29, 1998 (USFWS 1998).

Adult butterflies emerge from their pupae between mid-June and mid-July and live up to 5 weeks. Adult emergence is typically from mid-June through August. Females lay single eggs solely on the dried leaves and stems of the species' host plant, western dog violet. Caterpillars emerge from eggs a few weeks after being laid and crawl a short distance into the surrounding foliage or litter and spin a silk web where they spend the fall and winter. In the spring, the caterpillar finds a nearby western dog violet and begins feeding for 7 to 10 weeks, and then forms a pupal chamber out of leaves and silk. Adults emerge from the pupal chamber after about 2 weeks (USFWS 2009).

Typical habitats supporting the Myrtle's silverspot butterfly and its host plant include coastal dunes, coastal scrub, or coastal prairie at elevations ranging from sea level to 1,000 feet and as far as 3 miles inland (USFWS 1998). Critical factors in the distribution of the Myrtle's silverspot butterfly include the presence of the larval host plant, western dog violet; availability of nectar sources for adults; and shelter from

wind. The Myrtle's silverspot butterfly has been observed obtaining nectar from a variety of plants, including bull thistle (*Cirsium vulgare*), Italian thistle, gumweed (*Grindelia* sp.), seaside daisy, mule ears (*Wyethia* sp.), common yarrow, California goldenrod (*Ericameria ericoides*), and hairy cat's ear (*Hypochaeris radicata*) (USFWS 2009). Surveys of Point Reyes National Seashore found high concentrations were associated with locations protected from the frequent winds, or with areas supporting large numbers of plants that potentially provide nectar (Launer et al. 1992).

During the 2010 and 2011 rare invertebrate surveys of the BSA, entomologist Dr. Richard Arnold observed two adult Myrtle's silverspot butterflies and suitable larval habitat (Entomological Consulting Services, Ltd. 2011). One adult female was observed on August 23, 2011, at four locations within and immediately east of the BSA. It was first observed exhibiting egg-laying behavior at an iris patch. It repeated this behavior at two other iris patches as it flew north and then east (Entomological Consulting Services, Ltd. 2011).

Foraging habitat was observed throughout the BSA. One adult male was observed foraging on August 5, 2011, along the bluff overlooking the ocean in the west-central portion of the BSA. It was seen feeding on seaside daisy nectar. Seaside daisy grows at several locations in the western portion of the BSA, especially on the coastal bluffs and adjacent to SR 1. Based on the observations of two adult butterflies, it appears that a population of the endangered butterfly is using the coastal terrace prairie and bluff habitats within and adjacent to the BSA for larval and adult foraging.

The larval host plant (western dog violet) was observed growing at widely scattered and patchily distributed locations within the coastal terrace prairie habitat within the BSA. The violet was primarily found growing in patches of Douglas iris, secondarily in the open, grazed prairie, and less frequently among various sedges (*Carex* spp.) or rushes (*Juncus* spp.). The BSA also provides some shelter from the coastal winds due to its topography. The attributes, larval habitat, foraging habitat, and screening are important components to habitat quality and suitability for the species (Launer et al. 1992).

Additionally, in 2014, Dr. Arnold surveyed for the presence of western dog violet patches beyond the BSA to inform potential mitigation options and potential project effects. Patches of the violets were observed north of the BSA and outside the project limits. These are the largest and highest-density patches of western dog violets that

Dr. Arnold has observed to date (R. Arnold, pers. comm. 2014). This area also provides shelter and nectar plants. The area provides high quality butterfly habitat and may support relatively high larvae survivorship given the density of the violets.

Coho Salmon

The Central California Coast coho salmon ESU was listed as federally threatened on October 31, 1996, and later elevated to endangered status on June 28, 2005 (NMFS 2005). The species was state listed as threatened in August 2002 (CDFW 2015). The coho ESU includes all naturally spawned populations of coho salmon from Punta Gorda in northern California south to and including the San Lorenzo River in Central California, as well as populations in tributaries to San Francisco Bay, excluding the Sacramento-San Joaquin River system.

In California, the coho ESU population is the southernmost population of the species, and as such has adapted to the extreme conditions of coastal streams at these latitudes. Coho require cool, deep pools with clean, cool flowing water with sufficient dissolved oxygen, and minimal turbidity for successful holding, spawning, incubation, and rearing.

Adult coho in smaller, short coastal streams, such as Scotty Creek, typically enter freshwater in late fall and winter (mid-November through mid-February) with peak migration occurring January through February (Moyle 2002).

Overhead cover is an important habitat component for coho salmon as a means of avoiding predation.

Coho are widely distributed along the Central California Coast, occupying streams and rivers, including the lower main stem and the South Fork of the Eel River in the north, the coastal streams and the Russian River watershed in the middle of its range, south to coastal creeks, and the San Lorenzo River in Santa Cruz County.

Coho salmon presence/absence surveys have not been conducted as part of this project. In a stream survey conducted in March 1965, CDFW personnel found coho salmon in Scotty Creek (CDFW 1965). CDFW personnel reported that coho salmon spawning was successful and the physical condition of the juveniles was good. They reported that overall, the numbers of juvenile coho salmon appeared to outnumber steelhead/rainbow trout (also *O. mykiss*). More recently, in an email to Caltrans, NMFS confirmed that Scotty Creek historically supported coho salmon (Walsh, pers. comm. 2009) and coho were observed in the creek in 2004 (CDFW 2015e).

Additionally, CDFW has released captive-reared coho and they are being reintroduced to Salmon Creek about 2.2 miles to the south (Gold Ridge RCD 2010), which may increase the potential for coho to occur within Scotty Creek.

If present in Scotty Creek, coho salmon are unlikely to occur within the BSA during the proposed project in-water work window (summer dry season). Site conditions limiting the potential for coho to occur within the BSA during this time include the following:

- The lower channel is often dry or reduced to low levels during summer.
- Overhead cover is limited within the BSA.
- The general in-stream habitat quality is poor in part due to the effects of cattle grazing (e.g., by trampling of the streambank and degrading water quality with sediment and nitrogenous wastes).
- The lagoon within the BSA is dynamic and is either dry in summer or small and shallow with high water temperatures.

These conditions could preclude coho presence within the BSA throughout the summer (J. Casagrande, pers. comm. 2013).

For the purposes of this project and environmental permitting, Caltrans has inferred presence of coho in the BSA based on the historic presence of the species in Scotty Creek.

Critical habitat for this species has been designated to include all river reaches accessible to listed coho salmon from Punta Gorda in northern California south to the San Lorenzo River in Central California, including the Bodega Bay Hydrological Unit, which is the unit where Gleason Beach is located. Accessible reaches (NMFS 1999) are defined as those within the historical range of the ESU that can still be occupied by any life stage of coho salmon (NMFS 1999). Scotty Creek meets the definition of critical habitat for this species (NMFS 1999).

Essential fish habitat (EFH) is defined as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (Pacific Fishery Management Council [PFMC] 2000). Scotty Creek within the BSA is designated as EFH for coho salmon. Freshwater EFH for coho salmon consists of four major components: spawning and incubation, juvenile rearing, juvenile migration corridors, and adult

migration corridors and adult holding habitat (Pacific State Marine Fisheries Commission 1996). Important features of essential habitat for spawning, rearing, and migration include: adequate substrate composition; water quality; water quantity, depth and velocity; channel gradient and stability; food; cover and habitat complexity; space; access and passage; and flood plain and habitat conductivity (Pacific State Marine Fisheries Commission 2000).

The primary EFH components for coho salmon within the BSA are juvenile rearing habitat, juvenile migration corridors, and adult migration corridors.

Central California Coast Steelhead

Central California Coast steelhead are federally listed as threatened. Steelhead are known from the Central California Coast including the Russian River watershed in the north and south to creeks within Santa Cruz County (e.g., Aptos Creek) (NMFS 2006). They are also known from watersheds draining into the San Francisco, San Pablo, and Suisun bays. This DPS includes steelhead from coastal watersheds of Sonoma County including Scotty Creek in the BSA. The Central California Coast steelhead DPS includes all naturally spawned anadromous populations below natural and human-made impassable barriers in California streams from the Russian River (inclusive) to Aptos Creek (inclusive), and the drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chipps Island (at the confluence of the Sacramento and San Joaquin Rivers). It excludes the Sacramento-San Joaquin Basin.

Habitat requirements are similar to that for coho salmon, in that they require cool, clean flowing water with sufficient dissolved oxygen and minimal turbidity for successful incubation and rearing.

CDFW biologists found Scotty Creek to be an excellent salmonid spawning and nursery stream throughout its total length during a 1965 survey. The Fish Passage Assessment Database, an online inventory of known and potential barriers to anadromous fish in California, indicated there is a natural limit to salmonid anadromy approximately 2 miles upstream of its confluence with the ocean.

A Caltrans fisheries biologist conducted a reconnaissance survey of Scotty Creek within the BSA on February 2, 2011, and determined that habitat conditions in Scotty Creek within the project footprint have likely degraded since the 1965 and 1968 CDFW surveys (Hamaker, pers. comm. 2011). At the time of the 2011 reconnaissance habitat survey, the channel banks in the proposed project area were unstable and sloughing into the active channel, especially from the south bank.

Furthermore, the bottom substrates in the vicinity appeared to contain a significant volume of fine materials (silt and sand). Cattle grazing along the creek has damaged the banks and resulted in a generally degraded quality of the channel in the project footprint (Hamaker, pers. comm. 2011). However, current habitat conditions within Scotty Creek likely provide migration habitat suitable for steelhead adults and juveniles, as well as fry and juvenile dispersal and rearing habitat.

Steelhead critical habitat designations do not apply to this proposed project. NMFS designated final critical habitat for steelhead on September 2, 2005 (NMFS 2005). These designations became effective on January 2, 2006. The counties included in the designated critical habitat for steelhead include Lake, Mendocino, Sonoma, Napa, Marin, San Francisco, San Mateo, Santa Clara, Santa Cruz, Alameda, Contra Costa, and San Joaquin. Critical habitat includes Bodega Hydrologic Unit 1115. However, within the Bodega Hydrological Unit, critical habitat for steelhead does not include Scotty Creek (NMFS 2005). Thus, there is no critical habitat for steelhead within the BSA.

This DPS does not have designated EFH (NMFS 2015).

California Red-legged Frog

The California red-legged frog was federally listed as a threatened species under FESA on May 23, 1996 (USFWS 1996). California red-legged frogs predominately inhabit permanent water sources such as streams, lakes, marshes, natural and human-made ponds, and ephemeral drainages in valley bottoms and foothills up to 4,900 feet in elevation (Jennings and Hayes 1994, Bulger et al. 2003, and Stebbins 2003). Breeding aquatic habitat consists of virtually all low-gradient freshwater (less than seven parts per thousand salinity) bodies. This includes natural and human-made (stock) ponds; slow-moving streams and creeks; pools within streams, marshes, and lagoons; and other ephemeral or permanent water bodies that typically become inundated during winter rains and hold water for 20 weeks or more in all but the driest of years (USFWS 2008 and 2010).

Surveys and database searches have identified that the California red-legged frog occurs along Scotty Creek within the BSA, and at Salmon Creek within adjacent watersheds (CDFW 2016a). In 2005, one deceased individual was observed about 1,100 feet upstream of the BSA on Scotty Creek (CDFW 2016a). Caltrans biologists observed the species in Scotty Creek within the BSA during a site visit in September 2011, and two California red-legged frog egg masses were observed at the same location on March 21, 2012 (Weisman 2012).

The BSA contains suitable upland habitat and aquatic breeding/dispersal habitat for the California red-legged frog (Figure 2-31 and 2-32). Since the circulation of the Draft EIR/EA, Alternative 19A has been identified as the Preferred Build Alternative and has undergone further refinement of project details.

The upstream riparian corridor provides higher quality breeding habitat with dense riparian vegetation and more suitable stream conditions (i.e., greater streambed complexity, it is not grazed and does not contain exposed, steep incised banks). California red-legged frog breeding habitat in the BSA is limited to Scotty Creek. The section of Scotty Creek within the BSA is considered breeding habitat but is highly eroded, has no riparian vegetation and little emergent vegetation, and is vulnerable to flooding and high-velocity stream flow. An important habitat feature/condition that is not found in the BSA is a slow-moving stream or deep-pool within the creek with emergent vegetation or other material for egg masses to attach (USFWS 2010). No cover is present adjacent to Scotty Creek, leaving the frogs vulnerable to predators (e.g., great egret, raccoon, and opossum). The rest of the BSA consists of potential upland habitat, though the area north of the leach field is less likely to support dispersing red-legged frogs because it does not connect to breeding habitat (Jennings 2010).

The project BSA is not within critical habitat for the California red-legged frog (USFWS 2010). The closest critical habitat unit is located approximately 14 miles south of the BSA in Marin County (Unit Marin 1). Three critical habitat units are located in eastern Sonoma County; however, they are a greater distance away than the unit in Marin. The BSA is also not within the Recovery Plan's designated Core Areas, where recovery actions are focused (USFWS 2002). The Sonoma County LCP also identifies a California red-legged frog ESHA along Scotty Creek.

Tricolored Blackbird

The tricolored blackbird is a candidate species as of December 2015 under the California Endangered Species Act (CDFW 2016c) and is afforded the same protection as a listed species for one year while it is being reviewed.

The species is mostly endemic to California with a few individuals known to occur in Oregon (Neff 1937, Marshall et al. 2003), Washington (Wahl et al. 2005), and Nevada (Ammon and Woods 2008) and into northern Baja California (Erickson et al. 2007 and 2008, Beedy 2014). The tricolored blackbird is known to form dense nesting colonies and typically begins nesting in mid-to-late March. The diet of the species is highly varied, and the bird can forage over a wide area, up to 5 miles away

from the colony. Birds may eat caterpillars, insects, particularly grasshoppers, aquatic insect larvae in wetlands and rice paddies, and grains associated with dairies (Beedy 2014).

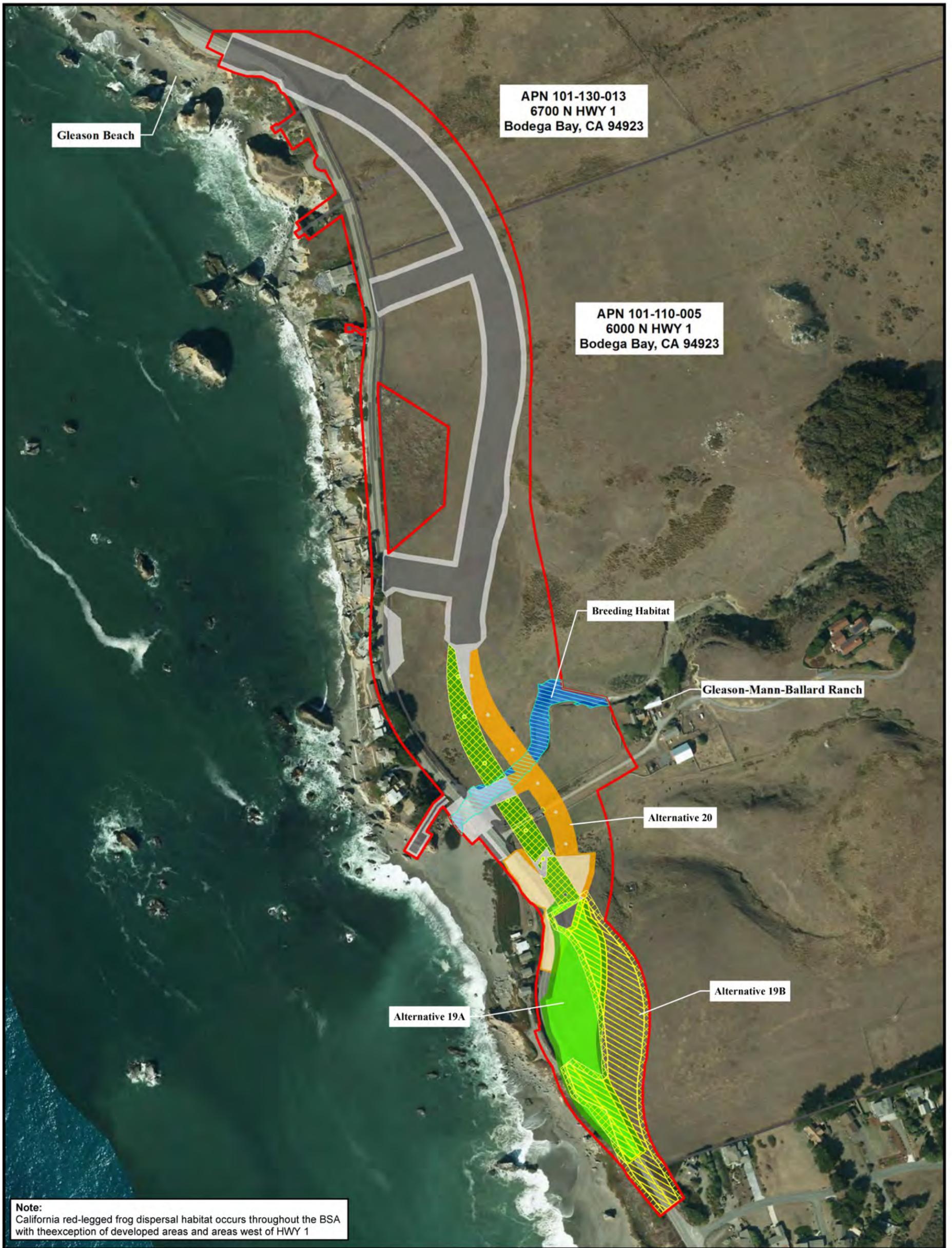
Tricolored blackbirds have been recorded nesting in various locations, but flooded or armored sites are the most common. Historically, marshes with dense, emergent vegetation such as cattails and willows were used most often. Sites with thistles, blackberries, and mustards and grain fields where triticale is grown (wheat and rye hybrid) are common nesting sites today. The nearest CNDDDB occurrence for this species is over 5 miles from the BSA. However, Caltrans biologists observed one individual perched upon a fence post near Scotty Creek during a survey conducted on November 5, 2014. This field survey was conducted for another project and included multiple stops along the Marin and Sonoma coasts. Multiple observations of the tricolored blackbird have also been recorded in the general vicinity of the BSA in eBird, an online observation system operated by the Cornell Lab of Ornithology and Audubon (2015). Although present in the BSA, the area is unlikely to support suitable nesting habitat for this species.

Threats to the species include the incidental loss of individuals when farmers cull red-winged blackbirds impacting grain fields, low insect abundance, overuse of pesticides, and general habitat loss as a result of water diversion and the draining of wetlands and land conversion resulting from urbanization and agriculture (Meese 2014, Beedy 2014).

ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

Under the No-Build Alternative, the proposed project would not be implemented. The No-Build Alternative would have minimal effects on federally or state listed species, such as continued collisions with motor vehicles. Additionally, coastal erosion will continue to alter habitats within the BSA.



Note:
California red-legged frog dispersal habitat occurs throughout the BSA with the exception of developed areas and areas west of HWY 1

LEGEND

- Biological Study Area (BSA)
 - Scotty Creek
 - California Red-Legged Frog Breeding Habitat
- California Red-legged Frog Habitat Effects**
- | | |
|--|--|
| Alternative 19A | Alternative 20 |
| Permanent | Permanent |
| Temporary | Temporary |
| Alternative 19B | All Alternatives |
| Permanent | Permanent |
| Temporary | Temporary |

	Acreage	
	Temporary Effect	Permanent Effect
Alternative 19A		
Dispersal Habitat	3.41	6.40
Breeding Habitat	0.22	0.00
Total	3.63	6.40
Alternative 19B		
Dispersal Habitat	3.66	6.80
Breeding Habitat	0.22	0.00
Total	3.88	6.80
Alternative 20		
Dispersal Habitat	3.13	5.51
Breeding Habitat	0.29	0.00
Total	3.42	5.51

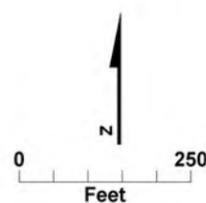
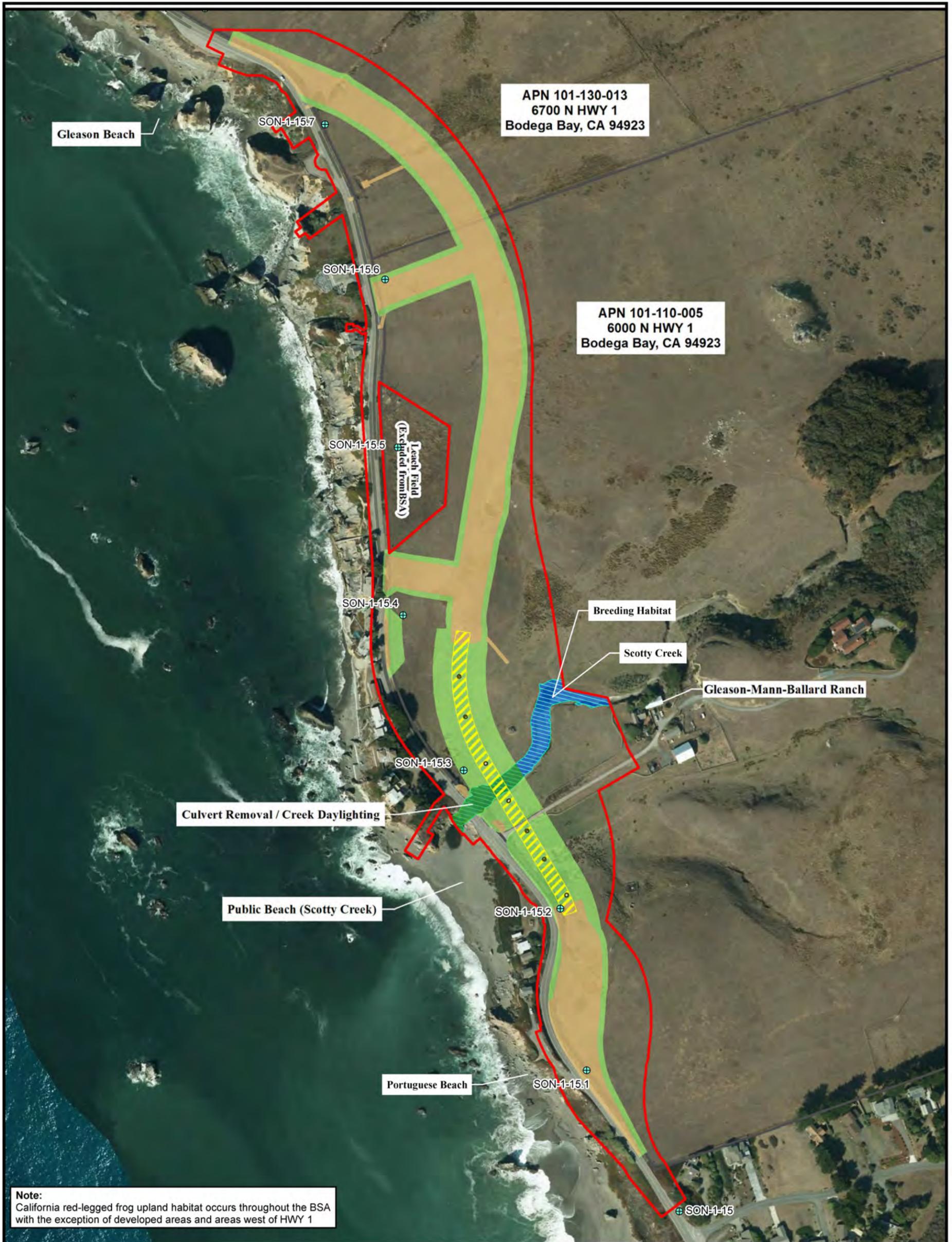


FIGURE 2-31
PROJECT EFFECTS ON CALIFORNIA RED-LEGGED FROG HABITAT BY ALTERNATIVE
Gleason Beach Roadway Realignment Project
Environmental Impact Report /
Environmental Assessment
State Route 1
Post Mile 15.1-15.7, EA 0A0200
Sonoma County, California



Note:
California red-legged frog upland habitat occurs throughout the BSA with the exception of developed areas and areas west of HWY 1

LEGEND

- Biological Study Area (BSA)
- Parcel
- Bridge Pilling
- Scotty Creek
- California Red-Legged Frog, Breeding Habitat
- Permanent Habitat Loss (6.40 acres)**
- Upland Habitat (6.40 acres)
- Temporary Habitat Loss (5.08 acres)**
- Breeding Habitat (0.26 acre)
- Upland Habitat (4.82 acres)

Note: Since the circulation of the Draft EIR/EA, Alternative 19A was identified as the Preferred Build Alternative and has been further refined and analyzed.

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

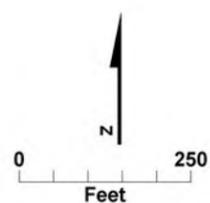


FIGURE 2-32
PROJECT EFFECTS ON
CALIFORNIA RED-LEGGED FROG
HABITAT ALTERNATIVE 19A
Gleason Beach Roadway Realignment Project
Environmental Impact Report /
Environmental Assessment
State Route 1
Post Mile 15.1-15.7, EA 0A0200
Sonoma County, California

Build Alternatives

Myrtle’s Silverspot Butterfly

Construction Phase

The Myrtle’s silverspot butterfly may be subject to direct adverse effects including harassment, harm, injury, or mortality as a result of construction activities.

Construction activities that could directly affect this species include initial site preparation, use of heavy equipment for cutting and filling, excavation and backfill activities, and handling of stockpiles and stored materials (i.e., construction staging).

Construction would also have temporary effects on the species’ habitat. Project grading and drainage work could also indirectly affect the growth and survival of the Myrtle’s silverspot butterfly’s larval host plant within this area, because of changes in hydrology and land use. Habitat effects are summarized in Table 2-22 by acreage according to habitat type.

Table 2-22 Project Effects on Myrtle’s Silverspot Butterfly Habitat

Habitat Type	Build Alternatives Effects (acreage)					
	Alternative 19A		Alternative 19B		Alternative 20	
	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
Larval Habitat	0.00	0.13	0.02	0.06	0.01	0.02
Foraging Habitat	4.57	7.29	4.15	6.91	3.57	5.68

Alternative 19A was identified as the Preferred Build Alternative and has been further analyzed to address the effects of construction activity on the Myrtle’s silverspot butterfly. The project would result in direct and indirect permanent effects on approximately 0.13 acre of larval habitat based on current plant survey findings. Larval habitat loss would occur as a result of roadway construction and potential changes in the grazing regime between the existing and proposed alignment. The project would result in direct effects on up to 7.29 acres of surrounding foraging habitat (Figures 2-33 and 2-34). This would be due to roadway construction and the potential loss of habitat suitability under the bridge due to shade, which the butterflies may avoid. This loss is considered substantial because the area provides the species’ key habitat factors (the larval host plant, foraging habitat, and protection from winds) and is known to support the species. Foraging habitat is not rare, but is valuable within the BSA because of its proximity to the larval host plant.

Operation Phase

The operation of the proposed project (all Build Alternatives) would diminish the value of larval and foraging habitat within the proposed project area because of potential degradation and loss of violets and nectar plants. The proposed project (all Build Alternatives) may indirectly lead to adverse effects due to injury and/or mortality due to roadway collisions once the new roadway is open to motorists, as the roadway would be closer inland and would bisect habitat occupied by Myrtle's silverspot butterfly more than the existing condition.

The project would diminish the suitability of the project site to support the Myrtle's silverspot butterfly and may reduce the size or extent of the local population. Little is known about the species' occurrences and population size, and only four populations have been documented in the scientific literature. The project may substantially affect this species. The loss of butterfly habitat would be mitigated through the enhancement of suitable habitat at a minimum of a 1:1 ratio. The mitigation compensates for project effects by improving habitat values for the species within dispersal distance of the BSA. This mitigation measure (BIO-B) is described below in the Avoidance, Minimization, and/or Mitigation Measures section.

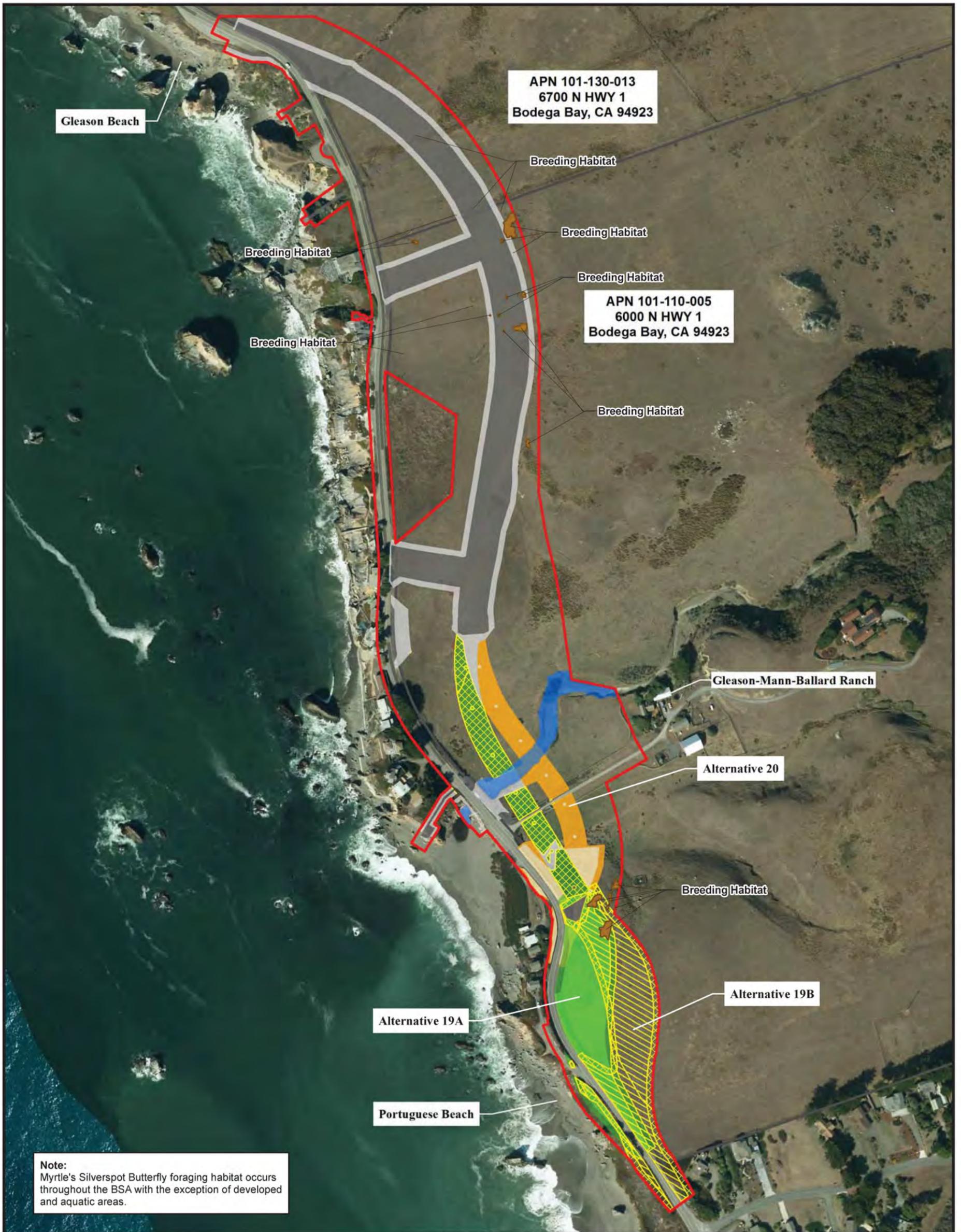
In summary, the project "may affect, and is likely to adversely affect," the Myrtle's silverspot butterfly. Project effects are covered under USFWS's Amended Biological Opinion (USFWS 2016b) (a copy is included in Appendix G).

Coho Salmon and Steelhead

Construction Phase

Construction of the proposed project (all Build Alternatives) would result in temporary and permanent effects to coho salmon. A summary of potential project-related effects on coho and steelhead and their habitat is shown in Table 2-23.

Table 2-24 provides additional details on the temporary and permanent effects on coho and steelhead habitat.



Note:
Myrtle's Silverspot Butterfly foraging habitat occurs throughout the BSA with the exception of developed and aquatic areas.

LEGEND		Disturbance Area for all Alternatives	
	Biological Study Area (BSA)		Permanent
	Myrtle's Silverspot Butterfly Breeding Habitat (Western Dog Violet)		Temporary
	Scotty Creek		
Myrtle's Silverspot Butterfly Habitat Effects			
Alternative 19A			
	Permanent		
	Temporary		
Alternative 19B			
	Permanent		
	Temporary		
Alternative 20			
	Permanent		
	Temporary		

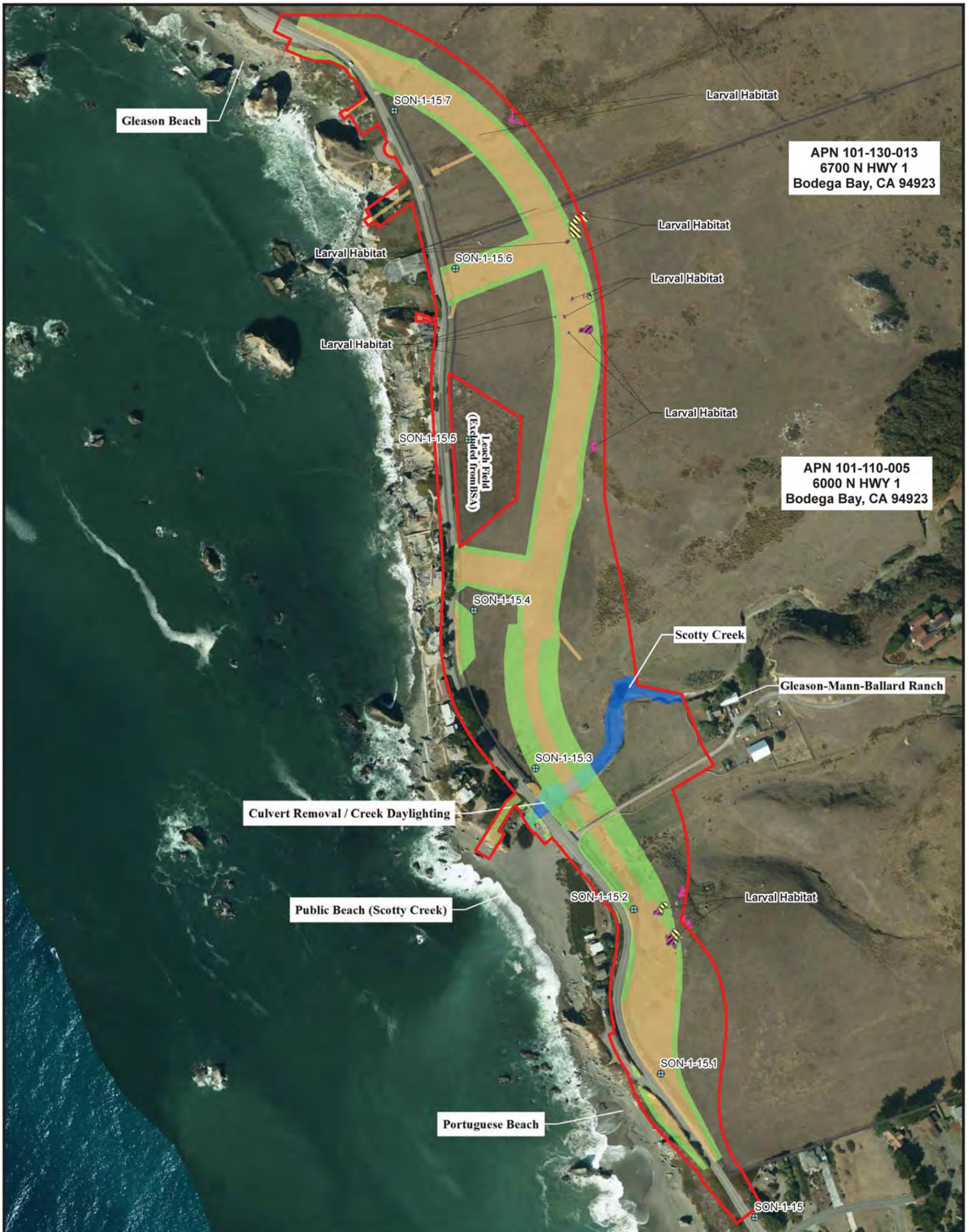
	Acreage	
	Temporary Effect	Permanent Effect
Alternative 19A		
Foraging Habitat	3.86	6.56
Breeding Habitat	0.03	0.04
Alternative 19B		
Foraging Habitat	4.15	6.91
Breeding Habitat	0.02	0.06
Alternative 20		
Foraging Habitat	3.57	5.68
Breeding Habitat	0.01	0.02

0 250

Feet

N

FIGURE 2-33
PROJECT EFFECTS ON MYRTLE'S SILVERSPOT BUTTERFLY HABITAT BY ALTERNATIVE
Gleason Beach Roadway Realignment Project
Environmental Impact Report /
Environmental Assessment
State Route 1
Post Mile 15.1-15.7, EA 0A0200
Sonoma County, California

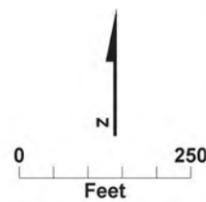


LEGEND

- Biological Study Area (BSA)
- Parcel
- Scotty Creek
- Myrtle's Silverspot Butterfly Larval Habitat (Western Dog Violet, *Viola adunca*)
- Indirect Permanent Habitat Loss (0.09 acre)**
- Larval Habitat (0.09 acre)
- Direct Permanent Habitat Loss (7.33 acres)**
- Larval Habitat (0.04 acre)
- Foraging Habitat (7.29 acres)
- Temporary Habitat Loss (4.57 acres)**
- Larval Habitat (0.00 acre)
- Foraging Habitat (4.57 acres)

Note: Since the circulation of the Draft EIR/EA, Alternative 19A was identified as the Preferred Build Alternative and has been further refined and analyzed.

Note: Myrtle's Silverspot Butterfly foraging habitat occurs throughout the BSA with the exception of developed and aquatic areas.



**FIGURE 2-34
PROJECT EFFECTS ON
MYRTLE'S SILVERSPOT
BUTTERFLY HABITAT
ALTERNATIVE 19A**

Gleason Beach Roadway Realignment Project
Environmental Impact Report / Environmental
Assessment
State Route 1
Post Mile 15.1-15.7, EA 0A0200
Sonoma County, California



Table 2-23 Project Effects on Coho Salmon and Steelhead

Project Element	Potential Effects on Coho/ Steelhead or Their Habitats	Comments
Dewatering and fish relocation	Direct: Harassment, temporary loss of rearing and migration habitat Indirect: None	Dewatering the creek near the new bridge alignment for removal of culverts/grade-control structure would occur during the dry season work window (during low surface water flows and there is a low chance of fish species presence) as determined through coordination with relevant agencies. May involve the need to relocate fish (see AMMs for Steelhead).
Removal of riparian vegetation	Direct: None Indirect: None	No adjacent riparian vegetation is present other than grasses; therefore, no reduction of shade, cover, or vegetation-derived forage contributions would occur.
Demolition of existing culverts/grade-control structure	Direct: Mortality, injury, or harassment Indirect: Long-term improvement of habitat quality and improved fish passage conditions.	Demolition of existing structure would occur during the dry season work window (when surface waters are low and there is a low chance of fish species presence) as determined through coordination with relevant agencies. Long-term benefit from improvement of fish passage.
Bridge construction	Direct: Small minor beneficial effect of additional shade, which would result in lower water temperatures. Indirect: Long-term improvement of habitat quality.	Small incremental beneficial effect from the cooling of Scotty Creek and lower water temperatures as a result of additional shade provided by the bridge deck.

Table 2-24 Project Effects on Coho Salmon and Steelhead Habitat

Effects	Rearing and Migration Habitat Effects	
	Permanent ^a	Temporary
Adverse		
<ul style="list-style-type: none"> • Channel <ul style="list-style-type: none"> - Temporary water diversion required to remove the culverts 	None	Less than 0.1 acre
Beneficial		
<ul style="list-style-type: none"> • Channel <ul style="list-style-type: none"> - Remove culverts/daylight creek 	Less than 0.1 acre	None
<ul style="list-style-type: none"> • Bridge deck <ul style="list-style-type: none"> - Shading 	Less than 0.1 acre	None
Total	Approximately 0.2 acre	Approximately 0.1 acre

Notes:

^a Duration of greater than 2 years is considered permanent.

Direct effects to coho and steelhead are only anticipated from the dewatering/bypass and removal of the concrete box culverts/grade-control structure; minor beneficial effects would result from bridge construction as noted in Table 2-23. It may be necessary to capture and handle coho if present in the Scotty Creek channel. A fish relocation plan would be developed and implemented in coordination with NMFS and CDFW to ensure all fish in the project area are safely removed and relocated to a location outside the work area. Handling of any adult or juvenile coho and steelhead during capture and relocation would constitute “harassment” pursuant to FESA, resulting in “take” of the species. However, implementation of a NMFS/CDFW-approved dewatering and fish capture and relocation plan would minimize the likelihood of injury or mortality to both coho and steelhead.

The estimated area of project effects to coho and steelhead habitat are summarized in Table 2-24. Temporary direct loss of use of both coho and steelhead juvenile rearing habitat and adult and juvenile passage for steelhead in Scotty Creek would result from the installation of the temporary diversion system (Table 2-24). Dewatering is needed for the demolition of the existing culverts/grade control structure. Dewatering would be scheduled to avoid the coho and steelhead migration period and is not expected to interfere with coho and steelhead movement.

Operation Phase

The operation of the proposed project would have a beneficial effect on coho salmon and steelhead habitat. The removal of the concrete culverts/grade-control structure would constitute a long-term beneficial effect to fish passage of both adult and juvenile coho and steelhead.

There would be a permanent direct benefit to adult and juvenile coho and steelhead habitat conditions from the construction of a large bridge deck over the creek. A small increase in shaded stream area would result in an unquantified reduction of water temperatures, which in turn may benefit coho and steelhead habitat quality during warmer seasonal periods.

The removal of the culverts/grade control structure would permanently enhance fish passage and dispersal conditions for adult and juvenile coho and steelhead migrating through the BSA. The proposed project would result in a habitat enhancement for steelhead and coho salmon and would permanently benefit critical habitat for coho salmon.

The temporary loss of foraging and rearing habitat during the water diversion would be offset by the improved access and enhanced creek area. The implementation of proposed measures described below in the Avoidance, Minimization, and/or Mitigation Measures section will also help to offset the temporary loss of salmonid habitat during construction.

The project would not have permanent or substantial adverse effects on EFH for coho salmon. Implementation of the proposed AMMs will further limit the effects to coho. The proposed project would benefit coho EFH by removing the existing road culverts/grade control structure, thus allowing the species to more easily access upstream adult spawning, holding, and incubation and additional juvenile rearing EFH in the Scotty Creek watershed.

In summary, the project “may affect, and is likely to adversely affect,” steelhead and coho salmon. Project effects to coho, coho federally designated critical habitat and EFH, and project effects to steelhead are covered under NMFS’ Programmatic Biological Opinion with Caltrans (NMFS 2013). Caltrans will coordinate with CDFW to evaluate potential effects on coho salmon. A 2081(b) Incidental Take Permit may be obtained.

California Red-legged Frog

Construction Phase

Construction of the proposed project (all Build Alternatives) would result in temporary and permanent direct effects on California red-legged frog breeding and upland habitat (Figure 2-31). Individuals may also be affected during construction-related activities if present in refugia within the active work area and through handling efforts, if relocation is necessary. Project effects to frog habitat from the Build Alternatives are summarized in Table 2-25.

Table 2-25 Project Effects on California Red-legged Frog Habitat

Habitat Type	Impact Area (acreage)					
	Alternative 19A		Alternative 19B		Alternative 20	
	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
Breeding	0.26	0.00	0.22	0.00	0.29	0.00
Upland	4.82	6.40	3.66	6.80	3.13	5.51
Total	5.08	6.40	3.88	6.80	3.42	5.51

Since the circulation of the Draft EIR/EA, Alternative 19A has been identified as the Preferred Build Alternative and has been further analyzed to address the effects of construction activity on the California red-legged frog. This project will mostly affect California red-legged frog upland habitat. Most of this habitat is more than 200 feet from Scotty Creek. This falls outside the typical buffer surrounding aquatic habitat that Bulger et al. (2003) noted as the maximum extent for about 90 percent of non-migrating frogs. The project largely avoids effects within 200 feet of the creek through the design of a bridge spanning Scotty Creek and its adjacent wetlands. This design vastly limits the loss of California red-legged frog habitat and reduces the potential take of California red-legged frog during construction because it reduces the amount and intensity of ground work occurring in, and immediately adjacent to, the creek. Additionally, through implementation of seasonal work restrictions to grading in breeding habitat and implementation of AMMs (see Section 2.3.5, Threatened and Endangered Species), direct project effects to breeding habitat during the breeding season would be avoided.

The project could result in indirect effects on California red-legged frog breeding habitat because the area upstream of the existing culvert will be subject to tidal intrusion once the culvert is removed. This tidal intrusion would most likely occur during the winter and spring months during storm surges and high tide events. The intrusion of salt water could limit the breeding potential of the lower portion of Scotty Creek following construction. However, it is anticipated that the creek will still support frog breeding at least in some years. Operation Phase

The operation of the proposed project could result in increased frog fatalities due to crossing the newly aligned SR 1 and access roads. These roads do not isolate or separate California red-legged frogs from other breeding habitats and dispersal is not expected past the leach field (Jennings 2010).

Additionally, traffic volumes in the project area are lowest at night when the frog is most active. The area under the bridge will provide enough space for frog movement and dispersal within the project area post-construction. Culverts may also support dispersal under the roadway. Through coordination with USFWS, Caltrans has determined that this project “may affect, and is likely to adversely affect,” the California red-legged frog. USFWS has issued take coverage for this project through issuance of an amended Biological Opinion (USFWS 2016b) (see Appendix K).

Project-related effects to the California red-legged frog and its habitat are considered minimal under NEPA because: (1) overall, the project would not substantially

diminish the habitat values and functions within the BSA to the point that the California red-legged frog would be adversely affected, (2) the affected upland habitat does not provide good refugia in the form of emergent vegetation, riparian vegetation, or underground burrows, and (3) the affected upland habitat does not connect known breeding populations.

Tricolored Blackbird

Construction Phase

If present during construction, this project may result in the flushing or disturbance of individual tricolored blackbirds. Because the project area does not support suitable nesting habitat for the species, Caltrans does not anticipate the need to capture and relocate individuals or remove any nests before or during construction. Therefore, Caltrans does not anticipate construction activities to rise to the level of take under State law; thus, no Incidental Take Permit from CDFW would be needed for coverage of potential project effects on the tricolored blackbird. The BSA would continue to provide suitable foraging opportunities (e.g., insects) for this opportunistic feeder. In other words, the Build Alternatives would have minimal temporary and permanent direct effects on the species.

Operation Phase

The operation of the proposed project is not expected to affect tricolored blackbirds. Roadway use would not preclude the tricolored blackbird from nesting or foraging within the BSA post construction. The project will not affect tricolored blackbird survivorship or the size of its population.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Myrtle's Silverspot Butterfly

The AMMs and Mitigation Measures listed in Section 2.3.2, Wetlands and Other Waters, would reduce the amount of adverse effects on Myrtle's silverspot butterfly during project construction. Other measures including BMPs (see Measure AIR-1: Construction Period Best Management Practices in Appendix F, and Water Quality AMMs WATER-1: SWPPP and WATER-6: Design Pollution Prevention Measures in Section 2.2.2) will reduce the effects of airborne dust generated from construction activities on the Myrtle's silverspot butterfly and its habitat. Other AMMs that will be protective of this species include revegetation (Measure BIO-1), ESA fencing (Measure BIO-2), worker environmental awareness training (Measure BIO-6), pre-construction plant and wildlife surveys (Measures BIO-5 and BIO-7), and biological monitoring (Measure BIO-8). In addition, Caltrans has incorporated the following species-specific AMM and Mitigation Measure into the proposed project to reduce

the number and extent of project-related effects on the Myrtle's silverspot butterfly. These measures reflect the Amended Biological Opinion USFWS issued for the project's effects on the Myrtle's silverspot butterfly (USFWS 2016b).

- **Measure BIO-9: Protection of western dog violet.** The host plant for larval Myrtle's silverspot butterfly will be avoided to the greatest extent possible, and exclusionary fencing will be installed around avoidable plants observed during pre-construction plant surveys per the directions of the qualified biologist. Because western dog violets grow at scattered, patchily distributed locations within the coastal terrace prairie habitat of the BSA, it may not be feasible to completely avoid it. Where the violets cannot be avoided, they will be relocated, if feasible, to suitable habitat outside the project area or at a selected mitigation site.
- **Mitigation Measure BIO-B: Compensatory Mitigation for Myrtle's Silverspot Butterfly.** Caltrans will fund the enhancement of Myrtle's silverspot butterfly habitat onsite to reduce the project's permanent effects (the conversion of occupied Myrtle's silverspot butterfly habitat to hardscape and changes to grazing regime). Caltrans will also fund the enhancement of Myrtle's silverspot butterfly habitat offsite, as needed, to offset the permanent loss of butterfly habitat that will occur as a result of this project, at a minimum of a 1:1 ratio. Caltrans has determined that funding the enhancement of habitat on lands owned by State Parks, as managed or operated by the Gold Ridge or Sonoma Resource Conservation District, is a feasible and effective means of mitigating the project's effects. The enhancement would occur on high quality remnant grasslands within the Sonoma Coast State Park, located within the butterfly's dispersal distance from the project. The enhancement will involve managing invading Douglas-fir (*Pseudotsuga menziesii*) and encroaching shrubs and control of any potential invasive, non-native species that might occur on selected sites. Rapid rotational sheep grazing to remove thatch through the mitigation period is proposed to follow these treatments. Success criteria will include increases in nectar and host species and detections of Myrtle's silverspot butterfly. This mitigation project will provide comparable or superior larval and foraging habitat to compensate for the project's conversion of such habitat. Myrtle's silverspot butterfly mitigation is considered feasible because the abovementioned entities have communicated the ability and interest in providing the enhancement.

During the permitting stage of the project, Caltrans will scope other mitigation options, such as securing conservation easements on private land in areas known to support butterfly habitat. Caltrans will work with USFWS to identify such mitigation options.

Coho Salmon and Steelhead

The AMMs listed in Section 2.3.1, such as Measure BIO-2 (ESA Fencing), will reduce the potential for this project to result in adverse effects on steelhead during project construction. Other measures including Measure AIR-1: Construction Period Best Management Practices in Appendix F, and Water Quality AMMs WATER-1: SWPPP, WATER-2: Temporary Creek Diversion, WATER-3: Stockpile Area, WATER-4: Regional Water Quality Control Board Agreements, WATER-6: Design Pollution Prevention Measures, and WATER-7: Treatment Measures (provided in Section 2.2.2), which are designed to minimize construction pollutants, related dust, and their potential effects, will also be protective of steelhead. In addition, Caltrans will implement the following specific measures for coho salmon and steelhead. These measures reflect the Programmatic Biological Opinion between NMFS and Caltrans for project's effects on coho and steelhead (NMFS 2013).

- **Measure BIO-10: Work Windows.** In-water work will be restricted to a seasonal window when surface water flows are lowest and steelhead are least likely to be present in the project site. The specific work windows will be in accordance with the terms of the NMFS Programmatic Biological Opinion (June 15 to October 15) and as determined during the project's permitting phase. Work within 100 feet of Scotty Creek will be conducted between April 15 and November 15. Work outside this Scotty Creek riparian corridor will be limited to dry weather conditions. On-site work will be limited to daylight hours.
- **Measure BIO-11: Avoid or Minimize Effects to Aquatic Habitat.** Caltrans has designed the bridge such that the bridge columns will be located outside of the ordinary high water mark. This will greatly reduce the potential for the project to adversely affect Scotty Creek and rare aquatic species such as steelhead, coho salmon, and California red-legged frog.
- **Measure BIO-12: Water Diversion Plan.** Caltrans will submit a water diversion plan to the RWQCB, CDFW, and NMFS for review prior to construction, and the approved temporary water diversion system will only be used during the summer months when there is little to no water present in Scotty Creek.

- **Measure BIO-13: Fish Removal and Relocation Plan.** Caltrans will submit a fish removal and relocation plan to CDFW and NMFS for review and approval prior to the installation and operation of the water diversion system.

At this time, Caltrans is not proposing to provide any compensatory mitigation for coho salmon or steelhead because (1) the replacement of the existing structure with a free-span bridge and removal of the existing culverts/grade-control structure would eliminate any fish passage impediments at the project site, and (2) some fill that currently exists near the bridge will be removed, both of which will allow the streambed to meander and more closely resemble its original, natural shape before this section of SR 1 was built. These elements, along with the proposed AMMs specific to these species as well as those identified for wetlands and the California red-legged frog, will result in the project providing a long-term overall net benefit to coho salmon and steelhead and their habitat within Scotty Creek. The CDFW may require Caltrans to mitigate as part of an ITP pursuant to CESA. Caltrans may apply for an ITP for coho salmon following the issuance of the final environmental document for the project and during the project's design phase.

California Red-legged Frog

The AMMs listed in Section 2.3.2 will reduce the potential for this project to adversely affect the California red-legged frog during project construction. Other measures including Air Quality BMP 14-9.2, described in Measure AIR-1: Construction Period Best Management Practices in Appendix F, and Water Quality AMMs WATER-1: SWPPP, WATER-3: Stockpile Area, WATER-6: Design Pollution Prevention Measures and WATER-7: Treatment Measures (provided in Section 2.2.2), which are designed to minimize construction pollutants, related dust, and their potential effects, will also protect this species.

Additional measures beneficial to this species include worker environmental awareness training (Measure BIO-6), biological monitoring (Measure BIO-8), and work windows for in-water work (Measure BIO-10). Design modifications, such as free-spanning Scotty Creek to avoid waters and wetlands, have allowed Caltrans to avoid the locations where the California red-legged frog is most likely to occur (within close proximity to the creek). Furthermore, Caltrans has incorporated the following species-specific AMMs into the proposed project to reduce the amount of project-related effects on the California red-legged frog. These measures reflect the Amended Biological Opinion USFWS issued for the project's effects on the California red-legged frog (USFWS 2016b).

- **Measure BIO-14: Prevention of Wildlife Entrapment.** To prevent the inadvertent entrapment of wildlife, including special-status species, during construction, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day using plywood. If it is not feasible to cover an excavation, one or more escape ramps constructed of earth fill or wooden planks shall be installed. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals. Any equipment or debris left overnight within the action area will be inspected for animals. If at any time a trapped listed animal is discovered, the onsite biologist will contact USFWS by telephone for guidance and relocate the individual.
- **Measure BIO-15: Enhancements to offset Effects to the California Red-legged Frog.** Caltrans will fund habitat enhancements to suitable coastal habitat in Sonoma County, preferentially onsite, to offset the loss of suitable California red-legged frog upland habitat due to the project.

Tricolored Blackbird

The Migratory Bird Treaty Act AMMs apply to this species. No additional measures are required.

2.3.6 Invasive Species

REGULATORY SETTING

On February 3, 1999, President Clinton signed EO 13112 requiring federal agencies to combat the introduction or spread of invasive species in the U.S. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” FHWA guidance issued August 10, 1999, directs the use of California’s invasive species list, maintained by the California Invasive Plant Council, to define the invasive species that must be considered as part of the NEPA analysis for a proposed project.

AFFECTED ENVIRONMENT

Moderate or highly invasive species, as ranked by the California Invasive Plant Council, are distributed within the ruderal and coastal bluff scrub areas of the BSA. All three Build Alternatives would result in the disturbance and removal of moderately invasive plant species (e.g., wild oats, Italian thistle, and dogtail grass)

and highly invasive plant species (e.g., iceplant). No invasive invertebrates and other wildlife species, such as the European starling, may use the BSA opportunistically.

ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

Under the No-Build Alternative, the proposed project would not be implemented. The No-Build Alternative would continue to encourage the spread of invasive species in the BSA through use of SR 1.

Build Alternatives

The following is a discussion of potential direct and indirect, permanent and temporary effects on natural communities within the BSA under the SR 1 Gleason Beach Roadway Realignment Project Build Alternatives.

Construction Phase

The project would result in the disturbance and removal of some areas of moderately invasive plant species (e.g., wild oats, Italian thistle, and dogtail grass) and highly invasive plant species (e.g., iceplant). Construction equipment has the potential to introduce and/or spread new or existing invasive plant species into the BSA during project implementation. Construction of the staircase down to the beach would result in removing coastal bluff scrub and could cause iceplant or other invasive species to spread through the project area because of this disturbance event. However, the likelihood of this is low given the small area of beach that would be affected. Caltrans will include language in the bid solicitation package directing the contractor to use erosion and sediment controls free of invasive species and to hydroseed all disturbed areas with a native seed mix after construction if appropriate for the site conditions and if plants are likely to become established. Examples include seaside daisy, yarrow, and beach strawberry.

The planned minimization measures will help limit the spread of invasive species in the Gleason Beach project area following construction and will comply with EO 13112 during this project. None of the species on the California list of noxious weeds is currently used by Caltrans for erosion control or landscaping.

Operation Phase

The operation of the proposed project is expected to have a minimal effect on the distribution of invasive species within the BSA. The project may increase the area or composition of invasive plants along the new roadway edges where vehicles may introduce non-native species that have a competitive advantage over natives due to

roadway disturbances (dust and trash). However, implementation of the minimization measure described below will limit the spread of invasive plants in other portions of the BSA. The project is not expected to result in an increase in invasive wildlife species.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The AMMs listed in Section 2.3.1 will reduce the potential for the spread of invasive species. Additionally, Caltrans has incorporated the following invasive species-specific AMM into the proposed project:

- **Measure BIO-16: Invasive Species.** In compliance with EO 13112 and FHWA, Caltrans will not use any invasive species for replanting efforts. Caltrans will direct the contractor to dispose of all invasive plant material at an approved location and to inspect equipment regularly for invasive plant material. All borrow material brought onsite for construction will be certified as weed-free. The contractor will be required to inspect construction equipment for invasive plant material and seeds prior to construction, remove and dispose of invasive plants in the project footprint cautiously, and replant the site with fast-growing, non-invasive species. In areas of particular sensitivity (e.g., near drainages), extra precautions will be taken if invasive species are found in or next to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

2.4 Cumulative Impacts

This section provides information regarding past, present, and reasonably foreseeable development projects dating from 2010 onward, which, together with the proposed project, could potentially make a considerable contribution to cumulative environmental impacts in the project area. For this cumulative effects analysis, Caltrans evaluated the effects of recent projects (known within the last 5 years) and those pending or proposed in this study area. The proposed project is evaluated in the context of the various individual projects reviewed for their potential to contribute towards cumulative impacts on resources in the project area. Other planned projects are listed below to identify (1) whether the combined effects from the proposed project and other actions are cumulatively significant and (2) if a cumulatively significant impact is found to exist, whether the SR 1 Gleason Beach Roadway