Revised Final

Initial Study/Mitigated Negative Declaration

for the proposed

Bolinas Lagoon Wye Wetlands Resiliency Project

Public Comment Period: July 5 to August 8, 2023

Prepared by Marin County Parks

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MARIN COUNTY PARKS

OPEN SPACE DISTRICT

This document has been prepared pursuant to the California Environmental Quality Act of 1970, as amended.

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Project Title

Bolinas Lagoon Wye Wetlands Resiliency Project

Lead Agency and Project Applicant

Marin County Open Space District
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San Rafael, CA 94903

Contact Person and Phone Number

Veronica Pearson
Sr. Ecological Restoration Planner
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Parcel Numbers

APN: 188-140-04 (Marin County Open Space District), 188-110-10 (County of Marin)

General Plan Designation

C-AG3 (Agriculture Coastal Zone); C-OS (Open Space Coastal Zone)

Zoning

C-ARP-5 (Agriculture Residential Planned); C-OA (Open Area)

Location

Latitude 37.93400 N; Longitude 122.69856 W
Southwest and southeast of State Route 1/Olema Bolinas Road intersection, Bolinas, Marin County, California

Preparers of the CEQA Document

WRA Environmental Consultants
2169-G Francisco Boulevard E
San Rafael, CA 94901

MITIGATED NEGATIVE DECLARATION

Marin County Environmental Review

Pursuant to Section 21000 et. seq. of the Public Resources Code and Marin County Environmental Impact Review Guidelines and Procedures, a Negative Declaration is hereby granted for the following Project:

Project Name: Bolinas Lagoon Wye Wetlands Resiliency Project

Location: Southwest and southeast of State Route 1/Olema Bolinas Road intersection, Bolinas, Marin County, California

Project Summary: The proposed Project would reconstruct the physical and biological linkages between Lewis Gulch Creek and Bolinas Lagoon by realigning both Olema Bolinas Road and Lewis Gulch Creek to allow space for natural geomorphic and biological processes to occur. The intersection at Olema Bolinas Road and State Route 1 (SR-1) would be moved approximately 150 feet to the south. The new approach to SR-1 would include a bridge over Lewis Gulch Creek that would allow for lateral stream migration and provide a wildlife corridor. Upstream of Olema Bolinas Road, the left bank of Lewis Gulch Creek (eastern side) adjacent to SR-1 would be stabilized using bioengineering. Downstream of Olema Bolinas Road, a new channel would be constructed for Lewis Gulch Creek within the center of the Wye wetland to flow over its former alluvial fan and restore geomorphic processes to the wetland. The Project requires removal of the section of Fairfax Bolinas Road that passes through the Bolinas Wye wetland between SR-1 and Olema Bolinas Road to allow for the realignment of Lewis Gulch Creek and to allow for wetland migration with 8 feet of sea level rise (SLR) and storm surge. Road and restoration work would include tree removal, earthmoving, road and bridge construction, erosion control planting, large woody debris placement (for habitat), non-native species removal, native wetland habitat restoration, and non-native invasive species management.

Project Sponsor: Marin County Parks (MCP), Marin County Open Space District (MCOSD), Marin County Department of Public Works

Finding: Based on the attached Initial Study and without a public hearing, it is my judgment that:

☒ The Project will not have a significant effect on the environment.

☒ The significant effects of the Project noted in the Initial Study attached have been mitigated by modifications to the project so that the potential adverse effects are reduced to a point where no significant effects would occur.

Rachel Reid

Date: June 27, 2023

Rachel Reid
Environmental Coordinator

Based on the attached Initial Study, a Mitigated Negative Declaration is granted.

Date: 6/27/23

Max Korten
Director and General Manager
Marin County Parks and Open Space District

Mitigation Measures:

☐ No potential adverse impacts were identified; and therefore, no mitigation measures are required.

☒ Please refer to mitigation measure in the attached Initial Study.

☒ The potential adverse impacts have been found to be mitigable as noted under the following factors in the Initial Study attached.

The mitigation measures for the potentially significant environmental impacts have been incorporated into the Project and are required as conditions of approval.

Preparation:

This Mitigated Negative Declaration was prepared by Veronica Pearson, Senior Open Space Planner of the Marin County Parks and Open Space District.

The document and the online comment form is available for review on the Marin County Parks website at: marincountyparks.org

II. INTRODUCTION

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared to provide information to the public and decision-makers regarding the scope of the proposed Bolinas Lagoon Wye Wetlands Resiliency Project (Project), the potentially significant environmental impacts which could result from implementation of the proposed Project, and mitigation measures which would reduce potentially significant environmental impacts to a less-than-significant level in compliance with the California Environmental Quality Act (CEQA). This Introduction provides some basic details regarding the proposed Project; a more detailed background and description is presented in subsequent sections.

The purpose of the proposed Project is to restore hydrologic, geomorphic, and ecologic processes in the Bolinas Wye (the Wye) wetlands to improve aquatic, wetland, and upland habitats, as well as maintaining existing transportation access along Olema Bolinas Road for the town of Bolinas during scenarios consisting of up to 5.5 feet of sea level rise (SLR) and a 100-year storm event (8 feet combined). By restoring natural processes to the Bolinas Wye Wetlands and alleviating chronic flooding of Marin County and state roadways, the wetlands and roadways would be more resilient to anticipated SLR through the end of the century. Major goals of the project include reconnecting the lower portion of Lewis Gulch Creek with its historic floodplain and improving anadromous (migrating) fish and amphibian habitat. A complete listing of the defined goals and objectives of the proposed Project is presented in Section IV, Project Need, Purpose, and Objectives.

To accomplish these goals, the proposed Project would remove the westernmost segment of Fairfax Bolinas Road (also known as Crossover Road), realign the intersection of Olema Bolinas Road with State Route 1 (SR 1), and construct a bridge to carry Olema Bolinas Road over the relocated Lewis Gulch Creek channel. The project would also remove invasive plant species and construct a new channel for the lower portion of Lewis Gulch Creek through its historic floodplain, leading to the reestablishment of wetlands within the Wye. A complete description of each major project component is provided in the Project Description section.

The proposed Project is located on lands owned by the County of Marin and the Marin County Open Space District (MCOSD). The MCOSD is an independent legal entity and a special district operating pursuant to the California Public Resources Code. Marin County Parks (MCP) oversees the management of the county parks system and provides public information on behalf of the MCOSD. The proposed Project is adjacent to subtidal lands (below Mean High Water) that are owned by the County of Marin within the Bolinas Lagoon Open Space Preserve and are under the management of Marin County Parks. Bolinas Lagoon Open Space Preserve is 1,080 acres and is part of the Greater Farallones National Marine Sanctuary. The Bolinas Lagoon Open Space Preserve is one of 34 open space preserves in Marin County and includes shoreline areas surrounding the northern end of Bolinas Lagoon, as well as segments on Kent Island and along the lagoon side of Seadrift Beach. The Bolinas Lagoon Open Space Preserve was acquired by Marin County in the mid-1960s and has been managed by the MCOSD since 1988. The Preserve contains a network of trails and walking paths for hikers and dog walkers and provides opportunities for fishing and kayaking/canoeing. The Preserve is known for its shorebird and seal watching opportunities.

Under MCP, the MCOSD is leading a consortium of stakeholders working on a long-term vision to improve aquatic habitat, transportation safety, and climate resilience at the north end of Bolinas Lagoon near Bolinas, California. The proposed Project is the first step in implementation of the larger Bolinas Lagoon North End Vision, which aims to re-establish and rehabilitate hydrologic, geomorphic, and ecologic processes; improve habitat connectivity; increase wetland resiliency to sea-level rise (SLR);

improve special-status species' habitat; and protect community safety by moving roads out of flood inundation areas.

The Wye Wetland (the Wye) is framed by California Department of Transportation (Caltrans) SR-1 to the east and Olema Bolinas Road to the west. The Wye is bisected by Fairfax Bolinas Road (also known as Crossover Road), which breaks the Wye into a northern triangle and southern area that transitions into Bolinas Lagoon. Lewis Gulch Creek flows from the north, crosses under SR-1 approximately 500 feet northwest of the Wye and flows along the western edge of Olema Bolinas Road before making a sharp turn to cross through an undersized box culvert within a dredged channel to the lagoon. The box culvert is 5 feet wide and 25 feet long, with an inlet depth of 2.9 feet and an outlet depth of 1 foot—which is insufficient to carry flows greater than the 1.5-year storm event. The box culvert size results in a flow-depth restriction to fish movement during low flow. Lewis Gulch Creek is known to have a population of federally threatened Central California Coast steelhead (steelhead, *Oncorhynchus mykiss*), California state threatened California black rail (*Laterallus jamaicensis coturniculus*), and federally threatened and CDFW species of special concern California red-legged frog (*Rana draytonii*).

III. SUMMARY OF THE PROPOSED PROJECT

This section provides a brief summary of the proposed Project. A more expansive, detailed description is presented in Section VI, Project Description, while a detailed discussion of the existing setting in the Project area is provided in Section V, Project Setting. To better orient the reader, Figure 1 provides a map of the Project's regional location. Figure 2 provides an aerial photograph of the Project site and illustrates the limits of proposed Project grading and disturbance. Figure 3 shows the property ownership and parcel boundaries within the Project site vicinity. Figure 4 provides an overview of the relative locations of each of the Project components within the overall study area.

The proposed Project would reconstruct the physical and biological linkages between Lewis Gulch Creek and Bolinas Lagoon by realigning both Olema Bolinas Road and Lewis Gulch Creek to allow space for natural geomorphic and biological processes to occur. The intersection at Olema Bolinas Road and SR-1 would be moved approximately 150 feet to the south. The new approach to SR-1 would include a bridge over Lewis Gulch Creek that would allow for lateral stream migration and provide a wildlife corridor. Upstream of Olema Bolinas Road, the left bank of Lewis Gulch Creek (eastern side) adjacent to SR-1 would be stabilized using bioengineering. Downstream of Olema Bolinas Road, Lewis Gulch Creek would be realigned to the center of the Wye to flow over its former alluvial fan and restore geomorphic processes to the Bolinas Wye wetland.

The Project requires permanent removal of the section of Fairfax Bolinas Road that passes through the Bolinas Wye wetland between SR-1 and Olema Bolinas Road to allow for the realignment of Lewis Gulch Creek, and to allow for wetland migration with an anticipated 5.5 feet of SLR and storm surge (8 feet combined). Road and restoration work would include tree removal, earthmoving, road and bridge construction, erosion control planting, large woody debris placement (for habitat), non-native invasive species removal, native wetland habitat restoration, and non-native invasive species management.

IV. PROJECT NEED, PURPOSE, AND OBJECTIVES

This section describes the need, purpose, goals, and objectives that have been established for the proposed Project. A detailed description of individual project components is provided in Section VI, Project Description.

A. PROJECT NEED

Over the past 150 years, logging, mining, agricultural practices, roads, and other infrastructure have affected the watersheds and tributaries of Bolinas Lagoon. Within the Project Area, Lewis Gulch Creek has been significantly impacted by the three surrounding roadways that disrupt ground and surface water connection. Lewis Gulch Creek has been relocated to flow into a roadside ditch and box culvert, resulting in the creek being disconnected from a large portion of the alluvial fan (see Figure 4). The surrounding roads, channels, and culverts (Lewis Gulch Creek at SR-1, Wilkins Gulch Creek, Salt Creek; described further below) further constrain stream, wetland, and floodplain processes in the Bolinas Wye wetland. Under these conditions, sediment is being transported to and is accumulating in the roadside ditch and box culvert instead of the Bolinas Lagoon and wetland areas. Restoration of more natural hydrologic processes is needed for wetlands to continue to exist with future SLR encroaching against the current hardscapes within the Wye.

At the Project's north end, Lewis Gulch Creek is eroding the left (east-side) channel bank, undercutting SR-1, and is incised and disconnected from its floodplain. Further downstream, the creek flows along Olema Bolinas Road within a ditch with minimal riparian habitat, then makes an abrupt turn into an undersized box culvert. Coarse sediment accumulates upstream within the undersized box culvert and requires periodic dredging (WRA, 2019). Central California Coast Steelhead trout (*Onchorhynchus mykiss*) are present within the Project Area (WRA, 2020), but passage can be restricted by the box culvert. The roadside ditch is also poor habitat for steelhead in that it lacks natural form (riffles, pools, overhead canopy) to support fish habitat and can impair migration, as is also described below in Project Setting.

Historically, Lewis Gulch Creek and Wilkins Gulch Creek ran through the Bolinas Wye wetland in a network of diffuse, interconnected channels that drained to Bolinas Lagoon and allowed for the conveyance of nutrient-rich sediments onto the alluvial fan during overbank flow events (AECOM, 2017). The altered channels and the configuration of roadways, particularly Fairfax Bolinas Road, further limit the wetlands' ability to adapt to SLR. Removal of the "crossover" segment of Fairfax Bolinas Road and elevation of Olema Bolinas Road are essential to accommodate SLR and associated upward migration of wetlands, and for restoration of natural flooding and alluvial fan processes (dispersal of nutrient-rich sediment) in the Bolinas Wye wetland. Preventing the current annual flooding of roadways is an additional benefit.

A recent bathymetric study (ESA, 2016) of the underwater depth of Bolinas Lagoon found that the lagoon would lose 160 acres of frequently exposed mudflats and seven acres of salt marsh by 2050 with 1.5 feet of projected SLR. A recent U.S. Geological Survey (USGS) report (Thorne, et al., 2016) found that by 2100, Bolinas Lagoon's low tidal marsh would be completely submerged with 1.4 feet of SLR. A large portion of this marsh loss would be habitat for the state-listed California black rail and other wetland-dependent species. As discussed in the AECOM Site Conditions Report (AECOM, 2016), one of the most important benefits of the proposed Project is to address mid- to late-century SLR projections and ameliorate potential wetlands loss due to SLR by restoring natural hydrological and geomorphic processes and removing barriers to upland migration.

B. PROJECT PURPOSE

The purpose of the proposed Project is to restore hydrologic, geomorphic, and ecologic processes in the Bolinas Wye wetlands to improve aquatic, wetland, and upland habitats, as well as maintaining existing transportation access along Olema Bolinas Road for the town of Bolinas during scenarios consisting of up to 5.5 feet of SLR and a 100-year storm event (8 feet combined). By restoring natural processes to the

Bolinas Wye Wetlands and alleviating chronic flooding of Marin County and state roadways, the wetlands and roadways would be more resilient to anticipated SLR through the end of the century.

C. PROJECT OBJECTIVES

The Project goals were derived from the *Bolinas Lagoon Ecosystem Restoration Project: Recommendations for Restoration and Management* (GFNMS, 2008) and the visioning work in the Bolinas Lagoon North End Project (see Project Development section). The Project objectives are the actions that define how the goal will be achieved and were refined by the MCOSD, Golden Gate National Parks Conservancy (GGNPC), and a Technical Advisory Committee (TAC) that was established for the Project by the MCOSD to provide technical guidance, design review, and regulatory consultation. The TAC is comprised of technical experts and regulatory agency staff from the California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB), National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), and the California Coastal Commission. The TAC provides continual guidance on Project objectives, design, and permitting to ensure the design and implementation plan adheres to Project goals and regulatory requirements.

The TAC assisted in refining the Project goals and objectives (summarized in Table 1 below) and provided recommendations for early design concepts during their meeting on February 18, 2020.

Table 1. Bolinas Lagoon Wye Wetlands Resiliency Project Goals and Objectives

GOALS	OBJECTIVES
1. Restore hydrological, geomorphic, and ecological processes in the Bolinas Wye wetland.	• Allow for an unimpeded flow of surface and groundwater in the Bolinas Wye wetland.
	• Restore natural sediment transport processes in Lewis Gulch Creek.
	• Direct Lewis Gulch Creek into the wetland and design channel system to promote natural geomorphic processes.
2. Enhance freshwater wetland communities.	• Enhance the extent of estuarine and palustrine wetland vegetation.
3. Reconnect Lewis Gulch Creek with its historic floodplain.	• Design Lewis Gulch Creek to encourage frequent overbank flows.
4. Prevent further stream bank erosion and incision to protect habitat.	• Use bioengineering methods along Lewis Gulch Creek to protect areas experiencing accelerated erosion which impacts infrastructure.
5. Protect and restore native riparian and wetland species.	• Prevent colonization of invasive, non-native species by re-vegetating with native riparian and wetland species.
6. Accommodate Sea-Level Rise and climate change by providing areas for the lagoon's habitats to migrate, and by restoring natural geomorphic and floodplain processes.	• Remove Fairfax Bolinas Road crossover.
	• Raise roadway.
	• Reconnect Lewis Gulch Creek to its alluvial fan and allow for future reconnection with Wilkins Gulch Creek.
7. Improve anadromous fish and amphibian habitat; improve habitat connectivity and habitat for special-status species.	• Raise roadways to provide opportunity for upslope habitat migration and lagoon expansion, thus providing an unimpeded transition zone for areas subject to backwater flooding and delta development.
	• Design a creek/floodplain/wetland mosaic with resiliency to withstand climate variability, including extended drought and excessive rainfall.
	• Install crossings to allow for volitional fish passage and migration corridors for non-fish species.
8. Improve road safety.	• Realign roads and State Route 1/Olema Bolinas Road intersection to improve safety.
	• Reduce roadway flooding during winter storms and high-tide events.
9. Create a sustainable and self-maintaining system.	• Reduce or eliminate flooding of roadways.
	• Decrease needs for vegetation management.
	• Reduce or eliminate dredging of roadside channel.

The goals and objectives listed in Table 1 provided overarching guidance for the review of conceptual designs for the proposed Project, described further in the Project Development and Alternatives Considered section of this document.

D. PROJECT OUTCOMES

The proposed Project would meet the Project purpose, goals, and objectives defined above by realigning Lewis Gulch Creek through the Bolinas Wye wetland, creating a new channel for anadromous fish migration, and restoring floodplain processes while reducing the potential for road flooding. Floodplain connectivity with Lewis Gulch Creek would provide rearing and refugia habitat for juvenile steelhead and promote alluvial fan processes through sediment deposition. This would also improve wetland habitat in the Bolinas Wye by encouraging overbank flows on the alluvial fan without inundating Olema Bolinas Road or SR-1. The proposed bridge over Lewis Gulch Creek on Olema Bolinas Road would be sized to pass the 100-year flood event and account for 5.5 feet of SLR, allowing for upstream flows to pass through the Bolinas Wye wetland and protecting Olema Bolinas Road from flooding and extreme weather events in the long term. The proposed bridge would also be much wider than the creek channel, allowing for safe animal passage under the road as well as lateral stream channel migration.

Removal of the crossover segment of Fairfax Bolinas Road between SR-1 and Olema Bolinas Road allows for the reconnection of the bisected wetlands. The crossover road segment would be converted to wetland habitat which would offset impacts to wetland habitat occurring as a result of construction of the new Lewis Gulch Creek alignment. Newly created wetlands and creek alignment would provide a habitat linkage between upland and wetland habitats within an area that would likely be inundated by 2100 with a SLR projection of 5.5 feet. Removal of the road would allow for wetlands to migrate to higher elevations.

Raising Olema Bolinas Road and realigning the Lewis Gulch Creek channel would eliminate the near-annual flooding of the roads that occurs which will increase over time with SLR. The realignment of the Olema Bolinas Road/SR-1 intersection would also improve road safety and ensure continued access for the town of Bolinas.

V. PROJECT SETTING

This section provides a detailed description of the existing features and characteristics of the Project site and surrounding vicinity. The individual components of the proposed Project are described in greater detail in Section VI, Project Description.

A. LOCATION

The proposed Project is located on two adjacent parcels in Marin County at the north end of the Bolinas Lagoon between Olema Bolinas Road and SR-1. Figure 1 provides a map of the Project's regional location. The Bolinas Wye wetland is bounded by SR-1 to the north/east, Olema Bolinas Road to the west, and Bolinas Lagoon to the south, within an area that is commonly referred to as the "Wye." Figure 2 provides an aerial photograph of the Project site and illustrates the limits of proposed Project grading and disturbance. At its northern end, the tributaries to Bolinas Lagoon are Lewis Gulch Creek, Wilkins Gulch Creek, Salt Creek, and Wharf Creek. The Bolinas Wye wetland is bisected by the westernmost segment of Fairfax Bolinas Road (also referred to as the Crossover Road), which separates the Bolinas Wye wetland into a northern triangle and a southern segment that transitions into Bolinas Lagoon. The County of Marin owns the parcel containing the Wye wetland, and the MCOSD owns the parcel west of Olema Bolinas Road. These two parcels comprise the area where the bulk of the Project work will be performed. Figure 3 shows the property ownership and parcel boundaries within the Project site vicinity. SR-1 is

owned and maintained by Caltrans. Small portions of Project work would extend into the Caltrans right-of-way along SR-1. Olema Bolinas Road and Fairfax Bolinas Road are both within County-maintained rights-of-way. Figure 4 provides an overview of the relative locations of each of the Project components within the overall study area.

B. INTERTIDAL LAGOON AND STREAM HABITATS

Bolinas Lagoon is one of 37 internationally designated Ramsar sites in the United States, and one of four along the west coast (U.S. Fish and Wildlife Service, 2015). Ramsar sites are wetland areas designated to be of international importance under the Ramsar Convention, an intergovernmental treaty established in 1971 by the United Nations Educational, Scientific, and Cultural Organization (UNESCO). It is also an Audubon Important Bird Area, and part of the Golden Gate Biosphere Reserve and Greater Farallones National Marine Sanctuary. The lagoon, connected to the Pacific Ocean at the south end and located along the Pacific Flyway, contains 1,000 acres of marsh, subtidal, and intertidal lagoon habitat of importance for migratory birds, critical habitat for steelhead, and special-status species including California black rail (*Laterallus jamaicensis coturniculus*) and California red-legged frog (*Rana draytonii*). The lands to the east of the Project site across SR-1 are protected as part of the Golden Gate National Recreation Area, including the historic Wilkins Ranch and is managed by the National Park Service.

The Bolinas Wye wetland contains habitats unique to the area, primarily due to the amount of freshwater inflow—both surface and subsurface—that drains through the Bolinas Wye wetland and into the northern tip of Bolinas Lagoon. The freshwater input, the interface among the varied habitats, and the connectivity between the lower marsh, high marsh, and uplands, provides a mix of vegetative communities and alliances that support several special-status species.

Moving to the north from the lagoon edge and lower mudflats into the Project area, the site transitions from pickleweed mats to saltmarsh bulrush. The vegetation then transitions into a freshwater wetland complex of arroyo willow/red alder forest marshes due to the influence of subsurface and surface water. The red alder forest continues north of the crossover segment of Fairfax Bolinas Road into the Bolinas Wye wetland. To the east of Olema Bolinas Road, the hillside is dominated by coast live oak forest.

Lewis Gulch Creek flows from north to south and crosses under SR-1 through a corrugated metal pipe about 500 feet north of the Bolinas Wye wetland before entering the Project area. Within the Project area, the creek flows in a ditch along the western edge of Olema Bolinas Road for approximately 950 feet before making a sharp left turn and crossing through an undersized box culvert under the road and as described above. The creek is then contained within a dredged channel for approximately 200 feet before connecting to a natural course of approximately 300 feet to Bolinas Lagoon. Within the Project area, the reach of Lewis Gulch Creek along Olema Bolinas Road is intermittent and surrounded by coast live oak forest.

To the west and outside of the Project area is Wharf Creek. It drains to the southeast and converges with Lewis Gulch Creek from the south at the box culvert that passes under Olema Bolinas Road. East of the Olema Bolinas Road box culvert the creek becomes perennial and is influenced by groundwater and tidal flows. The location of Wharf Creek is shown on Figure 4.

To the east and outside of the proposed Project area, Wilkins Gulch Creek and Salt Creek flow through two separate box culverts under SR-1 into the wetland complex and intersect directly south of the crossover segment of Fairfax Bolinas Road. Both creeks are to the east of the Project area with Wilkins Gulch Creek providing surface flow into the Project area. Wilkins Gulch Creek is shown on Figure 4. Their contributions have been included in the hydrologic analysis to compute potential flood inundation (WRA, 2023). No changes to the Wilkins Gulch and Salt Creek SR-1 culverts are being proposed as part of the Project.

C. HUMAN DEVELOPMENT

In the early 19th century, logging, mining, agriculture, and infrastructure changes altered the Bolinas Lagoon shoreline and watersheds of most of the north end tributaries. The deforestation and land-use changes increased sediment delivery to the Lagoon and altered the flow paths of many of the streams in the region. Improvement of Olema Bolinas Road resulted in the relocation of Lewis Gulch Creek to a roadside ditch running along the west side of the road. Over the last 50–100 years, logging and mining ceased in the region, and ranching and farming activities ceased within the Project area. During that period, the Wye has become a densely vegetated wetland. Today, scattered rural residential properties are located to the south and west of the Project site but the area is largely undeveloped.

The Bolinas Lagoon watershed includes not only the streams in the vicinity of the Project site at the north end of the Lagoon, but also several drainages on each side of the lagoon extending southward to the unincorporated town of Stinson Beach and the Lagoon's mouth at Bolinas Bay. Efforts to reduce sediment deposition into the Lagoon from the surrounding watershed have been ongoing since the early 1970s. Much of the land within the watershed is under public ownership, with privately held parcels generally limited to the areas adjacent to the towns of Stinson Beach and Bolinas. Scattered private parcels subject to agricultural use exist throughout the watershed.

Protected areas within the watershed include lands administered by the U.S. National Park Service (NPS) within the Golden Gate National Recreation Area, the MCOSD within the Bolinas Lagoon Preserve, and California State Parks within Mt. Tamalpais State Park.

D. PROJECTED EFFECTS OF CLIMATE CHANGE AND SEA-LEVEL RISE

The Project site is vulnerable to SLR, as well as other climate change-related effects including prolonged drought and storms with high magnitudes and intensities. One of the goals of the proposed Project is to reduce the impact of SLR on the ecosystem and infrastructure. Many projections of SLR exist, and SLR estimates used for the Project are based on the Ocean Protection Council (OPC) State of California Sea-Level Guidance (CO-CAT, 2013).

Improving the resiliency of the wetlands and infrastructure at the Project site is imbedded in the design objectives of the proposed Project. Resilience is the ability to recover quickly from disasters and to adapt to future conditions, such as SLR. To date, the accepted projections used for SLR planning are the State of California Sea-Level Guidance produced by the Ocean Protection Council (OPC, 2018). Using OPC's Table 1 (Projected Sea-Level Rise [in feet] for San Francisco), the Project is within the projections for specific greenhouse gas emissions scenarios (RCPs) for 2090 for low and high emissions (RCP 2.6 and 8.5 respectively), medium-high risk aversion (1 in 200 chance), resulting in up to 5.6 feet of sea-level rise. Table 2 presents the various tide scenarios used for the hydrologic and hydraulic modeling of the proposed Project that were determined by adding the predicted amount of SLR to current documented tide elevations.

Table 2. Project Site Tide Elevations with Projected Sea-Level Rise

TIDE SCENARIO	TIDE ELEVATION 1983-2001 EPOCH (FEET NAVD88)	SEA-LEVEL RISE PREDICTION (FEET)	ELEVATION FOR DOWNSTREAM BOUNDARY CONDITION (FEET NAVD88)
Mean Higher High Water (MHHW)	5.6	0	5.6
Mid-Century (2050) MHHW	5.6	2.0	7.6
Mid-Century (2050) Maximum Tide	8.0	2.0	10.0
End-of-Century (2100) MHHW	5.6	5.5	11.1
End-of-Century (2100) Maximum Tide	8.0	5.5	13.5

OPC's SLR projection numbers do not include impacts of El Nino, storms, or other acute additions to SLR. The hydrology and hydraulics analysis conducted for the Project added consideration of a 100-year return interval storm to the SLR/tide elevation projections shown in Table 2 and concluded that the Project site could accommodate an increase in water elevation of up to 7.9 feet prior to inundation occurring at the proposed Olema Bolinas Road bridge over Lewis Gulch Creek (WRA, 2023).

Designs for the proposed Project were created to accommodate a combination of the expected 5.5 feet of SLR by 2100 and a 100-year flood event, increase groundwater recharge to counteract drought effects, and decrease the vulnerability of the site's habitats and wildlife to the effects of climate change. Figure 18 depicts the extent of inundation at the Project site during the 100-year flow event with 2050 and 2100 sea-level rise scenarios. The projected end-of-century SLR is not expected to reach the proposed bridge or upgraded portions of Olema Bolinas Road under these tidal scenarios, a correction of current conditions in which flooding occasionally inundates Olema Bolinas Road.

VI. PROJECT DESCRIPTION

This section provides a detailed discussion of the Project's components. A description of the methods, phasing, and sequencing of Project construction is provided in Section VII, Construction.

- The proposed Project includes multiple components ranging from construction of hard-engineered structures such as roads and a bridge, to excavation of a new creek channel capable of supporting aquatic habitat, as well as salvaging trees and the reuse of downed, large woody debris for creating floodplain complexity. These elements of the Project have been organized into nine components, which are described in the subsections below. The components are presented in the general order in which they would be constructed or implemented. A detailed description of

the proposed construction sequencing and phasing for the Project is presented in Section VII, Construction. The Project components are shown on Figure 4, Figure 6 and Figure 7.

A. OLEMA BOLINAS ROAD ALIGNMENT AND NEW BRIDGE

The first component of the Project consists of the construction of a new intersection at the junction of Olema Bolinas Road and SR-1, the elevation of Olema Bolinas Road, the realignment of Olema Bolinas Road, and the construction of a bridge to carry the realigned Olema Bolinas Road over the realigned channel of Lewis Gulch Creek. The proposed geometrics of this new intersection design are shown in Figure 8. This element comprises the main civil engineering aspect of the proposed Project. The road design would focus on creating a more standard intersection with SR-1 and providing the ability to safely pass the 100-year flood event in Lewis Gulch Creek with projected end-of-century SLR (8 feet). Prior to arriving at the proposed design for this Project element, two intersection alignments and three creek crossing alternatives were assessed.

Caltrans required an Intersection Control Evaluation (ICE) Study at the proposed realigned intersection of SR-1 and Olema Bolinas Road. Mark Thomas, Inc. engaged Fehr and Peers, Inc. to prepare the study and summarized results in an ICE memorandum. In completing the report, detailed accident data for the existing intersections on the Project site were analyzed, and traffic studies were completed. The results of the study show that an intersection with stop control on Olema Bolinas Road is suitable and neither a traffic signal nor a left-turn pocket lane on northbound SR-1 is warranted.

A tsunami scour analysis was performed because the bridge site lies within a mapped tsunami hazard zone. Tsunami loading tolerances for the new bridge must be in accordance with the draft American Association of State Highway and Transportation Organizations (AASHTO) 2021 Guide Specifications for Bridges Subject to Tsunami Effects. In accordance with this guidance, the bridge will be designed for the tsunami event with a 975-year return period.

Based on the preliminary results of the tsunami scour analysis, the new bridge will utilize the design option shown in Figure 9. The proposed design (see Figure 9) is a three-span bridge, 80 feet in length and 38.3 feet in width. This bridge is proposed to be a cast-in-place, post-tensioned, concrete slab on reinforced concrete two-column piers, founded on four approximately 60-inch diameter cast-in-drilled-hole concrete piles. The abutments are proposed to be short diaphragm abutments without any foundation system. The end spans and diaphragm abutments will be cantilevered spans.

B. OLEMA BOLINAS ROAD ELEVATION

Olema Bolinas Road is being realigned through the Wye and elevated to reduce flooding and impacts from projected SLR, requiring the road to be elevated to meet the proposed new bridge. The road will be elevated on fill that includes maximum 2:1 side slopes constructed using 320 cubic yards of engineered fill for long-term side slope stability, and also hydroseeded to promote the quick establishment of vegetative cover.

C. LEWIS GULCH CREEK BANK STABILIZATION

Lewis Gulch Creek has eroded into SR-1 just north of the existing intersection with Olema Bolinas Road. Caltrans implemented an emergency repair that consisted of riprap and live willow stakes. To ensure that the creek does not impact SR-1 in the future, the proposed Project includes one area with a restoration design focused on bank stabilization along the outboard curve in the creek, on the west side of SR-1, north of the Olema Bolinas Road intersection. Stabilization of this area is desirable to prevent the potential for future damage to SR-1, and it must also consider the fact that this reach of stream contains

high-quality aquatic habitat for steelhead as well as California red-legged frog. As a result, an approach that relies heavily on bioengineering methods has been selected.

The stabilization concept proposes a mix of channel realignment, large wood, and soil bioengineering as shown on Figure 11. The channel would be shifted to the west slightly to reduce the near bank stress associated with the small radius of curvature, and to accommodate space to install rootwads harvested on site from native species (e.g., coast live oak, redwood) along approximately 50 feet of channel length and 20 feet of the left channel bank. A small floodplain bench would be graded on the inside of the meander to allow for flow relief during high flow events.

The toe would be protected by a series of rootwads buried into the bank and bed of the channel on the outside meander bend. The rootwads would sit so they are aligned with the channel bank and their trunks extend into the bank. Two layers of coir fabric-encapsulated soil lifts between 6 and 8 inches in height would be installed above the rootwads along the bank, and a stone toe would be installed to reduce the risk of scour and undermining. A row of live arroyo willow branches or rooted cuttings, collected on site, would be placed between the two lifts. The elevation of the topsoil lift would be set to a height approximately 0.5 foot higher than the floodplain graded on the inside meander bend, and the slope above would be graded at a maximum slope of 3:1 up to the elevation of SR-1.

D. INITIAL INVASIVE SPECIES REMOVAL AND FINE GRADING

Several species of invasive plants occupy the site. Most notably, Cape ivy (*Delairea odorata*) and periwinkle (*Vinca major*) are found in shrub/scrub and forested areas and Himalayan blackberry (*Rubus armeniencus*) in open areas. Efforts to remove and manage these species would focus mainly on manual removal with some mechanical removal of large thickets of Himalayan blackberry. In areas where these methods are infeasible or ineffective, selective chemical controls approved for use within regulated wetlands may be used following the guidelines of the County of Marin (Integrated Pest Management (IPM) Policy (Marin County, 2004).

Initial vegetation management actions include:

- Himalayan blackberry (*Rubus armeniacus)* removal, two large thickets including soil to a maximum depth of 3 feet;
- cape ivy (*Delairea odorata*) removal, currently persistent throughout Project area;
- periwinkle (*Vinca major*) removal, within the construction limit of disturbance;
- yellow flag iris (*Iris pseudacorus*) removal, north of the Fairfax Bolinas Road crossover;
- English ivy (*Hedera helix*) removal, within the construction limit of disturbance; and,
- Invasive perennial grasses, such as purple velvet grass (*Holcus lanatus*) and dallis grass (*Paspalum dilatatum*) within the construction limit of disturbance.

The main areas of Cape ivy, periwinkle, and Himalayan blackberry removal are shown on Figure 12. Himalayan blackberry removal is focused southeast of the existing intersection of Fairfax Bolinas (Crossover) Road and Olema Bolinas Road. Blackberry is dominant in this area and removal efforts would include pulling the plants using skid loaders or small excavators outfitted with hydraulic thumbs to pull out the plants' roots. This activity may result in a change to the final grade, and if the final elevation is deemed to have an impact on the proposed wetland function of the proposed Project, topsoil harvested from on-site grading activities may be placed to restore pre-construction grades. Final grades will be set at the elevation of the area after the root mass of invasive species has been removed. Because the

ground surface elevation of this area is slightly higher than the surrounding wetlands, and the proposed grades of the wetlands in the footprint of the crossover segment of Fairfax Bolinas Road, the net benefit will be to decrease the depth to groundwater and encourage more robust wetland vegetation growth. No imported fill would be used.

E. LEWIS GULCH CREEK REALIGNMENT

Currently, Lewis Gulch Creek flows along the western edge of the Project site within a roadside ditch, through a box culvert, and then into a manmade channel to the north end of Bolinas Lagoon. The proposed Project design would return Lewis Gulch Creek to the east side of Olema Bolinas Road where it previously flowed, as found on maps from 1910 (AECOM and Watershed Sciences, 2016), and would create a new channel for Lewis Gulch Creek under the proposed bridge and realigned Olema Bolinas Road. Moving Lewis Gulch Creek will involve realigning Olema Bolinas Road and installing a bridge crossing over Lewis Gulch Creek, as discussed above.

The existing box culvert under Olema Bolinas Road would not be removed, but the creek would no longer pass through it. The creek morphology design element works in conjunction with the other Project elements and several channel plan form alternatives were analyzed during the Project design process. The proposed alignment is in keeping with the recommendations from technical experts on fisheries and fluvial geomorphology on the Project's TAC. Lewis Gulch Creek has documented occurrences of steelhead, and considerations of channel morphology relied heavily on providing suitable habitat and passage for a range of steelhead life stages. In addition, the ultimate design included in the Project will ensure that the creek remains resilient during a range of peak flows (1-, 2-, 10-, 50-, 100- and 200-year), accounts for end of century SLR, and promotes overbank flow and floodplain connection.

The new Lewis Gulch Creek channel would contain five distinct reaches as described below:

- **Bank Stabilization Reach (Station 24+10 – 24+75**) – the area of the creek where bioengineering bank stabilization will occur adjacent to SR-1.
- **Upstream Reach (Station 21+00 – 24+10)** – The stream reach between the bioengineering bank stabilization area and the new Olema Bolinas Road bridge, where floodplain grading and channel large wood structure installation (see description below) will occur to enhance steelhead refugia habitat.
- **Bridge Reach (Station 19+50 – 21+00)** – The reach between the existing Lewis Gulch Creek channel upstream of the proposed bridge and the Transitional Reach below the bridge, where channel and floodplain grading will focus on effectively routing flows and sediment around a bend, through the bridge and into the Wye.
- **Transition Reach (Station 18+00 – 19+50)** – The short section of the creek where the Bridge Reach channel width and depth decrease to meet the dimensions of the Wye Reach.
- **Wye Reach (Station 11+00 – 18+00)** – The channel reach with enhanced floodplain connectivity through the Wye wetland that ties into the existing Lewis Gulch Creek at the downstream end of the Project.

Figure 10 depicts the location of the areas described above within the Project site. Design of the Lewis Gulch Creek channel has been based on the hydrology and hydraulics analysis conducted for the Project (WRA, 2023).

The primary considerations in defining the cross-section geometry of the realigned Lewis Gulch Creek channel are: 1) flow conveyance, 2) sediment conveyance, 3) floodplain connectivity, and 4) fish passage. Two methods were used to design the channel. Both methods consider the 1.5-year recurrence interval flow rate of 25 cubic feet per second (cfs) which is the primary scenario for addressing scour and deposition processes. The first method is to contain the 25 cfs flow in an 8- to 10-foot-wide channel to prevent scour at key locations. The Bank Stabilization Reach, Upstream Reach, and Bridge Reach are designed to prevent scour along infrastructure such as SR-1 and the proposed bridge but allow for natural stream processes where acceptable, such as the new floodplain grading upstream of Olema Bolinas Road. The second method is to unleash the 25 cfs flow outside of a channel allowing floodplain inundation as often as possible. The Transition Reach uses the first method to prevent scour and deposition near the proposed bridge and transition to the Wye Reach to begin the second method. The Wye Reach is designed to disperse flows as much as possible and initiate alluvial fan processes while maintaining fish passage characteristics.

The average bed slope of the Upstream Reach is roughly 2.5 percent. The profile design process for the Bridge Reach sought to maintain a bed slope similar to that of the Upstream Reach so that sediment transport capacity would be maintained through the reach. Lowering the channel bed in the vicinity of the bridge would have required increasing bed slope, leading to increased shear stress and velocity that would have resulted in the need for channel armoring. The Bank Stabilization Reach and Upstream Reach use a traditional bankfull channel design based on conditions upstream of the bridge and the calculated 1.5-year recurrence flow of 25 cfs. The 1.5-year recurrence interval flow approximates the flow that is most effective at routing sediment through the system, preventing the risk of aggradation or degradation upslope of the proposed bridge.

The proposed design profile for the Bridge Reach diverges from the existing profile just upstream of the proposed Olema Bolinas Road bridge, where the existing channel would be plugged with an earthen berm to direct flow into the new channel. The Bridge Reach uses a geometry to convey a 35 cfs flow, slightly higher than the 1.5-year recurrence interval, to support sediment transport functions and a 100-year recurrence interval event to alleviate flood risk. A compound channel cross-section design was chosen for the bridge area, with the lower inset channel conveying the 35 cfs flow, and the 100-year event (271 cfs) being conveyed in the floodplain area. The expectation is that sediment will be successfully transported a sufficient distance downstream of the bridge before being deposited in the Wye wetland, where it can eventually be eroded and reworked by natural geomorphic processes.

Through the Transition and Wye Reaches, the proposed bed profile of Lewis Gulch Creek largely follows the existing grade, with no grading of pool or riffle features. The process-based design approach would allow for pools and riffles to develop in the natural substrate during high flow events. To aid in creating deeper pools, channel-facing rootwad structures would be placed on outsides of channel meanders in areas with higher velocities and shear stress to scour and maintain pool habitat. The higher velocity and shear stress areas were identified in the hydraulic modeling conducted during the design process (WRA, 2023). The installation of log structures is described in more detail below. The channel cross section decreases in size through the Transition Reach and is sized to convey the approximate annual peak flow (1-year recurrence interval) of 15 cfs through the upper stretch of the Wye Reach to meet the enhanced floodplain connection goals. In lower areas of the Wye Reach, the channel decreases in size to convey a flow of approximately 9 cfs. The decrease in size is expected to encourage overbank flow and associated deposition of sediment to enhance alluvial fan processes and wetland resilience.

Overall, the proposed channel profile was designed to limit the occurrence of sharp grade breaks that could cause rapid changes in flow shear stress, which may then increase the likelihood of erosion, headcutting, or sediment deposition without the use of channel armoring. Artificially reinforcing the

channel is not consistent with the primary Project goal of restoring natural geomorphic processes to Lewis Gulch Creek.

The primary factors considered in the channel alignment were the skew of the bridge opening to the creek and the geometry of the new channel through the Wye. Skew is the angle of the bridge compared to the centerline of the channel. A bridge with zero skew is aligned exactly perpendicular to the flow. As this angle increases, the conveyance of the bridge decreases, and ineffective flow areas (eddies, backwaters, and areas with no velocity) may begin to form within the bridge section, resulting in sediment deposition. The bridge opening was located to minimize skew, minimize impacts to existing habitat, and to achieve Project goals resulting in the need to realign Olema Bolinas Road and create a new intersection with SR-1. Downstream of the proposed bridge, the channel is largely aligned to follow the existing lowest elevation areas of the Wye and connect to the existing creek just above its mouth in Bolinas Lagoon.

The channel profile and geometry are expected to remain largely stable through the Upstream Reach, where it is constrained by existing trees, bank vegetation, the SR-1 embankment, and the proposed Olema Bolinas Road bridge. The left bank (eastern) floodplain of the Upstream Reach would be graded to restore floodplain connection for flows greater than the 1.5-year return interval storm event (approximately 25 cfs). Rootwads would be placed along the left bank of the reach, enhancing scour in existing pools to improve summer habitat for juvenile and resident fish. Some localized lateral bank migration may be expected to occur in response to normal rainfall runoff events.

The profile and cross-sectional area of the Bridge Reach is expected to be maintained over time, although some meandering of the channel is expected. It is expected that the channel planform geometry would change over time, through natural geomorphic processes. The bankfull channel may migrate laterally under the bridge but would be constrained by the bridge structure, which would be set deep enough to allow for scour caused by a 100-year flow event and a potential tsunami as described above. Through the footprint of the proposed bridge and extending a short distance upstream and downstream, the design would include the placement of a layer of large cobble material at the lowest elevation of the channel prior to grading the channel and floodplain under the bridge. This would allow for channel migration while limiting the opportunity for localized scour, channel incision, or headcutting.

Sediment is expected to be deposited within the Wye downstream of the proposed bridge, in the Transition and Wye Reaches where the cross-sectional area of the channel and the bed slope decrease. The Wye Reach and surrounding floodplain areas are expected to function much like the historic Lewis Gulch Creek alluvial fan. This would likely be an area of frequent channel adjustment, as sediment is both actively deposited and eroded by Lewis Gulch Creek in response to storm events. Although the channel alignment follows the lowest points of the existing topography further downstream in the lower Wye, sedimentation could rapidly fill portions of the Project site, causing the channel to change course and potentially cut a new alignment. The use of channel cross-section geometry that is considerably smaller than the bankfull flow estimate would increase the likelihood of dynamic channel adjustments. The presence of existing vegetation and proposed installations of large woody material would contribute to the formation of a hydraulically complex system, with considerable cover, forage, and velocity refugia for all life stages of steelhead and other species of interest.

The hydraulic modeling of the site shows that the 1.5-year flow event and all higher events would spread out through the Wye wetlands, with variable velocities and shear stress values. The results of the model were used to target proposed log structure locations in areas with higher velocities to maximize channel scour to improve summer refugia habitat, as well as to locate proposed floodplain log structures in areas with lower velocities and shear stress to encourage sediment deposition and enhance refugia habitat for juvenile salmonids.

It is expected that a defined channel, sized to convey the amount of water and sediment delivered to it through natural geomorphic processes, would generally be present in the Wye; however, there may be times when the channel in the Wye fills in completely, or is so wide, shallow, and densely vegetated that it is difficult to identify in the field. This would be consistent with conditions that were likely present before European colonization and would represent successful restoration of the alluvial fan and Wye wetland. It is anticipated under these conditions that any channels formed on the floodplain would be suitable to convey passage of upstream migrating steelhead seasonally, as steelhead are thought to generally migrate during turbid, high flow conditions.

Large wood pieces with rootwads would be used in the new channel to enhance habitat conditions. The logs would be harvested on-site, staged on-site, and placed in the channel using heavy equipment. Channel log structures would be installed into the channel banks, with a portion of the stem and rootwad exposed in the channel, providing velocity refugia, forage, cover and hydraulic complexity for steelhead rearing habitat. They would be positioned not to completely block the flow, which could potentially impede volitional fish passage.

Floodplain log structures are proposed for areas within the Wye Reach. These structures are slightly different from the channel log structures, oriented with the rootwad facing downstream and the upper portion of the log buried beneath the ground surface. This would create partial blockages of overbank flows that would result in backwater refugia for fish as well as deposition of both coarse and fine sediment.

It is expected that no imported rock, cabling, or mechanical anchors would be used for any wood pieces, relying solely on embedment or natural materials as ballast to stabilize the wood pieces during high flow events. Risk to property due to log mobilization and entrainment due to a high flow event is very low at this site due to the absence of downstream infrastructure.

F. FLOODPLAIN RESTORATION

Floodplain restoration would occur just downstream of where Lewis Gulch Creek pulls away from SR-1 (see the area within the yellow dashed line on Figure 4). The area east of Lewis Gulch Creek to SR-1 would be graded approximately 2 to 5 feet lower to allow higher floodwaters to inundate the area and then gradually recede without stranding fish. This would recreate a natural pattern that provides high flow refugia for fish during high flows that has otherwise been nearly eliminated in the Project area. The re-graded floodplain would be stabilized using woven coir fiber matting, or an alternative biodegradable erosion control matting combined with seeding and installation of native riparian species for long-term stability. The creek design would allow for it to overtop onto the floodplain periodically. The additional grading would also generate approximately 1,600 square feet of soil removal, some of which would be replaced as topsoil, and the remainder used as fill material in the footprint of the crossover segment of Fairfax Bolinas Road after it is removed.

G. REMOVAL OF FAIRFAX BOLINAS (CROSSOVER) ROAD

The Crossover Road section of Fairfax Bolinas Road currently bisects the Bolinas Wye wetland, creating a physical barrier to surface and groundwater flows and dividing the wetland. The proposed Project would remove the road and restore wetland vegetation throughout the former footprint of the road. After the pavement and any subsurface fill are removed, native soil harvested from the stream channel excavation process would be used to create an even grade. Removing the road would allow the stream channel to migrate across the floodplain as it did previously. In addition, sea level predictions for the area show that portions of the road will be inundated by Bolinas Lagoon by the end of the century. Removing the Fairfax Bolinas (Crossover) Road would reconnect and restore the wetland habitats and allow for the incremental

landward migration of tidally influenced habitat types. The Fairfax Bolinas Road is a primary feature of the cultural landscape in the Wye area and is evaluated in the Cultural Resources section of the CEQA Appendix G checklist portion of this IS/MND.

H. SPOILS PILE REMOVAL

An artificial berm, or spoils pile, has been unintentionally created to the south of the existing Lewis Gulch Creek channel just downstream of the existing Olema Bolinas Road culvert (shown on Figure 4). The berm evolved as sediment was removed from the artificial channel and now presents a barrier to overland flow during flood events. To alleviate this effect and ensure appropriate transition of habitat types over the long-term scale of SLR, several notches would be created in the existing berm/dredge spoils pile to the south bank of the creek. The notches would allow flood flow conveyance, while providing high ground refugia for species such as California black rail (*Laterallus jamaicensis coturniculus*).

I. LONG-TERM VEGETATION MANAGEMENT ACTIONS

The majority of the Project site outside of the roadways consists of currently heavily vegetated wetlands, riparian, and upland communities. The goal of the Project's revegetation efforts would be to restore wetland, floodplain, and riparian habitats to all disturbed areas to improve both habitat and the character of the site. To the extent possible, revegetation would involve using native material from the site, including seed collection, taking cuttings for nursery development, or bioengineering.

The Golden Gate National Parks Conservancy (GGNPC), working in conjunction with the MCOSD and the WRA design team, has created a Vegetation Management Plan (VMP) for the site to direct native revegetation and long-term control of non-native invasive species (NNIS) in the Project area (the entire Bolinas Wye wetlands) (GGNPC, 2021). Areas identified on the site for replanting are based on the limits of Project disturbance. In addition to the initial NNIS removal activities discussed above, the VMP proposes continuing actions to limit re-establishment of those species after initial construction is complete. Continuing vegetation management throughout the Project site would be implemented in various Active Management Zones (AMZs) as needed to control invasive vegetation, and to promote healthy native habitats for endemic plant and wildlife species of the area. Major features of the Project's proposed long-term vegetation management include revegetation, use of appropriate plant palettes, tree planting, and invasive species control.

i. Revegetation

The revegetation plan involves caring for plants installed in disturbance areas post-construction, creating plant palettes for each habitat type, and planting trees to compensate for those removed during construction. Four revegetation methods will be employed: salvaging, willow stakes, container planting, and direct seeding.

Certain areas that have plant cover suitable to harvest and replant (salvage) have been mapped and quantified. The primary methods for acquiring salvage plants are by mechanically harvesting sod passes or by manually harvesting desired plants. Willow stakes are an effective way to establish erosion control and vegetative cover on wetland restoration projects. This method is suitable for creek banks in areas closer to Bolinas Lagoon where willows are the dominant species, and anywhere willows are specified in the plant palette. Willows growing along the lagoon and upstream of the Project site will be prioritized as source material for willow stakes. Depending on the population of deer and other grazing animals, exclosures may be necessary to provide the willow stakes a protective barrier to grazing. Container plants will be sourced from a nursery with pathogen-free plants,

preferably from Marin County within the Lewis Gulch Greek watershed. Plants will be purchased in a variety of sizes and visually inspected by field staff before installation. Direct seeding may be used as the primary method of revegetation in areas where sheet flow is not expected. Seeding would occur between mid to late November or early December after the first rain event and just before the next round of rain. Seeds may be spread by hand or through use of a seed spreader.

If no rain is forecast within two weeks of the date of installation, plants will be watered every two weeks until soils are fully saturated, and rain is continually in the forecast for the rainy season. If rain is not in the forecast at any time between December through March, supplemental watering will resume. If plants are installed in the late summer or early spring, plants will be watered every two to three weeks for three months. Additionally, a 1.5-inch-deep and 6-inch-wide radius of weed-free straw mulch will be placed around plantings to reduce competition for water and sunlight.

ii. Plant Palettes

As described below, there are nine vegetative communities mapped on the site. Thus, nine distinct planting palettes that can accommodate sea-level rise and climate variability, including large rain event and drought, have been developed for the disturbed areas of the site. The nine palettes are arroyo willow thicket, coyote brush scrub, coast live oak woodland, coastal brambles, red alder forest upland, red alder forest lowland, red alder forest lowland (former creek alignment), roadside grasslands, salt grass flats, and salt marsh bulrush marsh. These palettes are illustrated on Figure 31. Figure 13 to Figure 17 show only the planting that would occur immediately following Project construction, with Figures 13–15 illustrating the planting that would occur following the first year, and Figures 16–17 illustrating the planting that would occur following the second year. All plantings would be completed at the end of the second year of Project construction.

iii. Tree Planting

An arborist report has been prepared to document existing trees on the Project site (WRA, 2021). A total of 214 trees are located within or directly adjacent to the Project site. Of these, 123 trees are proposed for removal during implementation of the Project. The proposed Project will require the removal of trees within oak woodland, forested wetlands, riparian, and similar habitats to accommodate grading and restoration of the new channel, road relocation, and construction of the new bridge.

A total of 1,246 trees will be planted onsite, in addition to the many shrubs listed in the planting palette. This represents a 10:1 replacement ratio for the 123 trees that will be removed (3.5:1 replacement for oaks). On-site planting may occur within the restored floodplain where the crossover section of Fairfax Bolinas Road is removed, increasing habitat continuity within this floodplain. Of the existing trees to be preserved, some will require pruning where canopies and/or root zones extend into the area of Project disturbance.

iv. Invasive Species Control

Continuing vegetation management practices within lands owned and operated by the MCOSD requires use of an IPM approach, which involves active physical removal to control invasive plant species. BMPs will be implemented during invasive plant species removal to protect adjacent native habitats. Care will be taken during Project implementation to prevent the introduction and movement of weed seeds. Generally, within the site, boots, equipment, and vehicles will be cleaned before moving from an area

with weeds to an area without weeds. If work needs to happen where weeds are present, BMPs will be used and contaminated areas visited last, when possible.

Active Management Zones (AMZs) will be developed for focused management of target species and management of other non-native invasive species. Cape ivy, Himalayan blackberry, wisteria, and periwinkle will be removed in the AMZs prior to Project implementation. Treatment will occur regularly for five years following construction to ensure these species do not suppress native vegetation.

IPM requires exhaustion of all physical means to control invasive vegetation first, before limited use of certain approved herbicides would be allowed. If, and only if, physical removal proves to be non-effective or less effective than required for native habitat revitalization, then other biological or chemical approaches, including use of herbicides, may be considered at the Bolinas Wye wetlands. Herbicide use would require approval for use in aquatic environments and would also have to be applied by a licensed applicator with all required warnings posted near the application site(s). Herbicide application methods may include cut stump, foliar, spot spray, and wick/wipe. A registered, nontoxic dye may be added to the herbicide mixture to improve detection, ensure thorough application, and avoid overspray. A surfactant to assist the herbicide in sticking to and penetrating leaf cuticles or bark surfaces may also be added to the mixture. All applications will follow label directions and further directions contained in a pesticide recommendation written by a certified Pest Control Advisor (PCA), as well as guidelines set forth by the California Department of Pesticide Regulation. In general, best practices include: no application occurs in water bodies or active waterways, no foliar spraying occurs when wind speeds are greater than seven miles per hour, no foliar spraying when fog or rain is present, and no application within 24 hours of predicted precipitation. Herbicides should be mixed over secondary containment away from water bodies, and care should be taken to mix only as much herbicide as will be used on site that day.

If a non-native invasive species (NNIS) is continually re-sprouting after the plant has been cut back, then a cut and paint herbicide application would be used as it requires a very small amount of herbicide for treatment and is not subject to wind drift. The small use of herbicide on a previously cut-back plant would be most effective, with the least amount of herbicide, and would limit continual ground disturbance from digging out additional re-sprouts.

VII. CONSTRUCTION

This section provides an overview of the construction process for the proposed Project. Information describing the proposed phasing and sequencing of the Project's components, the necessary equipment, grading and soils management, tree and non-native vegetation removal, access, and staging is presented in the subsections below.

The constructability of the proposed Project has been a major consideration throughout the design process. The Project is complex, involving roadway and bridge construction, and nuances of channel construction in a heavily wooded area. The site is in a liquefaction zone, and soils are poorly suited for providing stability, resulting in the need for over-excavation,[1] pilings, or the use of engineered fill placed in compacted lifts and allowed to settle for a sufficient period of time for roads and bridges. Access to the Project site for heavy equipment is another consideration due to the winding nature of access routes and the distances that need to be traveled.

[1] Over excavation refers to an excavation that goes beyond the depth required for the formation of a below-ground structure.

A. CONSTRUCTION SEQUENCE

Because Olema Bolinas Road is the primary access route in and out of the community of Bolinas, construction of the proposed Project must be sequenced to provide continual through access. To accommodate this, the proposed Project would be built over two construction seasons as shown in Figures 19 and 20. Phase I of Project construction would consist of the first construction season, while Phase II would consist of the second. Construction seasons generally occur between May 1 and October 31, although work window dates may be influenced by permitting-agency specified measures needed to protect special-status species including black rail, California red-legged frog, and steelhead, among others.

As shown on Figure 19, the first construction season (Phase I) would include:

- Olema Bolinas Road realignment and new bridge construction,
- Elevating Olema Bolinas Road and constructing the roadside slopes,
- Lewis Gulch Creek channel construction through the Bridge Reach, including installation of log structures,
- Lewis Gulch Creek bank stabilization upstream of new bridge,
- Lewis Gulch Creek new channel floodplain restoration, and
- Removal of invasive stands of Himalayan blackberry (*Rubus armeniancus*).

After the first construction season, flows in Lewis Gulch Creek would follow the existing path along the west side of Olema Bolinas Road. The newly graded Bridge Reach channel would be isolated from flow using large volume sandbags placed just upstream of the newly constructed bridge, through the winter between the first and second construction seasons, and up until the end of the second construction season.

As shown on Figure 20, the second construction season (Phase II) would include:

- Removal of the Fairfax Bolinas (Crossover) Road,
- Excavating the Transitional and Wye Reaches of the realigned channel for Lewis Gulch Creek,
- Installation of log structures in the Transitional and Wye Reaches of Lewis Gulch Creek, and
- Notching the existing berm on the southern side of Lewis Gulch Creek, just downstream of the existing Olema Bolinas Road box culvert (spoils pile removal).

At the end of the second construction season, the temporary sandbag diversion dam upstream of the bridge would be removed, and the earthen berm would be installed in the former Lewis Gulch Creek channel to divert all flow into the newly constructed channel. Vegetation management and nonnative invasive species removal will occur prior to construction of the elements described above, during the winter, and post-construction.

B. EQUIPMENT

Construction activities related to realigning the Lewis Gulch Creek channel would involve the use of small excavators, dozers, track trucks, and skip loaders to minimize the disturbance footprint. Dozers, scrapers, excavators, cranes, rollers, compacters, and paving equipment would be used to construct proposed improvements to Olema Bolinas Road and the proposed bridge. The use of pile-driving equipment is not

expected to be necessary; however, the presence of certain subsurface conditions that could be encountered on-site (solid rock, non-cohesive soils) could require the limited use of pile drivers.

C. SOILS AND GRADING

Topsoil excavated for the constructed channel for Lewis Gulch Creek would be reused in the area where Fairfax Bolinas Road is proposed for removal and in the proposed restored floodplain above Olema Bolinas Road. Wetland sod and topsoil removed from the channel areas would be stored and re-used in the former footprint of Fairfax Bolinas Road. Road fill soil would be prepared at approved facilities and imported to the site in tandem dump trucks. Soil specifications would be prepared by the Project's civil engineer using the recommendations from the geotechnical report. Because of the existing subsurface soil conditions, road grade areas would need extended time to settle and reach the necessary compaction. Soil amendments and/or extra soil compaction efforts may be necessary to reach the required compaction for the new and proposed improved areas of Olema Bolinas Road.

The quantity of material associated with removal of existing roadways is approximately 500 cubic yards, which would be transported to a location outside of the Project area (likely the Marin Resource Recovery Center in San Rafael) for disposal or recycling if it is determined unsuitable for on-site reuse as road fill. Removal of roadway materials, at 8 cubic yards of material per truck, would require 63 trips. The proposed Project will also remove and reuse approximately 1,200 cubic yards of fill excavated from the new channel areas and would require the import of an additional approximately 1,200 cubic yards of fill for roadway construction. Importing this roadway fill would generate approximately 150 truck trips. The depths below existing ground surface for specific ground-disturbing activities proposed as part of the Project are summarized below in Table 3.

Table 3. Grading Depths for Project Components

PROJECT COMPONENT	MAXIMUM DEPTH BELOW GROUND SURFACE (FEET)
Bridge Abutment Stems	15
Bridge Piles	75
New Road Subgrades	2
Old Road Demolition	2
Stream Channel Above Bridge	5
Stream Channel Below Bridge	3
Tree and Stump Removal	5
Utility Modifications	5
Wetland Restoration	2
Himalayan blackberry removal	3

D. TREES AND NON-NATIVE VEGETATION

Trees removed for the constructed Lewis Gulch Creek channel and road realignment areas would be cut to size and stored temporarily on site for re-use as proposed channel and floodplain log structures. All remaining removed trees and brush would be removed from the site and disposed of at appropriate disposal facilities.

Prior to construction, Cape ivy (*Delairea odorata*), Himalayan blackberry (*Rubus armeniacus*) and periwinkle (*Vinca major*) will be removed from the Project area to avoid moving these species during construction and to begin the process of non-native invasive species management and wetland vegetation restoration. Disturbed areas will be planted or direct seeded with locally collected native species following each construction season, and in-fill planting and non-native invasive species control will continue for at least two years following construction.

E. ACCESS

During Phase I construction season work, traffic would be directed to use Fairfax Bolinas Road to access the town of Bolinas from SR-1. Temporary single lane traffic controls would be required during construction season to complete road grading activities on Olema Bolinas Road south of the intersection with Fairfax Bolinas Road. A temporary paved ramp would also be required for the transition from Olema Bolinas Road to Fairfax Bolinas Road. Approximately 2,820 sf of temporary paving would also be added to the intersection of Fairfax Bolinas Road and SR-1 to allow for vehicles to turn onto Fairfax Bolinas Road from southbound SR-1 (see Figure 19).

F. STAGING

As illustrated in Figure 6 (Year 1) and Figure 7 (Year 2), staging of construction activities and stockpiling of materials would use decommissioned areas of Olema Bolinas Road during the first construction season and Fairfax Bolinas Road during the second construction season. A temporary signal on Olema Bolinas Road or intermittent single lane closures may be required for portions of the work.

VIII. CONSERVATION MEASURES

The proposed Project is designed to improve environmental processes and minimize environmental impacts associated with restoration. Conservation Measures have been incorporated into the general construction design and implementation of the proposed Project to improve the overall effectiveness of the restoration and to minimize generally foreseeable adverse impacts. Conservation Measures are distinguished from “Mitigation Measures” in that they are conceived as part of the design of the proposed Project rather than being stipulated as methods of reducing or eliminating unforeseen or unavoidable impacts of the Project. Ultimately, both Conservation and Mitigation Measures will become stipulated conditions of approval by the relevant permitting agencies and the MCOSD. For the proposed Project, Conservation Measures were identified in advance so that they could be incorporated directly into the design. These Conservation Measures have been drawn from recent permitting documents for similar projects issued by the following agencies with permitting authority over aspects of the proposed Project:

- U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) – Programmatic Biological Opinion (PBO) and Biological Assessment (BA)
- California Department of Fish and Wildlife (CDFW) – Selected Section 1602 Lake and Streambed Alteration Agreements
- United States Army Corps of Engineers (Corps) Nationwide Permits (NWP) #27 and #14 for Aquatic Habitat Restoration and Linear Transportation projects, respectively

Conservation Measures for the proposed Project shown below are organized by topic and address general Project conditions to protect the environment. No Conservation Measures pertaining to cultural or tribal resources are included below as these areas are the subject of Project Mitigation Measures

required to avoid potentially significant impacts resulting from Project implementation.

A. BIOLOGICAL CONSERVATION MEASURES

1. Prior to initiating ground disturbing activities, the limits of construction shall be marked with stakes, flags or similar high-visibility markers to prevent any work from extending the work area or entering sections of the creek or adjacent wetlands unnecessarily. (USFWS, CDFW, Corps)
2. Staging areas will be located in designated zones within the construction limits. (USFWS, CDFW)
3. Fueling and maintenance of tools or equipment will occur only within designated staging areas or within developed surfaces.
4. A training program will be given to all crew members working on the proposed Project. The training will be given by a qualified biologist (either in person, or via a pre-recorded presentation) and will include education to all crew members on sensitive resources (e.g. wildlife, fish or habitats) that require special protections, as well as general protections such as the boundaries of work, water quality protection practices, environmental protection measures, and permit specified restrictions (CDFW, USFWS).
5. All equipment (mechanized or hand tools) shall be cleaned before and after use on the Project. Equipment will be cleaned at an offsite facility such that mud which could potentially carry invasive plant materials is removed and thoroughly dried such that the spread of invasive plants is minimized. Any aquatic equipment (e.g., pumps, nets etc.) shall be cleaned sufficiently and dried for at least 72 hours to prevent the spread of aquatic invasive organisms.
6. Heavy construction within the ordinary high waterline will occur when stream flows are at their lowest (typically July through October). All disturbed soils will be stabilized by October 31. (SWRCB)
7. All Project activities that could spread *Phytophthora* species (plant-damaging Oomycetes [water molds]) to new locations would be subject to BMPs developed by the California Oak Mortality Task Force, available online at: https://www.suddenoakdeath.org/diagnosis-and-management/best-management-practices/. Phytophthora BMPs include but are not limited to:
    - Informing personnel that they are working in a phytophthora-infested area, unauthorized movement of soil material is prohibited, and the intent of these prevention measures is to prevent spread of phytophthora.
    - Removing or washing off accumulations of plant debris, soil, and mud from shoes, boots, vehicles, and heavy equipment, etc. before entering and leaving the Project area, and cleaning with denatured alcohol or similar materials as needed.

B. NOISE CONTROL

1. Equipment and power tools will utilize the best available noise control techniques such as improved mufflers, and use of intake silencers.
2. Contractors will limit the idling of motors except as necessary for safe operations. Idling times will be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). (BAAQMD)

3. Project-related construction activities will occur within permitted days and times and would generally be limited to the hours of 7:00 a.m. to 6:00 p.m.

C. AIR QUALITY MANAGEMENT

The Bay Area Air Quality Management District (BAAQMD) recommends basic construction measures to ensure minimal impacts on regional air quality. The contractor would be responsible for implementing the following basic measures during construction:

1. All exposed surfaces such as parking areas, staging areas, soil piles, and graded areas will be watered as needed for dust control. (BAAQMD)
2. All haul trucks transporting soil, sand, or other loose material off-site will be covered. (BAAQMD)
3. All visible mud or dirt track-out onto adjacent public roads will be removed using wet power vacuum street sweepers at least once a day. The use of dry power sweeping is prohibited. (BAAQMD)
4. Clear signage will be provided to direct construction workers to all access points. (BAAQMD)
5. All construction equipment will be maintained and properly tuned in accordance with manufacturer specifications, and all equipment will be checked by a certified visible emissions evaluator. (BAAQMD)
6. A publicly visible sign with the telephone number and person to contact at the lead agency regarding any dust complaints will be posted in a visible location on or near the Project site. The contact person will respond to complaints and take corrective action within 48 hours. The BAAQMD phone number will also be visible to ensure compliance with applicable regulations. (BAAQMD)
7. Evidence of reduced NO_x emissions from off-road diesel-powered equipment shall be provided by the contractor. (BAAQMD)

IX. PERMITS AND APPROVALS

The information contained in this Initial Study will be used by the MCOSD as it considers the proposed Project. If the Project is approved, the Initial Study and the associated Mitigated Negative Declaration (MND) would be used by the MCOSD and other responsible and trustee agencies in conjunction with various approvals and permits.

These actions include, but may not be limited to, meeting all applicable requirements to secure the necessary approvals and/or permits from the following agencies:

National Oceanic and Atmospheric Administration (NOAA)

- Magnuson-Stevens Fishery Conservation and Management Act
- Coastal Zone Consistency Determination for Restoration Projects

U.S. Fish and Wildlife Service (USFWS)

- Federal Endangered Species Act, Section 7 Biological Opinion (California red-legged frog)

U.S. Army Corps of Engineers (Corps)

- Clean Water Act, Section 404, NWP 27 and 14

National Marine Fisheries Service (NMFS)

- Marine Mammal Protection Act
- Federal Endangered Species Act, Section 7 Consultation (Steelhead and Coho)

Greater Farallones National Marine Sanctuary (GFNMS)

- National Marine Sanctuaries Act, Manager's permit

State Historic Preservation Office (SHPO)

- National Historic Preservation Act, Section 106

State Water Resources Control Board (SWRCB)/San Francisco Bay Regional Water Quality Control Board (SFRWQCB)

- Clean Water Act, Section 401 Water Quality Certification
- Porter-Cologne Water Quality Act
- Clean Water Act, Section 402 National Pollutant Discharge Elimination System (NPDES) permit

California Coastal Commission (CCC)

- California Coastal Act, Federal Consistency Determination (CD) for Projects in the Coastal Zone

California Department of Fish and Wildlife (CDFW)

- California Fish and Game Code, Section 1600 Lake or Streambed Alteration Agreement
- California Fish and Game Code, CESA Consistency Determination for Incidental Take of Coho Salmon

California Department of Transportation (Caltrans)

- Right-of-Way Encroachment Permit

Bay Area Air Quality Management District (BAAQMD)

- Federal Clean Air Act

X. PROJECT DEVELOPMENT

Since 2002 the MCOSD has been working in partnership with the Greater Farallones National Marine Sanctuary (GFNMS), Point Reyes National Seashore (PRNS), Golden Gate National Recreation Area (GGNRA), and the Golden Gate National Parks Conservancy (GGNPC), collectively referred to as the Bolinas Partners, to restore Bolinas Lagoon. The MCOSD has also been working with the Bolinas Lagoon Advisory Council (BLAC). The BLAC advises the Board of Supervisors, Board of Directors of the MCOSD,

and the MCOSD on the management and ecological restoration of Bolinas Lagoon. It is composed of twelve representatives from local recreational interests, homeowners' groups, environmental nonprofits, county and federal agencies, and appointees made by the county Board of Supervisors.

Bolinas Lagoon has been the subject of several studies and reports with the goal of improving its health and ecological function. The most applicable of these studies and reports are described in this section to provide background for the proposed Project.

A. 2008 BOLINAS LAGOON ECOSYSTEM RESTORATION PROJECT: RECOMMENDATIONS FOR RESTORATION AND MANAGEMENT (GFNMS 2008) – LOCALLY PREFERRED PLAN

In 2008, the Greater Farallones National Marine Sanctuary (GFNMS), the MCOSD, and the U.S. Army Corps of Engineers published the *Bolinas Lagoon Ecosystem Restoration Project: Recommendations for Restoration and Management Report* (also known as the Locally Preferred Plan [LPP]), which focused on addressing historic human impacts to Bolinas Lagoon by aiding ecologic and hydrologic processes. The report provided a suite of recommendations for long-term management actions and established an overall project goal, along with specific restoration objectives.

The stated goal of the LPP was to "ameliorate adverse human impacts to the lagoon, thereby promoting the natural, dynamic, geologically evolutionary processes of this internationally recognized estuarine environment" (p. 7). The objectives of the Project were to:

1. Restore natural sediment transport and ecological functions of Bolinas Lagoon by ameliorating the negative effects of human induced changes.
2. Identify and manage introduced species in the Bolinas Lagoon watershed.
3. Protect water quality by minimizing negative human impacts.

The LPP prioritized projects that ensure the long-term health of the overall Bolinas Lagoon, and was reviewed by technical experts, community groups, and the BLAC. The report includes 14 restoration recommendations and identified restoration recommendations applicable to the Bolinas Wye to improve flood plain function and to reduce flood risk (4a-LPP), improve transitional habitat (6-LPP), and to plan and manage for future SLR (9-LPP) (p. 27, 30, and 32 respectively).

In 2013, the San Francisco Bay Joint Venture sponsored a panel of scientific experts to evaluate the recommendations of the LPP (Design Review Group, DRG). Although the panel confirmed that the LPP remained the guiding document for restoration planning purposes, it identified evolving scientific issues that affect project designs and priorities. The important new perspectives that emerged from the meeting and are relevant to the proposed Project are as follows:

- Accelerated sea-level rise replaces previous concerns over the loss of tidal prism as the overriding impact to the lagoon's ecosystem structure and function.
- In the context of sea-level rise, sediment can be an important asset to the lagoon.
- Accommodation room for the lagoon to migrate inland as sea level rises is necessary for the long-term health and stability of Bolinas Lagoon.

The DRG also made the following general recommendations:

- Planning for various sea-level rise and storm surge scenarios should be incorporated into the restoration Project.

- Armoring is a liability for lagoon resilience and adaptation to rising sea level.

Lastly, the DRG made the following Project- and area-specific recommendations:

- The Lewis and Wilkins Gulches (the area known as the “Wye”) is another highly important zone for lagoon accommodation space, tidal marsh and floodplain migration, and sediment management opportunities in response to sea-level rise.

The results of the DRG recommendations were presented to the BLAC and led to public support of the development of conceptual designs for the Bolinas Lagoon North End Project described further below.

B. POTENTIAL BOLINAS LAGOON NORTH END RESTORATION PROJECT

The potential Bolinas Lagoon North End Restoration Project (North End Project) was built off the DRG recommendations and LPP recommendations 4a-LPP, 6-LPP, and 9-LPP, and created a future vision for restoring the watersheds at the northern end of Bolinas Lagoon. The stated goals of the North End Project are:

- **Habitat Restoration and Reconnection:** Improve the hydrologic function and stream flow conveyance of Lewis Gulch Creek and Wilkins Gulch Creek and enhance riparian and wetland habitats.
- **Road Safety:** Alleviate chronic flooding of Marin County and State roadways and improve traffic safety.
- **Climate Change and Sea-Level Rise Adaptation:** Allow for future expansion of Bolinas Lagoon and its tidal-freshwater transition zone as sea level rises (AECOM 2016).

The potential North End Project study area includes the proposed Project area as well as the lower watersheds of Wilkins Gulch Creek, Salt Creek, and Wharf Creek that drain through the Wye and into the northern tip of Bolinas Lagoon. The boundaries of the North End Project study area are shown on Figure 21.

The potential North End Project encompasses federal lands managed by the National Park Service (Point Reyes National Seashore and the Golden Gate National Recreation Area), the County of Marin (MCP and the Department of Public Works), private landowners, and the State of California (managed by the California Department of Transportation [Caltrans]). Private properties within the potential North End Project occur to the west of Lewis Gulch Creek, north of the Olema Bolinas Road/SR-1 intersection.

Several studies and reports have been completed to create a vision for restoring the northern end of Bolinas Lagoon and ultimately the proposed Project. The reports were prepared with public input during many public meetings throughout 2016 and 2017. The most applicable are described below.

i. 2016 AECOM Site Conditions Report and Technical Memos

The purpose of the Site Conditions Report and its constituent memoranda is to provide a foundation for developing restoration and climate change adaptation alternatives for the potential North End Project. The Site Conditions Report presents a summary and analysis of the existing site conditions found at the north end of the Bolinas Lagoon and its surroundings, including the current and historical conditions of the north end of the Bolinas Lagoon, Lewis Gulch and Wilkins Gulch Creeks, and the surrounding riparian corridors and uplands. Studies were conducted to address a variety of topics, including cultural and biological resources, history, geology, geomorphology, and hydrology, land ownership, infrastructure, and vehicle

traffic. The Technical Memorandums below have been summarized in and serve as attachments to the Site Conditions Report. The studies have contributed substantive information about the Project area and have informed the design development of the proposed Project.

- Bolinas Lagoon North End Restoration Project - Current and Historic Geomorphology and Hydrology. AECOM 2016
- Bolinas Lagoon North End Restoration Project – Additional Studies and Data Needed. AECOM 2016
- Bolinas Lagoon North End Restoration Project – Biological and Cultural Resources. AECOM 2016
- Bolinas Lagoon North End Restoration Project – Utilities and Parcel Ownership. AECOM 2016
- Bolinas Lagoon North End Restoration Project – Traffic Counts and Analysis. AECOM 2016
- Bolinas Lagoon North End Restoration Project – Regulatory Environment. AECOM 2016

ii. 2017 AECOM Conceptual Design Report

The Conceptual Design Report included three conceptual design alternatives that offered different design solutions to meet the goals of providing habitat restoration and reconnection, road safety, and climate change/sea-level rise adaptation. The three conceptual design alternatives were selected collaboratively with the Bolinas Partners, BLAC, and members of the Bolinas and Stinson Beach communities. The design of each conceptual alternative includes three construction phases, representing near-term (Phase 1), mid-term (Phase 2), and longer-term (Phase 3) improvements. The alternatives are comprised of several common design elements, including:

- reconnecting Lewis Gulch Creek and Wilkins Gulch Creek to portions of their floodplain and alluvial fan;
- restoring portions of Lewis Gulch Creek;
- reducing roadway flooding by replacing culverts and elevating roads
- upgrading the Lewis Gulch Creek culvert under SR-1;
- stabilizing the left bank of Lewis Gulch Creek at SR-1 and Olema Bolinas Road;
- constructing a new road crossing and redirecting Lewis Gulch Creek under it and into its former alluvial fan;
- elevating SR-1 on a causeway;
- removing the Fairfax Bolinas Road (Crossover Road) and reconfiguring the Wye road intersection; and
- creating vegetated shoreline and soft erosion protection components wherever feasible to enhance sea-level rise resiliency.

The Conceptual Alternatives were developed to meet the goals of the North End Project, summarized above. The components of each conceptual alternative that are unique to it are bulleted below.

- **Alternative 1:** Includes raising SR-1 onto two causeways and restoring the downstream portion of the Wilkins Gulch Creek floodplain.

- **Alternative 2:** Considered the hybrid approach and includes raising SR-1 onto two causeways and restoring the entire Wilkins Gulch Creek floodplain to the head of the alluvial fan (both downstream and upstream portions of the drainage).
- **Alternative 3:** Includes raising SR-1 onto a single causeway that intersects with a Fairfax Bolinas Road causeway and restoring the entire Wilkins Gulch Creek floodplain to the head of the alluvial fan, both downstream and upstream portions of the drainage.

The Conceptual Design Report included an opportunities and constraints analysis associated with each of the alternatives. The conclusion of the opportunities and constraints analysis was that all alternatives would outline an opportunity to provide the Bolinas Lagoon ecosystem with extensive habitat restoration, traffic safety, and sea-level rise adaptation benefits, and that all alternatives would involve short-term constraints such as disruption of the community during construction; losses of wetland, creek, and sensitive species habitat during construction of roadways and restoration elements; and uncertainty related to availability of funding and uncertainty in climate change projections. The Conceptual Design Report also included a geotechnical evaluation as an appendix.

iii. Recommendations by the BLAC, Marin County Open Space District Board of Directors, and Board of Supervisors

The AECOM Conceptual Design Report was reviewed by the BLAC on September 29, 2017 and they recommended that the MCOSD Board of Directors pursue Phase 1, and to defer subsequent phases as a long-term "vision" that the community could work towards. This would allow for current studies to be completed and additional discussion that could refine the analysis and allow for the development of funding strategies. On February 27, 2018, the MCOSD Board of Directors reviewed the BLAC's recommendations during a public meeting and approved with proceeding with Phase 1, which included majority of the design components for what is now the Proposed Bolinas Lagoon Wye Wetland Project, the subject of this IS/MND. The BLAC has received project updates at all their public meetings (bi-yearly since 2016), and bi-annual BLAC sponsored State of Bolinas Lagoon Conference (2021 was the last conference).

iv. Additional Studies and Reports

The following additional studies and reports were completed to increase understanding of specific resources and technical subject areas for the potential North End Project and for the proposed Project, apart from the Culvert Maintenance Project Report that was prepared for the Marin County Department of Public Works:

- AECOM Hydraulic Modeling Report, Bolinas Lagoon North End Project, Topographic Survey and Hydraulic Modeling. AECOM 2017.
- North End Bolinas Lagoon Surface and Groundwater Monitoring (Water Years 2018, 2019, 2020).
- Olema Bolinas Road (Lewis Gulch) Culvert Maintenance Project: Summary of pre-construction surveys, biological monitoring, and fish relocation. WRA 2019.
- WRA Salmonid Habitat Assessment, Wilkins Gulch Creek and Lewis Gulch Creek. WRA 2017.
- Bolinas Lagoon North End Restoration Project: Rare Plant Survey. Shelly Benson, July 2017 and 2018.
- WRA Basis of Design Report (30% and 60% Designs). WRA 2020, 2022.

- WRA Hydrologic and Hydraulic Modeling Technical Report (60% Design). WRA 2022.
- WRA Fish Passage Design Criteria and Guidance Report. WRA 2020 (updated 2022).
- Bolinas Lagoon Wye Wetland Project Surface Fault Rupture Study. Slate Geotechnical Consultants Inc. (Slate, 2022).

Additionally, because the Project site straddles the San Andreas Fault, subsurface investigation was required to inform the structural design of the bridge. These actions were taken to gather important information needed to inform the development of alternative design concepts for the Project. These actions are exempt from CEQA based on the Class 6 Categorical Exemption (CEQA Guidelines Section 15306) established for information collection. The MCOSD filed the Categorical Exemption on December 16, 2020.

C. IMPLICATIONS OF PROPOSED PROJECT FOR NORTH END PROJECT

Based on the recommendation from the BLAC and the MCOSD Board of Directors, the proposed Bolinas Wye Wetlands Resiliency Project includes the following components that were included in Phase 1 of the Conceptual Design Report with the exception of the Lewis Gulch Creek culvert at SR-1:

- Remove the crossover road, which connects Olema Bolinas Road with SR-1.
- Reconfigure the SR-1/Olema Bolinas Road intersection.
- Install a bridge crossing just south of the reconfigured intersection along Olema Bolinas Road, raise the adjacent roadway to accommodate the new design grade, and redirect Lewis Gulch Creek onto the relict alluvial fan.
- Stabilize the Lewis Gulch Creek streambank adjacent to SR-1, north of the Olema Bolinas Road intersection.
- Install a new culvert near the intersection of the existing crossover road and Olema Bolinas Road.

The MCOSD determined that the proposed Project could proceed as a stand-alone project distinct from the potential North End Project for the following reasons:

- The proposed Project is located on lands managed solely by the County of Marin, whereas the potential North End Project would be located on lands managed by other entities, including the National Park Service, private landowners, and the State of California – California Department of Transportation (Caltrans).
- The proposed Project does not include upgrading the Lewis Gulch Creek culvert at SR-1, which is an element of the potential North End Project and included in Phase 1 of the Conceptual Design Report because the culvert is entirely within lands owned and managed by Caltrans. Upgrading this culvert was recommended as part of the potential North End Project to provide full fish passage. This work could occur in the future independent of the proposed Project if Caltrans were to pursue it. Implementation of the proposed Project would not affect how the Lewis Gulch Creek culvert at SR-1 could be designed or constructed in the future.
- Implementation of the proposed Project would not impact the range of potential future actions on lands managed by other entities to implement the goals of the potential North End Project. While the proposed Project and the potential North End Project share similar purposes and components, they can be implemented independently because implementation of the proposed Project does not commit the MCOSD or any other agency to implementation of the potential

North End Project. Implementation of the potential North End Project is not a necessary reasonably foreseeable consequence of the proposed Project. Furthermore, the potential North End Project would not change the scope, nature, or environmental effects of the proposed Project.

- The potential North End Project was in concept only and contained adaptation and resilience strategies that would need to occur in the future to improve climate change and sea-level rise resiliency. The Conceptual Design Report included three alternatives, previously described in the Conceptual Design Report section. These alternatives are conceptual, and a preferred alternative has not been selected. While the proposed Project includes most of the elements included in Phase 1 of the Conceptual Design Report, it does not include any elements included in Phases 2 or 3 of the Conceptual Design Report. Details regarding the scope for each phase are not known at this time since no decisions have been made as to how SR-1 would be elevated, or Wilkins Gulch Creek connected to its alluvial fan. The Conceptual Design Report included an analysis of the opportunities and constraints for the alternatives, but an alternative has not yet been selected, the resource studies have not been completed, and a project-specific design has not been completed. The evaluation of environmental effects of the potential North End Project as discussed in the Conceptual Design Report broadly relates to potential impacts to the local community, wetlands, subtidal lands, and species that utilize these habitats and highlight the need to prioritize actions to address sea-level rise within the current Project area, and the need for future actions to elevate SR-1 on a causeway or partial causeway to prevent the loss of tidal wetlands by the end of the century. Therefore, a current evaluation of the potential environmental effects of the potential North End Project would be remote and speculative.
- The proposed Project does not establish criteria for the potential North End Project, and specific project information about the potential North End Project is not necessary to make an intelligent decision whether to proceed with the proposed Project. Should the potential North End Project move forward, it would be described, and the environmental effects would be analyzed in a separate environmental document in compliance with CEQA. Since the details of the potential North End Project are not known at this time, the type of CEQA document is not known. Minimally, an Initial Study would be completed to determine whether a Mitigated Negative Declaration or an Environmental Impact Report would be appropriate.

D. BOLINAS LAGOON WYE WETLANDS RESILIENCY PROJECT STAKEHOLDER AND PUBLIC OUTREACH

The proposed Project's designs were presented to the public for comment at the following public meetings:

- Bolinas Lagoon Advisory Council – 10/16/2020 and 04/29/2022: All members were supportive of the proposed Project as presented.
- Marin Conservation League – 11/20/2020: Members were given an update on Project status and an overview of the plan. Members were supportive of the proposed Project as presented.
- Bolinas Community Public Utility District – December 16, 2020: Overwhelming support but expressed concern with bicyclists having to travel on SR-1 to and from Fairfax Bolinas Road to Olema Bolinas Road. Since the comment was received, the design plans have been updated to include a pullout that bicyclists on SR-1 could utilize near the proposed new intersection of Olema

Bolinas Road and at the intersection of the Crossover Road that will be decommissioned. The pullouts will allow bicyclists to wait until they can cross the highway.

- The MCOSD/GGNPC/Marin County Bicycle Coalition (MCBC) – February 23, 2021: Informal call that discussed the proposed Project and discussed potential issues with bicyclists on SR-1. Examples of paved areas of refuge were provided that have informed the 60% design.

E. DESIGN ELEMENT ALTERNATIVES CONSIDERED FOR THE PROPOSED PROJECT

Three main design elements were evaluated by the MCOSD during development of the proposed Project: (1) the Lewis Gulch Creek channel geometry,[2] (2) the Olema Bolinas Road creek crossing and alignment, and (3) the elevation and side slopes of Olema Bolinas Road. Three alternatives were analyzed for each design consideration, except for the Olema Bolinas Road realignment and crossing analyses that included six ultimate configurations because two alignments were considered, each with three crossing types. Concept designs were analyzed, and the analysis was reviewed by the TAC.

As noted in the Basis of Design Report (30% Design) (WRA, 2020), critical short-term constraints common to all alternatives include disruption of the Bolinas community during construction and losses of wetland, creek, and sensitive species habitat during construction of roadways and restoration elements.

Important opportunities common to all alternatives include:

- native habitat expansion and increased resilience with removal of the Crossover Road;
- increased roadway safety and long-term access with improved intersections, roadway elevation (decreased sea-level rise and flooding risk) and widening (with the addition of shoulders);
- restoration of geomorphic processes that encourage sediment accretion in the wetlands;
- removal of barriers to habitat and wildlife species migration; and
- protection of Lewis Gulch Creek channel from bank erosion that undermines SR-1.

The factors weighed for alternative evaluation were:

- cost (15%),
- climate change / resilience / maintenance (20%),
- hydrologic connectivity (15%),
- environmental benefits / impacts (20%),
- schedule / feasibility (10%),
- salmonids (10%), and
- roadway safety / community benefits (10%).

Based on the analysis, the free-span bridge, Lewis Gulch Creek channel form with a one-year flow event conveyance, and Olema Bolinas Road raised on fill with 2:1 side slopes ranked the highest.

[2] The physical size, shape, and characteristics of a channel in relation to the hydraulic factors of velocity, roughness, slope, and flow frequency.

i. Lewis Gulch Creek Morphology Alternatives

All three considered alternatives assumed that the creek would cross under Olema Bolinas Road near the north end of the Bolinas Wye wetland and that the Crossover Road section of Fairfax Bolinas Road would be removed.

Alternative 1 would restore an alluvial fan condition through the creation of a diffuse network of shallow channels. Large woody debris would be used to restore habitat for steelhead and other species, promote scour and deposition, and create channel dynamism. Alternative 2 was to restore a single thread channel through the Bolinas Wye wetland that would be sized to carry the mean annual flow of the creek. Flows greater than the mean annual would then overtop the banks and overflow to the floodplain. Alternative 3 involved creating a traditional bankfull channel through the Bolinas Wye wetland. Alternatives 2 and 3 would also use large woody debris to promote channel and floodplain habitat and dynamism.

Alternative 2 was selected as the preferred alternative because it provided valuable floodplain habitat, minimized environmental impacts, and maintained volitional passage for all life stages of steelhead.

ii. Olema Bolinas Road Alignment and Creek-Crossing Alternatives

Two potential alignments were evaluated, a western alignment that intersected SR-1 just southeast of the existing intersection, and an eastern alignment that intersected SR-1 approximately 200 feet southeast of the existing intersection. The western alignment resulted in less replacement of Olema Bolinas Road, but required the creek to bend sharply to the east under the creek crossing and would have resulted in a need for either a larger crossing span or longer culvert crossing of the channel. The latter could not be accommodated with surrounding topography without a larger area of disturbance. The skew of the creek to the road was also seen as creating the potential for scour and channel avulsion upstream of the crossing. The eastern alignment was selected as the preferred alternative because it alleviates the skew issue and allows for a shorter span of culvert length, although it creates more short-term impacts to natural resources than the western alignment.

Three crossing types were evaluated: a bottomless arch culvert, a free-span bridge, and a causeway. The arched culvert would not meet the roadway slope requirements for connection with SR-1 while passing the 100-year flow with the required freeboard. The bridge option allowed for passage of the 100-year event while allowing for some degree of lateral channel migration under the road. The causeway would have allowed for maximum channel migration but was determined to be too costly. The bridge was chosen as the preferred crossing alternative.

Two bridge designs were considered: Alternative 1 is a single-span bridge, 60 feet in length and 38.3 feet in width. The bridge is proposed to be a cast-in-place post-tensioned concrete slab on reinforced concrete seat abutments supported by pile caps on 24 24-inch diameter cast-in-drilled-hole concrete piles. Alternative 2 (see Figure 9) is a three-span bridge, 80 feet in length and 38.3 feet in width. This bridge is proposed to be a cast-in-place post-tensioned concrete slab on reinforced concrete 2-column piers founded on four approximately 60-inch diameter cast-in-drilled-hole concrete piles. Based upon the results of the tsunami scour analysis, Alternative 2 was selected for the Project bridge design.

iii. Olema Bolinas Road-Side Elevation Alternative

The elevation of Olema Bolinas Road on fill, versus a causeway as discussed above, required evaluating the design of the side slopes of the improved and relocated areas of Olema Bolinas Road. Alternative 1 called for installing vertical retaining walls at the edge of the road. Alternative 2 called for using a 2:1

outboard slope, involving the use of engineered fill. Alternative 3 called for using a 3:1 slope with no structural elements.

The 2:1 side slope alternative was preferred. Alternative 1 was not selected because of cost and constructability concerns. Alternative 3 was rejected because it would have resulted in excessive impacts to existing wetlands, riparian habitat, and the remaining channel of Lewis Gulch Creek.

XI. MCOSD AUTHORITY, MISSION, AND LEADERSHIP

The MCOSD is an independent legal entity and a special district operating pursuant to the California Public Resources Code. Marin County Parks (MCP) oversees the management of the county parks system and provides public information on behalf of the MCOSD to fulfill the following mission:

> *We are dedicated to educating, inspiring, and engaging the people of Marin in the shared commitment of preserving, protecting, and enriching the natural beauty of Marin's parks and open spaces, and providing recreational opportunities for the enjoyment of all generations.*

A five-member Board of Directors oversees MCOSD operations. A seven-member Parks and Open Space Commission advises the MCOSD Board of Directors on policy matters related to acquisition, development, funding, management, and operation. The MCOSD's Director and General Manager oversee the day-to- day operations.

The MCOSD is subject to the following governing and guidance documents:

- Marin County Strategic Plan, 2001
- Policy Review Initiative, 2005
- Marin Countywide Plan, 2007
- Marin County Department of Parks and Open Space Strategic Plan, 2008
- Marin County Fire Management Plan, 2008
- Marin County Integrated Pest Management Ordinance, 2009
- MCOSD Road and Trail Management Plan, 2014
- MCOSD Vegetation and Biodiversity Management Plan, 2015
- MCOSD Inclusive Access Plan, 2016

Path: L:\Acad 2000 Files\29000\29244\GIS\ArcMap\Project Description\29244_PDFigures.aprx

Sources: National Geographic, WRA | Prepared By: gillespie, 3/12/2023

Figure 1. Project Site Regional Location Map

Bolinas Lagoon Wye Wetlands Resiliency Project
Bolinas, California

0 1 2 Miles

N

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Figure 2.
Project Site and Project Area

Bolinas Lagoon Wye Wetlands Resiliency Project
Bolinas, California

Project Site: (12.30 ac.)

Project Area/Limit of Disturbance: (4.06 ac.)

Limit of Grade (2.39 ac.)

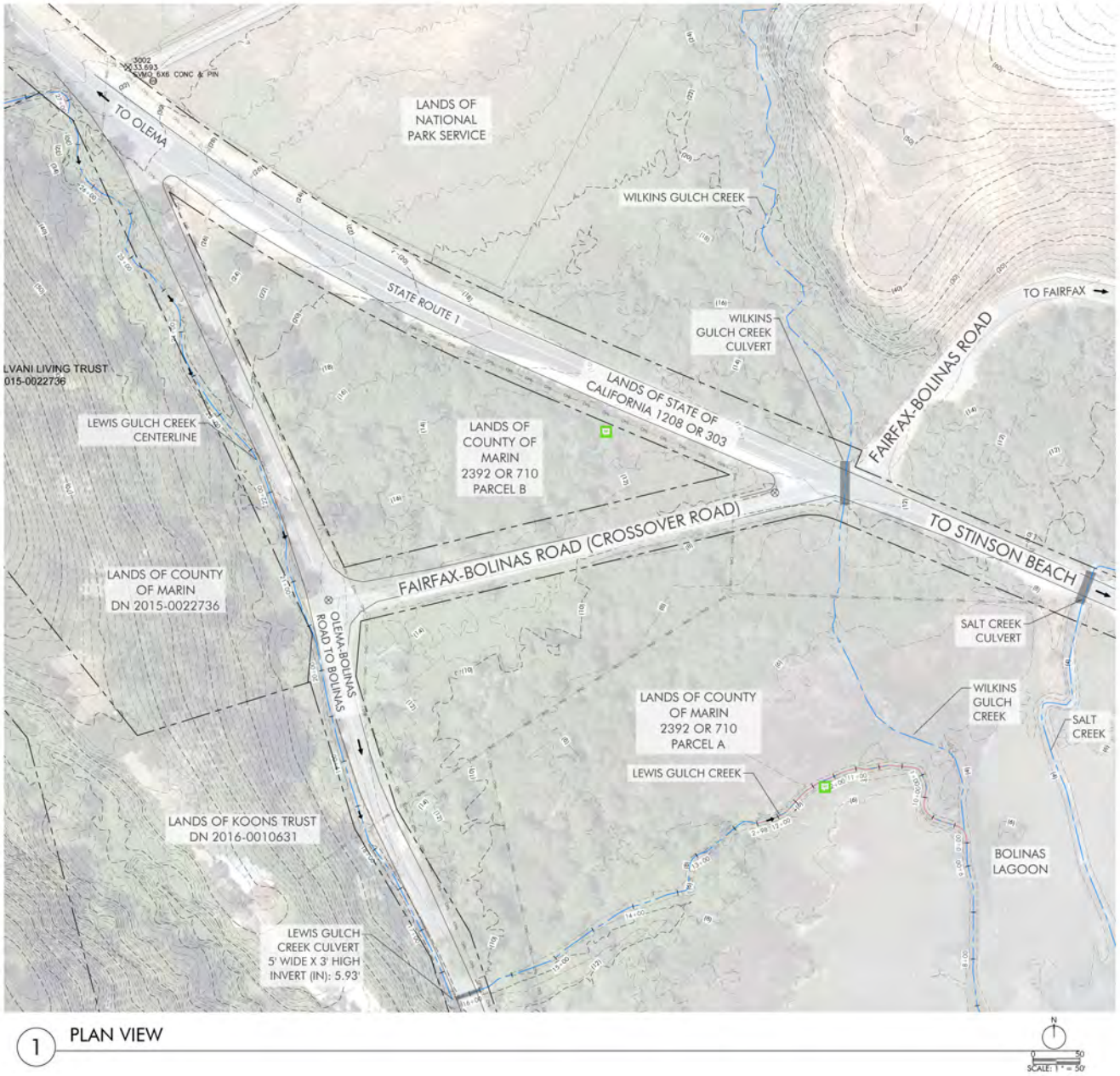
N

0 100 200
Feet

wra
Environmental Consultants

Path: L:\Acad 2000 Files\29000\29244\GIS\ArcMap\Project Description\29244_PDFigures.aprx

Sources: Marin County 2018 Aerial, WRA | Prepared By: gillespie, 6/28/2023



EXISTING CONDITIONS LEGEND

SYMBOL	DESCRIPTION
	PROPERTY LINE (APPROXIMATE)
	ROAD RIGHT OF WAY
	EXISTING FENCE
(100)	EXISTING CONTOUR
	EXISTING CHANNEL ALIGNMENT
OHL	OVERHEAD UTILITY LINE
	FLOW DIRECTION
	EXISTING JURISDICTIONAL WETLANDS
	SURVEY CONTROL POINT
	EXISTING UTILITY POLE
	EXISTING MAILBOX

NOTES:
1. FOR CONTROL POINTS, SEE SHEET PC-1

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BOLINAS, CALIFORNIA

MARIN COUNTY PARKS

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Date	Issues And Revisions	No.
01/29/2020	CONCEPT PLAN	
07/30/2020	30% DESIGN	
02/14/2022	60% DESIGN	

PROJECT #29244
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CHECKED BY: RBB
ORIGINAL DRAWING SIZE: 24 X 36

PROPERTY OWNERSHIP
Sheet

V-1.0

Figure 3. Property Ownership Map

Bolinas Wye Wetlands Resiliency Project
Bolinas, California

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Figure 4.
Primary Project Components

Bolinas Lagoon Wye Wetlands Resiliency Project
Bolinas, California

Project Site: (12.30 ac.)

Project Area/Limit of Disturbance: (4.06 ac.)

Limit of Grade: (2.39 ac.)

2ft. Contours

Primary Project Components

Lewis Gulch Creek Restoration - 0.15 ac. & 418 LF

Existing Lewis Gulch Creek - 0.43 ac. & 1,246 LF

Proposed Lewis Gulch Creek Alignment - 0.30 ac. & 999 LF

Adjacent Creek (No Project Work)

Mean High Water 4.99 (NAVD88)

New Bridge Over Lewis Gulch Creek - 0.07 ac.

New Olema-Bolinas Road & Intersection with SR-1 - 0.53 ac.

Removed Portions of Fairfax-Bolinas Road - 0.50 ac.

New Wetlands - 0.25 ac.

Existing Geotech Boring Location

Existing Piezometer

N

0 100 200

Feet

wra
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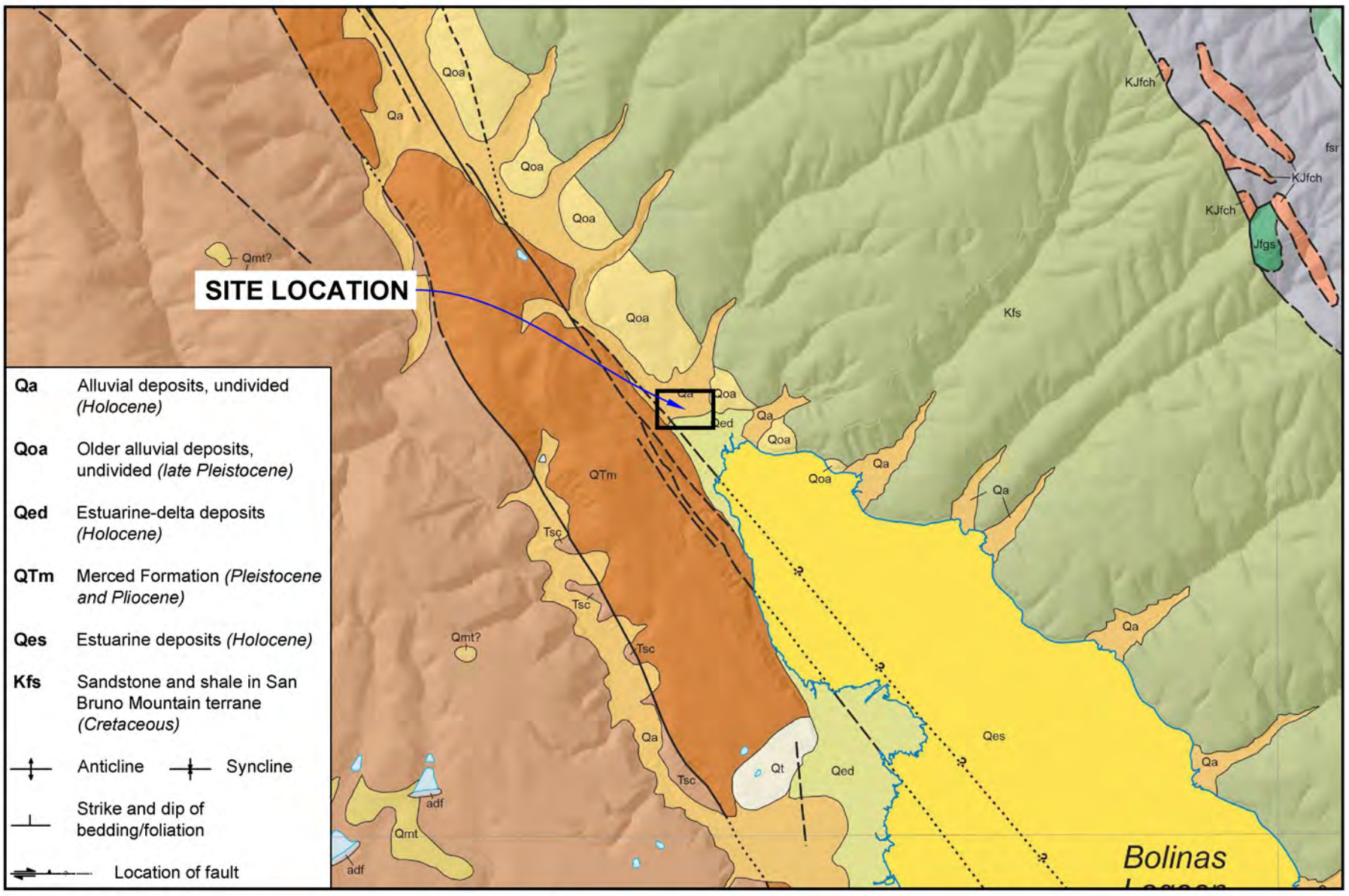
Sources: Marin County 2018 Aerial, WRA | Prepared By: gillespie, 8/16/2023



North

Map Source:

-Cochrane, G.R., et al. *California State Waters Map Series: offshore of Bolinas, California*. 1:24,000. Denver, CO: U.S. Geological Survey, 2015.

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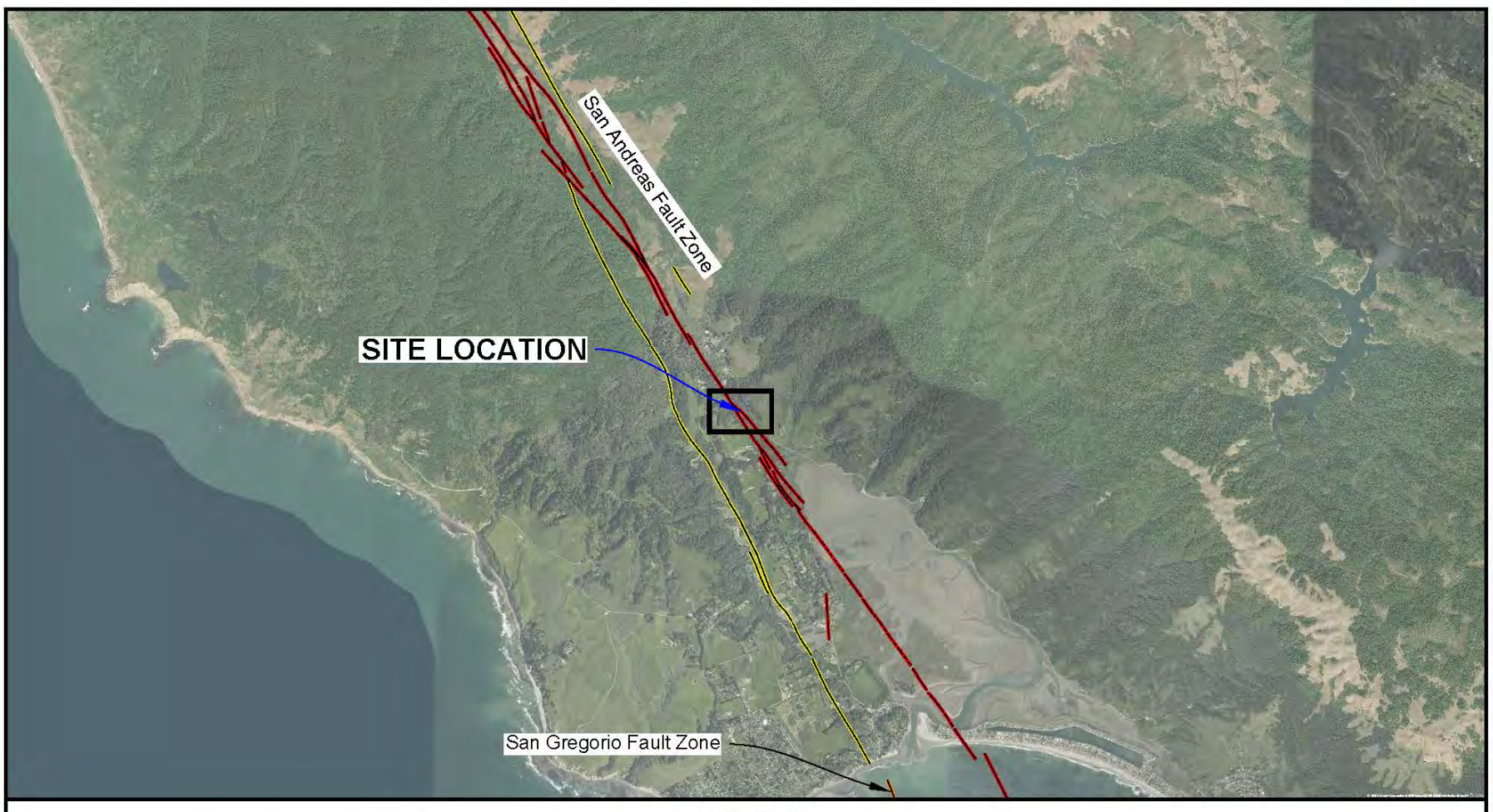
MARIN COUNTY OPEN SPACE DISTRICT
BOLINAS LAGOON WYE WETLANDS PROJECT

MARIN COUNTY, CA

Figure 2
Geologic Map

Proj. No: 19-570.1
Scale: 1"=2,000'
Date: 6/16/2020



LEGEND

Quaternary Fault (Age)	Quaternary Fault (Age)	Location
<150 years	<750,000 years	Well Constrained
<15,000 years	<1.6 million years	Moderately Constrained
<130,000 years		Inferred

North

Map and Data Sources:

-Basemap via AutoCAD Civil 3D geolocation tool

-Fault data via CGS Fault Activity Map of California 2010 GIS data

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MARIN COUNTY, CA

Figure 3
Fault Map

Proj. No: 19-570.1
Scale: 1"=5,000'
Date: 6/16/2020

Figure 5. Geologic Map and Fault Activity Map

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Bolinas, California

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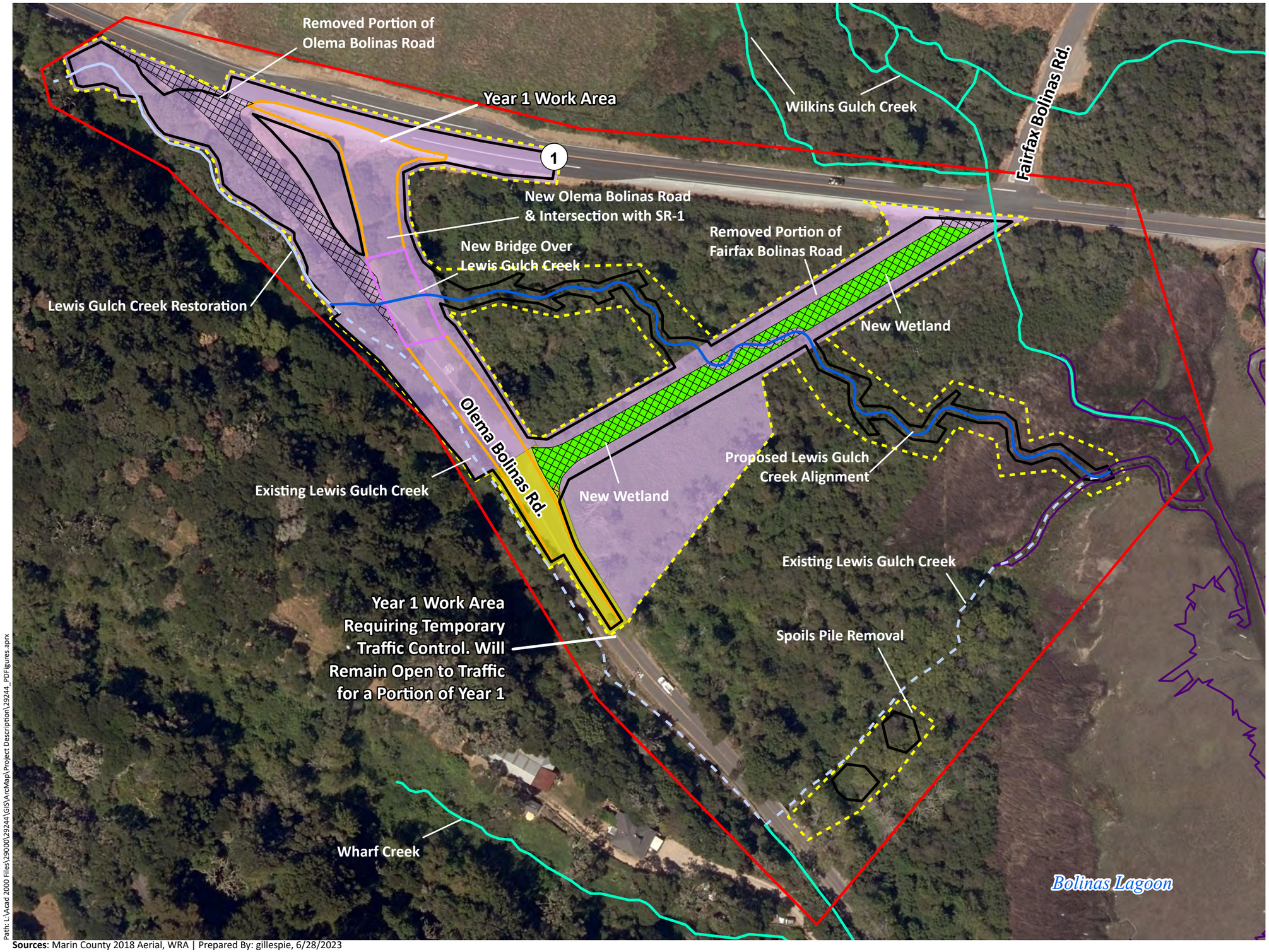
Figure 6.
Work Areas and Temporary Staging/Stockpile Areas
Year 1

Bolinas Lagoon Wye Wetlands Resiliency Project
Bolinas, California



- Project Site: (12.30 ac.)
- Project Area: (4.06 ac.)
- Limit of Grade: (2.39 ac.)
- Year 1 Work Area
- Year 1 Work Area - RTTC

Primary Project Components

- Lewis Gulch Creek Restoration
- Existing Lewis Gulch Creek
- Proposed Lewis Gulch Creek Alignment
- Adjacent Creek (No Project Work)
- Mean High Water 4.99 (NAVD88)
- New Bridge Over Lewis Gulch Creek
- New Olema-Bolinas Road & Intersection with SR-1
- Removed Portions of Fairfax-Bolinas Road
- New Wetlands

N

0 100 200
Feet

wra
Environmental Consultants

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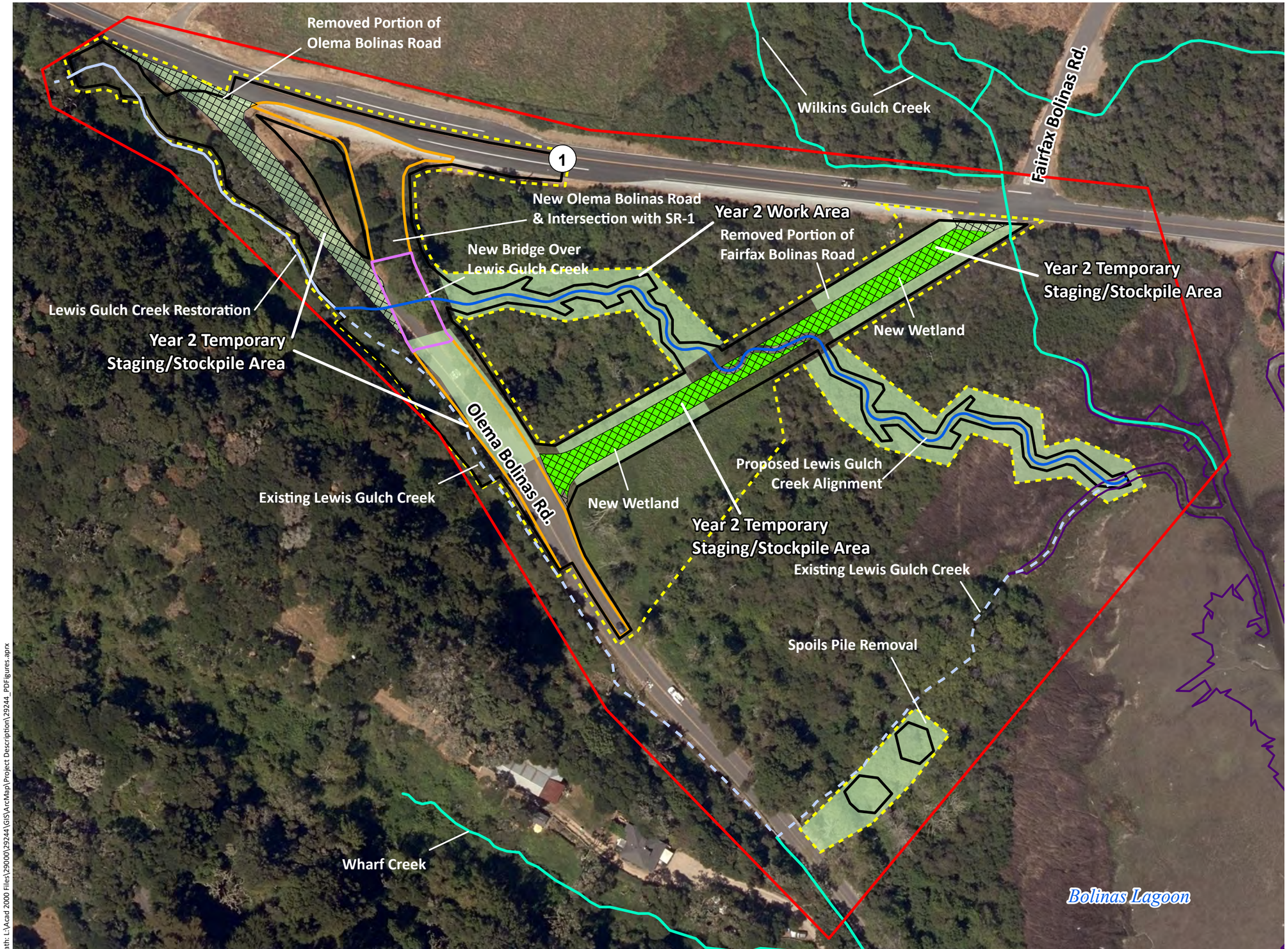
Sources: Marin County 2018 Aerial, WRA | Prepared By: gillespie, 6/28/2023

Figure 7.
Work Areas and Temporary Staging/Stockpile Areas Year 2

Bolinas Lagoon Wye Wetlands Resiliency Project
Bolinas, California



- Project Site: (12.30 ac.)
- Project Area: (4.06 ac.)
- Limit of Grade: (2.39 ac.)
- Year 2 Work Area

Primary Project Components

- Lewis Gulch Creek Restoration
- Existing Lewis Gulch Creek
- Proposed Lewis Gulch Creek Alignment
- Adjacent Creek (No Project Work)
- Mean High Water 4.99 (NAVD88)
- New Bridge Over Lewis Gulch Creek
- New Olema-Bolinas Road & Intersection with SR-1
- Removed Portions of Fairfax-Bolinas Road
- New Wetlands

N

0 100 200
Feet

wra
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Path: L:\Acad 2000 Files\29000\29244\GIS\ArcMap\Project Description\29244_PDFigures.aprx

Sources: Marin County 2018 Aerial, WRA | Prepared By: gillespie, 6/28/2023

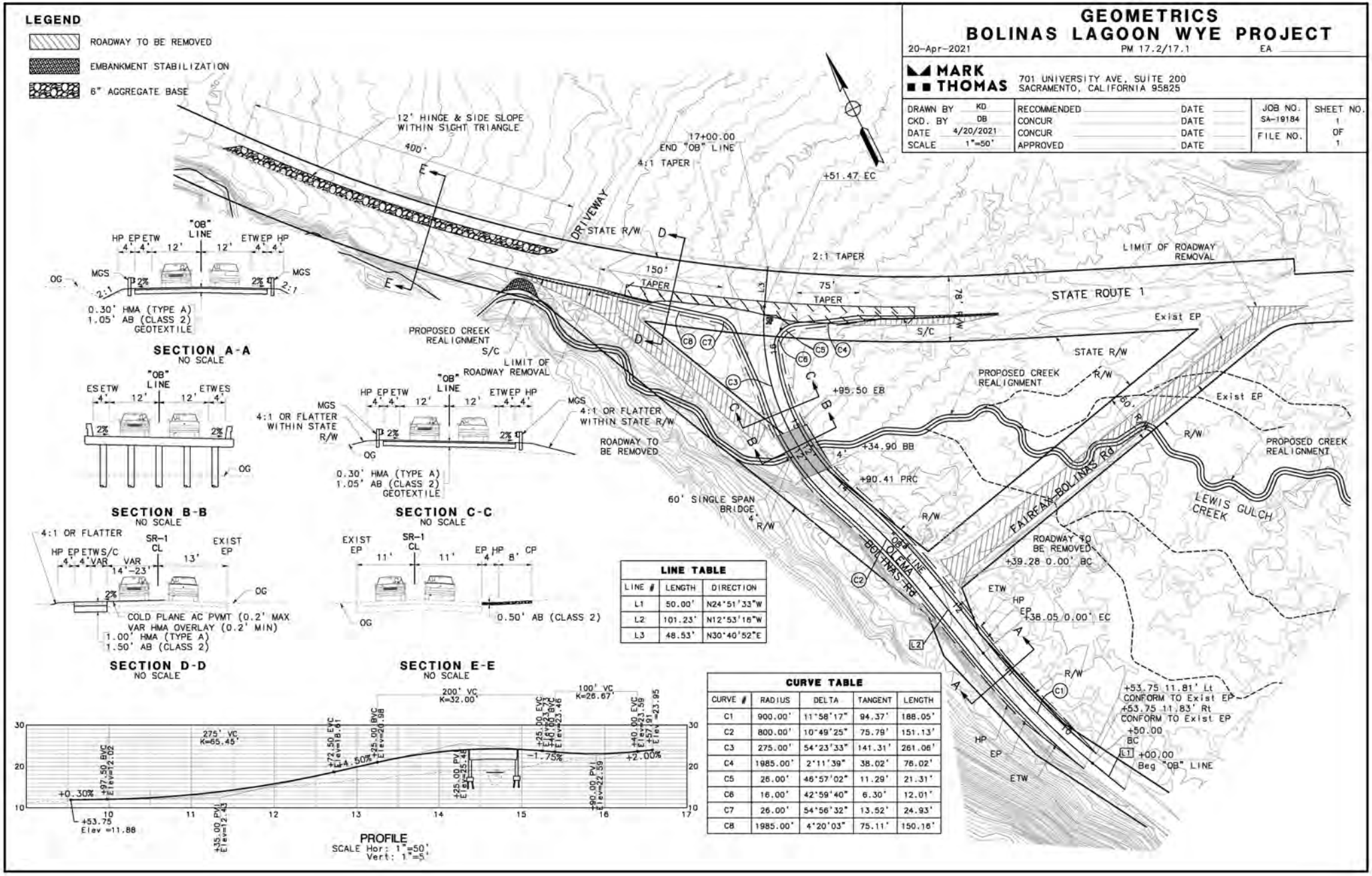

Figure 8. Geometrics

Bolinas Wye Wetlands Resiliency Project
Bolinas, California

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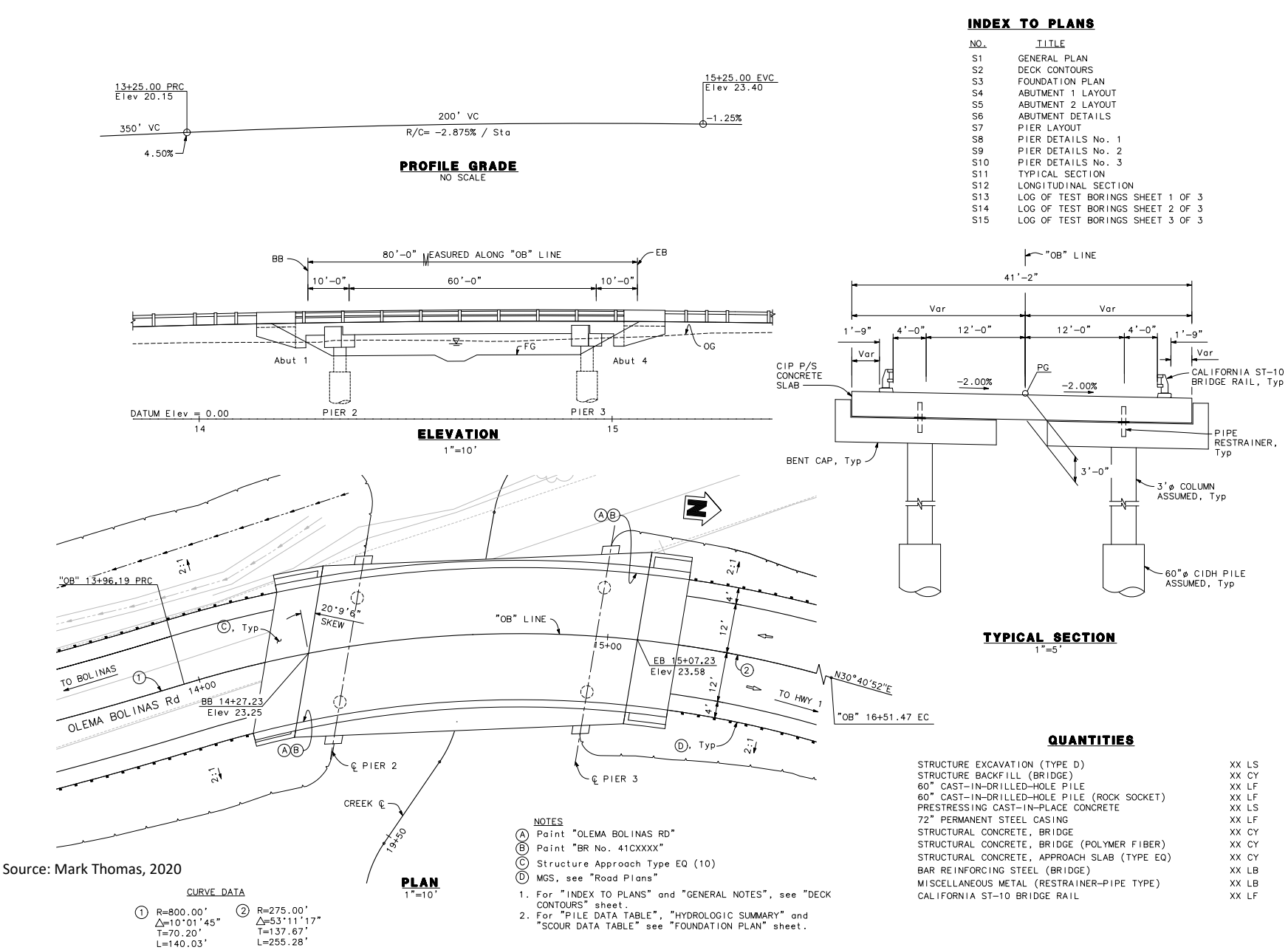

Source: Mark Thomas, 2020

Figure 9. Proposed Bridge Design

Bolinas Wye Wetlands Resiliency Project
Bolinas, California

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Figure 10. Lewis Gulch Creek Project Reach Areas

Bolinas Wye Wetlands Resiliency Project
Bolinas, California

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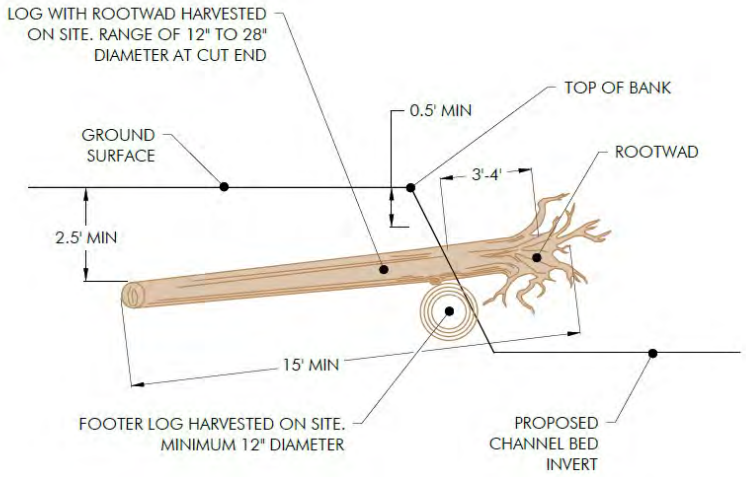

1 C-2.0 CHANNEL LOG STRUCTURE DETAIL-SECTION VIEW
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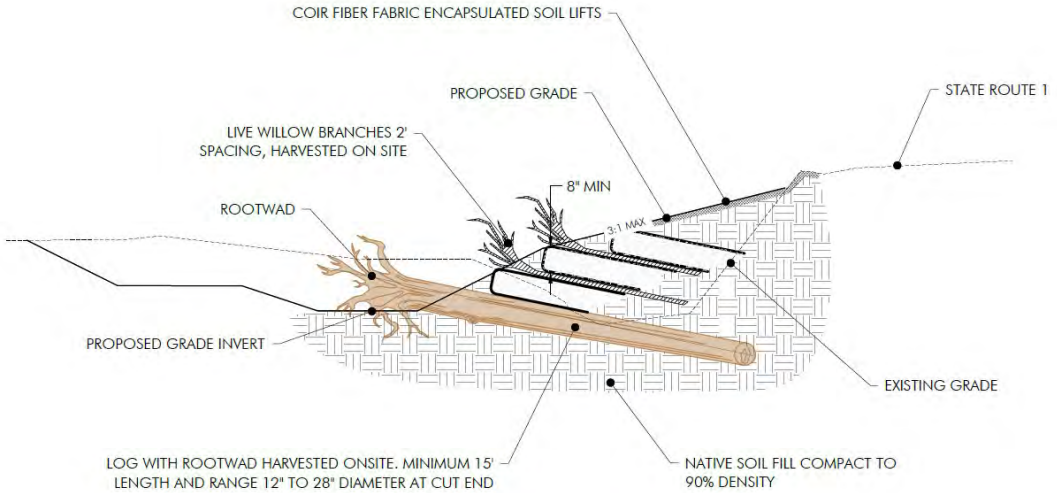
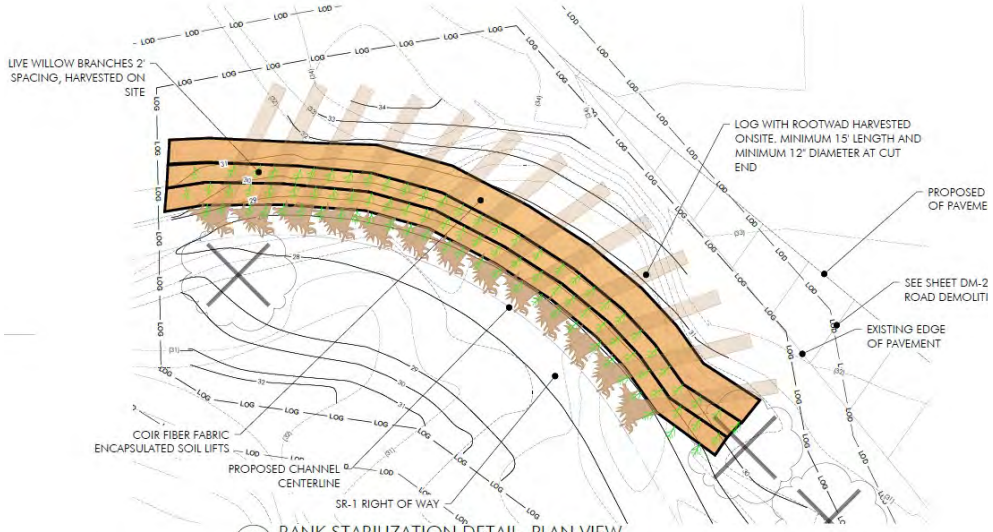
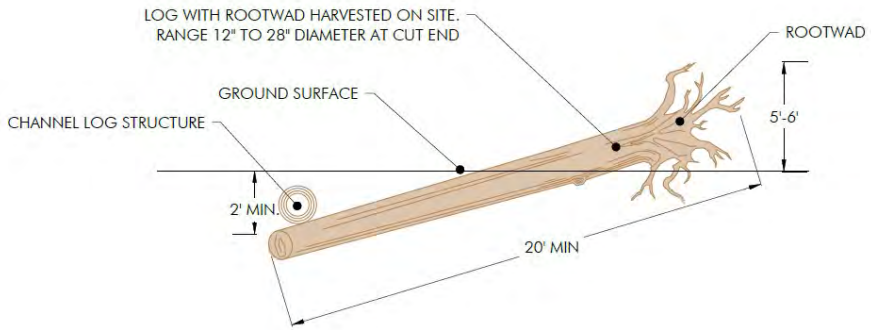


2 C-2.0 BANK STABILIZATION DETAIL -TYPICAL SECTION
NOT TO SCALE



4 C-2.0 BANK STABILIZATION DETAIL- PLAN VIEW
SCALE: 1"= 5'



8 C-2.2 FLOODPLAIN LOG STRUCTURE DETAIL-SECTION VIEW
NOT TO SCALE

Figure 11. Log Structure and Bank Stabilization Details

Bolinas Wye Wetlands
Resiliency Project Bolinas,
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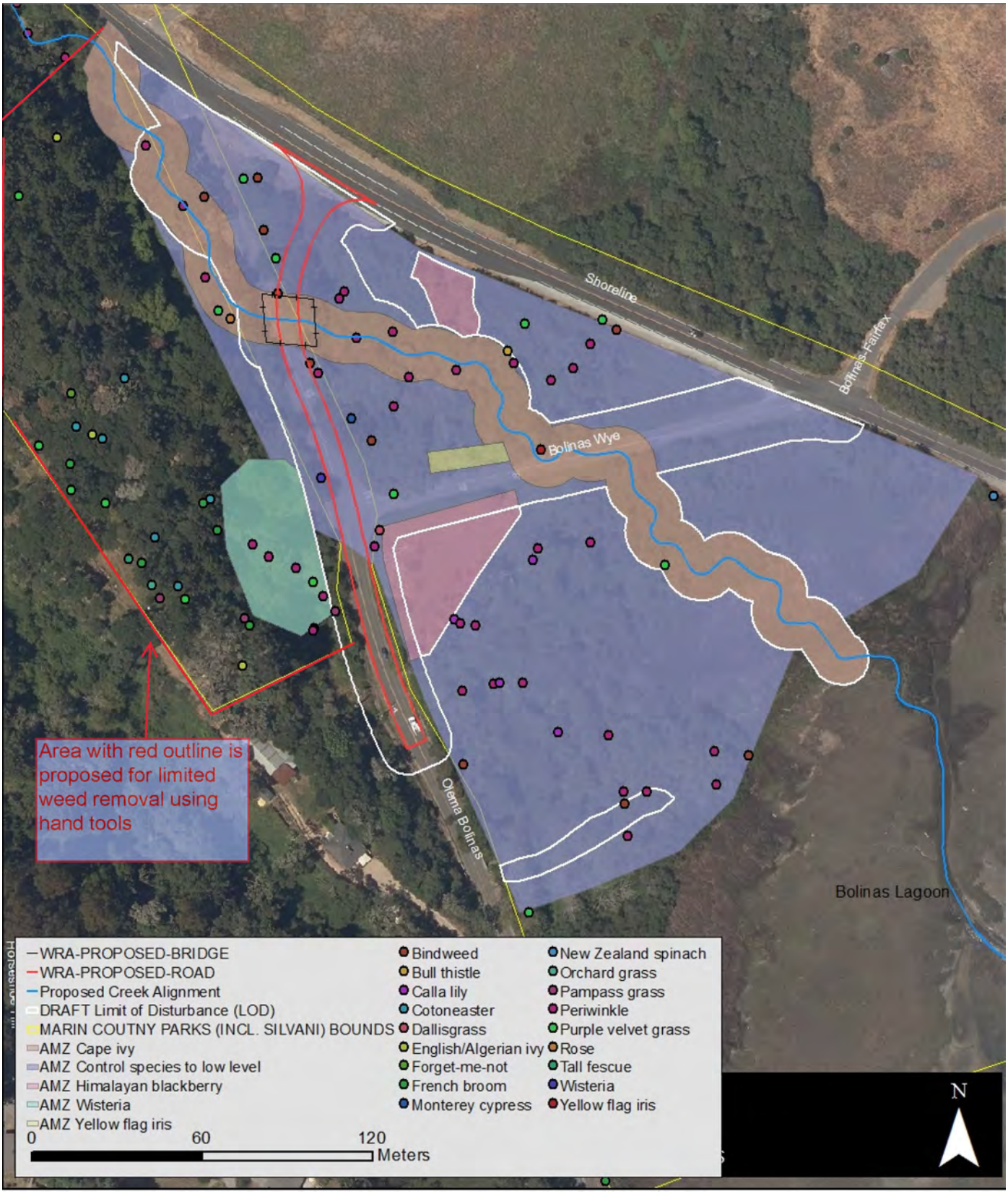
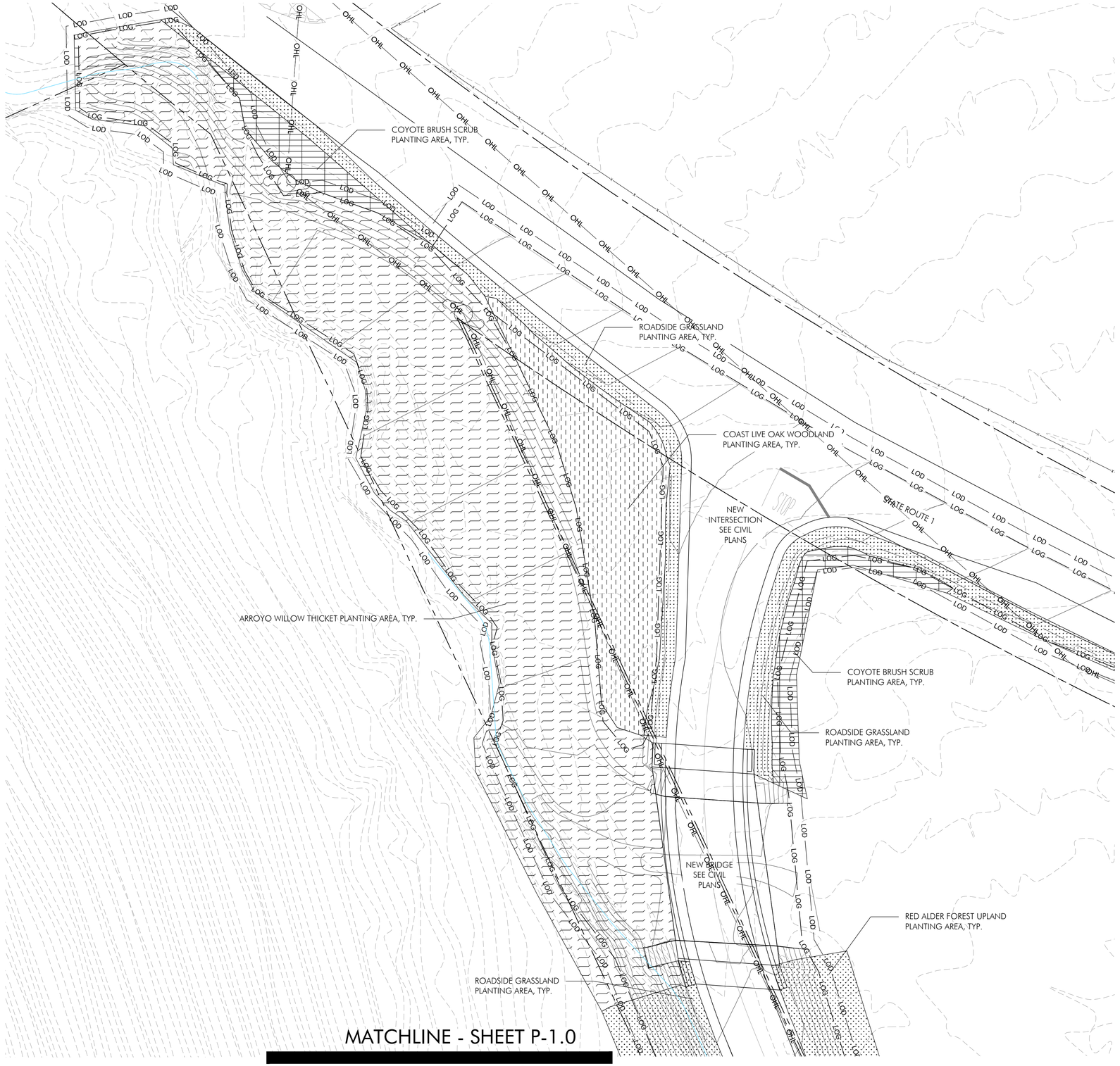


Source: Golden Gate National Parks Conservancy, Nov. 2020

Figure 12. Invasive Vegetation Management Actions

Bolinas Wye Wetlands Resiliency Project
Bolinas, California



1 PLAN VIEW

N

0 20

SCALE: 1 " = 20'

LEGEND

SYMBOL	DESCRIPTION
	PROPERTY LINE (APPROXIMATE)
OHL	OVERHEAD UTILITY LINE
LOD	LIMIT OF DISTURBANCE
LOG	LIMIT OF GRADE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	ARROYO WILLOW THICKET
	COAST LIVE OAK WOODLAND
	COASTAL BRAMBLES
	COYOTE BRUSH SCRUB
	RED ALDER FOREST UPLAND
	RED ALDER FOREST LOWLAND
	RED ALDER FOREST LOWLAND SEEDING
	ROADSIDE GRASSLANDS
	SALT GRASS FLATS
	SALT MARSH BULRUSH MARSH

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BOLINAS, CALIFORNIA

MARIN COUNTY PARKS
PRESERVATION·RECREATION

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LICENSED LANDSCAPE ARCHITECT
RUSSELL F. PRANGE
LIC. NO. 6059
Signature
06/17/2022
Renewal Date
Date
STATE OF CALIFORNIA

KEY MAP

Date	Issues And Revisions	No.
01/29/2020	CONCEPT PLAN	
07/30/2020	30% DESIGN	
02/14/2022	60% DESIGN	
06/17/2022	60% PERMIT	

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CHECKED BY: BSS, RBB
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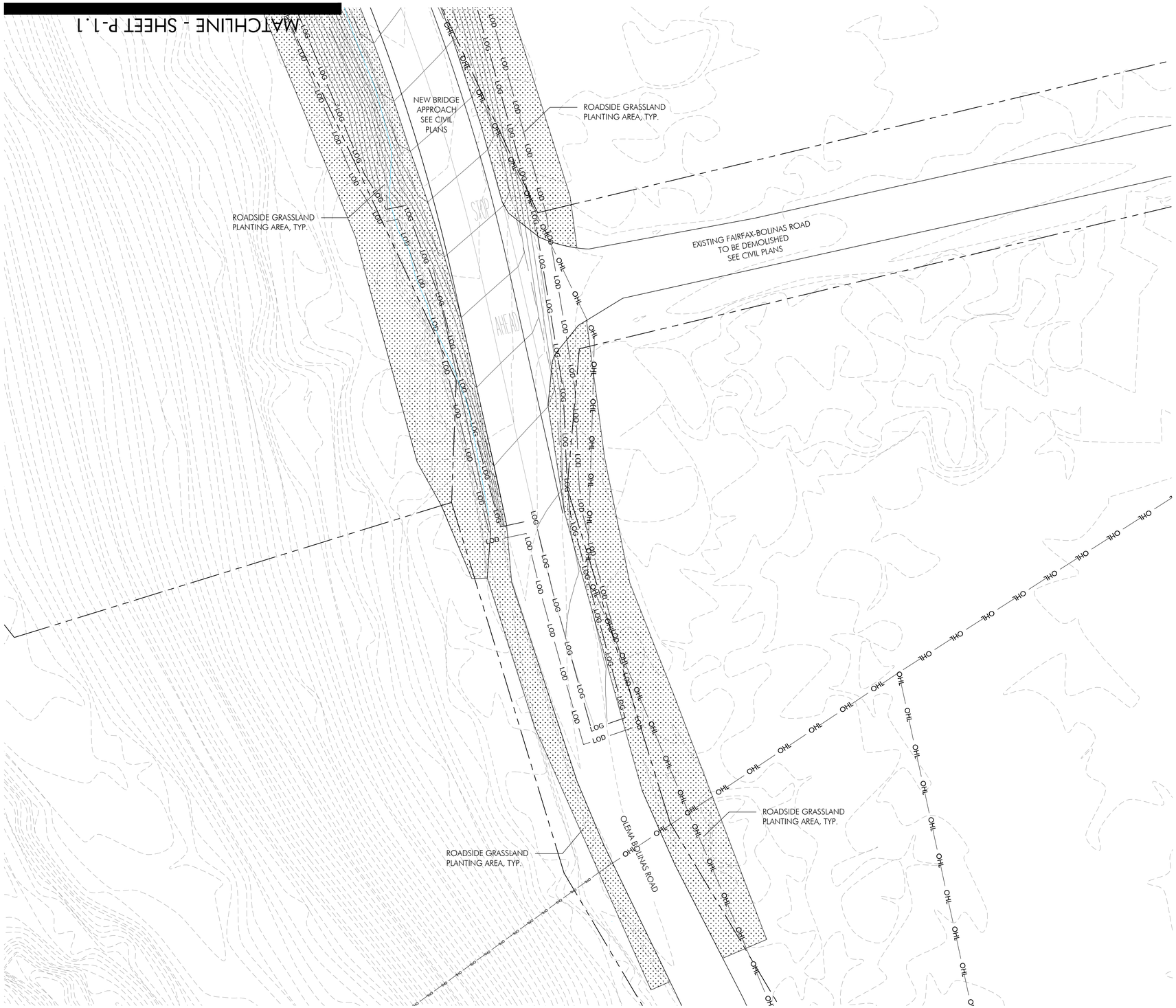
FIGURE 13: PHASE I PLANTING AND SEEDING PLAN (1 of 3)

Sheet

P-1.0

MATCHLINE - SHEET P-1.0

MATCHLINE - SHEET P-1.1



1 PLAN VIEW

N

0 20

SCALE: 1 " = 20'

LEGEND

SYMBOL	DESCRIPTION
	PROPERTY LINE (APPROXIMATE)
OHL	OVERHEAD UTILITY LINE
LOD	LIMIT OF DISTURBANCE
LOG	LIMIT OF GRADE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	ARROYO WILLOW THICKET
	COAST LIVE OAK WOODLAND
	COASTAL BRAMBLES
	COYOTE BRUSH SCRUB
	RED ALDER FOREST UPLAND
	RED ALDER FOREST LOWLAND
	RED ALDER FOREST LOWLAND SEEDING
	ROADSIDE GRASSLANDS
	SALT GRASS FLATS
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Date
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Date	Issues And Revisions	No.
01/29/2020	CONCEPT PLAN	
07/30/2020	30% DESIGN	
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06/17/2022	60% PERMIT	

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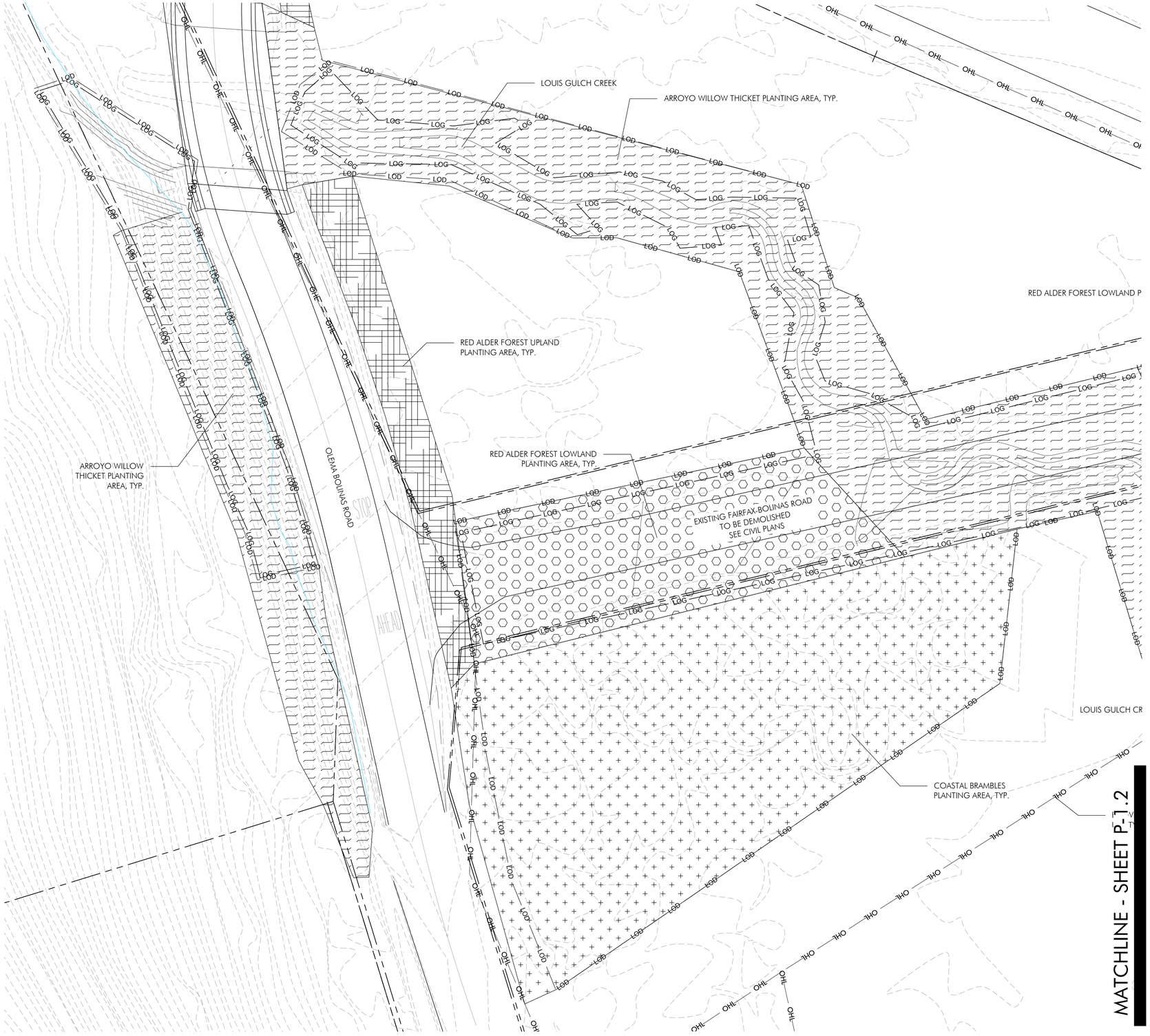
FIGURE 14: PHASE I PLANTING AND SEEDING PLAN (2 of 3)

Sheet

P-1.1



1 PLAN VIEW

N

0 20

SCALE: 1 " = 20'

LEGEND

SYMBOL	DESCRIPTION
	PROPERTY LINE (APPROXIMATE)
THO	OVERHEAD UTILITY LINE
LOD	LIMIT OF DISTURBANCE
LOG	LIMIT OF GRADE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	ARROYO WILLOW THICKET
	COAST LIVE OAK WOODLAND
	COASTAL BRAMBLES
	COYOTE BRUSH SCRUB
	RED ALDER FOREST UPLAND
	RED ALDER FOREST LOWLAND
	RED ALDER FOREST LOWLAND SEEDING
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KEY MAP

Date	Issues And Revisions	No.
01/29/2020	CONCEPT PLAN	
07/30/2020	30% DESIGN	
02/14/2022	60% DESIGN	
06/17/2022	60% PERMIT	

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FIGURE 15:
PHASE I
PLANTING AND
SEEDING PLAN (3 of 3)

Sheet

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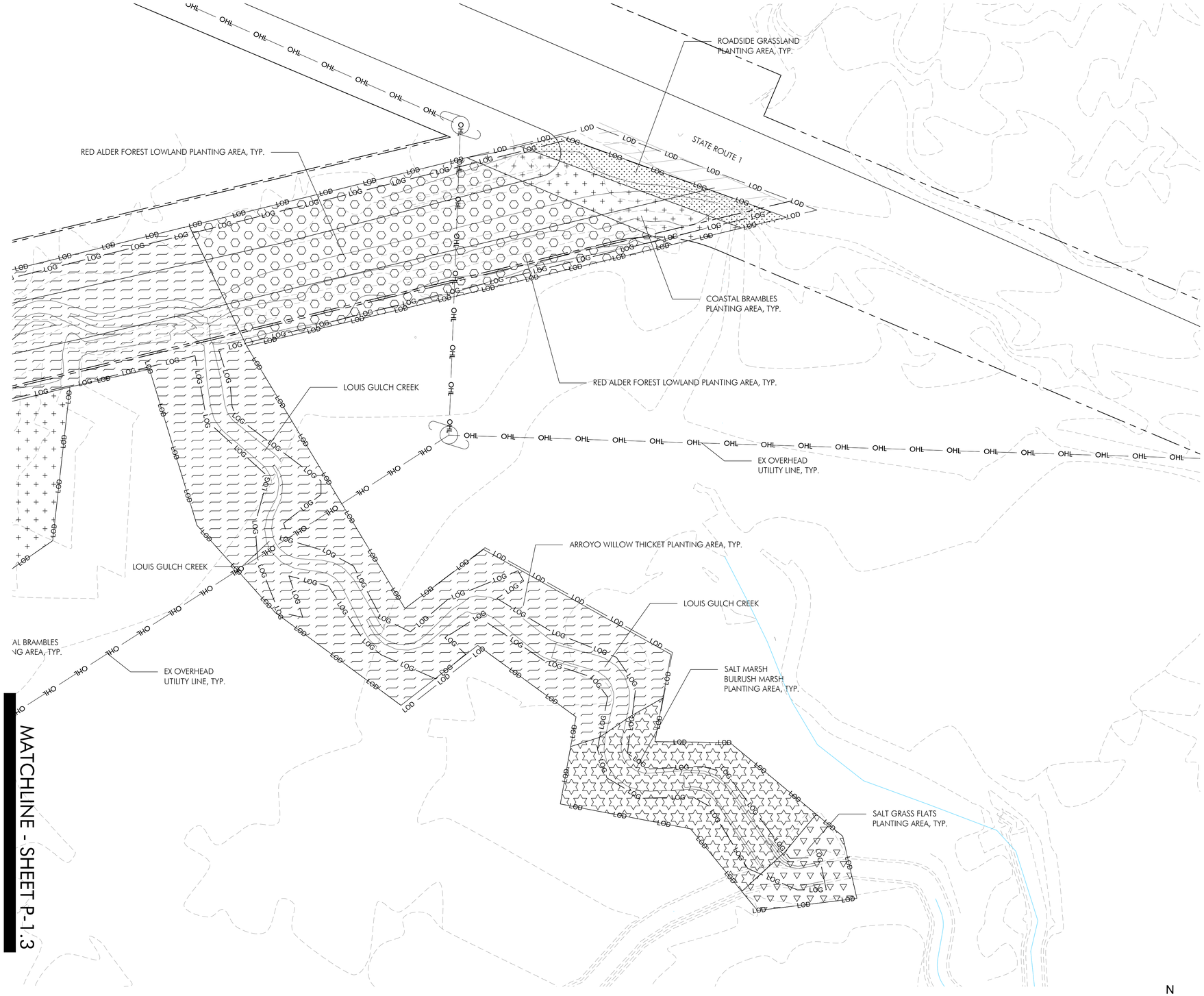

MATCHLINE - SHEET P-1.2

MATCHLINE - SHEET P-1.3

1 PLAN VIEW

N

0 20

SCALE: 1 " = 20'

LEGEND

SYMBOL	DESCRIPTION
	PROPERTY LINE (APPROXIMATE)
OHL	OVERHEAD UTILITY LINE
LOD	LIMIT OF DISTURBANCE
LOG	LIMIT OF GRADE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	ARROYO WILLOW THICKET
	COAST LIVE OAK WOODLAND
	COASTAL BRAMBLES
	COYOTE BRUSH SCRUB
	RED ALDER FOREST UPLAND
	RED ALDER FOREST LOWLAND
	RED ALDER FOREST LOWLAND SEEDING
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JUNE 30, 2022
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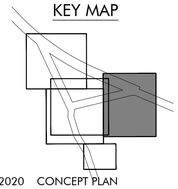
Date
STATE OF CALIFORNIA

KEY MAP



Date	Issues And Revisions	No.
01/29/2020	CONCEPT PLAN	
07/30/2020	30% DESIGN	
02/14/2022	60% DESIGN	
06/17/2022	60% PERMIT	

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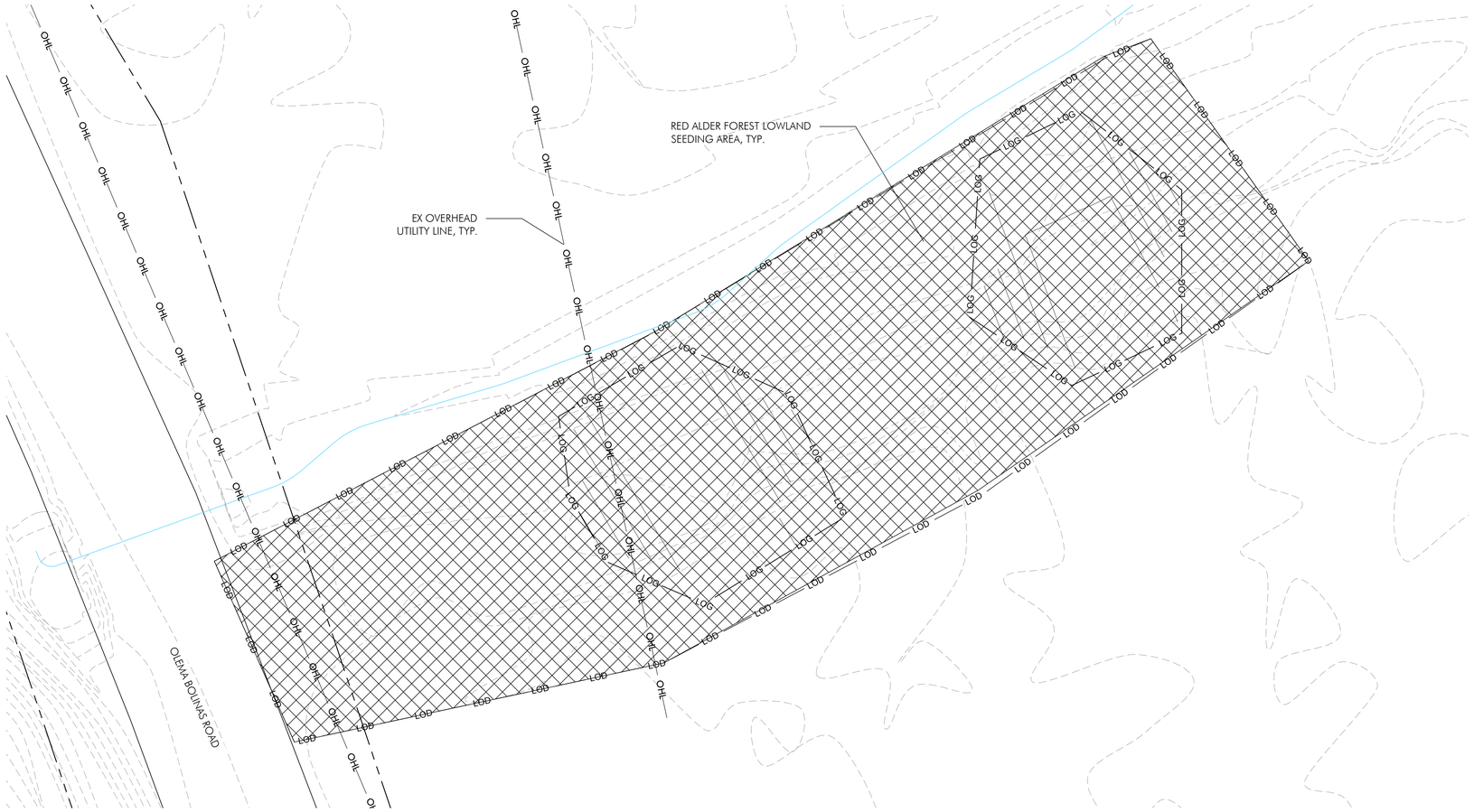
CHECKED BY: BSS, RBB
ORIGINAL DRAWING SIZE: 24 X 36

FIGURE 16:
PHASE II
PLANTING AND
SEEDING PLAN (1 of 2)

Sheet

P-1.3



1 PLAN VIEW-BERM NOTCHING

N

0 10

SCALE: 1 " = 10'

LEGEND

SYMBOL	DESCRIPTION
	PROPERTY LINE (APPROXIMATE)
OHL	OVERHEAD UTILITY LINE
LOD	LIMIT OF DISTURBANCE
LOG	LIMIT OF GRADE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	ARROYO WILLOW THICKET
	COAST LIVE OAK WOODLAND
	COASTAL BRAMBLES
	COYOTE BRUSH SCRUB
	RED ALDER FOREST UPLAND
	RED ALDER FOREST LOWLAND
	RED ALDER FOREST LOWLAND SEEDING
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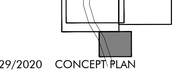
LICENSED LANDSCAPE ARCHITECT
RUSSELL F. PRANGE
LIC. NO. 6059
Signature
Renewal Date
Date
STATE OF CALIFORNIA

KEY MAP



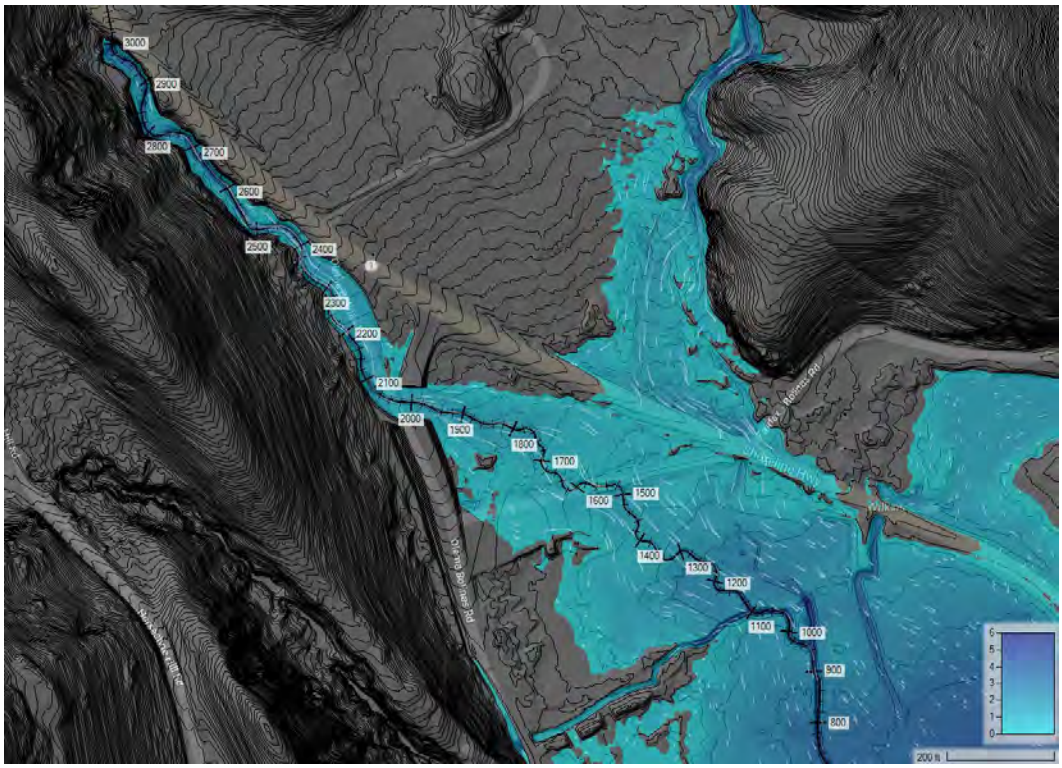
Date	Issues And Revisions	No.
01/29/2020	CONCEPT PLAN	
07/30/2020	30% DESIGN	
02/14/2022	60% DESIGN	
06/17/2022	60% PERMIT	

PROJECT #29244
DRAWN BY: ACS, BMM, DAG
CHECKED BY: BSS, RBB
ORIGINAL DRAWING SIZE: 24 X 36

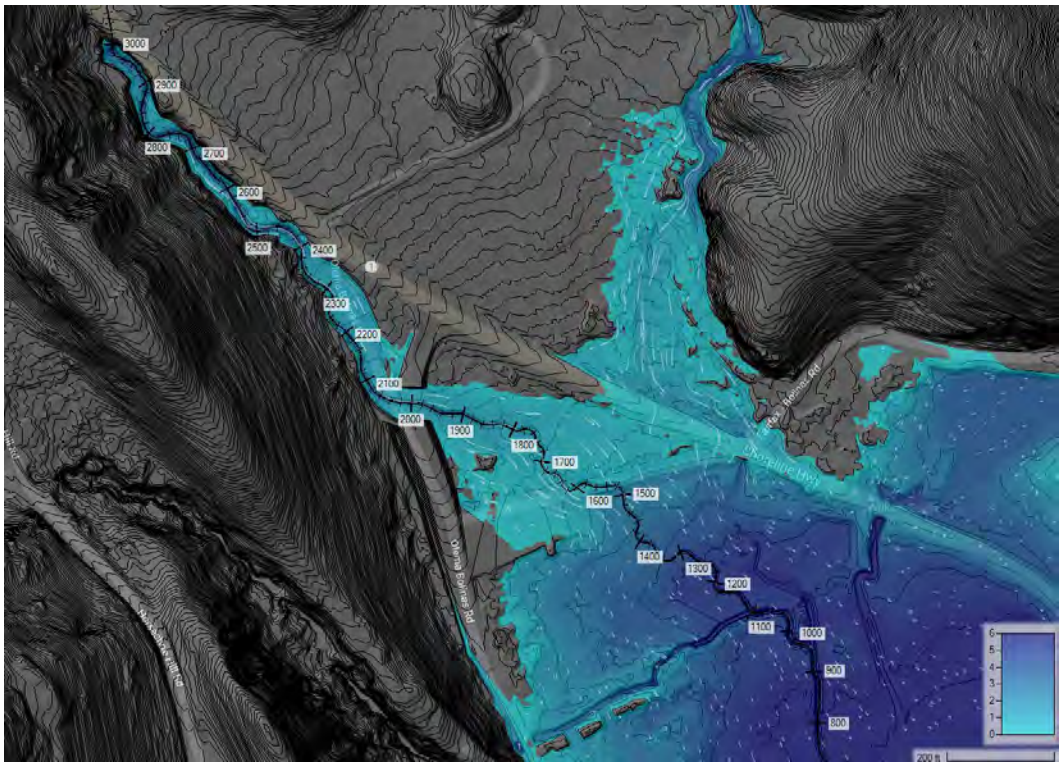
FIGURE 17:
PHASE II
PLANTING AND
SEEDING PLAN (2 of 2)

Sheet

P-1.4

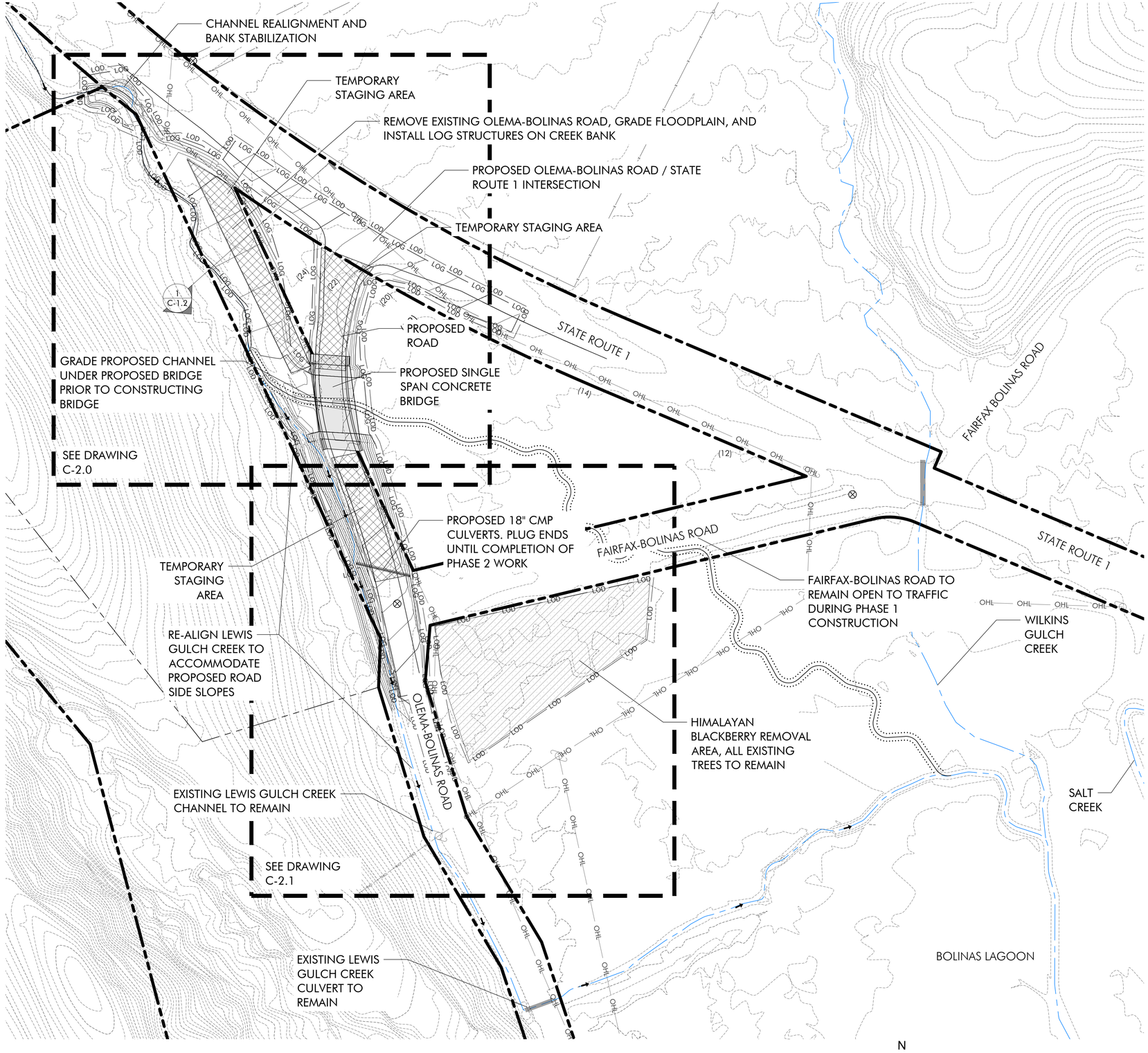


Model Results Showing Depth of Water During The 100-Year Flow Event with Projected 2050 Sea Level Rise.



Model Results Showing Depth of Water During The 100-Year Flow Event with Projected 2100 Sea Level Rise.

Figure 18. Sea Level Rise Scenarios



1 PLAN VIEW

PHASE 1 LEGEND

SYMBOL	DESCRIPTION
	PROPERTY LINE (APPROXIMATE)
LOD LOD	LIMIT OF DISTURBANCE
LOG LOG	LIMIT OF GRADING
	STAGING AREA
(10)	EXISTING CONTOUR
10	PROPOSED CONTOUR
	EXISTING CHANNEL ALIGNMENT
	PROPOSED CHANNEL ALIGNMENT
x x	EXISTING FENCE
OHL	OVERHEAD UTILITY LINE
	FLOW
	SURVEY CONTROL POINT
	HIMALAYAN BLACKBERRY REMOVAL
	CULVERT
	UTILITY POLE

NOTE:

1. THIS SHEET IS INTENDED TO SHOW AN OVERVIEW OF PROJECT ELEMENTS FOR PHASE 1.
2. SEE SHEETS C-2.0 AND C-2.1 FOR DETAILED CREEK CHANNEL TREATMENTS AND FLOODPLAIN GRADING INFORMATION.
3. SEE SHEETS GN-1 THROUGH S-1 FOR ROADWAY AND BRIDGE CONSTRUCTION.

wra Environmental Consultants
2169-G East Francisco Blvd.
San Rafael, CA 94901
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www.wra-ca.com

MARK THOMAS

BOLINAS LAGOON WYE WETLANDS PROJECT

BOLINAS, CALIFORNIA

MARIN COUNTY PARKS
PRESERVATION RECREATION

NOT FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
ANDREW C. SMITH
C-82643
SIGNATURE
SEPT. 30, 2020
EXP. DATE
DATE
STATE OF CALIFORNIA

Date	Issues And Revisions	No.
01/29/2020	CONCEPT PLAN	
07/30/2020	30% DESIGN	
02/14/2022	60% DESIGN	
07/01/2022	60% PERMIT	

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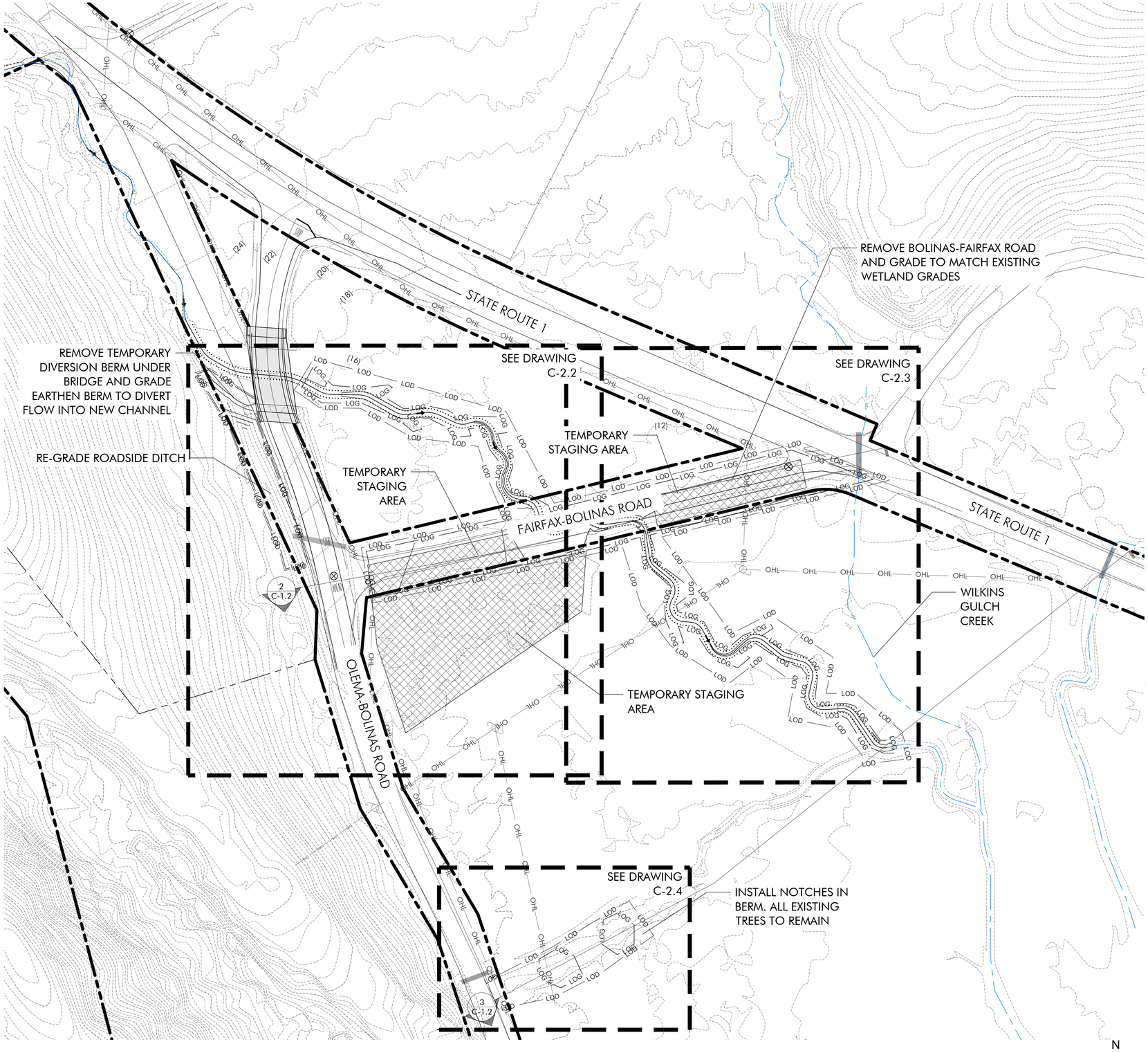
CHECKED BY:RBB
ORIGINAL DRAWING SIZE: 24 X 36

FIGURE 19:
PHASE 1 SITE PLAN

Sheet

C-1.0



1 PLAN VIEW

PHASE 2 LEGEND

SYMBOL	DESCRIPTION
	PROPERTY LINE (APPROXIMATE)
LOD LOD	LIMIT OF DISTURBANCE
LOG LOG	LIMIT OF GRADING
	STAGING AREA
(10)	EXISTING CONTOUR
10	PROPOSED CONTOUR
	EXISTING CHANNEL ALIGNMENT
	PROPOSED CHANNEL ALIGNMENT
x x	EXISTING FENCE
OHL OHL	OVERHEAD UTILITY LINE
→	FLOW
⊗	SURVEY CONTROL POINT
	CULVERT
	UTILITY POLE

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BOLINAS LAGOON WYE WETLANDS PROJECT

BOLINAS, CALIFORNIA

MARIN COUNTY PARKS
PRESERVATION·RECREATION

NOT FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
ANDREW C. SMITH
C-82643
SIGNATURE
SEPT. 30, 2020
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07/01/2022	60% PERMIT	

PROJECT #29244
DRAWN BY: ACS, BMM
CHECKED BY:RBB
ORIGINAL DRAWING SIZE: 24 X 36

FIGURE 20:
PHASE 2 SITE PLAN

Sheet

C-1.1

Source: AECOM, Bolinas Lagoon North End Restoration Project - Site Conditions Report, Figure 2A. June 2016.

Figure 21. North End Project Study Area

Bolinas Wye Wetlands Resiliency Project
Bolinas, California

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The Intersection of SR-1 and Olema Bolinas Road, looking south from SR-1.

Fairfax Bolinas Road within the Project site, looking toward SR-1.

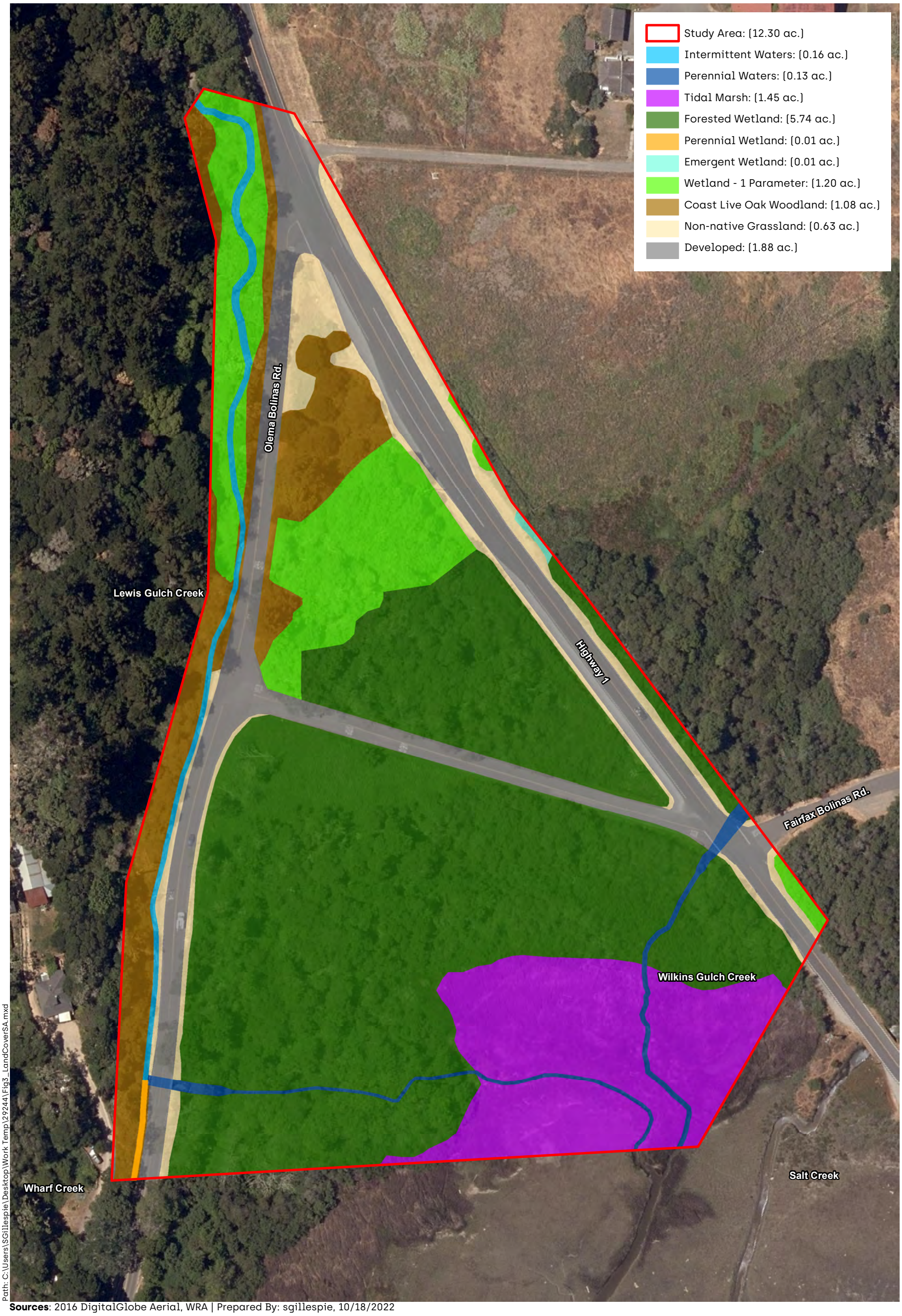
Bolinas Lagoon looking from SR-1.

The Project site looking from above (drone image).

Figure 22. Views of the Existing Setting

Bolinas Lagoon Wye Wetlands Resiliency Project
Bolinas, California

wra Environmental Consultants



Path: C:\Users\SGillespie\Desktop\Work Temp\29244\Fig3_LandCoverSA.mxd

Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: sgillespie, 10/18/2022

Figure 23. Biological Communities within the Project Area Before Restoration

Bolinas Wye Wetlands Resiliency Project
Bolinas, California

0 75 150 Feet

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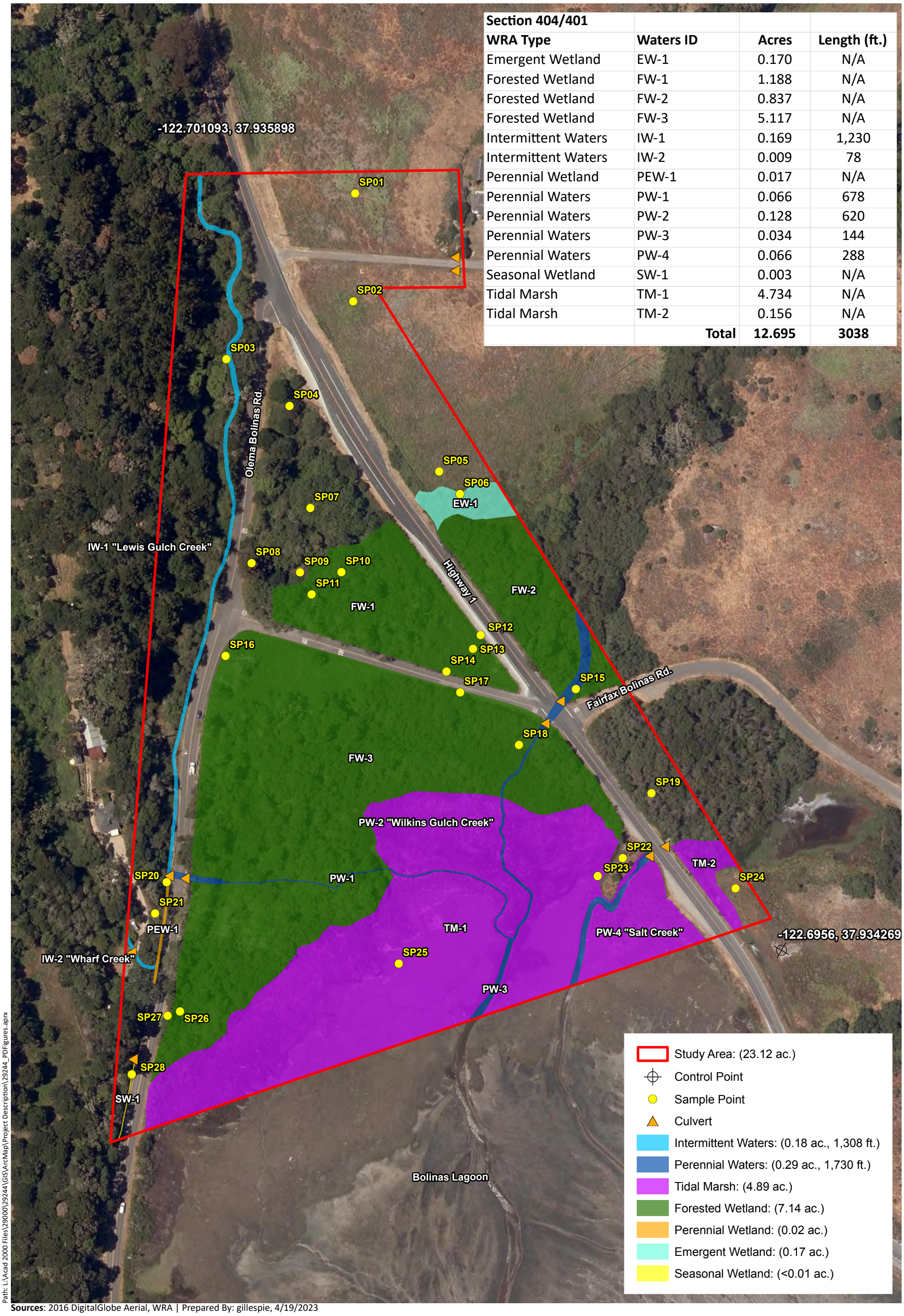
Section 404/401			
WRA Type	**Waters ID**	**Acres**	**Length (ft.)**
Emergent Wetland	EW-1	0.170	N/A
Forested Wetland	FW-1	1.188	N/A
Forested Wetland	FW-2	0.837	N/A
Forested Wetland	FW-3	5.117	N/A
Intermittent Waters	IW-1	0.169	1,230
Intermittent Waters	IW-2	0.009	78
Perennial Wetland	PEW-1	0.017	N/A
Perennial Waters	PW-1	0.066	678
Perennial Waters	PW-2	0.128	620
Perennial Waters	PW-3	0.034	144
Perennial Waters	PW-4	0.066	288
Seasonal Wetland	SW-1	0.003	N/A
Tidal Marsh	TM-1	4.734	N/A
Tidal Marsh	TM-2	0.156	N/A
	Total	**12.695**	**3038**



Path: L:\Acad 2000 Files\29000\29244\GIS\ArcMap\Project Description\29244_PDFigures.aprx

Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: gillespie, 4/19/2023

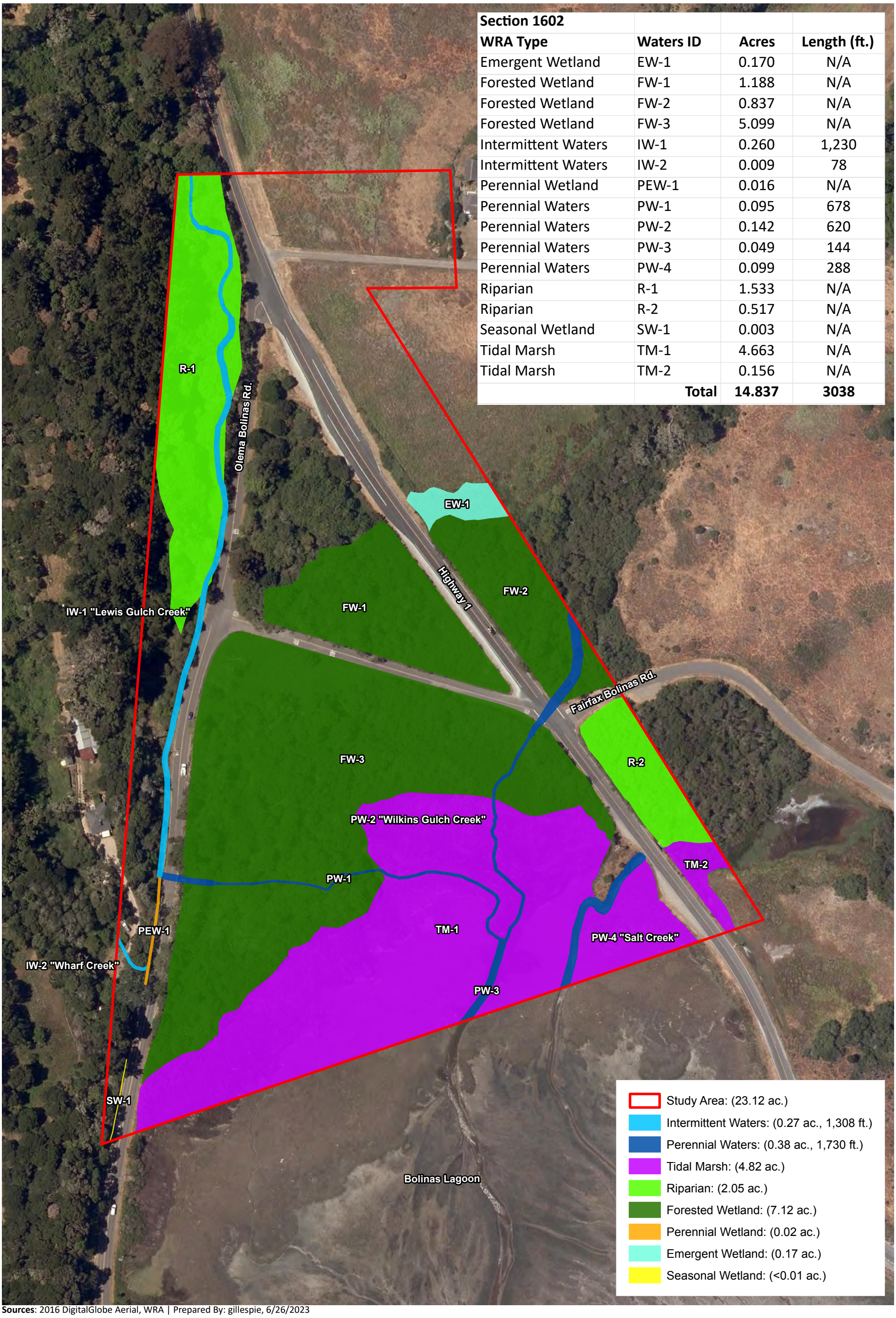
Figure 24. Potential Section 404/401 Jurisdictional Features

Bolinas Lagoon Wye Wetlands Resiliency Project
Bolinas, California

0 150 300 Feet

wra Environmental Consultants

Section 1602			
WRA Type	**Waters ID**	**Acres**	**Length (ft.)**
Emergent Wetland	EW-1	0.170	N/A
Forested Wetland	FW-1	1.188	N/A
Forested Wetland	FW-2	0.837	N/A
Forested Wetland	FW-3	5.099	N/A
Intermittent Waters	IW-1	0.260	1,230
Intermittent Waters	IW-2	0.009	78
Perennial Wetland	PEW-1	0.016	N/A
Perennial Waters	PW-1	0.095	678
Perennial Waters	PW-2	0.142	620
Perennial Waters	PW-3	0.049	144
Perennial Waters	PW-4	0.099	288
Riparian	R-1	1.533	N/A
Riparian	R-2	0.517	N/A
Seasonal Wetland	SW-1	0.003	N/A
Tidal Marsh	TM-1	4.663	N/A
Tidal Marsh	TM-2	0.156	N/A
	Total	**14.837**	**3038**



Path: L:\Acad 2000 Files\29000\29244\GIS\ArcMap\Project Description\29244_PDFigures.aprx

Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: gillespie, 6/26/2023

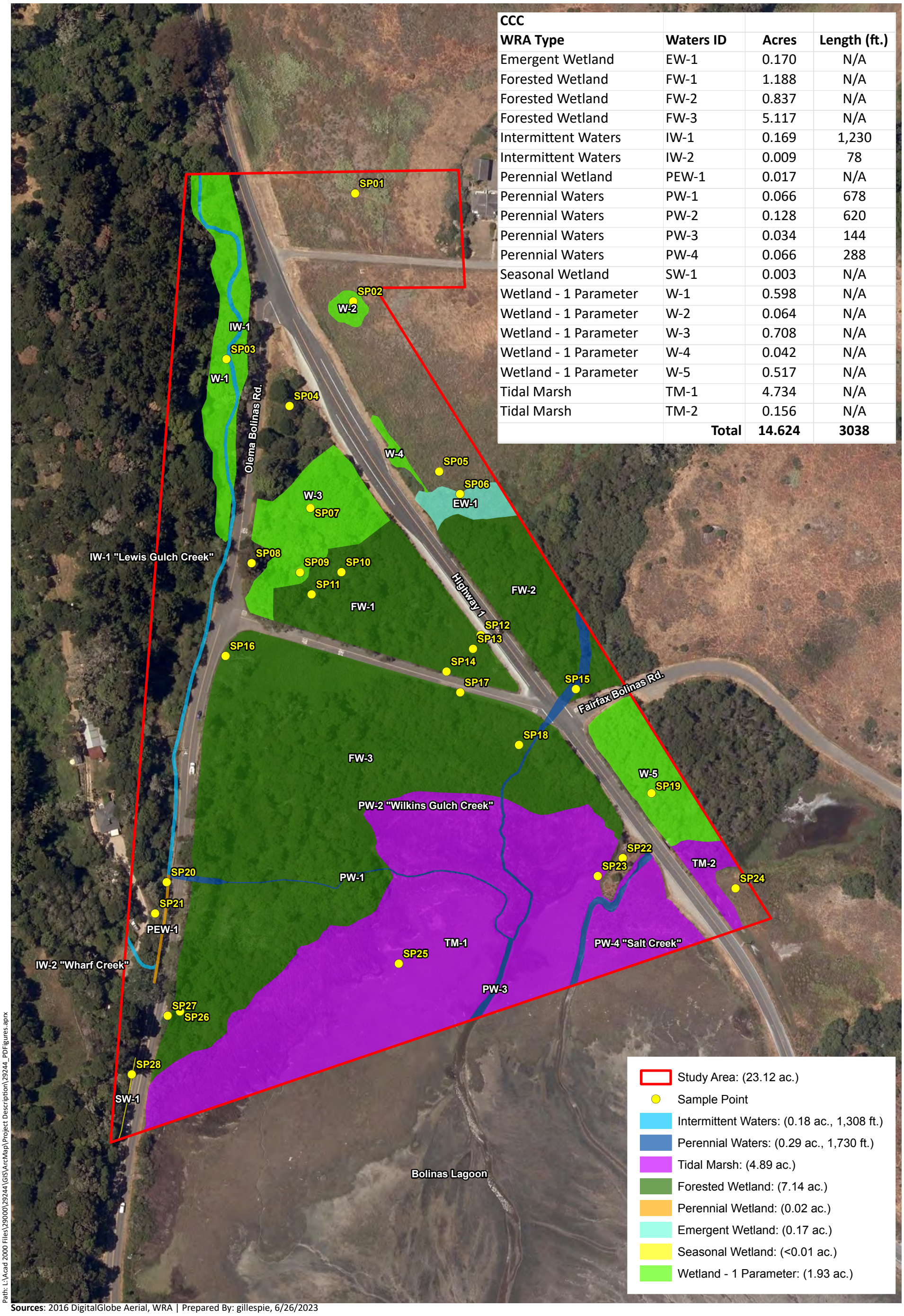
Figure 25. Potential Section 1602 Jurisdictional Features

Bolinas Lagoon Wye Wetlands Resiliency Project
Bolinas, California

0 150 300 Feet

wra Environmental Consultants

CCC			
WRA Type	**Waters ID**	**Acres**	**Length (ft.)**
Emergent Wetland	EW-1	0.170	N/A
Forested Wetland	FW-1	1.188	N/A
Forested Wetland	FW-2	0.837	N/A
Forested Wetland	FW-3	5.117	N/A
Intermittent Waters	IW-1	0.169	1,230
Intermittent Waters	IW-2	0.009	78
Perennial Wetland	PEW-1	0.017	N/A
Perennial Waters	PW-1	0.066	678
Perennial Waters	PW-2	0.128	620
Perennial Waters	PW-3	0.034	144
Perennial Waters	PW-4	0.066	288
Seasonal Wetland	SW-1	0.003	N/A
Wetland - 1 Parameter	W-1	0.598	N/A
Wetland - 1 Parameter	W-2	0.064	N/A
Wetland - 1 Parameter	W-3	0.708	N/A
Wetland - 1 Parameter	W-4	0.042	N/A
Wetland - 1 Parameter	W-5	0.517	N/A
Tidal Marsh	TM-1	4.734	N/A
Tidal Marsh	TM-2	0.156	N/A
	Total	**14.624**	**3038**



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Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: gillespie, 6/26/2023

Figure 26. Potential California Coastal Commission Jurisdictional Features

Bolinas Lagoon Wye Wetlands Resiliency Project
Bolinas, California

0 150 300 Feet

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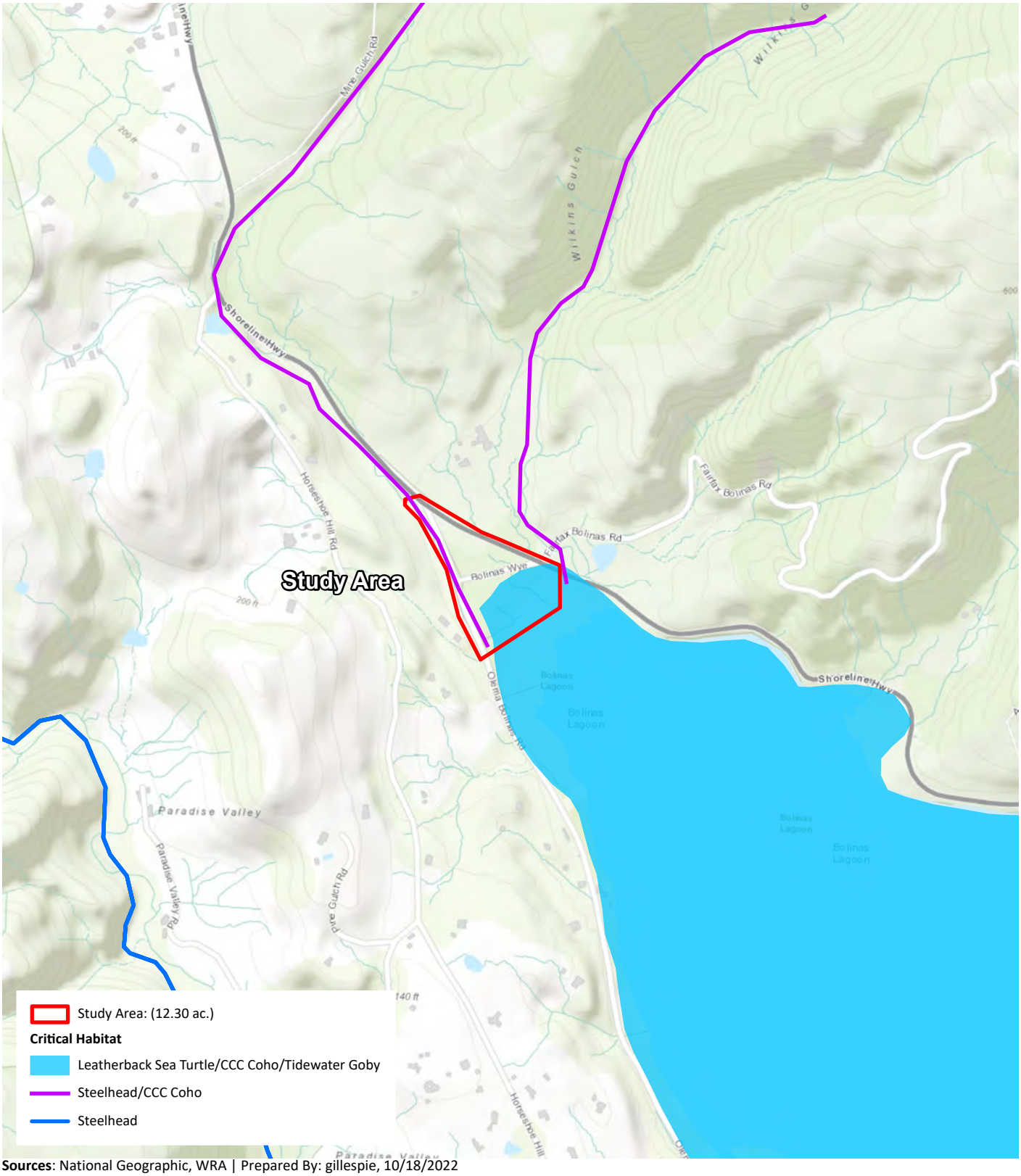

Path: L:\Acad 2000 Files\29000\29244\GIS\ArcMap\2022\29244_Base\29244_Base.aprx

Sources: National Geographic, WRA | Prepared By: gillespie, 10/18/2022

Figure 27. Critical Habitat within Vicinity of Study Area

Bolinas Wye Wetlands Resiliency Project
Bolinas, California

0 500 1,000 Feet

N

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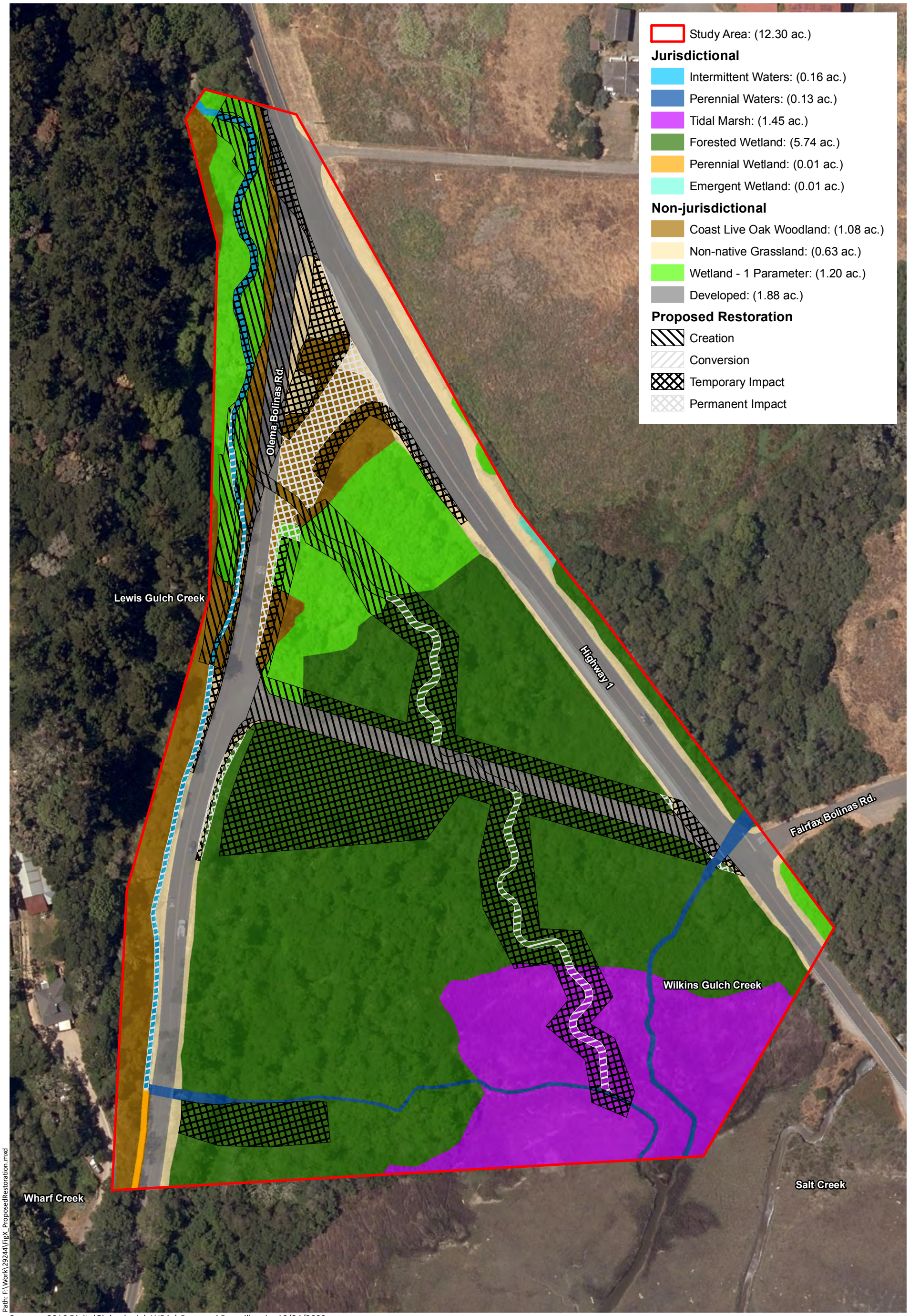


Path: F:\Work\29244\FigX_ProposedRestoration.mxd

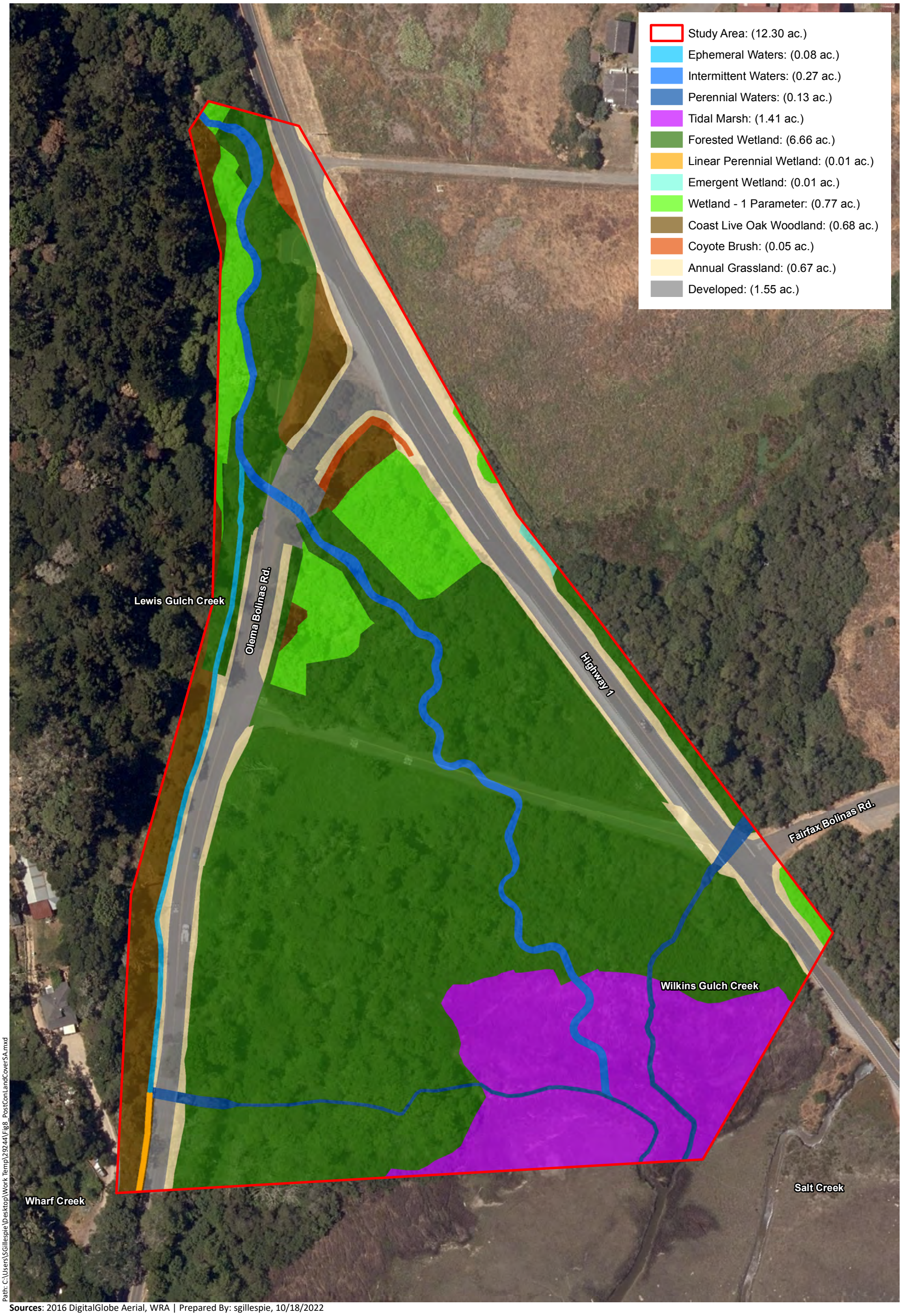
Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: sgillespie, 10/24/2022

Figure 28. Proposed Restoration

Bolinas Wye Wetlands Resiliency Project
Bolinas, California

0 150 300 Feet

wra Environmental Consultants



Path: C:\Users\SGillespie\Desktop\Work Temp\29244\Fig8_PostConLandCoverSA.mxd

Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: sgillespie, 10/18/2022

Figure 29. Biological Communities within the Study Area After Restoration

Bolinas Wye Wetlands Resiliency Project
Bolinas, California

0 50 100 Feet

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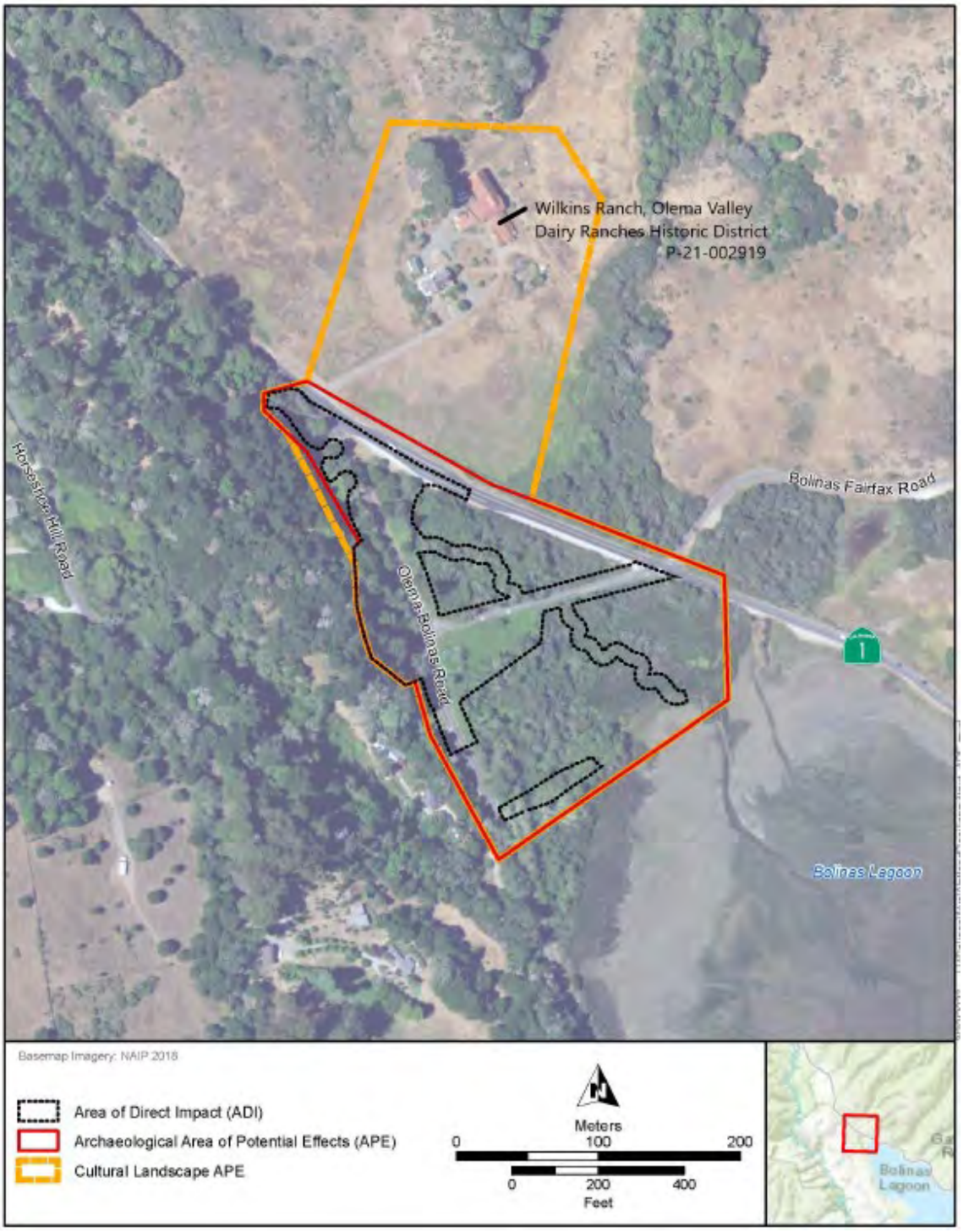

Source: (Yarbrough, 2023)

Figure 30. Cultural Landscape and Archaeological Areas of Project Effect

Bolinas Lagoon Wye Wetlands Resiliency Project
Bolinas, California

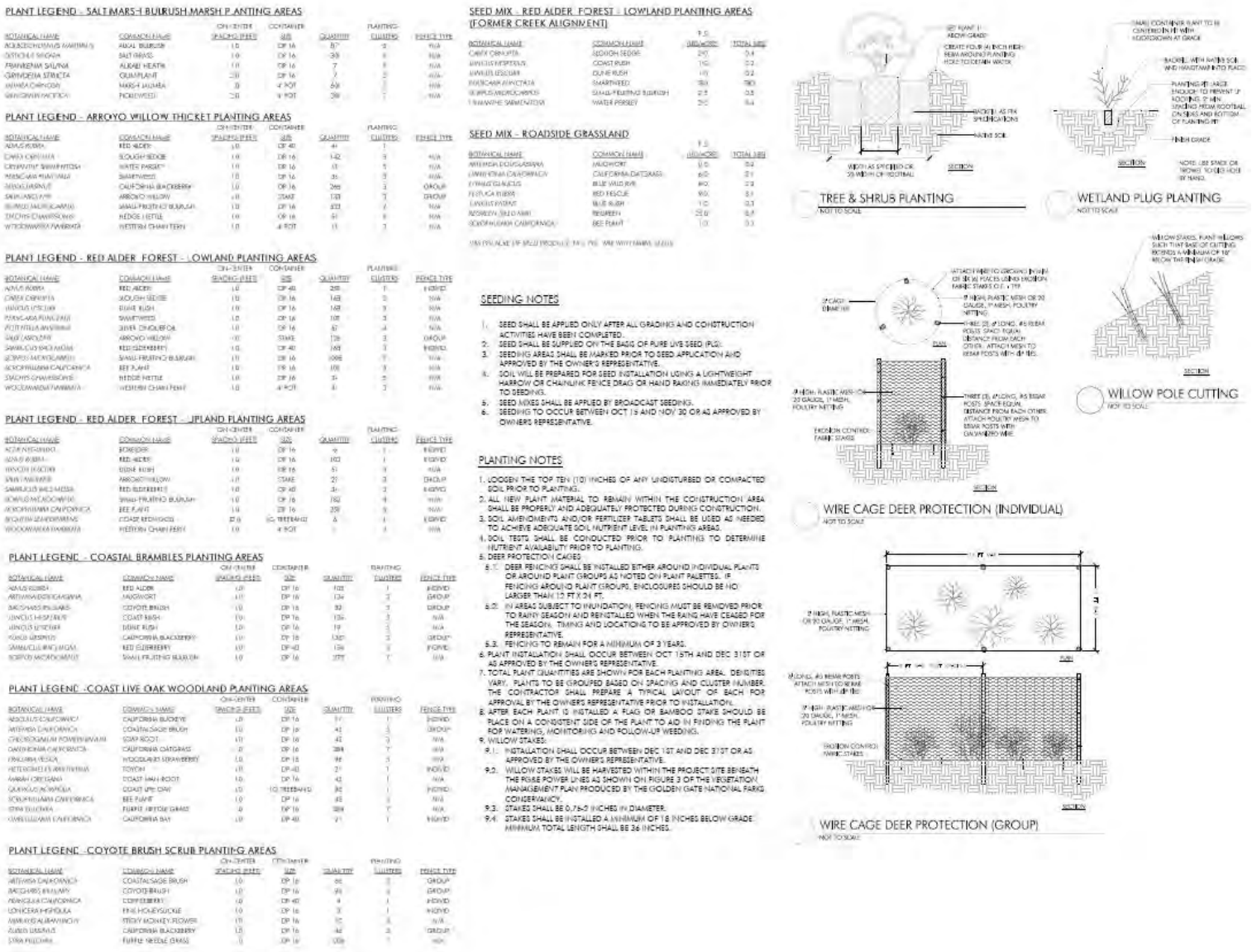

Figure 31. Proposed Revegetation Planting Palettes

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ENVIRONMENTAL CONSULTANTS

XII. CEQA FRAMEWORK

This Initial Study has been prepared in compliance with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines. The basic purposes of CEQA are to:

1. Inform governmental decision makers and the public about the potential significant environmental effects of proposed activities;
2. Identify ways that environmental damage can be avoided or significantly reduced;
3. Prevent significant, avoidable damage to the environment by requiring changes in projects using alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and
4. Disclose to the public the reasons why a governmental agency approved the Project in the manner the agency chose if significant environmental effects are involved.

The purpose of this Initial Study is to disclose information obtained during the analysis of environmental effects that could result from implementation of the proposed Project, including construction, operation, and maintenance, that has a potential for resulting in a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment. The Initial Study utilized the Checklist included as Appendix G of the State CEQA Guidelines. The Checklist topic areas are presented in alphabetical order:

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

For each topic area, the Checklist includes specific questions. Each question is answered by evaluating all phases of the proposed Project, including construction and post-construction use, in consideration of the potentially significant environmental impacts that could occur for any phase of the proposed Project. For

each question, one of the four following conclusions is provided with supporting information:

No Impact

The proposed Project would not have the impact described.

Less-than-Significant Impact

The proposed Project may result in the impact described, but at a level that is less than significant. Mitigation is not required, however, may still be included.

Potentially Significant Unless Mitigated

The proposed Project may result in the impact described at a level that is potentially significant. The incorporation of proposed mitigation measures would reduce the potentially significant impact to a less-than-significant level. For these responses, proposed mitigation measures are included after the discussion of the potential impact. To adopt a Mitigated Negative Declaration, the Lead Agency must agree to incorporate all mitigation measures into the Project as approved and a Mitigation Monitoring and Reporting Program must be adopted by the Lead Agency at the time of Project approval.

Potentially Significant Impact

The proposed Project may have the impact described at a level that is potentially significant. The potentially significant impact cannot be reduced to a less-than-significant level even with the incorporation of proposed mitigation measures, requiring preparation of an Environmental Impact Report.

The conclusions of the Initial Study have been utilized to determine whether a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report should be prepared. This determination depends on the conclusions of the Initial Study regarding potentially significant environmental impacts, based on substantial evidence:

Negative Declaration

The Initial Study concludes no potentially significant environmental impacts would occur from implementation of the proposed Project and no mitigation measures are required.

Mitigated Negative Declaration

The Initial Study concludes that potentially significant environmental impacts could occur from implementation of the proposed Project. Mitigation measures are included to reduce potentially significant environmental impacts to a less-than-significant level.

Environmental Impact Report

The Initial Study concludes that potentially significant environmental impacts could occur from implementation of the proposed Project. Mitigation measures are included to reduce potentially significant environmental impacts to a less-than-significant level, but potentially significant environmental impacts could still result.

XIII. SUMMARY OF THE CEQA ANALYSIS

The MCOSD is the CEQA Lead Agency for the proposed Project, meaning that the MCOSD has the principal responsibility for carrying out or approving a project, including the decision of which environmental document should be prepared.

The Initial Study concluded that all potentially significant impacts of the proposed Project can be mitigated to a less-than-significant level. Most questions were answered with a No Impact or Less-than-Significant Impact response. Mitigation Measures have been included to address potentially significant impacts in the Biological Resources, Cultural Resources, Hydrology and Water Quality, Noise, and Transportation topic areas, which are provided beginning on the next page and within the applicable Checklist topic area. With implementation of the mitigation measures, potentially significant environmental impacts resulting from the Project would be reduced to a less-than-significant level.

XIV. PROPOSED MITIGATION MEASURES

Mitigation Measure BIO-1: Steelhead and Coho

1. The proposed Project shall consult with the National Marine Fisheries Service (NMFS) for potential impacts to steelhead (see WRA 2022 NMFS Biological Assessment).
2. All in-channel work shall occur between June 1 and October 31. Work outside of this period shall only occur if authorized by NMFS and CDFW.
3. Prior to working within a stream, a bypass shall be installed to allow flowing water (if any is present) to be bypassed to maintain flows downstream. Fish relocation shall occur within the section of stream to be dewatered before dewatering commences.
4. Fish relocation activities shall be led by a qualified fisheries biologist approved by NMFS. The qualified fisheries biologist shall be assisted by at least one additional biologist if conducting electrofishing.
5. During any initial dewatering efforts, pumps shall be screened with appropriately sized mesh to prevent the entrainment and impingement of fish and amphibians in accordance with CDFW and NMFS fish screening criteria.
6. Prior to capturing fish, the qualified biologist shall determine the most appropriate release location(s). The following shall be considered when selecting release site(s):
    a. Similar water temperature as capture location.
    b. Quantity and quality of habitat available to relocate captured fish.
    c. Relocation area in relation to work activities.
7. All fish relocation equipment shall be cleaned and sanitized before and after use.
8. Any temporary fish exclusion or block nets shall be made of soft mesh and shall have appropriately sized mesh to prevent fish from entering the work area.
9. If electrofishing is used to capture fish, it shall only be conducted by trained personnel following NMFS electrofishing guidelines (NMFS, 2000).
10. Fish holding times shall be minimized to the extent practical and if necessary multiple relocations shall occur to minimize the number of fish being held in buckets or coolers.

Mitigation Measure BIO-2: CRLF

1. The Project shall consult with the USFWS prior to initiating Project activities (see WRA 2022 USFWS Biological Assessment).
2. Within 48 hours prior to the start of construction activities, a biologist approved by USFWS (qualified biologist) shall conduct a pre-construction survey for CRLF in and adjacent to the Project area.
3. If any CRLF or other amphibians are observed in the Project area, the individual(s) shall be captured by the qualified biologist and relocated outside of the Project area. Capture shall proceed as follows:
    a. Prior to handling the animal(s), the biologist shall assure their hands are free of toxins (i.e., sunscreen, bug repellant, etc.) or they may use moistened latex or nitrile gloves to handle/capture the animal(s).
    b. A clean bucket containing moist leaf litter, or a sponge moistened with non-chlorinated water shall be used to hold and transport the animal(s).
    c. The qualified biologist shall capture the animal by hand, or with the use of appropriate tools (e.g., dip net).

    d. The animal shall be relocated outside of the Project area, at least 200 feet from similar riparian or aquatic habitat.
    e. Information regarding the capture including number of individuals, date, time, approximate size, sex (if known), capture location coordinates, and release location coordinates shall be recorded, along with any other relevant information.
    f. Any equipment used for relocation or capture shall be properly decontaminated according to standard protocols for the species before and after use.
4. A qualified biologist shall be present for any initial vegetation removal, initial grading or grubbing and for any relocations. Once initial vegetation removal or grading is complete, a morning pre-construction check may be conducted by a biological monitor, or qualified person who has been trained by the qualified biologist; however, if a CRLF is observed, the biological monitor or qualified person shall stop work and inform the qualified biologist who shall oversee the relocation.
5. The qualified biologist, any biological monitors, and qualified person(s) shall have stop-work authority.
6. Prior to the commencement of work with wheeled or tracked equipment in vegetated areas, vegetation that could conceal amphibians shall be surveyed by a qualified biologist or biological monitor. If vegetation is too dense to be adequately surveyed (e.g., thick blackberry bushes, etc.), a qualified biologist or biological monitor shall observe vegetation removal until vegetation is cleared sufficiently for the qualified biologist to survey the area and verify the presence or absence of amphibians. If no amphibians are found, the vegetation shall be fully removed, and work may continue. If amphibians are observed, they shall be relocated by a qualified biologist according to the procedure outlined above.
7. An exclusion fence cannot be established around the entire site due to the variety of hydrologic conditions in the Project area; therefore, an exclusion fence (such as silt fencing) shall be installed around any staging and storage areas only. The exclusion fence shall stand at least 2 feet high and be buried at least 6 inches deep or shall otherwise be secured along the bottom to prevent wildlife from passing underneath (i.e., with sandbags or similar materials). The fence shall be made of an opaque material (such as silt fencing). Any access gates shall be closed each night and secured to prevent entry by CRLF or other nocturnal amphibians. If no vegetation is present within 25 feet of the exclusion fence, cover boards shall be placed approximately every 100 feet to provide intermittent cover for CRLF or other amphibians. If vegetation is present within 25 feet, no cover boards are necessary.
8. The exclusion fence shall be surveyed daily by a qualified biologist or qualified person to identify and address issues that could allow CRLF or other amphibians to enter the staging area.
9. All construction activities shall cease one half-hour before sunset and shall not begin prior to one half-hour after sunrise.
10. Construction activities shall not occur for 24 hours after rain events that deliver >0.25 inches of rain without the presence of a full-time qualified biologist onsite to monitor activities.
11. Any open holes or trenches greater than 12 inches deep shall be covered or have escape ramps no steeper than 45 degrees installed at the end of each working day to prevent CRLF or other amphibians from becoming entrapped. Holes shall be checked before work begins.
12. All aquatic equipment used for capture shall be decontaminated before and after use in accordance with the fieldwork code of practice developed by the Declining Amphibian Populations Task Force.
13. No monofilament wrapped BMPs shall be used which might entangle CRLF or other amphibians.

Mitigation Measure BIO-3: California Black Rail

1. Prior to initiating construction activities in the spring, protocol surveys shall be performed to determine if black rail territories are present within 330 feet (100 meters) of the Project area.
    a. If a territory is identified, a 165-foot (50 meters) non-disturbance buffer shall be established around the territory, and no work shall occur south of the Fairfax Bolinas crossover road within the buffer until after August 31.
    b. If no specific territories are identified, the Project shall establish a general buffer of 85 feet (25 meters) from the edge of the high tide line. No work of any type shall occur within the buffer until after August 31, when nesting season has completed.
2. Any work such as asphalt grinding, jackhammering, concrete sawing, or similar extreme noise-producing construction activities required to remove the Fairfax Bolinas crossover road shall not occur from March 1–April 30, when black rails are most likely to call in association with the breeding season.
    a. Standard construction activities, such as motorized equipment operation and staging of equipment or materials, vegetation removal, grading, or other general Project activities may occur on, or north of, the Fairfax Bolinas crossover road, from March 1–April 30.
    b. If extreme noise-producing activities are necessary during the period from March 1–April 30, then temporary visual barriers and sound attenuating curtains shall be used to decrease visual and auditory disturbances.
    c. Any general work activities along Fairfax Bolinas Road from March 1–April 30 shall not begin until one hour after sunrise and shall cease no later than one hour before sunset, to avoid periods when rails are most likely to call.
3. Between November and January, no work shall occur within 85 feet (25 meters) of the high tide line from 45 minutes before, until 45 minutes after a high tide event measuring 6.0 feet or higher, to allow rails to use adjacent uplands as refugia during high tide events. Work outside of the 85-foot buffer shall be allowed, weather permitting.

Mitigation Measure BIO-4: Native Nesting Birds

1. To the extent feasible, vegetation removal and initial ground disturbance shall occur from September 1 through January 31, so that initial ground-disturbing work occurs outside of the general nesting bird season.
2. For vegetation removal and ground disturbance within the proposed Project area that is conducted during the general nesting bird season (February 1 through August 31), pre-construction nesting bird surveys shall be conducted within the work area and adjacent habitats seven days prior to the initiation of vegetation removal or grading activities to avoid disturbance to active nests, eggs, and/or young.
3. All active nests of native birds found during the survey shall be protected by a no-disturbance buffer until all young from each nest fledge, or the nest otherwise becomes inactive. The size of each buffer shall be determined by a qualified biologist dependent upon extant conditions and may require consultation with the CDFW. Buffers are typically a minimum of 25 feet for disturbance-adapted non-special-status birds and increase accordingly for large raptors or other special-status species.

Mitigation Measure BIO-5: Roosting Bat Protection

1. Prior to the removal of any large trees (DBH>18 inches) a bat roost assessment shall be conducted by a qualified biologist at least 30 days beforehand to determine if potential roost habitat is present.
    a. If the tree has no potential to support roosting bats (e.g., no large basal cavities, exfoliating bark or interstitial spaces), the tree may be removed with no further measures required to protect roosting bats.
    b. If a potential bat habitat is present, and work is occurring outside the maternity season, the qualified biologist may either 1) Conduct an emergence survey to determine if the roost is occupied; or 2) The tree may be felled using a two-phased cut.
        i) If the emergence survey confirms the roost is inactive, the tree may be felled normally.
        ii) If the roost is confirmed active, or is assumed to be active, a two-phased cut shall be employed to remove the tree. On day one, the qualified biologist shall oversee removal of branches and small limbs not containing potential bat roost habitat using hand tools such as chainsaws or handsaws only. The next day, the rest of the tree may be removed.
    c. If potential bat roosting habitat is present and work is occurring during the maternity season, the qualified biologist may either 1.) Conduct an emergence survey to determine if the roost is occupied; or 2.) Assume the roost is occupied and a buffer shall be implemented.
        i) If the roost assessment does not detect bats, the tree may be removed normally. If roosting bats are detected, or the tree is assumed to be an active roost, the tree shall be given a 100-foot buffer and shall be avoided until after the maternity roosting season is complete.

Mitigation Measure BIO-6: Tree Protection

To minimize damage to existing trees which are not proposed for removal by Project activities, the following shall be implemented:

1. To the extent possible any native trees shall be avoided and retained.
2. Installation of temporary protective fencing around the dripline of existing trees per the direction of a licensed arborist prior to ground disturbance in the area of those trees.
3. Trunk protection with 2x4 wood planks shall be installed around the trunk of a tree that cannot otherwise be protected at the dripline.

Of the trees proposed for removal, new native trees would be planted at ratios established to be commensurate with the stature of the trees to be removed.

4. A total of 1,246 trees shall be planted on-site, in addition to the many shrubs listed in the Project revegetation plan planting palette. This represents a 10:1 replacement ratio for the 123 trees that will be removed (3.5:1 replacement for oaks).
5. On-site planting may occur within the restored floodplain where the crossover section of Fairfax Bolinas Road is removed, increasing habitat continuity within this floodplain.

Mitigation Measure BIO-7: Waters of the U.S. and State

1. The Project shall implement the following measures to avoid and/or minimize and restore potential impacts to aquatic habitats resulting from Project activities:
2. Excavation of the new channel and any work within the existing creek bed and banks shall be completed between June 1 and October 31. Work within the existing channel shall only occur when the work area is dry or dewatered.
3. Prior to construction, the contractor shall be required to prepare an Accidental Spill Prevention and Cleanup Plan.
4. Emergency spill containment and clean-up materials shall be kept on the Project site.
5. A Stormwater Pollution Prevention Plan (SWPPP) shall be developed which would include stormwater best management practices (BMPs) specific to the disturbances occurring as well as inspection procedures to ensure the SWPPP is implemented as described.
6. To minimize fluid leaks, equipment shall be inspected daily. Any equipment found to be leaking shall not be used until it has been fully repaired.
7. If maintenance must occur on-site, it would occur in designated areas located at least 100 feet from drainages and channels and protected with perimeter controls and non-permeable surfaces placed under the equipment. Secondary containment, such as a drain pan or drop cloth, to catch spills or leaks shall be used when performing maintenance or refueling equipment. Fluids shall be stored in appropriate containers with covers, and properly recycled or disposed of off-site.
8. No equipment, including concrete trucks, shall be washed within the channel of the creek, or where wash water could flow into the channel. Prior to initiating construction, the contractor shall establish a concrete washout area for concrete trucks in a location within developed areas where wash water shall not enter the creek or adjacent areas. The washout area shall follow the practices outlined in the San Francisco Bay Regional Water Quality Control Board Erosion and Sediment Control Field Manual (page 107–108, July 1999) or more recent guidelines.
9. All spoils including concrete and asphalt shall be stored in locations where they cannot enter waterbodies and shall be covered or protected as outlined in the SWPPP until they can be hauled offsite for disposal.
10. Debris, soil, silt, excessive bark, rubbish, creosote-treated wood, raw cement/ concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic life, resulting from projected related activities, shall be prevented from contaminating the soil and/or entering the waters of the US or State.
11. All trash and construction debris shall be contained in a covered debris box (or similar) and removed regularly from the Project site and disposed of appropriately off-site.

Mitigation Measure CUL-1: Archaeological Resources Monitoring

Prior to Project implementation, a Cultural Resources Monitoring Plan (Plan) will be prepared by a qualified archaeological consultant. The Plan will discuss the monitoring procedures, field methods, communication protocols, and inadvertent discovery actions to be taken in the event archaeological resources are identified during monitoring and/or any Project activities. Full-time monitoring will occur during vegetation removal at the location of the Oyster House. All monitoring will be carried out by a qualified archaeologist.

Mitigation Measure CUL-2: Archaeological Resources Work Stoppage

Construction crews shall be trained in "basic archaeological identification" and have access to a Cultural Resources Awareness Sheet. The sheet shall photographically depict shell midden and associated indicators of archaeological sites, and clearly outline the procedures in the event of a new archaeological discovery. These procedures include temporary work stoppage (Stop-Work Order) of all ground disturbance, short-term physical protection of artifacts and their context, and immediate advisement of the archaeological team and MCOSD representatives. Any Stop-Work Order would contain a description of the work to be stopped, special instructions or requests for the Contractor, suggestions for efficient mitigation, and a time estimate for the work stoppage. The archaeologist shall examine the findings and assess their significance and offer recommendations for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to archaeological resources that have been encountered.

Mitigation Measure CUL-3: Discovery of Human Remains

Upon discovery, the Coroner Division of the Marin County Sheriff's Office will be contacted for identification of human remains. The coroner has 2 working days to examine the remains after being notified. If the remains are Native American, the Coroner must notify the Native American Heritage Commission (NAHC) of the discovery within 24 hours. The NAHC will then identify and contact a Most-Likely Descendant (MLD). The MLD may make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the remains and grave goods. Once proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented.

If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity—either as an individual or as a member of a group—of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between the MCOSD and FIGR.

Mitigation Measure HYD-1: Water Quality Protection

The following measures shall be implemented during Project-related construction activities:

1. Heavy construction shall be limited to the dry-weather months. Construction within the ordinary high waterline will occur when stream flows are at their lowest (typically July through October). All disturbed soils will be stabilized by October 31.
2. Workers shall receive an erosion, sediment control, and pollution prevention training and would be instructed to avoid conducting activities beyond the construction zone including storage of tools, materials, and soil.
3. Erosion and sediment control measures, such as silt fences and certified weed seed-free rice straw fiber rolls (wattles), shall be installed as needed to eliminate the potential for sediment

movement. The use of erosion control measures and mulches that contain non-native plant seeds or non-biodegradable material shall be prohibited. Only rice straw-filled fiber rolls will be permitted, or sterilized seed, to prevent inadvertent introduction of wheat and barley species. The use of erosion control measures that may trap small animals shall be prohibited. Erosion control measures will not contain plastic netting or monofilament.

4. Sites where activities result in exposed soil shall be stabilized to prevent erosion as soon as feasible after Project activities are complete.
5. Excavated materials shall be stockpiled outside of drainages, contained with appropriate sediment controls, and covered with geo-fabrics or plastic sheeting.
6. Soils excavated during ground-disturbing activities shall be reused to the extent that these locally derived materials are found to be clean and weed-free. Any such reuse is subject to applicable County policies and guidance.
7. Regular site inspections shall be conducted during construction to ensure that erosion control measures remain in place and are maintained and functioning properly. Sediment control devices that collect sediment shall be regularly cleaned out and the sediment added to soil stockpiles.
8. Once Project actions are completed, native vegetation that was removed and saved as part of Project activities shall be replanted or used for passive seeding to support revegetation and erosion control activities.
9. Proper storage, use, and disposal of chemicals, fuels, and other toxic materials is required. Soil, silt, bark, rubbish, creosote-treated wood, raw cement, concrete (including washings), asphalt, paint, oil or other petroleum products, or other substances that could affect water quality and be harmful to aquatic biota shall be prevented from entering the soil and/or waters of the State.
10. Any chemicals stored on site (for fueling or equipment maintenance) shall be stored in a locked container with secondary containment in case of leaks.
    a. If maintenance must occur on-site, it shall occur in designated areas located at least 100 feet from drainages and channels and protected with perimeter controls and non-permeable surfaces placed under the equipment. Secondary containment, such as a drain pan or drop cloth, to catch spills or leaks, shall be used when removing or changing fluids. Fluids shall be stored in appropriate containers with covers, and properly recycled or disposed of off-site.
    b. Emergency spill containment and clean-up materials shall be kept on the Project site.
11. Power tools shall be refueled only in upland areas and away from all surface water zones to prevent fuel spills near sensitive habitats. Tools shall be inspected for oil and gas leaks before being brought on-site and regularly while on-site.
12. Equipment parked on site overnight shall be placed over a non-permeable surface such as a tarp or plastic sheeting to prevent leaks and spills.
13. All trash and construction debris shall be contained in a covered debris box (or similar) and removed regularly from the Project site and disposed of appropriately off-site.
14. For all vehicles and equipment operated in or near Lewis Gulch Creek:

a. All vehicles and equipment shall be kept clean. Excessive build-up of oil or grease shall be avoided.

b. All equipment used in the creek channel shall be inspected for leaks each day prior to initiation of work. Action shall be taken to prevent or repair leaks, if necessary.

15. During bridge construction, a sheet of Visqueen® or similar material shall be attached under the bridge to catch wood dust, metal dust, loose hardware, etc., to avoid pollutants entering channels. These materials shall be bagged and removed from the site.

16. All soil and/or rock materials imported to the Project site shall be tested to ensure that they do not contain hazardous materials (such as heavy metals) above applicable screening levels such as those adopted by the State Water Resources Control Board.

Mitigation Measure NOI-1: Noise Buffers

If noise-inducing work occurs during the bird nesting season (February 1–July 31), pre-construction surveys for nesting birds shall be conducted. If nests are found, buffers will be established according to the species detected and state and federal regulations. Otherwise, if no nests are found, then noise-inducing activities will only take place between two hours after sunrise and two hours before sunset. If activities are particularly noisy, meaning louder than applicable county noise thresholds, sound barriers shall be erected around noise-inducing work sites to limit noise impacts to wildlife.

Mitigation Measure TRAN-01: Bicyclist Safety

Bicyclists share the road with vehicles at the Project location under typical conditions, so maintaining an adequate travel way or detour route through the area would be needed for both transportation modes in each direction along SR-1, Olema Bolinas Road, and Fairfax Bolinas Road. To ensure that the route is adequate for bicyclists, a smooth surface shall be provided along with detour and warning signage on the approaches to the Project area to raise awareness for drivers and bicyclists of the temporary conditions.

Mitigation Measure TRAN-02: Construction Signage

Construction and detour warning signs shall be placed on SR-1 in advance of construction activities along the roadway for both northbound and southbound traffic. Additional signage, as well as traffic control personnel, may be required at the intersection based on proximity of construction activities to the roadway and whether any temporary modifications of the travel lanes are required. Detour signage shall also be placed at both ends of Horseshoe Hill Road, indicating that this route is not suitable for use as a construction zone bypass.

During Year 2 construction, to the degree that construction materials are required to be transported across the road to and from the staging area, temporary traffic control shall be required. To the extent that the staging area encroaches upon the roadway, traffic control may be required to maintain adequate clearances. Construction warning signage shall be stationed upstream of active construction and staging areas.

XV. DETERMINATION

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

CEQA Checklist Topic Areas

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed Project COULD NOT have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.

☒ I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

☐ I find that the proposed Project MAY have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

☐ I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect **1)** has been adequately analyzed in an earlier document pursuant to applicable legal standards, and **2)** has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects **(a)** have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and **(b)** have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION,** including revisions or mitigation measures that are imposed upon the proposed Project, **nothing further is required**.

Rachel Reid, Environmental Coordinator June 26, 2023
Marin County Community Development Agency

XVI. CEQA GUIDELINES APPENDIX G CHECKLIST ANALYSIS

A. AESTHETICS

Table 4. Aesthetics Checklist Questions

Except as provided in Public Resources Code Section 20199, would the Project:		Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b)	Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? *(Public views are those that are experienced from publicly accessible vantage points)*. If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

SETTING

Marin County has a unique visual environment with a diversity of landscapes which include views of open space, ocean vistas and beaches, San Francisco Bay shoreline, hills and ridgelines, agricultural lands, stands of forests, and other natural features. The proposed Project is located on two parcels in Marin County at the north end of Bolinas Lagoon between Olema Bolinas Road and SR-1. The proposed Project site is bounded by SR-1 to the east, Olema Bolinas Road to the west, and Bolinas Lagoon to the south, within the Bolinas Wye wetland. The Project site is primarily vegetated and consists of roadways, trees, wetland, intertidal lagoon, and stream habitats. SR-1 to the east of the Project site is eligible for listing as State Scenic Highway (Caltrans, 2022). The Project site can be seen from SR-1. Views of the existing Project setting are presented in **Error! Reference source not found.**22.

CEQA CONTEXT

Potentially significant environmental impacts associated with aesthetics can be subjective in nature because the response to aesthetics varies from person to person. In terms of methodology, potentially significant environmental impacts to aesthetics have been determined by identifying whether Project elements would result in the loss or degradation of a scenic attribute or in a demonstrable negative effect to overall visual quality.

a) Would the Project have a substantial adverse effect on a scenic vista?

Less-than-Significant Impact

A scenic vista can be defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. There are no officially designated vistas within the Project area. The Bolinas Lagoon Open Space Preserve includes non-designated scenic vistas. Implementation of the proposed Project would include soil disturbing activities such as vegetation and tree removal, grading, roadway demolition/removal, and bridge and roadway reconstruction. Views of construction activities (e.g., removal of the crossover road, construction of the new bridge, and roadway realignment) would be available from Olema Bolinas Road and SR-1, but these activities would be temporary in nature. Upon the completion of Project construction work, the disturbed areas would be revegetated and no long-term substantial adverse change to existing vistas would occur. Project construction also would include removal of 123 trees from the Project site. The loss of the trees would have a local visual effect in the short term; however, the trees would be revegetated at a 10:1 ratio in appropriate locations on-site. Although the removal of mature trees and non-native invasive vegetation would alter the appearance of the site, it would not substantially impact views from non-designated scenic vistas within the Bolinas Lagoon Open Space Preserve as the fundamental visual characteristics of the Project site would not change. Further, the predominant view from non-designated scenic vistas is of the intertidal, low marsh towards the open water of Bolinas Lagoon, which is outside of the project area. Tree and vegetation removal associated with the Project is specifically analyzed in the Biological Resources section of this CEQA Checklist.

The new intersection for Olema Bolinas Road/SR-1 would provide views of the elevated bridge, but with the removal of the existing intersection, this will result in a reduction in the amount of visible infrastructure. In addition, as the replanted trees mature, views of the bridge and road will be obscured. Once the Project is constructed, the Project site would include a large wetland area where the crossover segment of Fairfax Bolinas Road will be removed and restored to wetland habitat. The revegetation of the former crossover segment would utilize wetland vegetation that is within the same vegetation alliance as the adjacent wetlands, as will revegetation of tree removal areas within the historic floodplain that will be disturbed for creation of the new Lewis Gulch Creek channel. The Project would not have a substantial adverse effect on views from any scenic vistas because wetland habitat and vegetation removed on-site would be similar in native species composition and would not represent a change to the fundamental visual characteristics of the site. Furthermore, native trees that are proposed for site revegetation are fast growing and would fill in over the course of 5-10 years. In addition, the entire Project area is heavily vegetated and areas of disturbance below the Crossover Road will largely be concealed. Therefore, the shift in the age and maturity of on-site vegetation that would result from the Project would not result in a substantial adverse effect on a scenic vista.

b) Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less-than-Significant Impact

Scenic resources can be defined as those landscape patterns and features that are visually or aesthetically pleasing. These include, but are not limited to trees, rock outcroppings, and historic buildings. Scenic areas, open spaces, rural landscapes, and vistas also contribute to a net visual benefit for the viewer. The California Department of Transportation (Caltrans) manages the California Scenic Highway Program to protect State highways located in areas of outstanding natural beauty. The State legislature created the California's Scenic Highway Program in 1963 to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment. SR-1 along the eastern edge of the Project site is eligible for listing as State Scenic Highway but has not been so designated to date (Caltrans, 2022). The Project site contains no buildings, historic or otherwise.

The Project would remove the existing crossover segment of Fairfax Bolinas Road within the Project site to reconnect the historic floodplain and construct a new intersection at Olema Bolinas Road and SR-1 with a bridge crossing for Lewis Gulch Creek. Removing Fairfax Bolinas Road would result in an improvement to scenic resources; therefore, it would be a beneficial effect. The new bridge would be aligned with Olema Bolinas Road which would be elevated to reduce flooding risk. Olema Bolinas Road would be elevated higher than under existing conditions, but the new side slopes would be revegetated. The Project would also include removal of non-native species and placement of large woody debris for habitat restoration, resulting in an increase in wetland habitat within the Project site, which would be a beneficial impact for scenic resources. As discussed above, the Project would also remove 123 trees from the Project site, which would result in a change in the visual character of the Project site, including views from SR-1; however, the visual quality of the site would ultimately be improved through revegetation, including the planting of a total of 1,246 trees, in addition to the many shrubs included in the Project's revegetation plan (see the Project Description). This represents a 10:1 replacement ratio for the 123 trees that will be removed. Because an objective of the Project is to restore wetlands to the site, the location of vegetation alliances will change in identified areas of revegetation, and vegetation shifts will occur as wetland characteristics evolve as a result of the Project. This includes replaced trees currently in the drier non-wetland areas of the site that will become subject to periodic inundation and replaced with riparian trees. Thus, although temporary visual impacts would occur during and immediately following Project construction, and the spatial distribution of trees and vegetation alliances on the site would change following Project implementation, the Project would not substantially damage any scenic resources within a designated State Scenic Highway corridor.

c) In non-urbanized areas, would the Project substantially degrade the existing visual character or quality of public views of the site and its surroundings? *(Public views are those that are experienced from publicly accessible vantage points)*. If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?*)*

Less-than-Significant Impact

Visual character can be defined as the perceived contrast between the existing visual elements of an area and how the area will look after the Project is implemented, as a measure of how compatible the Project will be with the existing visual environment after it is implemented. The proposed Project is located within an open space area and is accessed by visitors and residents traveling in vehicles through

the area. Publicly accessible vantage points would be from the existing roads: Olema Bolinas Road, the crossover segment of Fairfax Bolinas Road, and SR-1.

Implementation of the proposed Project would result in small-scale visual impacts during and after construction. Changes to the visual environment during construction would include the presence of construction equipment and materials staged at the site, disturbed land, and temporary stormwater protection measures such as waddling and straw. Construction equipment would be stored in a designated staging area and away from the sensitive habitats (e.g., creek and wetland). After construction, the new bridge and modified road would be visible, but as new vegetation grows, it would soften the visibility of these changes.

The most prominent permanent visual change would be associated with the removal of the existing Fairfax Bolinas Road within the Project site and the new intersection at Olema Bolinas Road and SR-1 with a bridge crossing Lewis Gulch Creek, which would be visible from SR-1 and Olema Bolinas Road. Restoration activities, including wetland restoration and site revegetation, would also alter the character of the Project site; however, removal of non-native vegetation is not expected to substantially degrade the existing visual character or quality of public views of the Project area and surroundings, because substantial vegetation would remain, and as described above, the Project design includes substantial replanting of native vegetation. Similarly, the tree removal necessary for Project implementation would not represent a substantial degradation of the existing visual character because the trees would be replaced on-site in ecologically appropriate locations. Restoration of the historic wetland on-site is expected to improve, rather than adversely affect, the visual character of the Project site and surrounding area.

Given the design of the Project components to be generally compatible with natural and semi-natural areas, their location in the visual setting, and their limited scale compared to the overall visual context available from public corridors, implementation of the proposed Project would result in a less-than-significant impact on visual quality and character of public views.

d) Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No Impact

New sources of light and glare can occur from lighting associated with buildings and from exterior light sources such as street lighting, building illumination, security lighting, and landscape lighting. Glare is an objectionable brightness, the effect usually created by the reflection of sunlight or artificial light from highly polished surfaces, including windows and automobile glass during the daytime. During nighttime, glare is usually the result of the viewer being within the line of sight of a bright source of light, such as from a building or vehicle headlamps that contrast with surrounding low-ambient light conditions. Light pollution is an unwanted consequence of outdoor lighting and includes such effects as sky glow, light trespass, and glare. Light trespass is light cast where it is not wanted or needed, such as light from a streetlight or a floodlight that illuminates a neighbor’s bedroom at night making it difficult to sleep.

The Project site does not contain any stationary sources of light or glare. Minor amounts of off-site lighting from nearby residences may be visible from certain locations at night, as would vehicle headlights passing through the site on the road segments. The proposed Project would not include any new sources of light or glare; therefore, the Project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. No nighttime construction would occur that would require the use of light; therefore, the proposed Project would have no impact on new sources of light or glare.

B. AGRICULTURE AND FORESTRY RESOURCES

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

Table 5. Agriculture and Forestry Resources Checklist Questions

	Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g))?	☐	☐	☐	☒
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒	☐
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

SETTING

The California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) provides a classification system based on technical soil ratings and current land use. The FMMP is an informational service only and does not have regulatory authority over local land-use decisions. The minimum land use mapping unit is ten acres unless specified; the map incorporates smaller units of land into the surrounding map classifications. Pursuant to CEQA Guidelines Appendix G, the term "Farmland" refers to FMMP map categories Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (hereafter collectively referred to as "Farmland"). Generally, any conversion of land from one of these categories to a lesser quality category or a non-agricultural use would be an adverse impact. These map categories are as follows:

Prime Farmland: Land which has the best combination of physical and chemical characteristics to produce crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods.

Unique Farmland: Land of lesser quality soils used to produce specific high economic value crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. It is usually irrigated but may also include non-irrigated orchards or vineyards.

Farmland of Statewide Importance: Land that is like Prime Farmland but with minor shortcomings, such as greater slopes or less ability to hold and store moisture.

The Project site does not contain any prime, unique, or important farmland. The California Department of Conservation maps this area as "Other Land" (California Department of Conservation, 2022). The Project site does not contain any parcel that is under a Williamson Act contract (Marin County, 2017).

CEQA CONTEXT

A project would normally result in a significant impact to agriculture and/or forestry resources if the Project will alter existing agricultural land uses or land use designations. Generally, any conversion of land from one of the Farmland categories to a lesser quality category or a non-agricultural use would be a potentially significant impact.

a) Would the Project convert prime farmland, unique farmland, or farmland of statewide importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to a non-agricultural use?

No Impact

As discussed above, the Project site does not contain prime farmland, unique farmland, or farmland of statewide importance; therefore, implementation of the proposed Project would not result in impact to farmland because it would not convert any farmland to a non-agricultural use. No impact would occur.

b) Would the Project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact

As discussed above, the Project site does not contain any parcel that is under a Williamson Act contract. There are no designated agricultural lands or Williamson Act contracted parcels on the site; therefore, implementation of the proposed Project would not result in impact to existing zoning for agricultural use or a Williamson Act contract. No impact would occur.

c) Would the Project conflict with existing zoning for, or cause rezoning of, forest land *(as defined in Public Resources Code §12220(g)),* timberland *(as defined by Public Resources Code §4526),* or timberland zoned Timberland Production (as defined by Government Code §51104(g))?

No Impact

In accordance with the definition provided in California Public Resources Code Section 12220(g), “forest land” is land that can support, under natural conditions, 10% native tree cover of any species, including hardwoods, and that allows for the preservation or management of forest-related resources, such as timber, aesthetic value, fish and wildlife, biodiversity, water quality, recreational facilities, and other public benefits. "Timberland" means land, other than land owned by the federal government and land designated as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees.

The Project is zoned for Open Area and Agriculture Residential Planned. Currently both parcels within the aforementioned zoning districts are undeveloped, with the exception of the right-of-way for Olema Bolinas Road. Both parcels are managed as open space under Marin County Parks and will remain as open space.

The Project area meets the definition of “forest land”. The Project includes removal of 123 trees that will be revegetated at a 10:1 replacement ratio with species within the vegetation alliances that are currently present on-site. Therefore, no conversion of “forest land” to other uses will occur.

The Project site does not include lands with timberland or timberland production. A majority of the trees proposed for removal are arroyo willows, alders, and coast live oaks. None of these are commercial timber species. The site will be fully restored to a wetland, and is unsuitable to grow commercial timber. Therefore, implementation of the proposed Project would not result in a need to change existing zoning or cause rezoning of forest land, timberland, or timberland zoned Timber Production.

d) Would the Project result in the loss of forest land or conversion of forest land to non-forest use?

Less-Than-Significant Impact

As described above, the Project site is not used for any timber-related activities. Implementation of the proposed Project would require removal of vegetation, including Himalayan blackberry, cape ivy, periwinkle, yellow flag iris, English ivy, and invasive perennial grasses. Approximately 123 trees would be removed from the channel and road realignment areas. The Project would plant appropriate trees and shrubs in all areas of disturbance within the Project area. Therefore, implementation of the proposed Project would result in a less-than-significant impact. Refer to the Biological Resources Section of this CEQA Checklist for additional discussion regarding the potential impacts associated with vegetation removal.

e) Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No Impact

The Project site does not include farmland. Implementation of the proposed Project would not convert farmland to a non-agricultural use or convert forest land to a non-forest use; therefore, implementation of the proposed Project would result in no impact associated with farmland or forest land conversion.

C. AIR QUALITY

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

Table 6. Air Quality Checklist Questions

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b)	Result in a cumulatively considerable net increase of any criteria pollutant under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d)	Result in other emissions *(such as those leading to odors or dust)* adversely affecting a substantial number of people?	☐	☐	☐	☒

SETTING

Air quality can be described by the concentration of pollutants in the atmosphere and/or the pollutant emissions. Poor air quality can be locally problematic when pollutants occur at high densities or when the source is close to a sensitive receptor. Air quality plans and standards set regarding criteria pollutants under applicable federal and state ambient air quality standards are related topics pertaining to ambient air quality and influenced by local, state, and federal regulations. Sensitive receptors to substantial pollutant concentrations refers to those facilities or land uses that include members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. There are no air quality standards for odors.

The Project site is located within the San Francisco Bay Area Air Basin (SFBAAB). Some air basins have natural characteristics that limit the ability of natural processes to either dilute or transport air pollutants. The major determinants of air pollution transport and dilution are climatic and topographic factors such as wind, atmospheric stability, terrain that influences air movement, and sunshine. Wind and terrain can combine to transport pollutants away from upwind areas, while solar energy can chemically transform pollutants in the air to create secondary photochemical pollutants such as ozone. The following discussion provides an overview of the environmental setting regarding air quality in the SFBAAB.

Ambient Air Quality and Climate

The San Francisco Bay Area (Bay Area) has a Mediterranean climate characterized by wet winters and dry summers. During the summer, a high-pressure cell centered over the northeastern Pacific Ocean results in stable meteorological conditions and a steady northwesterly wind flow that generally keeps storms from affecting the California coast. During the winter, the Pacific high-pressure cell weakens,

resulting in increased precipitation and the occurrence of storms. The highest air pollutant concentrations in the Bay Area generally occur during inversions, when a surface layer of cooler air becomes trapped beneath a layer of warmer air. An inversion reduces the amount of vertical mixing and dilution of air pollutants in the cooler air near the surface.

The Project site is located in the southern part of Marin County, which is bounded to the west by the Pacific Ocean, to the east by San Pablo Bay, to the south by the Golden Gate, and to the north by the Petaluma Gap. In southern Marin, the distance from the ocean is short and elevations are lower, resulting in higher incidence of maritime air in that area. The prevailing wind directions throughout Marin County are generally from the northwest. The temperatures of cities next to the Bay are moderated by the cooling effect of the Bay in the summer and the warming effect of the Bay in the winter. For example, San Rafael experiences average maximum summer temperatures in the low 80 degrees Fahrenheit and average minimum winter temperatures in the low 40 degrees Fahrenheit.

In the SFBAAB, the primary criteria air pollutants of concern are ground-level ozone formed through reactions of oxides of nitrogen (NOx) and reactive organic gases (ROG), PM10, and PM2.5. Regional air pollutants, such as ozone, PM10, and PM2.5, can be formed and/or transported over long distances and affect ambient air quality far from the emissions source. The magnitude and location of specific health effects from exposure to increased ozone, PM10, and PM2.5 concentrations are the result of emissions generated by numerous sources throughout the SFBAAB, as opposed to a single project.

The BAAQMD and other air districts use regional air dispersion models to correlate the cumulative emissions of regional pollutants to potential community health effects; however, these dispersion models have limited sensitivity to the relatively small (or negligible) changes in criteria air pollutant concentrations associated with an individual project—therefore, it is not feasible to provide reliable estimates of specific health risks associated with the air pollutant emissions from an individual project.

Localized air pollutants generally dissipate with distance from the emission source and can pose a health risk to nearby populations. Toxic air contaminants (TACs), such as diesel particulate matter (DPM), are considered localized pollutants. PM2.5 is also considered a localized air pollutant, in addition to being considered a regional air pollutant. Air dispersion models can be used to reliably quantify the health risks to nearby receptors associated with emissions of localized air pollutants from an individual project.

Applicable Air Quality Regulations

Federal and State Regulations

The Federal Environmental Protection Agency (EPA) is responsible for implementing the programs established under the Federal Clean Air Act, such as establishing and reviewing the National Ambient Air Quality Standards (NAAQS) and judging the adequacy of State Implementation Plans to attain the NAAQS. A State Implementation Plan must integrate federal, State, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas using a combination of performance standards and market-based programs. If a state fails to enforce its implementation of approved regulations, or if the EPA determines that a State Implementation Plan is inadequate, the EPA is required to prepare and enforce a Federal Implementation Plan to promulgate comprehensive control measures for a given State Implementation Plan.

The California Air Resources Board (CARB) is responsible for establishing and reviewing the California Ambient Air Quality Standards (CAAQS), developing and managing the California State Implementation Plans, identifying TACs, and overseeing the activities of regional air quality management districts. In California, mobile emissions sources (e.g., construction equipment, trucks, and automobiles) are

regulated by CARB, and stationary emissions sources (e.g., industrial facilities) are regulated by the regional air quality management districts.

The CAAQS and NAAQS, which were developed for criteria air pollutants, are intended to incorporate an adequate margin of safety to protect public health and welfare. California also has ambient air quality standards for sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. To achieve CAAQS, criteria air pollutant emissions are managed through control measures described in regional air quality plans, as well as emission limitations placed on permitted stationary sources.

Regulation of TACs, referred to as hazardous air pollutants (HAPs) under federal regulations, is achieved through federal, State, and local controls on individual sources. The air toxics provisions of the Federal Clean Air Act require the EPA to identify HAPs that are known or suspected to cause cancer or other serious health effects to protect public health and welfare, and to establish National Emission Standards for Hazardous Air Pollutants. California regulates TACs primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act created California's program to identify and reduce exposure to TACs. To date, the CARB has identified over 21 TACs and adopted the EPA's list of 188 HAPs as TACs. The Hot Spots Act supplements the Tanner Act by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

Local Regulations

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

The BAAQMD is primarily responsible for ensuring that the NAAQS and CAAQS are attained and maintained in the SFBAAB. The BAAQMD fulfills this responsibility by adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits, inspecting stationary sources of air pollutants, responding to citizen complaints, and monitoring ambient air quality and meteorological conditions. The BAAQMD also awards grants to reduce motor vehicle emissions and conducts public education campaigns and other activities associated with improving air quality within the SFBAAB.

The BAAQMD's CEQA Guidelines include thresholds of significance to assist lead agencies in evaluating and mitigating air quality impacts under CEQA (BAAQMD, 2017a). The BAAQMD's thresholds establish levels at which emissions of ozone precursors (ROG and NOx), PM10, PM2.5, TACs, and odors could cause significant air quality impacts. The scientific soundness of the thresholds is supported by substantial evidence presented in the BAAQMD's Revised Draft Options and Justification Report (BAAQMD, 2009). The thresholds of significance used in this CEQA analysis for Project construction are summarized in Table 7, below.

Table 7: BAAQMD's Project Level Thresholds of Significance for Air Quality

IMPACT ANALYSIS	POLLUTANT	THRESHOLD
Regional Air Quality (Construction)	ROG	54 pounds/day (average daily emission)
	NOx	54 pounds/day (average daily emission)
	Exhaust PM10	82 pounds/day (average daily emission)
	Exhaust PM2.5	54 pounds/day (average daily emission)
	Fugitive dust (PM10 and PM2.5)	Best management practices
Local Community Risks and Hazards (Construction)	Exhaust PM2.5 (project)	0.3 µg/m^3 (annual average)
	TACs (project)	Cancer risk increase > 10 in one million Chronic hazard index > 1.0
	Exhaust PM2.5 (cumulative)	0.8 µg/m^3 (annual average)
	TACs (cumulative)	Cancer risk > 100 in one million Chronic hazard index > 10.0

Note: ROG = reactive organic gases; NOx = oxides of nitrogen; PM10 = coarse particulate matter; PM2.5 = fine particulate matter; µg/m^3 = micrograms per cubic meter
Source: Bay Area Air Quality Management District (BAAQMD), 2017a. California Environmental Quality Act Air Quality Guidelines, May.

BAY AREA CLEAN AIR PLAN

In accordance with the California Clean Air Act, the BAAQMD is required to prepare and update an air quality plan that outlines measures by which both stationary and mobile sources of pollutants can be controlled to achieve the NAAQS and CAAQS in areas designated as nonattainment. In April 2017, the BAAQMD adopted the 2017 Clean Air Plan: *Spare the Air, Cool the Climate* (BAAQMD, 2017b). The 2017 CAP includes 85 control measures to reduce ozone precursors, particulate matter, TACs, and greenhouse gases (GHGs). The 2017 CAP was developed based on a multi-pollutant evaluation method that incorporates well-established studies and methods of quantifying health benefits, air quality regulations, computer modeling and analysis of existing air quality monitoring data and emissions inventories, and traffic and population growth projections prepared by the Metropolitan Transportation Commission and the Association of Bay Area Governments, respectively. The 2017 Plan complements and supports other important regional and state planning efforts, including Plan Bay Area and the State of California's 2030 Scoping Plan.

CEQA CONTEXT

A project would normally result in significant impacts to air quality if changes to existing air quality would result from construction, operation, use, and/or maintenance activities from implementation of the project. The proposed Project has been evaluated to determine if changes to existing air quality would result from construction, public use, operations, and/or maintenance. Operation of the proposed Project would not be expected to generate air pollutant emissions or odors and thus, would not result in any air quality impacts; therefore, the following evaluation focuses on potential air quality impacts related to Project construction.

a) Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Less-than-Significant Impact

The BAAQMD's 2017 CAP is the applicable air quality plan for projects located in the SFBAAB. Consistency may be determined by evaluating whether the Project supports the primary goals of the

2017 CAP, including applicable control measures contained within the 2017 CAP, and would not conflict with or obstruct implementation of any 2017 CAP control measures. The primary goals of the 2017 CAP are the attainment of ambient air quality standards and reduction of population exposure to air pollutants for the protection of public health in the Bay Area.

The 2017 CAP includes control measures that aim to reduce air pollution and GHGs from stationary, area, and mobile sources. The control measures are organized into nine categories: stationary sources, transportation, buildings, energy, agriculture, natural and working lands, waste, water, and super-GHG pollutants (e.g., methane, black carbon, and fluorinated gases). As described in Table 5, the Project would be consistent with applicable control measures from the 2017 CAP. Because the Project would not result in any significant and unavoidable air quality impacts related to air pollutant emissions, ambient concentrations, or public exposures (see subsections b through d, below, and the Greenhouse Gas Emissions section of this CEQA Checklist), the Project supports the primary goals of the 2017 CAP; therefore, the Project would not conflict with or obstruct implementation of the applicable air quality plan, and the impact would be less than significant.

Table 8: Project Consistency with BAAQMD's 2017 CAP

CONTROL MEASURES	PROPOSED PROJECT CONSISTENCY
Stationary Source	The stationary source measures, which are designed to reduce emissions from stationary sources, are incorporated into rules adopted by the BAAQMD and then enforced by the BAAQMD's Permit and Inspection programs. Since the Project does not include any stationary sources, the stationary source control measures are **not applicable** to the Project.
Transportation	The transportation control measures are designed to reduce vehicle trips, use, miles traveled, idling, or traffic congestion for the purpose of reducing vehicle emissions. On the Project site, clear signage will be provided to direct construction workers to all access points; therefore, the Project design is **consistent** with the transportation measures.
Energy	The energy control measures are designed to reduce emissions of criteria air pollutants, TACs, and GHGs by decreasing the amount of electricity consumed in the Bay Area, as well as decreasing the carbon intensity of the electricity used by switching to less GHG-intensive fuel sources for electricity generation. Since these measures primarily apply to electrical utility providers, the energy control measures are **not applicable** to the Project.
Buildings	The BAAQMD has authority to regulate emissions from certain sources in buildings such as boilers and water heaters but has limited authority to regulate buildings themselves; therefore, the building control measures focus on working with local governments that have authority over local building codes to facilitate adoption of best practices and policies to control GHG emissions. Since the Project does not include any building construction, the building control measures are **not applicable** to the Project.
Agriculture	The agriculture control measures are designed to primarily reduce emissions of methane. Since the Project does not include any agricultural activities, the agriculture control measures are **not applicable** to the Project.

CONTROL MEASURES	PROPOSED PROJECT CONSISTENCY
Natural and Working Lands	The control measures for the natural and working lands sector focus on increasing carbon sequestration on rangelands and wetlands, as well as encouraging local governments to adopt ordinances that promote urban-tree plantings. The Project aims to re-establish and rehabilitate hydrological, geomorphic, and ecologic processes; improve habitat connectivity; increase wetland sea-level rise (SLR) resiliency; improve special-status species' habitat; and protect community safety by moving roads out of flood inundation areas; therefore, the Project would be **consistent** with the natural and working lands measures.
Waste Management	The waste management measures focus on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse, and recycle. The proposed Project does not result in waste production during operation. The proposed Project construction would comply with local requirements for waste management; therefore, the Project would be **consistent** with the waste management control measures.
Water	The water control measures to reduce emissions from the water sector will reduce emissions of criteria pollutants, TACs, and GHGs by encouraging water conservation, limiting GHG emissions from publicly owned treatment works (POTWs), and promoting the use of biogas recovery systems. Since these measures apply to POTWs and local government agencies (and not individual projects), the water control measures are **not applicable** to the Project.
Super GHGs	The super-GHG control measures are designed to facilitate the adoption of best GHG control practices and policies through the BAAQMD and local government agencies. Since these measures do not apply to individual developments, the super-GHG control measures are **not applicable** to the Project.

Source: Bay Area Air Quality Management District (BAAQMD), Clean Air Plan: Spare the Air, Cool the Climate, April 19.

b) Would the Project result in a cumulatively considerable net increase of any criteria pollutant under an applicable federal or state ambient air quality standard?

Less-than-Significant Impact

Project construction activities would generate criteria air pollutant emissions that could potentially affect regional air quality. During construction, the primary pollutant emissions of concern would be ROG, NOx, PM10, and PM2.5 from the exhaust of off-road construction equipment and on-road construction vehicles related to worker vehicles, vendor trucks, and haul trucks. In addition, fugitive dust emissions of PM10 and PM2.5 would be generated by soil disturbance activities, and fugitive ROG emissions would result from paving.

The generation of fugitive dust PM10 and PM2.5 emissions from soil disturbance and demolition activities could result in a cumulatively considerable net increase in regional PM10 and PM2.5 concentrations. The BAAQMD considers implementation of best management practices (BMPs) to control dust during construction sufficient to reduce potential dust impacts to a less-than-significant

level. As described in the Project Description, the Project conservation measures for air quality require implementation of the BAAQMD's BMPs for dust control during construction; therefore, with implementation of these measures, the increase in PM10 and PM2.5 concentrations from dust generated during Project construction activities would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment.

The BAAQMD recommends using the most current version of the California Emissions Estimator Model (CalEEMod Version 2022.1) to estimate construction emissions of pollutants resulting from a proposed Project. CalEEMod uses widely accepted models for emission estimates combined with appropriate default data for a variety of land-use projects that can be used if site-specific information is not available. The primary input data used to estimate emissions associated with construction of the Project were provided by the Project applicant and contain information on construction duration, construction-related vehicle trips, and off-road construction equipment inventory and usage. A summary of the assumptions for estimating construction emissions is provided in Table 9. Construction information provided by the Project applicant, supporting calculations, and a copy of the CalEEMod report for the proposed Project, which summarizes the input parameters, assumptions, and findings, is available for review upon request.

Table 9: Construction Assumptions for CalEEMod

CALEEMOD INPUT CATEGORY	CONSTRUCTION ASSUMPTIONS AND CHANGES TO DEFAULT DATA
Construction Phase	The Project contains three construction phases: Roadway Construction, Bridge Construction, and Restoration.
Construction Equipment	The on-site construction equipment list was modified according to site-specific construction information provided by the Project applicant.
Worker, Vendor, and Hauling Trips	Construction-related vehicle trips and one-way travel distance were provided by the Project applicant. The fleet mix and trip activity are unmodified default values provided by CalEEMod. ▪ Default worker trips for each construction phase were modified based on the weighted-average number of workers trips and trip lengths (worker commute trips and contractor-supplied vans trips). ▪ Default vendor trips were modified according to information provided by the Project applicant. ▪ Default hauling trips for each construction phase were modified based on the weighted-average number of hauling trips and trip lengths for each truck trip activity (e.g., soil haul trips and sheet pile trips).

Notes: Default CalEEMod data used for all other parameters are not described.
Source: Construction information provided by the Project applicant. Supporting calculations and a copy of CalEEMod report are available upon request.

For purposes of modeling the Project's construction emissions, all Project construction was assumed to occur in 2023 rather than spread out over two future construction seasons. This approach was taken for the air quality modeling because fleetwide equipment emissions are expected to decrease over time as older equipment is replaced with newer (and cleaner) equipment with lower emissions. Thus, by assuming that all Project construction occurs in the current year, a "worst-case" pollutant emission scenario is modeled. To analyze daily emission rates, the total emissions estimated during construction were averaged over the total number of working days (218 days) and compared to the

BAAQMD's thresholds of significance. As shown in Table 10, the Project's estimated emissions for ROG, NOx, and exhaust PM10 and PM2.5 during construction would be below the BAAQMD's thresholds of significance and, therefore, would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment.

Overall, construction of the Project would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment with implementation of the Project conservation measures for dust control, and this impact would be less than significant.

Table 10: Estimated Construction Emissions (Pounds per Day)

EMISSIONS SCENARIO	ROG	NOX	EXHAUST PM10	EXHAUST PM2.5
Construction Emissions	0.5	5.6	0.15	0.14
Thresholds of Significance	54	54	82	54
Threshold Exceedance?	**No**	**No**	**No**	**No**

Source: Air Quality CalEEMod Modeling Results; report is available upon request.

c) Would the Project expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact

The term "sensitive receptor" refers to a location where individuals are more susceptible to poor air quality. Sensitive receptors include schools, convalescent homes, and hospitals because the very young, the old, and the infirm are more susceptible than the rest of the public to air quality-related health problems. Residential areas are also considered sensitive to poor air quality because people are often at home for extended periods, thereby increasing the duration of exposure to potential air contaminants. The BAAQMD recommends evaluating the potential impacts to sensitive receptors located within 1,000 feet of a project. Existing sensitive receptors near the Project site include single-family residential homes to the north, west, and southwest of the site, the nearest of which is within approximately 200 feet from the nearest portion of the Project site. The Project's potential impacts to sensitive receptors from emissions of TACs are discussed below.

Construction Toxic Air Contaminant Emissions

Project construction would generate DPM and PM2.5 emissions from the exhaust of off-road diesel construction equipment. The annual average concentrations of DPM and exhaust PM2.5 during construction were estimated within 1,000 feet of the Project using the U.S. EPA's Industrial Source Complex Short Term (ISCST3) air dispersion model. For this analysis, emissions of exhaust PM2.5 were used as a surrogate for DPM, which is a reasonable assumption because more than 90% of DPM is less than 1 micron in diameter, and therefore is similar in composition to PM2.5. The input parameters and assumptions used for estimating emission rates of DPM and PM2.5 from off-road diesel construction equipment are available upon request.

In accordance with the Marin County Municipal Code (Section 6.70.030 Enumerated Noises), daily emissions from construction were assumed to occur over the permitted construction hours from Monday through Friday 7 AM–6 PM and Saturday 9 AM–5 PM. The exhaust from off-road equipment was represented in the ISCST3 model as an area source with a release height of 5 meters to represent the mid-range of the expected plume rise from frequently used construction equipment.

A uniform grid of receptors spaced 10 meters apart with receptor heights of 1.8 meters (for ground-level receptors) was encompassed around the Project site as a means of developing isopleths (i.e., concentration contours) that illustrate the air dispersion pattern from the various emission sources to nearby receptors. The ISCST3 model input parameters included three years of BAAQMD meteorological data from Station 3901 located about 6.0 miles west of the Project site.

Based on the annual average concentrations of DPM and PM2.5 estimated using the air dispersion model, potential health risks were evaluated for the maximally exposed individual resident (MEIR) during Project construction. The MEIR is located about 200 feet southwest of the Project site.

In accordance with guidance from the BAAQMD (BAAQMD, 2012) and Office of Environmental Health Hazard Assessment (OEHHA) (OEHHA, 2015) the health risk assessment calculated the incremental increase in cancer risk and chronic hazard index (HI) to sensitive receptors from DPM emissions during construction. The acute HI for DPM was not calculated because an acute reference exposure level for DPM has not been approved by OEHHA and CARB, and the BAAQMD does not recommend analysis of acute non-cancer health hazards from construction activity. The annual average concentration of DPM at the MEIR was used to conservatively assess potential health risks to nearby sensitive receptors.

The incremental increase in cancer risk from on-site DPM emissions during construction was assessed for a young child exposed to DPM starting from infancy. This exposure scenario represents the most sensitive individuals who could be exposed to adverse air quality conditions in the vicinity of the Project site. It was conservatively assumed that the MEIR would be exposed to an annual average DPM concentration over the entire estimated duration of construction, which is about 10 months when not including the break between construction seasons. The input parameters and results of the health risk assessment are available upon request.

Table 11 summarizes the estimated health risks at the MEIRs due to DPM and PM2.5 emissions from Project construction and compares them to the BAAQMD's thresholds of significance. The estimated cancer risks and chronic HI for DPM, and annual average PM2.5 concentration from construction emissions were below the BAAQMD's thresholds of significance at the MEIR; therefore, Project construction would not expose sensitive receptors to substantial pollutant concentrations and the impact would be less than significant.

Table 11: Health Risks at MEIR During Project Construction

Construction Scenario	Diesel Particulate Matter		Exhaust PM2.5
	Cancer Risk (per million)	Chronic Hazard Index	Annual Average Concentration ($\mu g/m^3$)
Unmitigated Emissions	7.1	0.01	0.06
Thresholds of Significance	10	1	0.3
Thresholds Exceedance?	No	No	No

Note: $\mu g/m^3$ = micrograms per cubic meter
Source: Air Quality CalEEMod Modeling Results; report is available upon request.

Cumulative Toxic Air Contaminant Emissions

The BAAQMD's online screening tools were used to evaluate potential cumulative health risks to the MEIR from existing sources of TACs. Based on review of the BAAQMD's 2020 stationary source

screening map (BAAQMD, 2022), there are no existing stationary sources within 1,000 feet of the MEIR. Based on review of the BAAQMD's modeling of mobile sources, there are no major roadways located within 1,000 feet of the MEIR (BAAQMD, 2019); therefore, Project construction would not have a cumulatively considerable contribution to the exposure of sensitive receptors to substantial pollutant concentrations, and the cumulative impact would be less than significant.

d) Would the Project result in other emissions, such as those leading to odors, adversely affecting a substantial number of people?

No Impact

As a wetland restoration project that includes the reconfiguration of an intersection and addition of a bridge, the Project would not be expected to generate significant odors for a substantial duration; therefore, the Project would have no impact related to odors.

D. BIOLOGICAL RESOURCES

Table 12. Biological Resources Checklist Questions

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c)	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

SETTING

The Project site is located in unincorporated Marin County (Figure 1). State Route 1 (SR-1) is located to the northeast of the Project area. Fairfax Bolinas Road bisects the Project from Olema Bolinas Road to SR-1 as shown in Figure 2. The roadways within the Project area are asphalt and regularly maintained. Lands to the west of the Project area are largely undeveloped apart from several residences along Olema Bolinas Road. Lands east of the Project area are managed by the National Park Service and are designated as Coastal Open Area. The Project area consists of forested wetlands, coastal wetlands, tidal marsh, coastal brambles, intermittent stream, and upland habitats.

Biological Resource Reports

AECOM prepared a Site Conditions Report for the Bolinas Lagoon North End Restoration Project which included the Project area and a large expanse of the surrounding lands (AECOM, 2016). The Site Conditions Report discussed the biological conditions of the Study Area which remain similar to today. The following studies were also performed to update and supplement findings in the Site Conditions Report:

- Rare Plant Survey Report (WRA, 2021)
- National Marine Fisheries Service (NMFS) Section 7 Biological Assessment (WRA, 2022)
- U.S. Fish and Wildlife Service (USFWS) Section 7 Biological Assessment (WRA, 2022)
- Arborist Survey Report (WRA, 2021)
- Aquatic Resources Delineation Report (WRA, 2020)
- Fish Passage Design Criteria and Guidance Report (WRA, Updated 2022)

The following sections describe the biological resources within the Project area and surrounding lands (Study Area), which are summarized from the reports listed above. Subsequent sections then describe potentially significant impacts and proposed Mitigation Measures that, when implemented, will reduce impacts to a level considered to be less than significant pursuant to CEQA.

Natural Communities

Natural communities are recurring assemblages of biotic elements found in particular physical environments. Three characteristics distinguish natural communities: 1) plant species composition, 2) vegetation structure (e.g., forest, shrubland, or marsh), and 3) a specific combination of physical conditions (e.g., water, light, nutrient levels, and climate). A total of 15 natural communities, 13 of which are considered sensitive natural communities, occur in the Study Area (Sawyer J. , 2009) (Sawyer J. O.-W., 2009). These vegetation communities are described in Table 13 and presented in Figure 23.

Table 13: Natural Communities within the Study Area

Natural Communities within the Study Area		
Natural Community	**Classification**	**Description**
Waters		
INTERMITTENT WATERS **Box-elder forest and woodland** *(Acer negundo)* Forest & Woodland Alliance **California bay forest and woodland** (*Umbellularia californica)* Forest & Woodland Alliance **Red alder forest** (*Alnus rubra)* Forest Alliance	G5 S3 G4 S3 G5 S4	The northern reach of Lewis Gulch Creek is located within a densely vegetated area with an overstory of boxelder (*Acer negundo*), Douglas fir (*Pseudotsuga menziesii*), and California bay (*Umbellularia californica*). Vegetation within Lewis Gulch Creek and Wilkins Gulch Creek include red alder (*Alnus rubra*), arroyo willow (*Salix lasiolepis*), and marsh gumplant (*Grindelia stricta* var. *angustifolia*).
PERENNIAL WATERS **Salt marsh bulrush marshes** (*Bolboschoenus maritimus)* Herbaceous Alliance **Gum plant patches** (*Grindelia stricta)* Provisional Herbaceous Alliance	G4 S3 G2G3 S2S3	The areas south of Wilkins Gulch Creek are lined with saltmarsh bulrush (*Bolboschoenus maritimus* var. *paludosus*) before transitioning to marsh gumplant. On the eastern side of SR-1, the area around Salt Creek is present as a tidal marsh as the channel is undefined and densely vegetated with saltmarsh bulrush and other tidal marsh species.

Natural Communities within the Study Area		
Natural Community	**Classification**	**Description**
FORESTED WETLAND **Red alder forest** (*Alnus rubra)* Forest Alliance	G5 S4	Red alder forest, sometimes referred to as forested wetland, is also present within the Study Area north of the tidal marsh on both sides of Fairfax Bolinas Road, west of SR-1. The dominant species within these areas include arroyo willow and red alder. The herbaceous layer is intermittent to dense. Common plant species observed in the herbaceous layer include cape ivy (*Delairea odorata*), clustered field sedge (*Carex praegracilis*), creeping buttercup (*Ranunculus repens*), giant horsetail (*Equisetum telmateia* ssp*. braunii*), small-fruited bulrush (*Scirpus microcarpus*), narrowleaf cattail (*Typha angustifolia*), rough hedgenettle (*Stachys rigida*), stinging nettle (*Urtica dioica*), and tall flatsedge (*Cyperus eragrostis*).
TIDAL MARSH **California cordgrass marsh** (*Spartina foliosa)* Herbaceous Alliance **Alkali heath marsh** (*Frankenia salina)* Herbaceous Alliance **Pickleweed mats** (*Salicornia pacifica)* Herbaceous Alliance **Salt marsh bulrush marshes** (*Bolboschoenus maritimus)* Herbaceous Alliance	G3 S3.2 G4 S3 G4 S3 G4 S3	Tidal marsh within the Study Area is most similar to pickleweed mats and/or salt marsh bulrush marsh. Tidal marsh is present in the southern portion of the Study Area. Tidal marsh on the western side of SR-1 is directly associated with Bolinas Lagoon and transitions to forested wetland to the north as both salinity and tidal influence decrease. Within the Study Area, tidal marsh begins as unvegetated mud flats that transition into mudflats vegetated with California cordgrass marsh (*Spartina foliosa*), goldenthread (*Cuscuta pacifica*), and marsh jaumea (*Jaumea carnosa*). The upper portions of the marsh are dominated by species such as alkali heath (*Frankenia salina*), marsh gumweed (*Grindelia stricta*), pickleweed (*Salicornia pacifica*), and salt grass (*Distichlis spicata*). As the tidal marsh approaches the southern boundary of the forested wetland, it transitions to a saltmarsh bulrush dominated herbaceous layer.

Natural Communities within the Study Area		
Natural Community	**Classification**	**Description**
PERENNIAL WETLAND **Small-fruited bulrush marsh** (*Scirpus microcarpus)* Herbaceous Alliance	G4 S2	A single perennial wetland is present within a drainage ditch in the southwestern portion of the Study Area. This wetland is confined to a linear drainage ditch that runs along the western side of Olema Bolinas Road surrounding Wharf Creek. Dominant plants observed in the perennial wetland include watercress (*Nasturtium officinale*) and small-fruited bulrush marsh (*Scirpus microcarpus*).
EMERGENT WETLAND **Cattail marshes** *(Typha [angustifolia, domingensis, latifolia]*) Herbaceous Alliance	G5 S5	An emergent wetland is present east of SR-1 and north of the forested wetland within the central portion of the Study Area. The emergent wetland is bordered to the north by non-native annual grassland and to the south by forested wetland. Narrowleaf cattail and giant horsetail dominate the herbaceous layer of the emergent wetland.
Uplands		
Coast live oak woodland and forest (*Quercus agrifolia)* Forest & Woodland Alliance	G5 S4	Coast live oak woodland and forest occurs along the northwestern border of the Study Area. The canopy is intermittent to dense, and coast live oak (*Quercus agrifolia*) is the dominant tree species. Common plants observed in the herbaceous layer include beaked hazelnut (*Corylus cornuta*), Pacific pea (*Lathyrus vestitus*), and upright veldt grass (*Ehrharta erecta*). Coast live oak woodland and forest is not a sensitive natural community.
Non-Native Annual Grasslands (*Bromus [diandrus, hordeaceus]* and *Avena [barbata, fatua]*) Semi-Natural Herbaceous Stands	No Rank	Annual grasslands are known throughout California on all aspects and topographic positions underlain by a variety of substrates. Wild oats and annual brome grasslands occur in the northeastern portion of the Study Area. This vegetation community is often referred to as non-native annual grassland. Dominant grass species observed include various non-native oat grasses (*Avena* sp.), and soft chess (*Bromus hordeaceus*). Non-native annual forbs occur throughout the grassland including fennel (*Foeniculum vulgare*).

Wetlands

Wetlands were delineated in the Study Area during preliminary jurisdictional delineations on July 30 and August 27, 2020 (WRA, 2020). The Corps issued a Preliminary Jurisdictional Determination letter on June 16, 2021. The Study Area contains seven district aquatic resources that receive water from groundwater, precipitation, runoff from surrounding uplands, and/or tidal inundation from the Pacific Ocean. A summary of jurisdictional aquatic resource acreage is provided in **Error! Reference source not found.** 14 and is s hown in Figures 24–26.

Table 14: Summary of Jurisdictional Features

JURISDICTIONAL FEATURE	WATERS OF THE U.S./STATE (ACRES/LINEAR FEET)	CDFW REGULATED FEATURE (ACRES/LINEAR FEET)	CALIFORNIA COASTAL COMMISSION FEATURE (ACRES/LINEAR FEET)
Tidal Marsh	4.89	4.89	4.89
Forested Wetland	7.14	7.14	7.14
Perennial Wetland	0.02	0.02	0.02
Emergent Wetland	0.17	0.17	0.17
Seasonal Wetland	<0.01	<0.01	<0.01
Intermittent Streams	0.18/1,308	0.27/1,308	0.18/1,308
Perennial Streams	0.29/1,730	0.29/1,730	0.29/1,730
Riparian Habitats	-	2.05	-
Wetland-1 Parameter	-	-	1.93
Total Wetlands	**12.22**	**12.22**	**14.15**
Total Wetlands and non-Wetland Waters in the Study Area	**12.69/3,038**	**14.92/3,038**	**14.62/3,038**

Special-Status Species

The following section explains the regulatory context including laws and regulations that were applied to the field investigations and analysis to determine whether species are considered special status under CEQA.

Endangered and Threatened Plants, Fish, and Wildlife

Specific species of plants, fish, and wildlife species may be designated as threatened or endangered by the Federal Endangered Species Act (ESA), or the California Endangered Species Act (CESA). Specific protections and permitting mechanisms for these species differ under each of these acts, and a species' designation under one law does not automatically provide protection under the other.

The ESA (16 USC 1531 et seq.) is implemented by the USFWS and the National Marine Fisheries Service (NMFS). The USFWS and NMFS maintain lists of endangered and threatened plant and animal species (referred to as "listed species"). "Proposed" or "candidate" species are those that are being considered for listing and are not protected until they are formally listed as threatened or endangered. Under the ESA, authorization must be obtained from the USFWS or NMFS prior to 'take' of any listed species. "Take" under the ESA is defined as, "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." "Take" under the ESA includes direct injury or mortality to individuals, disruptions in normal behavioral patterns resulting from factors such as noise and visual disturbance and impacts to habitat for listed species. Actions that may result in "take" of an ESA-listed species may obtain a permit under ESA Section 10, or via the interagency consultation described in ESA Section 7. Federally listed plant species are only protected when "take" occurs on federal land.

The ESA also provides for designation of critical habitat, which are specific geographic areas containing physical or biological features "essential to the conservation of the species." Protections afforded to designated critical habitat apply only to actions that are funded, permitted, or carried out by federal agencies. Critical habitat designations do not affect activities by private landowners if there is no other federal agency involvement.

The CESA (California Fish and Game Code [CFGC] 2050 et seq.) prohibits the "take" of any plant and animal species that the CFGC determines to be an endangered or threatened species in California. CESA regulations include "take" protection for threatened and endangered plants on private lands, as well as extending this protection to candidate species that are proposed for listing as threatened or endangered under CESA. The definition of a "take" under CESA ("hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") only applies to direct impact to individuals, and does not extend to habitat impacts or harassment. CDFW may issue an Incidental Take Permit under CESA to authorize "take" if it is incidental to otherwise lawful activity and if specific criteria are met. "Take" of these species is also authorized if the geographic area is covered by a Natural Community Conservation Plan (NCCP), if the NCCP covers that activity.

Fully Protected Species and Designated Rare Plant Species

This category includes specific plant and wildlife species that are designated in the CFGC as protected even if not listed under CESA or ESA. Fully Protected Species includes specific lists of birds, mammals, reptiles, amphibians, and fish designated in CFGC. Fully protected species may not be taken or possessed at any time. No licenses or permits may be issued for "take" of fully protected species, except for necessary scientific research and conservation purposes. The definition of "take" is the same under the California Fish and Game Code and the CESA. By law, CDFW may not issue an Incidental Take Permit for Fully Protected Species. Under the California Native Plant Protection Act (NPPA), CDFW has

listed 64 “rare” or “endangered” plant species, and prevents “take,” with few exceptions of these species. CDFW may authorize “take” of species protected by the NPPA through the Incidental Take Permit process, or under a NCCP.

Special Protections for Nesting Birds and Bats

The Federal Bald and Golden Eagle Protection Act provides relatively broad protections to both of North America’s eagle species (bald eagle [*Haliaeetus leucocephalus*] and golden eagle [*Aquila chrysaetos*]) that in some regards are similar to those provided by the ESA. In addition to regulations for special-status species, most native birds in the United States, including non-status species, have baseline legal protections under the Migratory Bird Treaty Act of 1918 and CFGC, i.e., sections 3503, 3503.5 and 3513. Under these laws/codes, the intentional harm or collection of adult birds as well as the intentional collection or destruction of active nests, eggs, and young is illegal. For bat species, the Western Bat Working Group (WBWG) designates conservation status for species of bats, and those with a high or medium-high priority are typically given special consideration under CEQA.

Species of Special Concern, Movement Corridors, and Other Special-status Species under CEQA

To address additional species protections afforded under CEQA, CDFW has developed a list of special species as, “a general term that refers to all of the taxa the California Natural Diversity Database (CNDDB) is interested in tracking, regardless of their legal or protection status.” This list includes lists developed by other organizations, including for example, the Audubon Watch List Species, the Bureau of Land Management Sensitive Species, and USFWS Birds of Special Concern. Plant species on the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (Inventory) with California Rare Plant Ranks (Rank) of 1 and 2, as well as some with a Rank of 3, are also considered special-status plant species and must be considered under CEQA. Some Rank 3 species and all Rank 4 species are typically only afforded protection under CEQA when such species are particularly unique to the locale (e.g., range limit, low abundance/low frequency, limited habitat) or are otherwise considered locally rare. Additionally, any species listed as sensitive within local plans, policies and ordinances are likewise considered sensitive. Movement and migratory corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are given special consideration under CEQA.

Special-Status Plants

WRA conducted protocol-level, floristic rare plant surveys within the Study Area on March 3, May 26, and July 6, 2021. Prior to the initial survey, WRA reviewed the CNPS Inventory of Rare and Endangered Plants of California, USFWS’s Information for Planning and Consultation (IPaC) resource list, and CDFW’s CNDDB to determine which rare plant species have been documented in the vicinity of the Study Area. Based on a review of occurrence records and a comparison of species habitat requirements with Study Area conditions, it was determined that 12 rare plant species have the potential to occur within the Study Area; however, following protocol-level rare plant surveys, none of those species were documented to occur within the Study Area (WRA, 2021). Because protocol-level surveys have been completed and no rare plants were observed, the proposed Project will not result in impacts to rare plants.

Special-status Wildlife

Table 15 lists the species evaluated in the vicinity of the Study Area. Potentials were assigned according to the following criteria:

- **No Potential:** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

- **Unlikely:** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- **Moderate Potential:** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential:** All the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present:** Species is observed on the site or has been recorded (i.e., CNDDB, other reports) on the site in the recent past.

Table 15: Special-status Wildlife Species Evaluated in the Vicinity of the Study Area

SPECIES	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Invertebrates				
California freshwater shrimp *(Syncaris pacifica)*	FE, SE	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Shallow pools away from main stream flow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.	**No Potential.** The USFWS does not consider habitat present for this species (USFWS, 2010)..	No additional recommendations.
monarch butterfly *(Danaus plexippus)*	FC, (winter roosts protected by CDFW)	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, Monterey cypress), with nectar and water sources nearby.	**Unlikely.** Winter roosts for this species are tracked by CDFW. Several roosts are known at the south end of the lagoon, but none have been documented within the Study Area.	No additional recommendations.
western bumble bee *(Bombus occidentalis)*	SC	Occurs in a wide variety of habitat types. Nests are constructed annually in pre-existing cavities, usually on the ground (e.g., mammal burrows). Many plant species are visited and pollinated.	**Unlikely.** The Study Area is largely marsh and riparian forest which is unlikely to support suitable conditions for ground-nesting bees.	No additional recommendations.
Fish				

SPECIES	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Coho salmon - central CA coast ESU *(Oncorhynchus kisutch)*	FE, SE	Federal listing includes populations between Punta Gorda and San Lorenzo River. State listing includes populations south of San Francisco Bay only. Occurs inland and in coastal marine waters. Requires beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water, and sufficient dissolved oxygen.	**Unlikely.** Larger watersheds in the vicinity are known to support this species as it requires exceptionally high-quality perennial conditions; however, the limited available habitat within Lewis Gulch and Wilkins Gulch are unlikely to support this species. However, in the unlikely event it is encountered in the Project area, implementation of Mitigation Measure BIO-1 would occur.	This species is covered under the CDFW Consistency Determination with NOAA's RC programmatic coverage for the Bolinas Wye Wetlands Resiliency Project, as requested by CDFW. No further recommendations. Implementation of Mitigation Measure BIO-3 will ensure no impact to this species as a result of the proposed Project.
steelhead – central CA coast DPS *(Oncorhynchus mykiss irideus)*	FT	Occurs from the Russian River south to Soquel Creek and Pajaro River, also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean.	**Present.** Steelhead are known to occur in Lewis Gulch and Wilkins Creek.	Implement Mitigation Measure BIO-1.
Steelhead – Central California Coast DPS – Critical Habitat	NMFS Designated Critical Habitat	The primary constituent elements (PCEs) for steelhead critical habitat are: (1) freshwater spawning habitat; (2) freshwater rearing sites; (3) freshwater migration corridors; (4) estuarine habitat with brackish water and natural cover; (5) nearshore marine habitats with forage fishes and natural covers; and (6) offshore marine areas.	**Present.** Wilkins Creek is Designated Critical Habitat for this species.	Implement Mitigation Measure BIO-7.
Reptiles and Amphibians				

SPECIES	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California red-legged frog *(Rana draytonii)*	FT, SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Associated with quiet perennial to intermittent ponds, stream pools, and wetlands. Prefers shorelines with extensive vegetation. Disperses through upland habitats after rains.	**Present.** This species has been observed within Lewis Gulch Creek and known occurrences in a pond east of SR-1.	Implement Mitigation Measure BIO-2.
Foothill yellow-legged frog *(Rana boylii)*	SC, SSC	Found in or adjacent to rocky streams in a variety of habitats. Prefers partly shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on both aquatic and terrestrial invertebrates.	**Unlikely.** Records of this species exist in the vicinity; however, Lewis Gulch goes dry seasonally and there is not suitable aquatic habitat currently within the Study Area to support a population of this species. There are historic records from Pike County Gulch and environs.	No further recommendations.
Pacific (western) pond turtle *(Actinemys marmorata)*	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	**No Potential.** The waters of Lewis Gulch and Wilkins Gulch do not provide suitable deep pools and prolonged inundation to support this species.	No further recommendations.

SPECIES	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
		Birds		
American peregrine falcon *(Falco peregrinus anatum)*	FP	Year-round resident and winter visitor. Occurs in a wide variety of habitats, though often associated with coasts, bays, marshes and other bodies of water. Nests on protected cliffs and man-made structures including buildings and bridges. Preys on birds, especially waterbirds. Forages widely.	**Unlikely.** This species has been regularly observed foraging over Bolinas Lagoon; however, no high rocky cliffs or similar structures are present to support nesting. The Study Area is predominantly marsh and riparian forest which is not suitable foraging habitat for the species. This species may perch or fly over the Study Area but is highly unlikely to nest within the Study Area.	No further recommendations.
bald eagle *(Haliaeetus leucocephalus)*	SE, FP	Occurs year-round in California, but primarily a winter visitor; breeding population is growing. Nests in large trees in the vicinity of larger lakes, reservoirs, and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish.	**Unlikely.** While this species has been observed foraging within Bolinas Lagoon, there are no suitably tall snags, towers, or similar structures to support nesting within the Study Area. The dense riparian forest is too thick for this species to forage within.	No further recommendations.
burrowing owl *(Athene cunicularia)*	SSC	Year-round resident and winter visitor. Occurs in open, dry grasslands and scrub habitats with low-growing vegetation, perches, and abundant mammal burrows. Preys upon insects and small vertebrates. Nests and roosts in old mammal burrows, most commonly those of ground squirrels.	**No Potential.** Open, short-stature grassland is not present within the Study Area to support nesting or foraging by this species. The Project is located within riparian forest and marsh or wetlands which are unsuitable for this species.	No further recommendations.

SPECIES	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California black rail *(Laterallus jamaicensis coturniculus)*	ST, FP	Year-round resident in marshes (saline to freshwater) with dense vegetation within 4 inches of the ground. Prefers larger, undisturbed marshes that have an extensive upper zone and are close to a major water source. Extremely secretive and cryptic.	**Present.** This species is known to occur within the marshes all around Bolinas Lagoon and is considered present within the marshes of the Study Area.	Implement Mitigation Measure BIO-3.
California brown pelican *(Pelecanus occidentalis californicus)*	FP	(Nesting colony) colonial nester on coastal islands just outside the surf line. Nests on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators.	**No Potential.** This species is known to forage within the waters of Bolinas Lagoon, but nests on offshore islands. The Study Area is largely riparian forest and marsh which do not support nesting habitat for this species.	No further recommendations.
California least tern *(Sternula antillarum browni)*	FE, SE, FP	Summer resident along the coast from San Francisco Bay south to northern Baja California; inland breeding also very rarely occurs. Nests colonially on barren or sparsely vegetated areas with sandy or gravelly substrates near water, including beaches, islands, and gravel bars. In San Francisco Bay, has also nested on salt pond margins.	**Unlikely** – There are no sandy beaches to support nesting within the Study Area. This species may forage within adjacent portions of Bolinas Lagoon and may fly over the Study Area.	No further recommendations.
California Ridgway's (clapper) rail *(Rallus obsoletus obsoletus)*	FE, SE, FP	Year-round resident in tidal marshes of the San Francisco Bay estuary. Requires tidal sloughs and intertidal mud flats for foraging, and dense marsh vegetation for nesting and cover. Typical habitat features abundant growth of cordgrass and pickleweed. Feeds primarily on molluscs and crustaceans.	**Unlikely.** This species has not been documented nesting in the Bolinas Lagoon area and even individual accounts of single birds are extremely limited (CDFW, 2022). The species is unlikely to nest or occur within the Study Area.	No further recommendations. Implementation of Mitigation Measure BIO-3 will ensure no impacts to this species.

SPECIES	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
golden eagle *(Aquila chrysaetos)*	FP	Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas.	**No Potential.** This species may forage in the grassland areas outside of the Study Area to the north and may be seen flying over the Study Area; however, no grasslands to support foraging, nor tall rocky cliffs are present to support nesting.	No further recommendations.
San Francisco common yellowthroat *(Geothlypis trichas sinuosa)*	SSC	Resident of the San Francisco Bay region, in fresh and saltwater marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**Present.** This species has been observed within this section of Bolinas Lagoon. Marsh and wetland habitat within the Study Area may support nesting by this species.	Implement Mitigation Measure BIO-4.
western snowy plover *(Charadrius nivosus [alexandrines] nivosus)*	FT, SSC	Federal listing applies only to the Pacific coastal population. Year-round resident and winter visitor. Occurs on sandy beaches, salt pond levees, and the shores of large alkali lakes. Nests on the ground, requiring sandy, gravelly, or friable soils.	**Unlikely.** There are no sandy beaches to support nesting within the Study Area. This species may forage within adjacent sections of Bolinas Lagoon and may fly over the Study Area.	No further recommendations.

SPECIES	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
white-tailed kite *(Elanus leucurus)*	FP	Year-round resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes, and agricultural areas. Nests in trees, of which the type and setting are highly variable. Preys on small mammals and other vertebrates.	**Moderate Potential.** The species may nest within the trees and vegetation of the Study Area but is unlikely to forage within the Study Area as no suitable grasslands are present.	Implement Mitigation Measure BIO-4.
Mammals				
pallid bat *(Antrozous pallidus)*	SSC, WBWG High	Found in a variety of habitats ranging from grasslands to mixed forests, favoring open and dry, rocky areas. Roost sites include crevices in rock outcrops and cliffs, caves, mines, as well as hollow trees and various manmade structures such as bridges, barns, and buildings (including occupied buildings). Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Moderate Potential.** The Study Area contains numerous trees, some of which may support hollows, crevices or similar features that can be occupied by bats. While thick forested wetlands are unlikely to support maternity roosting which requires significant solar exposure and heat retention, trees with large basal cavities may support non-maternity roosting bats.	Implement Mitigation Measure BIO-5.

SPECIES	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Ring-tailed cat *(Bassariscus astutus)*	FP	Widely distributed throughout most of California; absent from some portions of the Central Valley and northeastern California. Found in a variety of habitats including riparian areas, semi-arid country, deserts, chaparral, oak woodlands, pinyon pine woodlands, juniper woodlands and montane conifer forests usually under 4,600 ft. elevation. Typically uses cliffs or large trees for shelter.	**No Potential.** This secretive species has not been documented in the vicinity in any official database (e.g., CNDDB) and given that the Study Area is surrounded by roads it is unlikely the species would occur due to the high levels of anthropogenic disturbance.	No further recommendations.
Townsend's big-eared bat *(Corynorhinus townsendii)*	FC, SSC, WBWG	Associated with a wide variety of habitats from deserts to higher elevation mixed and coniferous forests. Females form maternity colonies in buildings, caves and mines, and males roost singly or in small groups. Foraging typically occurs at edge habitats near wooded areas (e.g., along streams).	**No Potential.** No buildings, mines, caves, or other large structures are present that could support roosting by this species.	No further recommendations.

NOTES:
USFWS and Federal Listing Categories:
FC = Candidate for Federal Listing
FE = Federally Listed as Endangered
FT = Federally Listed as Threatened
CDFW Listing Categories:
FP = Fully Protected
SSC = Species of Special Concern
WBWG = Western Bat Working Group

Critical and Essential Fish Habitat

The Study Area includes critical habitat for Central California Coast DPS Steelhead, Central California Coast Evolutionarily Significant Unit coho salmon, and tidewater goby. The Project site is located within an area designated Essential Fish Habitat for the Pacific Salmon Fisheries Management Plan (WRA, 2022). These areas are shown in relation to the Study Area in Figure 27.

Habitat Conservation Plans and Natural Community Conservation Plans

There are no federal habitat conservation plans within Marin County. The only local natural community plan or program which overlaps with the Study Area is the Marin County Local Coastal Program (LCP) (Marin County Community Development Agency, 2019). One of the primary goals of the Marin LCP is:

> *…to preserve the unique environment of the Coastal Zone and to encourage the protection and restoration of its coastal resources, while encouraging public enjoyment of its coastal recreation opportunities.*

The proposed Project supports all goals of the LCP. The restoration of more naturalized stream habitats and removal of anthropogenic impediments to the future evolution allows for natural adaptation of the north end of Bolinas Lagoon. In addition, the Project improves reliability of access to primary roads used to access recreational opportunities, as well as improving reliability of evacuation routes in the event of an emergency. As such, the Project supports the goals of the LCP.

Areas east of the Study Area are managed by the National Park Service and are designated as Coastal Open Area. The removal of infrastructure within the Study Area (Fairfax Bolinas Road) and restoration of wetlands supports the natural evolution and connectivity of habitats in areas adjacent to the Coastal Open Space. Such actions allow for more contiguous habitats that can support larger numbers and varieties of wildlife, plants, and natural communities.

CEQA CONTEXT

A project will normally result in significant impacts to biological resources if it substantially modifies sensitive habitats, adversely affects wetlands, negatively affects endangered plant and/or animal species, or conflicts with established policies, ordinances, or plans associated with the protection of biological resources. The areas of habitat restoration included as part of the proposed Project are shown on Figure 28. The biological communities in the Project study area expected with implementation of the proposed Project are shown on Figure 29.

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

Wildlife species which carry a special-status designation and are likely to occur within the Project area are described above in Table 15. Enacting the Conservation Measures (described in Section VIII.A, Biological Conservation Measures) will help to minimize effects, but various species and habitats require further evaluation and further measures to properly reduce Project effects to less-than-significant levels. Therefore, each section below details specific taxa which require additional protections necessary to reduce Project impacts to less-than-significant levels.

Special-status Plants – Less-than-Significant Impact

WRA conducted protocol-level surveys for special-status plants, and none were found within the Study Area (WRA, 2021). As such, the proposed Project will have no impact on special-status plants and no mitigation measures are required.

Special-status Wildlife: Steelhead and Coho – Less than Significant with Mitigation Incorporated

Steelhead are listed under the FESA and may be impacted by the proposed Project. During construction, impacts may occur including behavioral changes (such as avoidance or altered activity), elevated stress responses, and direct injury or mortality. The proposed Project-associated elements which may result in these harmful impacts include interaction with construction equipment, noise, turbidity, and dewatering.

While impacts may occur to a few individuals, the proposed Project is not anticipated to harm the greater population of steelhead within Lewis Gulch, as the Project will largely occur within uplands to create new channel features. Work within the extant stream channel will only occur during non-migratory periods (June–October) allowing anadromous fish species to complete the migratory stages of their lifecycle unimpeded. In addition, most of the Project area does not support fish habitat as it seasonally dries. The Project will result in a net benefit to steelhead passage by restoring a natural floodplain which can evolve with SLR and provide more natural gradients for fish to immigrate or emigrate from natal streams.

Coho salmon are also listed under the FESA, but this species is not known to occur in Lewis Gulch Creek, Wilkins Gulch Creek, or Wharf Creek; however, in the unlikely event this species was to migrate into the Project area, this species could be impacted by the proposed Project in a similar manner to steelhead.

While the potential for impact to steelhead or other fish is small given that Lewis Gulch Creek is an intermittent stream within the reach upstream of the existing box culvert on Olema Bolinas Road, potential impacts to steelhead and Coho salmon may still occur by the proposed Project if water is present when work occurs. Impacts would be associated with dewatering, turbidity and similar Project related elements. However, these will be reduced to less-than-significant levels through the implementation of the Conservation Measures as well as Mitigation Measure BIO-1. In addition to the measures described below, any agency requirements as stated in Project permits will also be implemented and, in the event they are more protective, will supersede these measures.

Mitigation Measure BIO-1: Steelhead and Coho

1. The proposed Project shall consult with the National Marine Fisheries Service (NMFS) for potential impacts to steelhead (see WRA 2022 NMFS Biological Assessment).
2. All in-channel work shall occur between June 1 and October 31. Work outside of this period shall only occur if authorized by NMFS and CDFW.
3. Prior to working within a stream, a bypass shall be installed to allow flowing water (if any is present) to be bypassed to maintain flows downstream. Fish relocation shall occur within the section of stream to be dewatered before dewatering commences.
4. Fish relocation activities shall be led by a qualified fisheries biologist approved by NMFS. The qualified fisheries biologist shall be assisted by at least one additional biologist if conducting electrofishing.

5. During any initial dewatering efforts, pumps shall be screened with appropriately sized mesh to prevent the entrainment and impingement of fish and amphibians in accordance with CDFW and NMFS fish screening criteria.
6. Prior to capturing fish, the qualified biologist shall determine the most appropriate release location(s). The following shall be considered when selecting release site(s):
    a. Similar water temperature as capture location.
    b. Quantity and quality of habitat available to relocate captured fish.
    c. Relocation area in relation to work activities.
7. All fish relocation equipment shall be cleaned and sanitized before and after use.
8. Any temporary fish exclusion or block nets shall be made of soft mesh and shall have appropriately sized mesh to prevent fish from entering the work area.
9. If electrofishing is used to capture fish, it shall only be conducted by trained personnel following NMFS electrofishing guidelines (NMFS, 2000).
10. Fish holding times shall be minimized to the extent practical and if necessary multiple relocations shall occur to minimize the number of fish being held in buckets or coolers.

Following implementation of the Conservation Measures, as well as Mitigation Measure BIO-1, Project impacts to steelhead and Coho salmon will be reduced to less-than-significant levels.

Special-status Wildlife: California Red-legged Frog (CRLF) – Less than Significant with Mitigation Incorporated

CRLF were identified during previous road maintenance work within Lewis Gulch along Olema Bolinas Road within the Project area; therefore, this species is considered to be present within the Project area (WRA, 2019). Aquatic features within the Project area consist of flowing streams, as well as intermittent pools. Because CRLF do not breed in streams and require still or ponded water with little or no flow during the breeding season, no breeding habitat is present within the Project area; however, the observation of juveniles in the box culvert in late October demonstrates use of the Project area as non-breeding aquatic habitat. In addition, CRLF had to reach waters within the culvert, therefore the uplands are also considered dispersal habitat.

CRLF that are in the uplands surrounding Lewis Gulch may be killed or injured during construction activities such as vegetation removal or initial ground disturbance. CRLF may also be exposed to predation if remnant pools are dewatered, and vegetation removal reduces available cover for individuals during upland dispersal. Such impacts would be considered significant under CEQA. To address these potential impacts, the Conservation Measures and Mitigation Measure BIO-2 shall be implemented. In addition to the measures described below, any permit specific requirements issued by resource agencies for CRLF will also be implemented, maintaining that effects to CRLF would already be reduced to less-than-significant levels with the prescribed Conservation Measures and Mitigation Measure BIO-2.

Mitigation Measure BIO-2: CRLF

1. The Project shall consult with the USFWS prior to initiating Project activities (see WRA 2022 USFWS Biological Assessment).
2. Within 48 hours prior to the start of construction activities, a biologist approved by USFWS (qualified biologist) shall conduct a pre-construction survey for CRLF in and adjacent to the Project area.

3. If any CRLF or other amphibians are observed in the Project area, the individual(s) shall be captured by the qualified biologist and relocated outside of the Project area. Capture shall proceed as follows:
    a. Prior to handling the animal(s), the biologist shall assure their hands are free of toxins (i.e., sunscreen, bug repellant, etc.) or they may use moistened latex or nitrile gloves to handle/capture the animal(s).
    b. A clean bucket containing moist leaf litter, or a sponge moistened with non-chlorinated water shall be used to hold and transport the animal(s).
    c. The qualified biologist shall capture the animal by hand, or with the use of appropriate tools (e.g., dip net).
    d. The animal shall be relocated outside of the Project area, at least 200 feet from similar riparian or aquatic habitat.
    e. Information regarding the capture including number of individuals, date, time, approximate size, sex (if known), capture location coordinates, and release location coordinates shall be recorded, along with any other relevant information.
    f. Any equipment used for relocation or capture shall be properly decontaminated according to standard protocols for the species before and after use.
4. A qualified biologist shall be present for any initial vegetation removal, initial grading or grubbing and for any relocations. Once initial vegetation removal or grading is complete, a morning pre-construction check may be conducted by a biological monitor, or qualified person who has been trained by the qualified biologist; however, if a CRLF is observed, the biological monitor or qualified person shall stop work and inform the qualified biologist who shall oversee the relocation.
5. The qualified biologist, any biological monitors, and qualified person(s) shall have stop-work authority.
6. Prior to the commencement of work with wheeled or tracked equipment in vegetated areas, vegetation that could conceal amphibians shall be surveyed by a qualified biologist or biological monitor. If vegetation is too dense to be adequately surveyed (e.g., thick blackberry bushes, etc.), a qualified biologist or biological monitor shall observe vegetation removal until vegetation is cleared sufficiently for the qualified biologist to survey the area and verify the presence or absence of amphibians. If no amphibians are found, the vegetation shall be fully removed, and work may continue. If amphibians are observed, they shall be relocated by a qualified biologist according to the procedure outlined above.
7. An exclusion fence cannot be established around the entire site due to the variety of hydrologic conditions in the Project area; therefore, an exclusion fence (such as silt fencing) shall be installed around any staging and storage areas only. The exclusion fence shall stand at least 2 feet high and be buried at least 6 inches deep or shall otherwise be secured along the bottom to prevent wildlife from passing underneath (i.e., with sandbags or similar materials). The fence shall be made of an opaque material (such as silt fencing). Any access gates shall be closed each night and secured to prevent entry by CRLF or other nocturnal amphibians. If no vegetation is present within 25 feet of the exclusion fence, cover boards shall be placed approximately every 100 feet to provide intermittent cover for CRLF or other amphibians. If vegetation is present within 25 feet, no cover boards are necessary.
8. The exclusion fence shall be surveyed daily by a qualified biologist or qualified person to identify and address issues that could allow CRLF or other amphibians to enter the staging area.
9. All construction activities shall cease one half-hour before sunset and shall not begin prior to one half-hour after sunrise.

10. Construction activities shall not occur for 24 hours after rain events that deliver >0.25 inches of rain without the presence of a full-time qualified biologist onsite to monitor activities.
11. Any open holes or trenches greater than 12 inches deep shall be covered or have escape ramps no steeper than 45 degrees installed at the end of each working day to prevent CRLF or other amphibians from becoming entrapped. Holes shall be checked before work begins.
12. All aquatic equipment used for capture shall be decontaminated before and after use in accordance with the fieldwork code of practice developed by the Declining Amphibian Populations Task Force.
13. No monofilament wrapped BMPs shall be used which might entangle CRLF or other amphibians.

Special-status Wildlife: California Black Rail – Less than Significant with Mitigation Incorporated

California black rail (CBR) are known to occur throughout the tidal marshes surrounding Bolinas Lagoon (CDFW, 2022).[3] Restoration activities within the tidal marsh and adjacent habitats could injure or kill rails if they are nesting within the footprint of the proposed Project when it occurs. In addition, restoration activities may cause sufficient auditory and visual disturbances resulting in nest abandonment or disruption of seasonal activity periods when calling and mating occurs. These effects would be considered a significant effect under CEQA. To reduce these potential effects to less-than-significant levels, the Conservation Measures and Mitigation Measure BIO-3 shall be implemented. In addition to these measures, any resource-agency specific permit requirements shall also be implemented.

Mitigation Measure BIO-3: California Black Rail

1. Prior to initiating construction activities in the spring, protocol surveys shall be performed to determine if black rail territories are present within 330 feet (100 meters) of the Project area.
    a. If a territory is identified, a 165-foot (50 meters) non-disturbance buffer shall be established around the territory, and no work shall occur south of the Fairfax Bolinas crossover road within the buffer until after August 31.
    b. If no specific territories are identified, the Project shall establish a general buffer of 85 feet (25 meters) from the edge of the high tide line. No work of any type shall occur within the buffer until after August 31, when nesting season has completed.
2. Any work such as asphalt grinding, jackhammering, concrete sawing, or similar extreme noise-producing construction activities required to remove the Fairfax Bolinas crossover road shall not occur from March 1–April 30, when black rails are most likely to call in association with the breeding season.
    a. Standard construction activities, such as motorized equipment operation and staging of equipment or materials, vegetation removal, grading, or other general Project activities may occur on, or north of, the Fairfax Bolinas crossover road, from March 1–April 30.
    b. If extreme noise-producing activities are necessary during the period from March 1–April 30, then temporary visual barriers and sound attenuating curtains shall be used to decrease visual and auditory disturbances.
    c. Any general work activities along Fairfax Bolinas Road from March 1–April 30 shall not begin until one hour after sunrise and shall cease no later than one hour before sunset, to avoid periods when rails are most likely to call.

[3] Personal Communication with Jules Evans of Avocet Research Associates, LLC on July 7, 2022.

3. Between November and January, no work shall occur within 85 feet (25 meters) of the high tide line from 45 minutes before, until 45 minutes after a high tide event measuring 6.0 feet or higher, to allow rails to use adjacent uplands as refugia during high tide events. Work outside of the 85-foot buffer shall be allowed, weather permitting.

Special-status Wildlife: Native Nesting Birds – Less than Significant with Mitigation Incorporated

Trees and vegetation within and surrounding the Project area may provide potential nest sites for several special-status species including San Francisco common yellowthroat and white-tailed kite. In addition, non-special-status bird species protected by the California Fish and Game Code and the Federal Migratory Bird Treaty Act are also likely to nest within the Project area. Removal of active nests (those containing eggs, chicks, or pre-fledged young) would violate these regulations and would be considered a significant impact under CEQA. To reduce these potential impacts to nesting birds to less-than-significant levels, the Conservation Measures and Mitigation Measure BIO-4 will be implemented. In addition to these measures, any resource-agency specific permit requirements shall also be implemented.

Mitigation Measure BIO-4: Native Nesting Birds

1. To the extent feasible, vegetation removal and initial ground disturbance shall occur from September 1 through January 31, so that initial ground-disturbing work occurs outside of the general nesting bird season.
2. For vegetation removal and ground disturbance within the proposed Project area that is conducted during the general nesting bird season (February 1 through August 31), pre-construction nesting bird surveys shall be conducted within the work area and adjacent habitats seven days prior to the initiation of vegetation removal or grading activities to avoid disturbance to active nests, eggs, and/or young.
3. All active nests of native birds found during the survey shall be protected by a no-disturbance buffer until all young from each nest fledge, or the nest otherwise becomes inactive. The size of each buffer shall be determined by a qualified biologist dependent upon extant conditions and may require consultation with the CDFW. Buffers are typically a minimum of 25 feet for disturbance-adapted non-special-status birds and increase accordingly for large raptors or other special-status species.

Special-status Wildlife: Roosting Bats – Less than Significant with Mitigation Incorporated

While there are no buildings, caves, or rocky outcrops with deep crevices to support roosting by larger bats, such as Townsend's big-eared bat, pallid bat is known to use tree cavities for roosting. While mobile adults could relocate and avoid construction activities, bats roosting during the maternity season (typically May to August) are more vulnerable to disturbance and construction activities could result in impacts when young cannot fly yet, and adults cannot relocate.

Trees within the proposed Project area would be removed in preparation for channel creation and restoration activities. Bats may be disturbed, displaced, and potentially injured or killed, if they do not or are unable to vacate the supporting roosting structure during the removal process. General disruption from construction activities, including audible, vibratory, and visual disturbance, could wake roosting bats, interfere with foraging bats, or cause females to abandon maternity roosts, creating a potentially significant impact. Such effects would be considered significant under CEQA.

The proposed Project would mitigate for the removal of riparian trees with replacement plantings, described below. As such, no permanent loss of roosting habitat will occur; however, effects to individual bats would require addressing. To reduce potential impacts to roosting bats to less-than-significant levels, the Conservation Measures and Mitigation Measure BIO-5 will be implemented.

Mitigation Measure BIO-5: Roosting Bat Protection

1. Prior to the removal of any large trees (DBH>18 inches) a bat roost assessment shall be conducted by a qualified biologist at least 30 days beforehand to determine if potential roost habitat is present.
    a. If the tree has no potential to support roosting bats (e.g., no large basal cavities, exfoliating bark or interstitial spaces), the tree may be removed with no further measures required to protect roosting bats.
    b. If a potential bat habitat is present, and work is occurring outside the maternity season, the qualified biologist may either 1) Conduct an emergence survey to determine if the roost is occupied; or 2) The tree may be felled using a two-phased cut.
        i) If the emergence survey confirms the roost is inactive, the tree may be felled normally.
        ii) If the roost is confirmed active, or is assumed to be active, a two-phased cut shall be employed to remove the tree. On day one, the qualified biologist shall oversee removal of branches and small limbs not containing potential bat roost habitat using hand tools such as chainsaws or handsaws only. The next day, the rest of the tree may be removed.
    c. If potential bat roosting habitat is present and work is occurring during the maternity season, the qualified biologist may either 1.) Conduct an emergence survey to determine if the roost is occupied; or 2.) Assume the roost is occupied and a buffer shall be implemented.
        i) If the roost assessment does not detect bats, the tree may be removed normally. If roosting bats are detected, or the tree is assumed to be an active roost, the tree shall be given a 100-foot buffer and shall be avoided until after the maternity roosting season is complete.

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

Riparian Tree Removal - Less than Significant with Mitigation Incorporated

An arborist report has been prepared to document existing trees on the Project site (WRA, 2021). Because the Project site is located within the Coastal Zone, the Marin County Native Tree Protection and Preservation ordinance does not apply. A total of 214 trees were identified within or directly adjacent to the Project site. Of these, 123 are proposed for removal during implementation of the Project. The proposed Project will require the removal of trees within oak woodland, forested wetlands, riparian, and similar habitats to accommodate grading and restoration of the new channel, relocation of the road at the junction of Olema Bolinas Road and SR-1, as well as construction of the new bridge. Trees within these habitats are subject to regulation by CDFW and RWQCB. These impacts would represent a significant impact to these communities if not mitigated. Mitigation

Measure BIO-6 requires the replacement of the removed trees with a total of 1,246 trees within Project site boundaries. These newly planted trees would be of the same native species as the removed trees at the ratios and locations shown on the final Vegetation Management Plan for the proposed Project. With the implementation of Mitigation Measure BIO-6, impacts to riparian habitats would be less than significant.

Mitigation Measure BIO-6: Tree Protection

To minimize damage to existing trees which are not proposed for removal by Project activities, the following shall be implemented:

1. To the extent possible any native trees shall be avoided and retained.
2. Installation of temporary protective fencing around the dripline of existing trees per the direction of a licensed arborist prior to ground disturbance in the area of those trees.
3. Trunk protection with 2x4 wood planks shall be installed around the trunk of a tree that cannot otherwise be protected at the dripline.

Of the trees proposed for removal, new native trees would be planted at ratios established to be commensurate with the stature of the trees to be removed.

4. A total of 1,246 trees shall be planted on-site, in addition to the many shrubs listed in the Project revegetation plan planting palette. This represents a 10:1 replacement ratio for the 123 trees that will be removed (3.5:1 replacement for oaks).
5. On-site planting may occur within the restored floodplain where the crossover section of Fairfax Bolinas Road is removed, increasing habitat continuity within this floodplain.

With the implementation of the Conservation Measures, as well as Mitigation Measure BIO-6, impacts to riparian trees would be reduced to less than significant levels.

Critical Habitat – Less than Significant

Critical habitat for three species is designated within the Project area:

- Central California Coast (CCC) steelhead
- CCC coho salmon
- Tidewater goby

Critical habitat within the Project is shown in Figure 27.

Steelhead

Critical habitat for CCC steelhead is designated within Wilkins Gulch Creek (70 FR 52487). The primary constituent elements (PCEs) for steelhead critical habitat are: (1) freshwater spawning habitat; (2) freshwater rearing sites; (3) freshwater migration corridors; (4) estuarine habitat with brackish water and natural cover; (5) nearshore marine habitats with forage fishes and natural covers; and (6) offshore marine areas. PCEs within the Project area include freshwater rearing and migratory habitat in the vicinity of the culvert beneath SR-1, and estuarine habitat with brackish water between the culvert outlet and Bolinas Lagoon. Only a very small portion of Wilkins Gulch Creek lies within the Project area, and the only work proposed to Wilkins Gulch Creek is to tie the terminus of Wilkins Gulch Creek into the new channel for Lewis Gulch. All in-channel work would occur during the non-migratory season for steelhead (June–October) when the function of the portion of Wilkins Gulch Creek is as a migratory corridor, thereby avoiding impacts to the function of critical habitat. The new Lewis Gulch channel shall also allow for an enhanced connection with large woody debris structures

to provide cover, an enhanced floodplain to promote rearing, and more reliable channel connection that promotes migratory cues and conditions for steelhead. As such, the net result of the Project is entirely beneficial to steelhead critical habitat.

Coho Salmon

Critical habitat is designated for CCC coho salmon (64 FR 24049). CCC coho salmon critical habitat is 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 Arroyo Corte Madera Del Presidio and Corte Madera Creek, which are tributaries to San Francisco Bay.

Critical habitat for coho salmon consists of the water, substrate, and adjacent riparian zone of estuarine and riverine reaches (including off-channel habitats). Accessible reaches are those within the historical range of the ESU that can still be occupied by any life stage of coho salmon. Inaccessible reaches are those above specific identified dams or above long-standing, naturally impassable barriers (i.e., natural waterfalls in existence for at least several hundred years); therefore, CCC coho critical habitat is present within the Project area (64 FR 24049).

CCC coho critical habitat requires all of the following:

1. space for individual and population growth, and for normal behavior;
2. food, water, air, light, minerals, or other nutritional or physiological requirements;
3. cover or shelter;
4. sites for breeding, reproduction, or rearing offspring; and, generally,
5. habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of this species (see 50 CFR 424.12[b]).

In addition to these factors, NMFS also focuses on the known physical and biological features (primary constituent elements) within the designated area that are essential to the conservation of the species and that may require special management considerations or protection. These essential features may include, but are not limited to spawning sites, food resources, water quality and quantity, and riparian vegetation.

The critical habitat designation for CCC coho salmon identifies streams accessible to coho salmon within the Tomales-Drake Bays hydrologic unit of Marin County, which includes the Action Area (64 FR 24049). The Project will be initiated in the dry season when flows are most likely to be naturally discontinuous through the streams in the Action Area, thereby limiting the potential for any direct effects to migratory and rearing habitat. Overall, the Project will also indirectly benefit critical habitat. There are no significant deleterious effects to coho critical habitat.

Tidewater Goby

Tidewater goby critical habitat is composed of five Physical and Biological Features (PBFs) including (USFWS, 2013):

1. Space for individual and population growth and for normal behavior;
2. Food, water, air, light, minerals, or other nutritional or physiological requirements;
3. Cover or shelter;
4. Sites for breeding, reproduction, or rearing (or development) of offspring; and
5. Habitats that are protected from disturbance or are representative of the historical, geographical, and ecological distributions of a species.

Tidewater goby is currently absent from Bolinas Lagoon and any modifications to critical habitat as part of the Project would not occur at a time when critical habitat supports any life stage of the species. All PBFs would benefit from the Project as several key elements would be enhanced, including:

1. Increasing the aquatic features within the Project area that would be accessible to goby;
2. Expansion of the floodplain and inclusion of woody debris will promote areas of cover, forage and rearing for the species,
3. Alteration of hydraulics in Lewis Gulch will help move sands to the lagoon, providing spawning substrates where none currently exist, and
4. Removing the crossover section of Fairfax Bolinas Road will remove sources of noise and toxins (e.g., fuels from cars or garbage), and will allow for the natural evolution of habitats in the future.

Overall, the Project would benefit critical habitat for tidewater goby and all other fish species; therefore, as only positive effects are likely, Project impacts would be less than significant.

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

Waters of the U.S. and State – Less Than Significant with Mitigation Incorporated

Wetlands, marshes, and permanent and intermittent streams are subject to regulation by the USACE under Section 404 of the Federal Clean Water Act (CWA), and subject to regulation by the RWQCB under Section 401 of the CWA and the State of California's Porter-Cologne Water Quality Control Act (California Water Code, Division 7). CDFW generally has jurisdiction over creeks, streams, and drainages, together with other aquatic features that provide an existing fish and wildlife resource pursuant to Sections 1602-1603 of the California Fish and Game Code. CDFW asserts jurisdiction to the outer edge of vegetation associated with a riparian corridor. The California Coastal Commission regulates some areas that display a single wetland parameter such as hydrophytic vegetation, hydric soil, or wetland hydrology. There were five areas that met the criterion for hydrophytic vegetation, but not hydric soil or wetland hydrology.

Wetlands were delineated in the Project area during preliminary jurisdictional delineations on July 30 and August 27, 2020 (WRA, 2020). The Corps issued a Preliminary Jurisdictional Determination letter on June 16, 2021. The Project area contains seven distinct aquatic resources that receive water from groundwater, precipitation, runoff from surrounding uplands, and/or tidal inundation from the Pacific Ocean. A summary of jurisdictional aquatic resource acreage is provided in Table 14 and are shown in Figures 24–26.

Currently tidal inundation north of the crossover section of Fairfax Bolinas Road is blocked by the roadway. Lewis Gulch is also routed through a confined channel along Olema Bolinas Road where it has no floodplain access. Following the implementation of the proposed Project, Lewis Gulch Creek will be realigned through the center of the Wye, allowing seasonal floodwaters to spread out into the surrounding forest and wetlands, restoring natural conditions of the floodplain. In addition, removal of the crossover section of Fairfax Bolinas Road will allow tidal action via the new Lewis Gulch channel, inundating the wetlands higher in elevation, which will allow for the expansion of the tidal marsh. This will be especially important as sea-level rise continues to raise water levels in Bolinas Lagoon. As

such, the proposed Project will have a net benefit by restoring the natural conditions of the floodplain and expanding wetlands throughout the Project area.

The Project will permanently impact 0.046 acres of wetlands and waters (81 ft; Table 16). Permanent impacts are a result of the 2:1 slopes on each side of the new Olema Bolinas Road segment and creation of a berm to divert flows to the new Lewis Gulch Creek alignment. A total of 0.142 acres of existing wetlands would be converted into different wetland types as a result of the new Lewis Gulch Creek alignment. In addition, approximately 1.639 acres of wetland and stream, 312 linear feet, will be either enhanced through invasive species management and native planting, or temporarily graded from channel and road construction and then planted with native vegetation (Table 17). This also includes 84 linear feet of biotechnical bank stabilization within the existing Lewis Gulch alignment. The bank stabilization will include large wood and soil bioengineering. The Project will create 1.091 acres of waters and forested wetland in areas that were previously developed or upland habitat (Table 18). A total net increase of approximately 1.09 acres of restored channel, floodplain and wetland would result from implementation of the proposed Project. As the effect of the Project will be a net benefit to wetlands, the Project is considered self-mitigating, and impacts to waters of the U.S. and State will be less than significant.

Table 16: Proposed Permanent Impacts (Fill) in Waters of the U.S. and Waters of the State

AQUATIC RESOURCE TYPE	ACRES	LINEAR FEET (LF)
Forested Wetland	0.017144	--
Intermittent Waters	0.029065	81
TOTAL:	**0.046209**	**81**

Table 17: Proposed "Temporary Impacts" in Waters of the U.S. and Waters of the State

AQUATIC RESOURCE TYPE	ACRES
Enhancement	
Intermittent Waters	0.073411
Perennial Waters	0.003913
Forested Wetland	1.428937
Tidal Marsh	0.132617
TOTAL:	**1.638878**
Conversion	
Forested Wetland to Intermittent Waters	0.077278
Intermittent Waters to Forested Wetland	0.024292
Tidal Marsh to Intermittent Waters	0.030772
TOTAL:	**0.142**
TOTAL TEMPORARY IMPACTS:	**1.780878**

Table 18: Creation of Waters of the U.S. and Waters of the State

ORIGINAL VEGETATION TYPE	POST CONSTRUCTION VEGETATION TYPE		TOTAL (ACRES)
	Forested Wetland	Intermittent Waters	
Coast Live Oak Woodland	0.179735	0.020723	0.200458
Developed	0.413148	0.026661	0.439809
Non-native grassland	0.049991	-	0.049991
Wetland - 1 Parameter	0.341687	0.059083	0.40077
TOTAL:	**0.984561**	**0.106467**	**1.091028**

The proposed Project will need to work within areas that may contain waters, or that need to have waters temporarily removed to facilitate restoration. When working in such proximity, fluid spills from equipment, runoff, and debris within the Project area can inadvertently enter adjacent waters, thereby impacting the suitability of those habitats. Spills or excessive sedimentation from runoff would be considered a significant impact under CEQA. To negate such potential impacts, Mitigation Measure BIO-7 shall be enacted to reduce the potential impact of the proposed Project to a less-than-significant level.

Mitigation Measure BIO-7 –Waters of the U.S. and State

1. The Project shall implement the following measures to avoid and/or minimize and restore potential impacts to aquatic habitats resulting from Project activities:
2. Excavation of the new channel and any work within the existing creek bed and banks shall be completed between June 1 and October 31. Work within the existing channel shall only occur when the work area is dry or dewatered.
3. Prior to construction, the contractor shall be required to prepare an Accidental Spill Prevention and Cleanup Plan.
4. Emergency spill containment and clean-up materials shall be kept on the Project site.
5. A Stormwater Pollution Prevention Plan (SWPPP) shall be developed which would include stormwater best management practices (BMPs) specific to the disturbances occurring as well as inspection procedures to ensure the SWPPP is implemented as described.
6. To minimize fluid leaks, equipment shall be inspected daily. Any equipment found to be leaking shall not be used until it has been fully repaired.
7. If maintenance must occur on-site, it would occur in designated areas located at least 100 feet from drainages and channels and protected with perimeter controls and non-permeable surfaces placed under the equipment. Secondary containment, such as a drain pan or drop cloth, to catch spills or leaks shall be used when performing maintenance or refueling equipment. Fluids shall be stored in appropriate containers with covers, and properly recycled or disposed of off-site.
8. No equipment, including concrete trucks, shall be washed within the channel of the creek, or where wash water could flow into the channel. Prior to initiating construction, the contractor shall establish a concrete washout area for concrete trucks in a location within developed areas where wash water shall not enter the creek or adjacent areas. The washout area shall follow the practices outlined in the San Francisco Bay Regional Water Quality Control Board Erosion and Sediment Control Field Manual (page 107–108, July 1999) or more recent guidelines.

9. All spoils including concrete and asphalt shall be stored in locations where they cannot enter waterbodies and shall be covered or protected as outlined in the SWPPP until they can be hauled offsite for disposal.
10. Debris, soil, silt, excessive bark, rubbish, creosote-treated wood, raw cement/ concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic life, resulting from projected related activities, shall be prevented from contaminating the soil and/or entering the waters of the US or State.
11. All trash and construction debris shall be contained in a covered debris box (or similar) and removed regularly from the Project site and disposed of appropriately off-site.

With the implementation of Mitigation Measure BIO-7, the potential impacts of the proposed Project construction on waters of the U.S. and State would be reduced to less-than-significant levels.

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

Wildlife Movement - Less Than Significant

Wildlife corridors are described as pathways or habitat linkages connecting discrete areas of natural open space otherwise separated or fragmented by topography, changes in vegetation, and other natural or manmade obstacles such as urbanization. They allow for the movement and migration of animals and plants, and are critical for the maintenance of ecological processes and viable populations of plants and animals by promoting (1) the continual exchange of genes between populations, which helps to maintain genetic diversity; (2) access to adjacent habitat areas that provide additional territory for foraging and breeding; (3) greater carrying capacity; and (4) routes for colonization of new habitat following locational population extinctions or habitat recovery from ecological catastrophes.

Habitat linkages are broader stretches of open space that allow for the movement of multiple species and maintenance of ecological processes. These linkages do not have to provide continuous habitat but could also be patches of suitable areas that support movement from one patch to another to allow dispersal and migration. Habitat linkages reduce the adverse effects of habitat fragmentation that can lead to decreased gene flow for small animals, such as amphibians, reptiles, and rodents.

Native wildlife nursery sites are specific areas where certain species return yearly to breed, birth, and raise juveniles. For example, most salmonids require gravel beds in the upper reaches of a stream. There is a distinction between wildlife nursery sites and other breeding sites that do not have specific habitat conditions. In other words, a tree with a bird nest is not necessarily a wildlife nursery site.

The Project area is located in an undeveloped/open area and is surrounded by large expanses of open space. Wildlife is expected to currently use the Project area for local and regional movements, but under current conditions encounter several anthropogenic structures and restrictions to movement. First, fish migrating up Lewis Gulch Creek encounter a partial fish passage barrier at the existing box culvert under Olema Bolinas Road. Fish that can pass through the box culvert must then travel through a constricted roadside ditch before making it back to a more naturalized channel. The proposed Project would allow for unrestricted passage of aquatic life throughout the Project area. Any terrestrial wildlife that occurs within the Project area (e.g., birds or amphibians) that move inland

following tidal inundation, or seeking cover encounter the crossover section of Fairfax Bolinas Road, State Highway 1, or Olema Bolinas Road where animals are faced with potential collisions with vehicles.

The proposed Project would realign Lewis Gulch Creek, creating a more naturalized channel through the center of the Wye. Lewis Gulch Creek would pass beneath a new bridge which will span the creek and would no longer restrict streamflow or wildlife movement within or along the water's edge as is currently the case. Additionally, removal of the crossover section of Fairfax Bolinas Road will provide more contiguous habitat from Bolinas Lagoon, with the Bolinas Wye wetlands, under the proposed bridge at the Olema Bolinas Road/SR-1 intersection. This will reduce the potential for vehicular collisions with wildlife within the Project area and will enhance local wildlife movements in response to tides and sea level rise.

The proposed Project has been designed to enhance wildlife movement in the area and would not result in significant adverse impacts on wildlife movement activity in the surrounding area following construction. Construction activities will largely occur at times of the year to avoid migratory events (e.g., working in streams between June and October when steelhead are not migrating through the area) or times of day when species are likely to move through local areas. Therefore, implementation of the Project would result in beneficial effects to movement of native resident or migratory fish or wildlife species, and would have a less-than-significant impact on wildlife movement.

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

Local Policies - Less Than Significant with Mitigation Incorporated

The Project area is within unincorporated Marin County and governed by the Marin Countywide Plan, Local Coastal Plan and Bolinas Lagoon Management Plan. These various local policy plans are discussed below by section.

Marin Countywide Plan

The Marin Countywide Plan includes goals and policies to protect natural resources. Implementation of the proposed Project would conform with the goals and policies of the Marin Countywide Plan, specifically those within the Natural Systems and Agricultural Element section which pertains to protecting biological resources. These policies include the following:

BIO-1.1 Protect wetlands, habitat for special status species, sensitive natural communities and important wildlife nursery areas and movement corridors: See "d" above

BIO-1.3 Protect woodlands, forests and tree resources: See Agricultural and Forest Resources above

BIO-1.4 Support vegetation and wildlife disease management: With the implementation of the Conservation Measures as well as MM BIO-6, introduction and spread of invasive species, plant pathogens and protection to sensitive vegetation will be enacted.

BIO-1.5 Promote Use of Native Plant Species: The project will use locally sourced seeds and plants for revegetation as discussed in the Project description.

BIO-1.6 Control Spread of Invasive Exotic Plants: One of the goals of the Project is to manage and remove invasive species to allow for habitat restoration. The Project includes Conservation Measures that include practices to minimize the spread of invasive plant species and pathogens while elements of the Project description outline removal of invasive species.

BIO-1.7 Remove invasive exotic plants: One of the goals of the Project is to manage and remove invasive species to allow for habitat restoration. The Project includes Conservation Measures and Project elements that include control of invasive plant species and pathogens.

BIO-1.8 Restrict use of herbicides, insecticides, and similar material: As discussed in the Project description, the Marin County Integrated Pest Management Plan (IPM) will be followed and all efforts will be made to remove invasive species using manual and mechanical methods, with herbicides being used as a last resort following protocols of the IPM plan.

BIO-1.9 Control spread of non-native invasive animal species: The proposed Project does not involve activities that could pose a risk to the import on invasive animal species. Conservation Measures state requirements to drain, dry and clean any aquatic based equipment prior to, or after use which would prevent the spread of aquatic invertebrate species.

BIO-2.1 Include resource preservation in environmental review: The Project area is within lands managed by Marin County Parks and MCOSD as Open Space and will continue to remain under the protection of Marin County Parks and Open Space District, with the exception of the rights-of-way for Olema Bolinas Road and Fairfax Bolinas Road, which will be reduced and/or converted to wetlands.

BIO-2.2 Limit Development Impacts: The Project has reduced road development by decommissioning existing sections of Olema Bolinas Road and Fairfax Bolinas Road to be converted to wetlands.

BIO-2.3 Preserve ecotones: The Project will create, enhance and restore lands that are vital for transitional shifts in vegetation communities and that allow for a diversity of habitat for wildlife that are present and will use the site in the future.

BIO-2.4 Protect wildlife nursery areas and movement corridors: The Project will improve the ability for terrestrial and aquatic wildlife that migrate through the project area by elevating and eliminating roads within wetlands providing for increased access and reliability of connection between core habitat areas.

BIO-2.5 Restrict disturbance in sensitive habitat during nesting season: The Project includes measures to protect nesting birds.

BIO-2.6 Identify opportunities for safe wildlife movement: The Project will improve migration corridors for terrestrial and aquatic wildlife through the project area by elevating and eliminating roads within wetlands.

BIO-2.7 Protect sensitive coastal habitat: The Project is designed with the primary goal of improving vital habitat in the coastal region and improving their resiliency to climate change and SLR. Further the Project area is within lands owned and managed by Marin County Parks and MCOSD as a protected Preserve.

BIO-2.8 Coordinate with Trustee Agencies. The Project has been reviewed by all regulatory agencies (California Department of Fish and Wildlife, Regional Water Quality Control Board, Coastal Commission, U.S. Fish and Wildlife Service and National Marine Fisheries Service) throughout the design development process and includes appropriate Conservation and Mitigation Measures approved by these regulatory agencies. The Project is also supported by U.S. Fish and Wildlife Service through funding from the National Coastal Wetlands Conservation Program, and the National Oceanic and Atmospheric Agency that has provided funding from the National Fish and Wildlife Foundation.

BIO-2.9 Promote early consultation with other agencies: See BIO-2.8 above.

BIO-3.1 Protect Wetlands: One of the Project's main goals is to enhance, preserve, and protect wetlands and improve their resiliency to climate change. Work within the wetland is limited to the minimum needed as discussed above in "c" and Table 12, with 0.019 acres of permanent impacts, and 1.09 of created wetlands, greater than a 2:1 replacement.

BIO-4.1 Restrict land use in Stream Conservation Areas: Projects to improve fish and wildlife habitat are an allowed activity in an SCA.

BIO-4.3 Manage SCAs effectively: See BIO-4.1

BIO-4.4 Promote natural stream and channel function: The Projects primary purpose is to restore geomorphic form and function and improve hydrologic connectivity for the enhancement of aquatic and terrestrial wildlife by reconnecting Lewis Gulch Creek to its' alluvial fan and floodplain.

BIO-4.5 Restore and stabilize stream channels: The primary purpose of the Project is to restore Lewis Gulch Creek to its alluvial fan and floodplain and allow space for lateral channel migration, bioengineering for bank stabilization, large woody debris on banks and floodplain, and non-native invasive species removal and revegetation with native plants from within the watershed.

BIO-4.6 Control exotic vegetation: See BIO-1.9 above.

BIO-4.7 Protect riparian vegetation: See Agricultural and Forest Resources section above, and BIO-1.5 and BIO-2.3 above.

BIO-4.8 Reclaim damaged portions of the SCAs: The primary purpose of the project is to restore wetlands and reconnect Lewis Gulch Creek to its former alluvial fan and floodplain.

BIO-4.9: Restore culverted streams: The primary purpose of the project is to restore wetlands and reconnect Lewis Gulch Creek to its former alluvial fan and floodplain, and to improve flow by installing a full span bridge that will allow for natural channel formation and restoring hydrologic and geomorphic processes.

BIO-4.10: Promote interagency cooperation: As discussed in the Project description and BIO-2.8 above, a Technical Advisory Committee was established that included regulatory agencies with oversight over the design of the project. The Department of Public Works is also part of the TAC and has been reviewing the Project plans.

BIO-4.11: Promote riparian protections. See BIO-2.8 and BIO-4.10 above.

BIO-4.12 Support and provide riparian education efforts: Stakeholder engagement has occurred throughout the visioning and design development of the Project as discussed in the Project description.

BIO-4.13: Provide appropriate access in SCAs: The Project site contains sensitive species and habitat, and public access is not appropriate within this area. There are other trails that are maintained by Marin County Parks that provide access along the shoreline of Bolinas Lagoon, such as the Bob Stewart Trail on Olema Bolinas Road.

BIO-4.14 Reduce road impacts in the SCAs: The Project is designed to remove roads and associated infrastructure impacts, to the greatest degree possible, within wetlands and Lewis Gulch Creek.

BIO-4.16 Regulate channel and flow alterations: The project will only temporarily restrict flow during construction. Once constructed, Lewis Gulch Creek will have unrestricted access to its historic alluvial fan and floodplain.

BIO-4.17 Continue collaboration with the Marin Resource Conservation District: Marin County Parks and MCOSD have been discussing with Marin Resource Conservation District opportunities to collaborate on Project activities.

BIO-4.18 Promote the use of permeable surfaces when hardscape is unavoidable in the SCA and WCA: The Project has been designed to minimize the amount of impermeable surface and remove pavement.

BIO-4.19 Maintain channel stability: Hydrology and hydraulic analysis was conducted to evaluate the channel design and to determine the appropriate location and design of bank stabilization and habitat enhancement structures. Draft reports were provided to regulatory agencies for review and updated based on comments received.

BIO-4.20 Minimize runoff: The Project includes Conservation Measures to reduce stormwater runoff and a Storm Water Pollution Prevention Plan will be prepared and implemented prior to construction.

Local Coastal Program (LCP),

The Project is in the Marin County Local Coastal Program (LCP), under the retained jurisdiction of the Coastal Commission.

C-BIO-1 Environmental Sensitive Habitat Areas (ESHAS): A majority of the Project area falls within the definition of an ESHA under LCP C-BIO-1 (wetlands, streams and riparian vegetation, and terrestrial). All work within the ESHA will comply the Biological Resources Section of the LCP as described further below and as mitigated will not adversely impact special status species. The site will remove native and nonnative vegetation in order to restore physical and biological processes to improve the resiliency of the ESHAs.

C-BIO-2 ESHA Protection: The Project is consistent with the policy that allows for uses that are dependent on those resources such as wetlands, coastal streams and riparian vegetation. No alterations will be conducted that will permanently disrupt habitat value, abundance or viability of species populations, because the Project will revegetate and enhance biological and physical processes as described in the Project Description. Further all roads and structures are designed to allow for wildlife movement, and all work has been designed based on recommendations and analysis provided by biological assessments prepared for the project.

C-BIO-3 ESHA Buffers: This policy allows for improvements made for fish and wildlife habitat within an ESHA buffer

C-BIO-5 allows for ecological restoration; C-BIO-6 allows for the removal of invasive plants and replanting with native plants.

C-BIO-6 Invasive Plants: This policy requires the removal of non-native, invasive plant species, and replanting with native plants, which is a part of the Project goals and objectives as described in the Project Description.

C-BIO-7 Coastal Dunes: There are no Coastal Dunes in the proposed Project Area.

C-BIO-8 Stringline Method of Preventing Beach Encroachments: The proposed Project is not within an area of beach development.

C-BIO-9 Stinson Beach Dune and Beach Areas: The proposed Project is not in Stinson Beach.

C-BIO-10 Roosting and Nesting Habitat. Mitigation Measures BIO-3 California Black Rail, BIO-4 Native Nesting Birds, and BIO-5 Roosting Bat Protection will prevent the proposed Project from adversely affecting roosting or nesting birds.

C-BIO-14 Wetlands: The proposed Project is in keeping with this policy and designed to improve wetland and upland habitats for wildlife, water infiltration, and protection of wetlands.

C-BIO-15 Diking, Filling, Draining and Dredging: This policy allows for a new stream channel to be created for Lewis Gulch Creek as part of the restoration of the alluvial fan.

C-BIO-16 Conditions and Standards for Diking, Filling, Draining, and Dredging: This policy allows for these activities provided that the avoid significant disruption to marine and wildlife habitats, fish and bird breeding and migrations, and water circulation. Disruptions will be prevented with Mitigation Measures BIO-1 Steelhead and Coho Salmon, BIO-2 CRLF, BIO-3 California Black Rail, BIO-4 Native Nesting Birds, BIO-5 Roosting Bat Protection, and BIO-6 Tree Protection.

C-BIO-17 Disposal of Dredged Material: All material excavated will be used on site and Parks is consulting with and has applied for a permit by the Regional Water Quality Control Board.

C-BIO-18 Wetland Buffers: Work within the wetlands buffer is allowed by policy C-BIO-2, C-BIO-14, and C-BIO-15, and C-BIO-19.

C-BIO-19 Wetland Buffer Adjustments and Exceptions: This policy allows for work within a buffer because mitigation measures described above will prevent impacts, the project will eliminate on-site invasive species within the Project Area, increase native vegetation cover, and overall improve the ecological integrity of the site.

C-BIO-20 Wetland Impact Mitigation: No net loss will occur as discussed above, with functional uplift provided that will improve habitat conditions as seen in Figure 29. The Project would permanently impact 0.06 acres of California Coastal Commission (CCC) jurisdictional features, result in temporary impacts to 2.19 acres of CCC jurisdictional features, and would create 0.69 acres of CCC jurisdictional features. The site will be monitored for a minimum of 5 years, and the Conservation Measures as well as Mitigation Measures BIO-1 to BIO-6 will ensure protection of vital habitat for special status species and wildlife. The site is already permanently protected, and Parks will continue to steward the site indefinitely.

C-BIO-21 Tomales Bay Shoreline: The proposed Project is not in or near Tomales Bay.

C-BIO-22 Marine Resources: The Proposed project will enhance and restore the health of the estuary.

C-BIO-23 Coastal Streams and Riparian Vegetation: This policy allows for work within a coastal stream and riparian area where the primary function is the improvement of fish and wildlife habitat. Design work that relates to Lewis Gulch Creek have been done in conjunction with staff from the Department of Fish and Wildlife, Regional Water Quality Control Board, and National Marine Fisheries Service to ensure that flows would be sufficient for fish passage and habitat enhancement components were properly located.

C-BIO-26: Diversions Outside the Coastal Zone: This policy is not applicable to the Project Area.

C-BIO-27 Federal Projects: The proposed Project will receive funding and support from the National Oceanic and Atmospheric Administration, and is therefore being reviewed using the Federal Consistency review process.

C-BIO-28 California Parks and Recreation: This project is not within lands owned or managed by the California Department of Parks and Recreation.

C-BIO-29 Marin County Parks: This policy states the LCP support of work by Marin County Parks Department, which includes habitat restoration of lagoons, wetlands, and streams.

As such, the proposed Project would not conflict with any ordinances or policies protecting biological resources and impacts would be less than significant.

Bolinas Lagoon Management Plan (Update, March 1996)

The Project is in keeping with the BLMP Goal 1: Preserve and restore the ecological values of Bolinas Lagoon, Objective 3: Restore water quality and hydraulic functions that will decrease sedimentation and prevent the loss of rich estuarine habitat; and Goal III: Promote land use management in the Lagoon's watershed consistent with preserving and restoring the ecological values of Bolinas Lagoon, Objective 3: Encourage cooperative watershed improvement efforts.

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

No Impact

There are no adopted HCPs in Marin County, and therefore, the proposed Project would not conflict with any such plans. Thus, no impact would occur.

E. CULTURAL RESOURCES

Table 19. Cultural Resources Checklist Questions

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a)	Cause a substantial adverse change in the significance of a historic resource pursuant to §15064.5?	☐	☐	☐	☒
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

SETTING

Cultural and Historical Resources Studies

Cultural Landscape Report

Yarbrough Architectural Resources (Yarbrough) prepared a Cultural Landscape Report (CLR) for the proposed Project in February 2023 and a revised version in September 2023 (Yarbrough, 2023). The CLR is a technical study informing Section 106 of the National Historic Preservation Act (NHPA) and National Environmental Policy Act (NEPA) compliance by the Corps, San Francisco District and the CEQA compliance led by Marin County Parks and Open Space District. The CLR's contents follow Part 1. Guidance from A Guide to Cultural Landscape Reports: Contents, Process, and Techniques (USDOI-NPS, 1998).

The CLR included background research and site surveys of areas the Project proposes to affect directly and indirectly. The CLR considers an Area of Potential Effect (APE) of 12.3 acres and an area of direct impact of 4.18 acres as shown on **Figure 30**. Yarbrough conducted a literature review of previous inventories and evaluations and historical and aerial maps, as well as a field survey within the APE to determine the presence or absence and/or potential presence for historical resources.

Far Western provided Yarbrough with record search results from the Northwest Information Center (NWIC), Sonoma State University and with a graphic representation of archaeological features they recorded within the Area of Potential Effect (APE) as a result of their survey. NWIC record search results identified the National Register Nomination Form for the Olema Valley/Lagunitas Loop Ranches Historic District, referred to as the Olema Valley Dairy Ranches Historic District (District). The District is a National Register of Historic Place (NRHP) listed, federally managed landscape within the Golden Gate National Recreation Area. The Wilkins Ranch is one of the 19 ranches within the District and is included in the Project's Indirect APE (Miller and Caywood, 2008).

In January 2021, Yarbrough inspected, photographed, conducted aerial photography with a drone, and made notes regarding the "wye" intersections at the north end of Bolinas Lagoon within the APE. Yarbrough revisited the site in February 2023 to provide additional and more current photographic images of the APE.

Based on the literature review and site surveys, Yarbrough identified three segments of linear landscape features (Olema Bolinas Road, SR-1, and the Crossover Road). Yarbrough recommended that there was no unified cultural landscape but three road segments, and their densely vegetated roadside settings within the APE. The roads and setting that comprise the cultural landscape features within the APE appeared not to be potential historical resources pursuant to CEQA nor historic properties following NHPA compliance standards. Yarbrough recommended the CLR as an analytical format to recommend whether or not the subject resources met the regulatory thresholds for historical significance, namely meeting the criteria of the National and California registers. Specifically, the CLR recommends that the Olema Bolinas Road, Crossover Road, and SR-1 highway segments are not eligible for the National Register of Historic Places (NRHP) and California Register of Historic Resources (CRHR) under any criteria.

Per 36 CFR Section 800.4(b)(1), the lead federal agency is instructed to make a "reasonable and good faith effort" to identify historic properties within an undertaking's APE. As the road segments have not previously been evaluated for eligibility for nomination to the NRHP nor the CRHR, the CLR considers that no cultural landscape nor character-defining features are present within the APE. Only if NRHP or CRHR-eligible resources were present would the CLR consider sufficient aspects of historical integrity, namely the ability to continue to convey significant historical associations. Olema Bolinas Road, Crossover Road, and SR-1 are lengthy transportation corridors, and evaluation of their entirety is well beyond the scope of the current Project APE boundary. However, these three road segments do not appear to meet the criteria of CRHR or NRHP. Olema Bolinas Road and SR-1 are linear features that pass through the District but are not listed as contributing features of the District. The Fairfax Bolinas Road has been the subject of important scholarship by Marin County historian Brian K. Crawford but is separate from the Crossover Road. No segment of the Fairfax Bolinas Road falls within the APE. The Crossover Road analysis below recommends this segment is not CRHR- and NRHP-eligible. A detailed analysis and evaluation of the historical significance of each road segment can be found in the CLR. The CLR concludes that none of the three segments (Olema Bolinas Road, SR-1, or Crossover Road) within the APE are recommended as "historic properties" under NHPA's establishing legislation 36 CFR § 800.16 nor Section 110 [16 U.S.C. § 470h-2(d)] for SR-1 and per Section 106 (36 CFR § 60.4) for all three segments nor as "historical resources" per CEQA Guidelines' C PRC Section 5024.1.:

- Olema Bolinas Road Segment is recommended as ineligible for the NRHP and CRHR;
- SR-1 Segment is recommended as ineligible for the NRHP and CRHR;
- Crossover Road is recommended as ineligible for the NRHP and CRHR;

Archaeological Survey Report

Far Western Anthropological Research Group, Inc. (Far Western) prepared an *Archaeological Survey Report* (ASR) for the proposed Project in January 2023. Because the report contains confidential information about the locations and characteristics of archaeological sites and tribal cultural resources, the technical report is not included in this Initial Study for public review but a redacted version with culturally sensitive information removed can be made available to agencies and other professionals for review as necessary for Project-specific planning.

The ASR included a cultural resources records search, consultation with the Federated Indians of Graton Rancheria (FIGR), outreach with the Bolinas Museum and Marin History Museum, buried site sensitivity

assessment, and a pedestrian survey of the Project site conducted in 2020 and 2021. As part of the records search, Far Western also consulted the following online inventories:

- Caltrans Online Bridge Inventory
- National Register of Historic Places
- California Register of Historic Resources
- California Inventory of Historic Resources (1976 and updates)
- California State Historical Landmarks (1996 and updates)
- California State Points of Historical Interest (1992 and updates), and
- Office of Historic Preservation's Historical Property Data File

Following the records search, Far Western conducted a field survey within the APE in November 2020. Away from cleared road margins, survey work was hindered by extremely dense vegetation which prevented a systematic approach to the survey. The surveyors walked the road edges and APE margins and accessed the interior wherever possible by navigating along any paths or other routes through the forest on both sides of the Crossover Road and in the narrow margin along Olema Bolinas Road. Surveyors used metal detector sweeps opportunistically where slope and vegetation allowed, and supplemented with probing when strong metal detector signals were detected. Probing involved using a narrow-blade shovel to probe four to six inches into the forest duff to explore the presence or absence of covered archaeological materials. Soils, were not excavated, but when probes hit an anomaly, enough vegetation/forest duff was removed to adequately identify and record the archaeological element. Far Western archaeologists returned to the APE in 2021 to survey a newly added proposed vegetation removal area on the west side of Olema Bolinas Road. Survey of this area followed the methods used during the initial survey, as described above and resulted in the intensive survey and documentation of the Oyster House site. Probing was also conducted in the immediate vicinity of the Oyster House site. Survey of this site included a close-interval (less than five-meters) pedestrian survey. Still, the heavy vegetation growth inhibited visibility, so survey of the site also employed select metal detection, subsurface probing, and the brushing away and moving of vegetation (non-destructive) to gain better surface visibility. All exposed areas were re-covered with the forest duff upon completion of recording.

Additionally, the report included results of presence/absence archaeological testing which consisted of drilling two deep cores and nine hand augers in accessible areas adjacent to the proposed bridge footings and shallow hand augers along the proposed creek channel. Testing was conducted in September 2022. All fieldwork was completed in coordination with FIGR.

Based on the results of the records search and literature review, no previously identified archaeological sites have been documented within the Project site. Two previously identified historic-era resources intersect with the Project site and were discussed in the *Bolinas Lagoon North End Restoration Project: Biological and Cultural Resources Technical Memorandum* (AECOM, 2015). Of the two resources, only one (the Olema Valley/Lagunitas Loop Ranches Historic District; P-21-002919) has been formally documented with records submitted to the NWIC. The other resource, the Lighter Wharf, is listed as a California State Historical Landmark (#221). No GIS data is available for the Lighter Wharf and, based on historic photos and maps, survey efforts in 2015 did not result in the identification of any visible pilings or associated remains at the estimated wharf location (AECOM, 2015). One additional reported resource, the Oyster House, was noted during archival research in 2016; however, it was not located during the 2015 archaeological survey efforts.

During the archaeological survey and testing efforts conducted for this Project, no precontact sites were identified; however, three historic-era resources (one site and two isolates) were identified during the field survey within the Project site and have been documented in the Archaeological Resources Inventory Report (Far Western, 2023)). One of these identified resources is the remains of the Oyster House

Restaurant. There was no evidence of the Lighter Wharf; however, areas in which the wharf is most likely located (lagoon) were not accessible. The two isolates documented within the Project site include a California Division of Highways survey monument (also referred to as C-block) and one complete, colorless-glass Delaware Punch soft drink bottle dating to 1961.

The archaeological study findings and recommendations are summarized below:

- The **survey monument and soft drink bottle** are considered isolated historic finds and thus are not considered historically significant or eligible for listing on the California Register of Historical Resources.

- The **Lighter Wharf** (California State Historical Landmark #221) was historically documented along the western shoreline of Bolinas Lagoon, at the north end of the lagoon near the modern junction of SR-1 and Olema Bolinas Road. The wharf was used to facilitate logging vessel transportation to and from the San Francisco Bay. By 1953, the warehouse and lighter wharf were abandoned (NPS, 2020). Photos from the late 1950s or 1960s show visible remnants of the pilings and well-developed alder forest north of the Crossover Road. No evidence of the Lighter Wharf was identified during the field survey.

- The remains of the **Oyster House** are considered a historic-era archaeological site comprised of foundations, remnant features, and dispersed refuse. The Oyster House was once a locally prominent food and fuel retail establishment on the west side of Olema Bolinas Road, opposite the road's intersection with the Fairfax Bolinas Road/Crossover Road. The Oyster House appears to have operated for some decades between the 1930s and 1960s. The abandonment of the business is thought to have been around 1956 upon construction of the new segment of SR-1, which essentially made the Crossover Road obsolete. The associated buildings and structures appear to have been demolished in the late 1960s or early 1970s, and the site subsequently became almost entirely obscured by soil and dense vegetation as the surrounding hillside filled with forest over the last half-century.

- Historically noted on 1868 and 1873 maps, a road was established in alignment with the Crossover Road, prior to the construction of Fairfax Bolinas Road/Crossover Road at the north end of Bolinas Lagoon. This road, referred to as "Sausalito Road" most likely served as thoroughfare for transporting logging materials to the lighter wharf or other wharfs on Bolinas Lagoon and from San Rafael to Bolinas. It is not known when the Crossover Road subsumed this older road (possibly in the mid-1950s when the current alignment of SR-1 was built) and there is no evidence of the former road, save for the potential alignment itself.

Project Area History

The following sections are summarized from the ASR and the CLR (Far Western, 2023) (Yarbrough, 2023).

At the point of Euro-American contact, Marin County was inhabited and controlled by the Coast Miwok people, who settled in large, permanent villages and used seasonal camps and task-specific locations as well. Their society consisted of many tribelets that were small independent groups of usually related family members occupying a specific territory and speaking the same language or dialect. The Coast Miwoks pursued a subsistence cycle focused on gathering and harvesting seasonally available resources. This group managed their environment to improve and maintain it to suit their needs. Inter-tribelet relationships were socially and economically advantageous, offering marriage partners,

information, and materials and services not available locally. In central Marin County, Native American archaeological sites are recorded on terraces adjacent to creeks and springs, along ridgelines and within rock outcroppings.

Between A.D. 1579–1603, contact with native populations likely occurred during the voyages of Drake, Cermeño, and possibly Vizcaino. In this area, Spanish interaction resumed with the local Native Americans, likely somewhat before the establishment of Mission Dolores in San Francisco in 1776. Later, Mission San Rafael Arcángel was founded in December 1817. At that time, most of the land in the San Francisco Bay area belonged to the missions or to the Spanish crown. Mission San Rafael claimed all of today's Marin County, and Dolores, San Jose, and Santa Clara missions held rights to huge tracts along the south and western shores of the bay.

Rancho Las Baulinas and Rancho Briones

After secularization of the missions by the Decree of 1833, large areas of land were opened for land grants. The Project site is located within the Rancho Las Baulines, also called Baulenes, granted to Rafel Garcia in 1834 and then granted to Gregoria Briones in 1846. The 8,911-acre land grant extended around Bolinas Lagoon and encompassed present day Stinson Beach and the town of Bolinas. As soon as Garcia received his grant, he transferred the southern portion to his brother-in-law, Gregorio Briones, then serving as alcalde (major) of San Mateo. In 1843, Gregorio Briones filed a correction deed with the local government declaring that Garcia had transferred the land to him in 1836. Briones received title his 8,911-acre *Rancho las Baulinas* on February 11, 1846 and renamed it *Rancho Briones*. Briones's rancho extended from the coast inland to Arroyo San Geronimo, known today as Lagunitas Creek, incorporating the steep grassy pastures and timbered gulches of Inverness and Bolinas ridges, as well as the entirety of Bolinas Lagoon and the north half of the Bolinas Bay shoreline.

In 1848, after a brief conflict, Mexico ceded California to the United States. With the discovery of gold that same year and the subsequent gold rush of 1849 into the early 1850s, the population of California grew exponentially. Rich in land but with little cash, American bankers and lawyers often took title of rancho lands in exchange for "helping" the Mexicans prove their property ownership. When the first California legislature created Marin County in 1850, the new county government found nothing but confusion where rancho ownership and property boundaries were concerned. The U.S. Congress passed legislation in 1851 determined to "ascertain and settle" land claims in California and created a three-man Board of Land Commissioners, appointed by the president to examine and determine the validity of the Spanish and Mexican land grants in California. By the early 1850s, however, Briones had begun to sell off parts of his land grant to American settlers. On July 4, 1852, he sold Captain Isaac Morgan a tract of land on the east side of Bolinas Bay, bounded by to the south by the adjacent Rancho Sausalito boundary, by the crest of Bolinas Ridge to the east, and by the old San Rafael Trail which dropped west from the ridge to the bay shore. Lands leased earlier for timber harvest he later sold to Charles Correns. Correns cleared fields later formed the pasture lands of the Wilkins and Bourne ranches of the 1870s. The Briones family livestock and residences remained on the western half of the Bolinas Lagoon until, parcel by parcel, Briones's heirs sold the 3,000 acres left to them by Gregorio's will.

Wilkins Ranch

The Wilkins Ranch, a contributing property of the Olema Valley/Lagunitas Loop Historic District, is located northeast of the APE boundary. William Wallace Wilkins moved to California from Massachusetts in 1849 and managed Isaac Morgan’s Belvdere Ranch by the early 1850s. Wilkins bought an interest in Morgan’s ranch property. Wilkins Ranch operated as a dairy, and by the 1900s, produced 2,250 pounds of butter per month from 64 cows. The Wilkins Ranch benefited from transportation infrastructure that brought

dairy products from a district of ranches to the fast-growing market of San Francisco and the greater Bay Area (Livingston, 1995). The dairy remained family owned and operated until the mid-1960s and the ranch was sold in 1970 to Nicholas Charney, who transformed the ranch into “a communal experiment in creative agriculture and living (Livingston, 1995). In 1973 the ranch was sold to the Trust for Public Lands and subsequently transferred to the National Park Service.

Historical Roads

Pioneer dairymen found adequate supplies of feed and water in the Olema Valley, and forests of Douglas fir, oak and other trees, which covered most of the west slope of the valley, supplied their firewood and lumber needs. The roadways between Olema, Bolinas, and Bolinas Bay southward remained undeveloped trails in 1860 (Livingston, 1995). One of these roadways was Olema Bolinas Road and in 1865 Marin County Surveyor Hiram Austin laid out improvements to all for year-round use by horse and oxen drawn cart. The improvements to the alignment and surface were completed in 1867. In 1878, the road at the Wye at the north end of the Lagoon (current APE) was constructed using wood boards to allow for travel between the east side of the Lagoon further north (GFNMS, 2008). The “Wye” was the intersection between Olema Bolinas Road (running east-west) and Crossover Road; running north-south, providing the original connection between these transportation corridors. After the completion of a railroad in 1874 to Tomales Bay, access to markets became quicker and more cost-effective. The railroad, improvements to Sausalito Road, and construction of the Fairfax Bolinas Road brought tourists and encouraged the development of a tourist industry centered around Stinson Beach, Bolinas, and up to Tomales Bay.

Tourism and Land Use

The railroad was a powerful incentive for opening up the Olema Valley area to tourism, and made it easy for San Francisco residents to travel to Marin County for weekends and vacations. Tourists began visiting western Marin County in the early 1870s, after the inauguration of ferry service from San Francisco to Sausalito (Blackmore, 2019)

In the decades following World War II, much of the land in Marin County remained undeveloped. The completion of the Golden Gate Bridge allowed the San Francisco metropolitan area’s growth to spread to eastern Marin County and towards the county’s agricultural lands. Rural West Marin County increasingly became a contested space, with those who saw the coastal hamlets, pasturelands, and recovering forests as a landscape for recreation and relaxation pitted against developers and their bankers who saw it as prime for tract homes, tourist motels, and shopping malls. The Marin Conservation League had succeeded in preserving part of the Tomales Bay shore (with the assistance of Dr. Marty Griffin and his colleagues at Audubon Canyon Ranch, who helped preserve Kent Island from marina development and purchase multiple parcels along Tomales Bay to prevent large-scale development), but most of the bay, Point Reyes, Olema Valley, and the Bolinas Lagoon regions remained unprotected and open to development. In 1959, a diverse group of Bay Area citizens and supporting organizations ranging from the Marin Labor Council, the American Forestry Association, and the Wilderness Society, joined forces as the Point Reyes National Seashore Foundation and pushed for passage of supporting legislation to set land aside and to prevent development around the seashore (Blackmore, 2019).

An agreement between the NPS and the ranch owners allowed many to continue dairy operations and to collect market-rate sums as compensation for their properties transfer of ownership. The proposed seashore included a “pastoral zone” that encompassed about one-third of the park, much of it the future lands designated as the Olema Valley Dairy Ranches Historic District. By the mid-1960s, Point Reyes National Seashore had been authorized, and though acquisition was not complete until 1972, the dairy ranches’ lands and structures were slated for preservation (Blackmore, 2019).

Politicians saw the rural area as a logical place to site new homes, business, and recreational facilities. In 1966, the county supervisors approved the West Marin General Plan of 1967. In 1973, the Marin County Planning Department adopted a new plan that addressed concerns of rapid population growth, sprawl, and other environmental concerns. In 1972 after passage of the National Environmental Policy Act, Congress also established the Golden Gate National Recreation Area. Changes in zoning between 1972 and 1975 and the passage of the California Environmental Quality Act in 1972 reduced the number of building sites in the watershed from 1.2 million to 3,000 (Blackmore, 2019).

More than 2.5 million people per year visited West Marin County by 2001. Many visitors continue to enjoy hiking, beach combing, swimming, boating and fishing on coast and nearby ridges.

Applicable Regulations

National Historic Preservation Act Context

The proposed Project will require a Section 404 Permit from the USACE, and therefore, would be subject to compliance with Section 106 of the National Historic Preservation Act[4] (NHPA) to address potential impacts to historic properties. This includes resources that are eligible for listing on the National Register of Historic Places (NRHP).

Federal protection of resources is legislated by the NHPA of 1966 as amended by 16 U.S. Code 470, the Archaeological Resource Protection Act of 1979, and the Advisory Council on Historical Preservation. These laws and organizations maintain processes for determination of the effects on historical properties eligible for listing in the NRHP. Prior to implementing an "undertaking" (e.g., federal funding or issuing a federal permit), NHPA requires federal agencies to consider the effects of the undertaking on historic properties (i.e., properties listed in or eligible for listing in the National Register) and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the National Register.

Section 106 of the NHPA and accompanying regulations[5] constitute the main federal regulatory framework guiding cultural resources investigations and require consideration of effects on properties that are listed in or may be eligible for listing in the NRHP. The NRHP is the nation's master inventory of known historic resources. It is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, and cultural districts that are considered significant at the national, state, or local level. The formal criteria[6] for determining NRHP eligibility are as follows:

1. The property is at least 50 years old; however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP;
2. It retains integrity of location, design, setting, materials, workmanship, feeling, and associations; and
3. It possesses at least one of the following characteristics:
    a. Events: Association with events that have made a significant contribution to the broad patterns of history.
    b. Persons: Association with the lives of persons significant in the past.

[4] 54 USC 306108
[5] 36 Code of Federal Regulations (CFR) Part 800
[6] 36 CFR 60.4

c. Architecture: Distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction.

d. Has yielded, or may be likely to yield, information important to prehistory or history (information potential).

Listing in the NRHP does not entail specific protection or assistance for a property, but it does guarantee recognition in planning for federal or federally assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. The potential effects of a proposed project on properties listed in the NRHP must be evaluated under CEQA.

The National Register Bulletin also provides guidance in the evaluation of archaeological site significance. If a heritage property cannot be placed within a particular theme or time, and thereby lacks "focus," it is considered ineligible for the NRHP. In further expanding upon the generalized National Register criteria, evaluation standards for linear features such as roads, trails, fence lines, railroads, ditches, and flumes are considered in terms of four related criteria that account for specific elements that define engineering and construction methods of linear features: size and length; presence of distinctive engineering features and associated properties; structural integrity; and setting. The highest probability for National Register eligibility exists within the intact, longer segments, where multiple criteria coincide.

Secretary of the Interior's Standards

The *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Secretary's Standards) provide guidance for working with historic properties. The Secretary's Standards are used by CEQA lead agencies to evaluate proposed rehabilitative work on historic properties. They are a useful analytic tool for understanding and describing the potential impacts of proposed changes to historic resources. Projects that comply with the Secretary's Standards benefit from a regulatory presumption that they would not result in a significant impact to a historic resource. Projects that do not comply with the Secretary's Standards may or may not cause a substantial adverse change in the significance of a historic property.

In 1992 the Secretary's Standards were revised so they could be applied to all types of historic resources, including landscapes. They were reduced to four sets of treatments to guide work on historic properties: Preservation, Rehabilitation, Restoration, and Reconstruction. The four distinct treatments are defined as follows:

- **Preservation** is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of a historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features, rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.
- **Rehabilitation** is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions, while preserving those portions or features that convey its historical, cultural, or architectural values.
- **Restoration** is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing

systems and other code-required work to make properties functional is appropriate within a restoration project.

- **Reconstruction** is defined as the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

AB 52 Consultation

AB 52 amended CEQA to address California Native American tribal concerns regarding how cultural resources of importance to tribes are treated under CEQA. With the addition of AB 52, CEQA now specifies that a project that may cause a substantial adverse change in the significance of a "tribal cultural resource" (as defined in PRC 21074[a]) is a project that may have a significant effect on the environment. According to the AB 52, tribes may have expertise in tribal history and "tribal knowledge about land and tribal cultural resources at issue should be included in environmental assessments for projects that may have a significant impact on those resources."

Pursuant to CEQA Section 21080.3.1(d), within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project has been made, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification notice that includes a brief description of the proposed project and its location, as well as the lead agency contact information, and a notification statement that the federally recognized California Native American tribe has 30 days to request consultation.

CEQA CONTEXT

Cultural and historical resources are nonrenewable and are easily damaged or destroyed. Potential impacts to cultural and historical resources are determined by analyzing the potential effect of implementing the proposed Project to known and unknown cultural and historical resources.

The CEQA Statutes and Guidelines (14 CCR § 15064.5) include procedures for identifying, analyzing, and disclosing potential adverse impacts to historical resources, which include all resources listed in, or formally determined eligible for, the National Register of Historic Places (National Register), the California Register of Historical Resources (California Register), or local registers. CEQA further defines a "historical resource" as a resource that meets any of the following criteria:

1. A resource listed in, or determined to be eligible for listing in, the National or California Registers.

2. A resource included in a local register of historical resources, as defined in § 5020.1(k) of the Public Resources Code (PRC), unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3. A resource identified as significant (rated 1–5) in a historical resource survey meeting the requirements of PRC § 5024.1(g) Department of Parks and Recreation Form 523, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

4. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California,

provided the determination is supported by substantial evidence in light of the whole record. Generally, a resource is considered “historically significant” if it meets the criteria for listing on the California Register.

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

No Impact

Yarbrough prepared a CLR for the proposed Project and identified a cultural landscape consisting of three road segments and their immediate settings within the APE. None of the three road segments were found to be NRHP- and CRHR- eligible; therefore, no historic property per NHPA nor historical resource pursuant to CEQA are present within the APE. Under CEQA, if a project may cause a substantial adverse change in the characteristics of a resource that convey its significance or justify its eligibility for inclusion in the CRHR or a local register, either through demolition, destruction, relocation, alteration, or other means, then the project is judged to have a significant impact on the environment [CEQA Guidelines, Section 15064.5(b)]. However, without the presence of such a resource, no impact is possible. The CLR concludes that the Project presents no impact to the three road segments within the APE.

Therefore, no historic resource pursuant to §15064.5 is present and the Project poses no Impact to historical resources.

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

Less-than-Significant Impact with Mitigation Incorporated

An archaeological resource is defined by CEQA §21083.2 as “an archaeological artifact, object, or site, about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
2. Has a special and particular quality, such as being the oldest of its type or the best available example of its type;
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

The remains of the Oyster House are considered a historic-era archaeological site comprised of foundations, remnant features, and dispersed refuse. The remnants of the restaurant buildings and structures are almost entirely obscured by soil and dense vegetation as the surrounding hillside has filled with forest over the last half-century. While the site is located within the Project site, it is not situated within the area of direct impact and would not be subject to ground disturbances. The only proposed activity at this historic-era archaeological site is the removal of invasive, non-native plants. It is recommended that during the removal of vegetation, an archaeologist is present to document any newly exposed features and/or artifacts associated with the site.

With implementation of Mitigation Measures CUL-1 and CUL-2, impacts to archaeological resources would be less than significant.

Mitigation Measure CUL-1: Archaeological Resources Monitoring

Prior to Project implementation, a Cultural Resources Monitoring Plan (Plan) will be prepared by a qualified archaeological consultant. The Plan will discuss the monitoring procedures, field methods, communication protocols, and inadvertent discovery actions to be taken in the event archaeological resources are identified during monitoring and/or any Project activities. Full-time monitoring will occur during vegetation removal at the location of the Oyster House. All monitoring will be carried out by a qualified archaeologist.

Mitigation Measure CUL-2: Archaeological Resources Work Stoppage

Construction crews shall be trained in "basic archaeological identification" and have access to a Cultural Resources Awareness Sheet. The sheet shall photographically depict shell midden and associated indicators of archaeological sites, and clearly outline the procedures in the event of a new archaeological discovery. These procedures include temporary work stoppage (Stop-Work Order) of all ground disturbance, short-term physical protection of artifacts and their context, and immediate advisement of the archaeological team and MCOSD representatives. Any Stop-Work Order would contain a description of the work to be stopped, special instructions or requests for the Contractor, suggestions for efficient mitigation, and a time estimate for the work stoppage. The archaeologist shall examine the findings and assess their significance and offer recommendations for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to archaeological resources that have been encountered.

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

Less-than-Significant Impact with Mitigation Incorporated

Section 7050.5 of the California Health and Safety Code states that it is a misdemeanor to knowingly disturb a human burial and Section 5097.99 of the Public Resources Code defines the obtaining or possession of Native American remains or grave goods to be a felony. Buried human remains, by law, must be reported to the County Coroner. The disposition of Native American burials is within the jurisdiction of the Native American Heritage Commission (NAHC), who has the statutory authority to mediate agreements regarding the disposition of Native American remains. In cases in which human remains are known or believed to be likely, consultation with the NAHC is initiated early in the planning process so that consultations with the appropriate Native American most-likely descendant occurs, and agreement regarding the disposition of the remains can be reached. Additionally, MCOSD would directly contact the Federated Indians of Graton Rancheria (FIGR) if human remains are inadvertently discovered. Although the discovery of human remains at the Project site is not expected to occur, Mitigation Measure CUL-3 prescribes a procedure for addressing them should any be encountered. With implementation of Mitigation Measure CUL-3, impacts to cultural resources would be less than significant.

Mitigation Measure CUL-3: Discovery of Human Remains

Upon discovery, the Coroner Division of the Marin County Sheriff's Office will be contacted for identification of human remains. The coroner has 2 working days to examine the remains after being notified. If the remains are Native American, the Coroner must notify the Native American Heritage Commission (NAHC) of the discovery within 24 hours. The NAHC will then identify and contact a Most-Likely Descendant (MLD). The MLD may make recommendations to the owner, or

representative, for the treatment or disposition, with proper dignity, of the remains and grave goods. Once proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented.

If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity—either as an individual or as a member of a group—of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between the MCOSD and FIGR.

F. ENERGY

Table 20. Energy Checklist Questions

	Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a)	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?	☐	☐	☐	☒
b)	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

SETTING

Current energy use within the vicinity of the Project is very minimal. Vehicles traveling through the Project site likely use gasoline, but there is no current electrical or natural gas use at the Project site.

CEQA CONTEXT

To assure that energy implications are considered in Project decisions, CEQA Section 21100(b)(3) requires that the potential energy impacts of a proposed Project be considered, with emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Appendix F of the CEQA Guidelines provides guidance for assessing the significance of potential energy impacts.

a) Would the Project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?

No Impact

Implementation of the Project would require the use of energy resources during construction. Construction activities would be temporary and occur over two construction seasons, during which time equipment and vehicles would be operating to construct the Project. Energy use would primarily be in the form of petroleum products (e.g., gasoline and diesel) used to operate construction equipment and transport materials/supplies and workers to and from the Project area. The precise amount of fuel required for Project construction is uncertain; however, it is expected that gasoline and diesel consumption for construction equipment and worker and haul vehicles would be comparable to that required for construction projects of a similar size and magnitude, and that this consumption would not have a measurable effect on demand for local and regional energy sources. Fuel use for construction workers' commute trips would be minor in comparison to the fuel used by construction equipment and for hauling. Fuel consumption would be temporary and limited to the construction phase of the Project. Construction would not require a large amount of energy, oil, or natural gas use due to the short duration of construction and limited amount of equipment and associated fuel required.

Indirect energy use would also occur and include the extraction, production, and transportation of goods and materials needed for construction. Section 2485 of the California Code of Regulations limits idling of heavy trucks traveling to and from the Project area delivering and off-hauling materials, thereby limiting potential wasteful use of fuel during idling; therefore, fuel used during construction would be conserved to the maximum extent feasible.

Following Project construction, energy consumption during Project operation would be very minimal and essentially the same as under existing conditions. The Project is not projected to result in any increase in traffic passing through the site. Energy consumed on-site would be limited to gasoline used by vehicles traveling through the Project site. Operation and maintenance activities at the Project site would be expected to be somewhat reduced as compared to existing conditions following Project implementation due to the increased flooding resiliency that the Project would create.

For these reasons, implementation of the proposed Project would result in no impact associated with wasteful, inefficient, or unnecessary consumption of energy resources during either Project construction or operation.

b) Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact

The Marin Countywide Plan includes several goals and policies to promote energy conservation and reduce energy demand. The goals and policies identified do not apply to wetland restoration, bridge construction, or roadway realignment projects; therefore, the Project would not conflict with the Marin Countywide Plan.

In December 2020, Marin County adopted the Climate Action Plan 2030 (CAP) (Marin County Community Development Agency, 2020), which identifies greenhouse gas (GHG) reduction targets and measures for unincorporated Marin County. The goals of the CAP, which align with the statewide long-term climate action goals, are to reduce GHG emissions 60% below 2005 levels by 2030 and reduce GHG emissions to below zero by 2045. The CAP provides a range of strategies and actions for achieving GHG emission reduction targets, including low-carbon transportation, renewable energy and electrification, energy efficiency, waste reduction, and water conservation. The CAP does not identify measures to be implemented during construction activities. Development of the Project would support CAP measure *AG-C5: Blue Carbon,* which aims to expand terrestrial carbon sequestration efforts to aquatic environments and identify opportunities to enhance aquatic sequestration as the County develops sea-level rise mitigation projects such as coastal wetland restoration; therefore, the Project would not conflict with the Marin County CAP, and no impact would occur.

As discussed in item (a), the proposed Project would use small amounts of energy during construction, including the use of heavy equipment to grade the new stream channel, construct the new road segment and bridge, and decommission and remove the crossover road segment, as well as from truck hauling trips and vehicle trips associated with employees driving to and from the site and from material deliveries. Operation and maintenance activities would be similar to existing conditions, and energy use during Project operation would not increase compared to baseline conditions; therefore, the proposed Project would not conflict with renewable energy or energy efficiency plans, including goals set forth in AB 32 and the 39 Recommended Actions identified by the California Air Resources Board (CARB) in its Climate Change Scoping Plan. For these reasons, implementation of the proposed Project would result in no impact associated with conflict or obstruct with a state or local plan for renewable energy or energy efficiency.

G. GEOLOGY AND SOILS

Table 21. Geology and Soils Checklist Questions

	Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a)	Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i)	Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii)	Strong seismic ground shaking?	☐	☐	☒	☐
iii)	Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv)	Landslides?	☐	☐	☐	☒
b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c)	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

SETTING

Marin County is located in the central portion of the Coast Ranges Geomorphic Province.[7] The Coast Range Geomorphic Province is generally characterized as a series of northwest trending, elongated ridges and valleys that are a result of folding and faulting. The Coast Ranges province extends about 600 miles along the western edge of California and is bounded on the south by the Transverse Ranges, on the north by the Klamath Mountains, and on the east by the Great Valley. This province is marked by northwest-trending elongated ranges and narrow valleys that roughly parallel the coast and the San Andreas Fault Zone. The province includes many separate ranges, coalescing mountain masses, and several major structural valleys. The regional structure of the Coast Range is considered to be a number of independent fault blocks with different stratigraphic and structural histories. Ridges in this region are generally composed of resistant sandstones or marine volcanics, and the valleys are characterized as deep alluvial deposits.

Basement rocks underlying the Point Reyes Peninsula to the west of the San Andreas Fault System are composed of granitic rock types. Along the east side of the Fault Zone, basement rocks primarily consist of the Franciscan Assemblage. Bedrock underlying the Project site area consists of older marine and alluvial deposits of late Pliocene to Pleistocene age. Surficial deposits in the Project site vicinity consist of Quaternary Estuarine deposits.

Three major faults (the Golden Gate, San Andreas, and San Gregorio Faults) merge together forming the San Andreas Fault System located beneath the Bolinas Lagoon and Project site. The Fault Zone is 1.25 miles wide near the mouth of Bolinas Lagoon and narrows to approximately 1,500 feet wide along the rift zone between Bolinas Lagoon and Tomales Bay. The Golden Gate Fault runs along the eastern shore of Bolinas Lagoon, the San Andreas Fault comes onshore near the east end of Stinson Beach and runs through the approximate center of Bolinas Lagoon, and the San Gregorio Fault extends onshore between the town of Bolinas and Duxbury Point and runs along the western side of Bolinas Lagoon. These three faults merge into a narrow fault zone that extends to the north through Olema Valley and beneath Tomales Bay. The San Andreas Fault traverses the Project area and is responsible for the formation of the lagoon. A 2006 study prepared by PWA and WRA (Philip Williams & Associates, Ltd (PWA), 2006) concluded that seismic activity in the region has resulted in significant changes in ground surface elevations, including a drop in the lagoon of approximately two feet and lateral movement of the fault by 12 feet during the 1906 San Francisco earthquake.

The Project site is located within a mapped Alquist-Priolo Earthquake Fault Zone. Figure 5 provides an overview of the fault locations within the Project site vicinity and illustrates the primary geologic units underlying the area. The Working Group on California Earthquake Probabilities reported a 12% probability for a magnitude 6.7 quake in the next 30 years along the North Coast South segment of the San Andreas Fault (the segment that crosses Bolinas Lagoon) (AECOM, 2017). The Project site is in a mapped liquefaction zone associated with the San Andreas Fault.

Ground shaking is one of the key geologic hazards associated with seismic activity, with some areas more susceptible to strong shaking and potential damage due to their proximity to the fault zone or their underlying soil composition. Soils most susceptible to seismic shaking amplification tend to be younger alluvial deposits, bay mud, and artificial fill found in the lower lying areas around open water including Bolinas, San Pablo, and Richardson Bays. Road and bridge stability are also influenced by the underlying soils and how easily they are compacted and eroded, and how stable they are on slopes.

[7] A geomorphic province is a regional area that possesses similar bedrock, structure, history, and age. California has 11 geomorphic provinces.

A database search of the USDA's Web Soil Survey indicates that there are two soil units surrounding the proposed Project site: the Blucher-Cole complex and the Palomarin-Wittenberg complex (USDA Natural Resources Conservation Service, 2019). The Blucher-Cole complex is characterized by 2 to 5 percent slopes and comprised of 40 Blucher soils, 30 percent Cole soils, and 30 percent minor components. Blucher soils are typically composed of somewhat poorly drained silt loams and clay loams. Cole soils are typically composed of somewhat poorly drained clay loams, silty clay loams, and silty clays. Both Blucher and Cole soils have hydric soil ratings. The Palomarin-Wittenberg complex is characterized by 50 to 75 percent slopes and comprised of 40 percent Palomarin soils, 30 Wittenberg soils, and 27 percent minor components. Palomarin soils are typically composed of well drained loams and gravelly loams. Wittenberg soils are typically composed of well drained very gravelly loams. As these soils on and near the project site are not composed of younger alluvial deposits, bay mud, or artificial fill, susceptibility to strong seismic ground shaking that may pose risk of risk, loss, or death associated with seismic activity is not expected at the Project site.

Published geologic mapping shows the proposed bridge crossing underlain by undivided Holocene aged Alluvial deposits (Qa), comprised of gravel, sand, silt and clay. The mapping shows that the existing Fairfax Bolinas Road is underlain by Holocene aged Estuarine-delta deposits (Qed), characterized by a mixture of coarse/fine estuarine sediment deposited in delta at the mouths of tidally influenced coastal streams where fresh water mixes with seawater. At the Project location, Olema Bolinas Road is mapped within both Qa and Qed deposits (Crawford, 2023).

Geologic and Geotechnical Review

Seven geotechnical borings were completed by Pitcher Drilling Company in March/April 2017 to a maximum depth of 66.5 feet below ground surface (bgs). Borings 1 and 6 are located closest to the proposed bridge. Generally, the upper 20 feet bgs within Borings 1 and 6 consisted of very soft to soft clay/silty clay. Between 20 to 30 feet bgs, medium to very stiff clay was encountered, which were underlain by medium dense to dense clayey sand, clayey sand with gravel, and silty sand. At Boring 1, sandy claystone was encountered at 46 feet bgs, and at Boring 6, shale was encountered at 55 feet bgs (AECOM, 2017).

Crawford & Associates, Inc. (CA Inc) prepared a Draft Foundation Report for the Project in 2023. The report provides geologic, seismic, and foundation information to be used for the project bridge design (Crawford & Associates, Inc., 2020). CA Inc retained Taber Drilling to drill and sample five test borings at the Project site, along the proposed bridge approaches and at the proposed bridge location. The borings were drilled in October 2021 to depths ranging from 6.5 feet to 91 feet bgs. The materials encountered in the borings were separated into three general soil units as follows:

- Unit 1 consisted of very soft to hard lean clay, fat clay, and silty clay and loose clayey sand. Unit 1 was penetrated from the ground surface to a depth of about 15 feet bgs at the proposed bridge abutments. Unit 1 was concluded to consist of alluvium and estuarine deposits (Qes, Qed, and Qa).
- Unit 2 consisted of stiff to hard clay and loose to very dense clayey sand, silty sand, and poorly-graded sand with clay. Materials of this unit were encountered below Unit 1 to approximately 46 to 55 feet.
- Unit 3 consisted of variably weathered/fractured sedimentary bedrock (claystone, sandstone, and shale interpreted as Kfs) and was encountered below Unit 2 soils to the maximum depth explored

(91 feet). Unit 3 bedrock consisted of claystone and sandstone. Shale was encountered in AECOM boring B6, located south of the San Andreas fault trace.

Slate Geotechnical Consultants Inc. (Slate) prepared a Surface Fault Rupture Displacement Hazard Analysis (SFRDHA) for the Project for a magnitude 8.1 (M8.1) earthquake on the main trace of the San Andreas Fault. This magnitude of the event was selected to represent an earthquake that passes within 2 kilometers of the site and has a 975-year return period from the Uniform California Earthquake Rupture Forecast, Version 3 (UCERF 3) source characterization. The SFRDHA is required by Caltrans for any portion of a structure that falls within an Alquist-Priolo Earthquake Fault Zone (APEFZ) (Slate Geotechnical Consultants, 2022).

CEQA CONTEXT

A project would normally result in a significant impact to geology and soils if it would result in substantial erosion, expose people to major geologic hazards, or a permanent loss of natural geologic resources created by a substantial change in topography or land subsidence.

a) Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less-than-Significant Impact

The Project site lies within an APEFZ map. A nearby section of the San Andreas Fault Zone is mapped approximately 400 feet east of the Project area and a secondary fault trace lies east of the main trace (San Andreas Fault), approximately 55 feet from the Project area (Slate Geotechnical Consultants, 2022). A SFRDHA was prepared by Slate in 2022 and, during field surveys, no direct evidence of an exposed fault trace was observed in the Project area. The SFRDHA calculated a potential displacement at the proposed bridge location of 0.34 meters based on a seismic event with a 975-year return period (Slate Geotechnical Consultants, 2022). This potential offset from such an event has been included in the engineering of the proposed bridge to prevent its potential collapse, and the bridge would be designed to meet current California seismic structural codes, American Association of State Highway and Transportation Officials (AASHTO) LRFD (Load-and-Resistance Factor Design) Bridge Design Specifications and California amendments, and seismic loading in accordance with the current Caltrans Memo To Designers. Therefore, infrastructure improvements within the Project area would not directly or indirectly cause potential or substantial adverse effects from a fault rupture in the APEFZ, including the risk of loss of life, injury, or death.

ii) Strong seismic ground shaking?

Less-than-Significant Impact

Seismic activity has the potential to cause strong ground shaking which may pose a geologic hazard in susceptible areas as discussed in “I” above. The Project includes infrastructure improvements that will meet applicable bridge design standards; therefore, impacts from seismic ground shaking would be less than significant.

iii) Seismic-related ground failure, including liquefaction?

Less-than-Significant Impact

Seismic-related ground failure, including soil liquefaction, can occur when saturated, relatively loose sand and specific soft, fine-grained saturated soils are subject to ground shaking strong enough to separate soil particles by increasing pore pressure. This separation and subsequent pore pressure dissipation can cause decreased soil shear strength and settlement. Liquefaction is known to occur in soils ranging from low-plasticity silts to gravels generally up to 50 feet bgs. Soils most susceptible to liquefaction are clean sands to silty sands and non-plastic silts (Crawford & Associates, Inc., 2020). Based on the CA Inc analysis and review of the AECOM Borings 1 and 6, liquefaction settlement is possible but probably low due to the cohesive nature of the nearby soils. Impacts would be less than significant.

iv) Landslides?

No Impact

Landslides are the downslope movement of a mass of materials such as earth, rock, or fill. The County of Marin uses GIS to display spatial data including property boundaries, hazards, jurisdictions, and natural features in MarinMap Map Viewer. MarinMap was used to assess the areas on and near the Project site for potential hazards relating to landslides. MarinMap's Landslide layer presents selected original maps by Nilson, Wright, and others (1979) and modifies and improves the 1970s maps to show generalized landslide distributions. The majority of the Project site and surrounding areas to the north and east are mapped as surficial deposits (unconsolidated and residual, alluvial, glacial deposits, lying on bedrock or occurring on or near the earth's surface), with the exception of the southern portion of the Project site, which is mapped as water. Areas from approximately 150-550 feet west and southwest of the Project site are mapped as "few landslides", and areas extending from approximately 550 feet west and southwest of the Project site are mapped as "mostly landslide" (Marin County, 2022).

The proposed Project area is not located near a "Principal predicted debris-flow source area" (Marin County, 2005). Landslides can be triggered by adding weight, removing mass from the toe slope, increasing the volume of water, and vibration from earthquakes. The proposed Project is located within the area of the alluvial fan, with no incursion into areas of slope instability or the toe of a slope. The proposed Project would be designed to allow the Lewis Gulch Creek to reconnect to its former floodplain by diverting the creek from the edge of the hillside and address existing areas of channel erosion. This would reduce the volume of water that is within the edges of the hillslope and improve drainage. Landslides in surficial deposits could occur; however, the implementation of the Project would not result in a risk to property or public safety because the Project would improve the potential for impacts from a landslide by elevating the road off of the alluvial fan and relocating Lewis Gulch Creek away from the hillslope. Further there are no habitable structures within the proposed Project site. Therefore, the proposed Project would not expose the public to new landslide potential and implementation of the Project would result in no impact associated with risk of loss, injury, or death involving landslides.

b) Would the Project result in substantial soil erosion or the loss of topsoil?

Less-than-Significant Impact

Erosion is the geological process in which soil and weathered rock materials are worn away and transported by natural forces such as wind or water. Although erosion is a natural process, it can become problematic when human intervention causes excessive degradation which may result in substantial losses of topsoil. Excessive erosion caused by human disturbance may also lead to the development of erosional features which undermine facilities such as roads, buildings, or utilities. Activities associated with construction, such as earth-moving, vegetation clearing, and the movement of heavy machinery, can result in abnormally high rates of erosion, referred to as accelerated erosion. Natural rates of erosion may be influenced by many factors such as soil composition, climate, slope, region, and vegetative cover. Soils that are typically more easily eroded are those that contain high amounts of silt, whereas course-grained sand and gravelly soils are usually less susceptible (Marin County Open Space District, 2021).

The USDA Web Soil Survey rates soils as not fragile, slightly fragile, moderately fragile, fragile, very fragile, and extremely fragile by the "Fragile Soil Index" interpretation. Fragility in soils means that the soil unit is more susceptible to degradation and erosion and can also have a low capacity to recover after degradation has occurred (USDA Natural Resources Conservation Service, 2019). The Blucher-Cole complex soil unit that the Project site is located on is rated as slightly fragile and the Palomarin-Wittenberg complex that underlies areas west of the Project site is rated as moderately fragile. These ratings mean that these soil units have a moderate to high potential to resist degradation and be resilient.

USDA Web Soil Survey also displays ratings of soil erosion K factors, which indicate the susceptibility of a soil to sheet and rill erosion by water. Factor K is primarily based on estimates of the percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity. Values of K range from 0.02 to 0.69 with higher values meaning that the soil is more susceptible to sheet and rill erosion by water (USDA Natural Resources Conservation Service, 2019). The Blucher-Cole complex and Palomarin-Wittenberg complex are given K factor ratings of 0.37 and 0.28, respectively, meaning that these soils are not expected to be highly susceptible to sheet and rill erosion; however, construction-related ground disturbance could increase the potential for soil erosion in the area of ground disturbance.

During Project construction activities, soil would be disturbed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. The release of sediments and other pollutants during construction could adversely affect water quality in receiving waters. Because construction of the proposed Project would disturb greater than 1 acre of land, the Project would be subject to the requirements of the State Water Board's National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by Orders No. 2010-0014-DWQ and 2012-0006-DWQ) (Construction General Permit). In compliance with the requirements of the Construction General Permit, a Stormwater Pollution Prevention Plan (SWPPP) would be prepared, and construction Best Management Practices (BMPs) detailed in the SWPPP would be implemented during construction activities. A SWPPP identifies all potential pollutants and their sources, including erosion, sediments and constructions materials and includes a list of BMPs to reduce discharge of construction-related stormwater pollutants. The SWPPP also requires a construction site monitoring program.

Heavy construction activities would be limited to dry-weather months to ensure construction within the ordinary high waterline will occur when stream flows are at their lowest (typically July through October). The Project would use bioengineering methods along Lewis Gulch Creek to protect areas experiencing accelerated erosion that impacts infrastructure. Bioengineering is a method of construction combining live plants with dead plants or inorganic materials, to produce living, functioning systems to prevent erosion, control sediment and other pollutants and provide habitat (USEPA, 2022).

The project would include implementation of the Erosion and Sediment Control Conservation Measures listed in the Project Description section of this document in accordance with NPDES permit requirements, including incorporation of standard construction stormwater BMPs to reduce pollutants of concern in stormwater runoff and protect water quality.

Compliance with regulatory permit requirements, the Project SWPPP, and the conservation measures would ensure that implementation of the proposed Project would result in a less-than-significant impact associated with substantial soil erosion or the loss of topsoil.

c) Would the Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less-than-Significant Impact

The geologic units within the Project site are primarily undivided Holocene-aged Alluvial deposit (Qa) and Holocene-aged Estuarine-delta deposit (Qed) (Crawford & Associates, Inc., 2020). Qa comprises of gravel, sand, silt, and clay. Qed is characterized by a mixture coarse/fine estuarine sediment deposited in delta at mouths of tidally influenced coastal streams where fresh water mixes with seawater. The Olema Bolinas Road is mapped within both Qa and Qed deposits. These deposits contain soft/compressible soils near the surface. Geotextile materials would be utilized to stabilize the subgrade and embankment and reduce the potential for differential settlement during construction for the realignment of Olema Bolinas Road (Crawford & Associates, Inc., 2020). The Olema Bolinas Road shoulder roadway widening on wetland area would cause differential settlement, and a settlement waiting period of 6 to 12 months would be needed to reduce the impact resulting from differential settlement (Crawford & Associates, Inc., 2020).

The Preliminary Foundation Report considers the Project site adequately stable with support available for new bridge foundations established within the underlying rock; however, due to the presence of thick clay layers and potential for long-term static (consolidation) settlement, liquefaction settlement is a key geotechnical consideration associated with the Project (Crawford & Associates, Inc., 2020). The proposed bridge would be supported on either driven or drilled pile foundations to accommodate downdrag from consolidation and/or liquefaction settlement. The Project would adopt the recommended special installation measures in the Preliminary Foundation Report for using cast-in-drilled-hole (CIDH) piles, including temporary casing, slurry drilling methods, and the use of minimum 24-inch diameter CIDH piles for tremie concrete placement.

Project impacts related to unstable geologic units or soil would be less than significant because the road and bridge design have included recommendations provided by CA Inc and described in the Preliminary Foundation Report and do not constitute recommended mitigation for Project impacts. Therefore, the proposed Project would not result in or increase the potential for in or on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

d) Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less-than-Significant Impact

Most of the Project site is located on soil with high expansion potential (Marin County, 2020).The Project would include construction of a bridge and realignment of the Olema Bolinas Road. These two structures would be constructed per the recommendations provided by CA Inc, as discussed in above under Impact c). This is a habitat restoration project and would not include any habitable structures which would result in direct or indirect risks to life or property. Impacts related to expansive soils would be less than significant with implementation of geotechnical recommendations provided by CA Inc. These recommendations have been incorporated into the Project design and therefore do not constitute recommended mitigation for Project impacts.

e) Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact

The proposed Project does not include installation or use of septic tanks or alternative wastewater disposal systems; therefore, implementation of the Project would result in no impact associated with septic tanks and alternative wastewater disposal systems.

f) Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

No Impact

Paleontological resources include fossils of life that existed prior to the start of the Holocene Epoch, approximately 11,700 years ago. The geologic units within the Project site are primarily undivided Holocene-aged Alluvial deposit (Qa) and Holocene-aged Estuarine-delta deposit (Qed).

The Records Search completed as part of the Archaeological Survey Report for the proposed Project showed that no recorded fossil sites are located within Marin County, although there are multiple records of invertebrate and plant fossils assigned to the Holocene Epoch. The Franciscan complex, widespread in coastal California, has produced only small collections of significant fossils, none of which occurred in Marin County. For these reasons, implementation of the proposed Project would not directly or indirectly destroy unique paleontological resources or site, or unique geologic features and therefore would result in no impact.

H. GREENHOUSE GAS EMISSIONS

Table 22. Greenhouse Gas Emissions Checklist Questions

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

SETTING

Climate change refers to change in the Earth's weather patterns, including the rise in temperature due to an increase in heat-trapping greenhouse gases (GHGs) in the atmosphere. According to the Bay Area Air Quality Management District (BAAQMD), some of the potential effects of increased GHG emissions and associated climate change may include loss of snowpack (affecting water supply), more frequent extreme weather events, more large forest fires, more drought years, and sea-level rise. In addition, climate change may increase electricity demand for cooling, decrease the availability of hydroelectric power, and affect regional air quality and public health (BAAQMD, 2017).

California has established the following long-term climate action goals:

- **Assembly Bill (AB) 32:** Reduce GHG emissions to 1990 levels by 2020.
- **Senate Bill (SB) 32:** Reduce GHG emissions to 40% below 1990 levels by 2030.
- **Executive Order B-55-18:** Carbon neutrality as soon as possible, but no later than 2045.
- **Executive Order S-3-05:** Reduce GHG emissions to 80% below 1990 levels by 2050.

It should be noted that executive orders are legally binding only on State agencies and have no direct effect on local government or the private sector.

In December 2008, the California Air Resources Board (CARB) adopted the Climate Change Scoping Plan to identify how the State can achieve its 2020 climate action goal under AB 32. In 2017, CARB updated the Scoping Plan to identify how the State can achieve its 2030 climate action goal under SB 32, and substantially advance toward its 2050 climate action goal under Executive Order S-3-05. The 2017 Scoping Plan includes the regulatory programs, such as the Advanced Clean Cars Program, Low-Carbon Fuel Standard, Renewable Portfolio Standard Program, energy efficiency standards, and Cap-and-Trade Program (CARB, 2017).

In December 2020, Marin County adopted the Climate Action Plan 2030 (CAP) (Marin County Community Development Agency, 2020), which identifies GHG reduction targets and measures for unincorporated Marin County. The goals of the CAP, which align with the statewide long-term climate action goals, are to reduce GHG emissions 60% below 2005 levels by 2030 and reduce GHG emissions to below zero by 2045. The CAP provides a range of strategies and actions for achieving GHG emission reduction targets, including low-carbon transportation, renewable energy and electrification, energy efficiency, waste reduction, and water conservation.

CEQA CONTEXT

A project will normally result in a significant impact on GHG emissions if it results in a substantial increase in GHG emissions or conflicts with a plan, policy, or regulation intended to reduce GHG emissions.

a) Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-than-Significant Impact

The proposed Project would generate temporary GHG emissions through construction activities, such as operation of on-site heavy construction equipment and off-site construction vehicle trips. The BAAQMD does not recommend a threshold of significance for GHG emissions during construction because there is not sufficient evidence to determine a level at which temporary construction emissions are significant (BAAQMD, 2009). Furthermore, a construction contractor would also have no incentive to waste fuel during construction and therefore, it is generally assumed that GHG emissions during construction would be minimized to the maximum extent feasible. Once constructed, the Project would not result in new GHG emissions during operation; therefore, GHG emissions from implementation of the Project would have a less-than-significant impact on the environment.

b) Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

No Impact

As discussed above, the 2017 Climate Change Scoping Plan identifies numerous regulations and programs the State will use to achieve its 2030 climate action goal, and substantially advance toward its 2050 climate action goal. The Marin County CAP identifies GHG reduction targets and measures that align with the statewide long-term climate action goals. Neither plan identifies measures to be implemented during construction activities. Development of the Project would support CAP measure *AG-C5: Blue Carbon,* which aims to expand terrestrial carbon sequestration efforts to aquatic environments and identify opportunities to enhance aquatic sequestration as the County develops sea-level rise mitigation projects such as coastal wetland restoration; therefore, the Project would not conflict with the 2017 Climate Change Scoping Plan and Marin County CAP, and no impact would occur.

I. HAZARDS AND HAZARDOUS MATERIALS

Table 23. Hazards and Hazardous Materials Checklist Questions

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?	☐	☐	☐	☒
f)	Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

SETTING

Hazardous substances are materials designated in government codes and regulations or that exhibit certain characteristics such as being toxic, corrosive, flammable, reactive, or explosive. A non-hazardous substance can become a hazardous waste if during its normal use it comes to meet the definition of a hazardous material or hazardous substance.

Vehicles that travel through the Project site contain hazardous materials, including gasoline, lubricants, and other solutions. No hazardous materials are stored at the Project site.

CEQA CONTEXT

A project would normally result in a significant impact on hazards and hazardous materials if the project would expose people and/or the environment to hazards or hazardous materials.

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

Less-than-Significant Impact

During construction, the contractors would use small quantities of fuel, lubricants, and other similar construction materials that can be hazardous. There may be a potential for releases to occur during construction that could affect construction workers, recreational users, and the environment. During operation of the Project, infrequent maintenance activities involving heavy equipment may have the potential to result in releases of hazardous materials. Contractors and maintenance personnel must adhere to existing laws and regulations that govern the transport, use, storage, handling, and disposal of hazardous materials to reduce the potential hazards associated with these activities. California Occupational Safety and Health Administration (CalOSHA) is responsible for developing and enforcing workplace safety standards, including the handling and use of hazardous materials. The U.S. Department of Transportation (DOT) and the California DOT (Caltrans) regulate the transportation of hazardous materials. Together, federal and State agencies determine driver-training requirements, load-labeling procedures, and container specifications designed to minimize the risk of accidental release. The transport, use, storage, handling, and disposal of hazardous materials for the Project would be adequately controlled through existing regulatory requirements. Therefore, implementation of the proposed Project would result in less-than-significant impact associated with creation of a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

b) Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less-than-Significant Impact

As discussed in Impact “a)” above, the proposed Project would involve construction and operation activities that use limited quantities of hazardous materials, such as gasoline, diesel fuel, oils, and lubricants, and other similar chemicals. Construction and operation activities associated with implementation of the Project would be subject to federal, State, and local laws and regulations governing hazardous materials. In addition, the Project includes Conservation Measures that include actions to protect water resources and pollution prevention, with most measures also being requirements under the Project’s National Pollution Discharge Elimination System (NPDES) stormwater pollution control permit coverage as implemented by the State Water Resource Control Board. These include actions to prevent the release of toxic materials by utilizing proper storage and containment, as well as dictating how tools and equipment will be stored and operated on-site. These actions will prevent the potential leakage and spills of toxic materials into the environment. For these reasons, implementation of the proposed Project would result in a less-than-significant impact associated with creation of a significant hazard to the public or the environment through reasonably

foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

c) Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact

No existing or proposed schools are located within 0.25 mile of the Project site. The closest school is Bolinas-Stinson Union Elementary School which is located approximately 0.47 mile northwest of the Project site. For these reasons, implementation of the Project would result in no impact associated with the emission of hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.

d) Would the Project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies, and developers to provide information about the location of hazardous materials release sites. Government Code Section 65962.5 requires the California Department of Environmental Protection Agency (CalEPA) to update the Cortese List annually. No hazardous waste and substances sites are located within one mile of the Project site based on a search of the current Cortese List (CalEPA, 2022); therefore, implementation of the Project would have no impact associated with creation of a significant hazard to the public or the environment due to its location on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?

No Impact

No airport is located within two miles of the Project site. The nearest airports to the Project site are the public Gnoss Field Airport in Novato and the private San Rafael Airport, approximately 16 miles and 11 miles to the northeast, respectively. No aviation hazards would result from implementing the proposed Project; therefore, implementation of the Project would result in no impact associated with creation of a safety hazard or excessive noise for people residing or working in the Project area.

f) Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less-than-Significant Impact

Marin County maintains an Emergency Operations Plan that provides information for emergency management, personnel responsibilities, and procedure before, during, and after major event. No roads within or adjacent to the Project site have been designated as evacuation routes (Marin County, 2022). In the event of a tsunami or high water, Bolinas residents would be directed to higher

ground via Mesa Road and Horseshoe Hill Road rather than through the Project site on Olema Bolinas Road (Tsunami Annex, 2018). A temporary signal on Olema Bolinas Road or intermittent signal lane closures may be required for portions of the work during construction, but through access would still be provided. The Project would result in an overall improvement to the local roadway network, particularly during flooding events. The Project would not affect implementation of an emergency operation plan, emergency response plan, or an emergency evacuation plan for Marin County or the nearby communities. The impact would be less than significant. Impacts on emergency access are analyzed further in the Transportation Section of this CEQA Checklist.

g) Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Less-than-Significant Impact

The California Department of Forestry and Fire Protection (CalFire) has mapped areas of high wildfire hazards throughout California, including Marin County. The Project site is mapped as a Moderate Fire Hazard Severity Zone (FHSZ) in a State Responsible Area (SRA) (CalFire, 2022). Equipment used during construction activities associated with the proposed Project could generate sparks which could result in wildland fire.

The proposed Project includes Conservation Measures that will be required of contractors to minimize the risk of wildfire that could be initiated from equipment needed to construct and maintain the proposed Project, such as requiring vehicles be equipped with fire extinguishers to address small fires ignited by construction or maintenance activities before a wildland fire develops. For these reasons, implementation of the proposed Project would result in a less-than-significant impact associated with the exposure of people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. Impacts regarding wildland fires are analyzed further in the Wildfire Section of this CEQA Checklist.

J. HYDROLOGY AND WATER QUALITY

Table 24. Hydrology and Water Quality Checklist Questions

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a)	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i)	result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
ii)	substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	☒	☐
iii)	create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
iv)	impede or redirect flood flows?	☐	☐	☒	☐
d)	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	☐	☐	☒	☐
e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

SETTING

Four creeks enter Bolinas Lagoon in the vicinity of the Project. Lewis Gulch Creek enters the Wye from the northwest as it combines with Wharf Creek in a roadside ditch before crossing Olema Bolinas Road through a box culvert. Wilkins Gulch Creek enters the Wye from the northeast through a box culvert

crossing SR-1 at its intersection with Fairfax Bolinas Road. Annual high flows from Wilkins Gulch Creek typically overwhelm the Wilkins Gulch Creek box culvert and spill across Fairfax Bolinas Road along a cattle grate and merge with Salt Creek before entering the lagoon underneath SR-1 near the southeastern corner of the Project site, approximately 250 feet southeast of the primary box culvert for Wilkins Gulch Creek at the SR-1/Fairfax Bolinas Road intersection. The drainage area for each creek is listed in Table 25 for a total drainage area of 1.6 square miles.

Table 25. Bolinas Lagoon Wye Wetlands Contributing Drainage Areas

WATERSHED	DRAINAGE AREA (SQUARE MILE)
Wharf Creek	0.1
Lewis Gulch Creek	0.7
Wilkins Gulch Creek	0.7
Salt Creek	0.1

Surface water hydrology in Lewis Gulch Creek is influenced by precipitation, with “flashy” hydrographs showing rapid flow and stage increases shortly after the onset of precipitation events, followed by rapid initial decreases after precipitation ends. Flow response to individual precipitation events is generally not detectable within a week of the end of precipitation (ESA, 2020). Groundwater elevations also show a direct correlation to precipitation within, and adjacent to, the proposed Project area. Groundwater elevations fluctuate between greater than eight feet and a few inches below the ground surface, with depth to groundwater increasing from south to north. Tidal elevations influence groundwater in the southern portion of the site (ESA, 2020).

The eastern portion of the Project site is located within Special Flood Hazard Area Zone AE mapped by the Federal Emergency Management Agency (FEMA) as having a 1% chance of a flood event per year, referred to as the 100-year flood hazard zone, with a base flood elevation of 8 feet referenced to the North American Vertical Datum of 1988 (NAVD 88) (FEMA, 2017).

Water quality in the State of California is regulated by the State Water Resources Control Board (State Water Board) and the nine Regional Water Quality Control Boards. The Project site is located in the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (Regional Water Board). Section 303(d) of the Federal Clean Water Act (CWA) requires that states identify water bodies including bays, rivers, streams, creeks, and coastal areas that do not meet water quality standards and the pollutants that are causing the impairment. The Bolinas Lagoon is not listed as an impaired water body by the State Water Board.

The Regional Water Board is responsible for implementing the Water Quality Control Plan (Basin Plan). The Basin Plan establishes beneficial water uses for waterways, water bodies, and groundwater within the region and is a master policy document for managing water quality in the region. The Bolinas Lagoon is listed in the Basin Plan as providing the beneficial uses of commercial and sport fishing, shellfish harvesting, marine and estuarine habitats, fish migration, preservation of rare and endangered species, fish spawning, wildlife habitat, water contact and noncontact recreation, and navigation. Wilkins Gulch Creek Lagoon is listed in the Basin Plan as providing the beneficial uses of cold and warm water habitats,

fish migration, preservation of rare and endangered species, wildlife habitat, and water contact and noncontact recreation. Other creeks near the Project site are not listed in the Basin Plan (SFBRWQCB, 2017).

The Project site is not located within a designated groundwater basin according to the Basin Plan (SFBRWQCB, 2017). The Project site is located adjacent to a tidally influenced lagoon; therefore, shallow groundwater is present beneath the Project site, and the shallow groundwater is likely brackish and unsuitable for beneficial uses.

CEQA CONTEXT

A project would normally result in a significant impact to hydrology or water quality if it would substantially degrade surface water or groundwater quality, substantially deplete groundwater resources, or interfere with groundwater recharge, contribute to erosion or sedimentation, contribute to exceeding the capacity of stormwater conveyance systems, or contribute to flooding.

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

Less-than-Significant with Mitigation Incorporated

The proposed Project would realign the Lewis Gulch Creek within the Project site, remove the Fairfax Bolinas Road between SR-1 and Olema Bolinas Road, and construct a new intersection at Olema Bolinas Road and SR-1 with a bridge crossing the creek. The purpose of the Project is to restore hydrologic, geomorphic and ecologic processes. While the long-term water quality impacts from the implementation of the proposed Project are expected to be beneficial, Project construction will disturb approximately 4.2 acres of land and has the potential to cause short-term impacts to water quality in the vicinity of the Project site.

The potential for chemical release is present at most construction sites due to the use of paints, fuels, lubricants, and other hazardous materials associated with construction equipment. Once released, these hazardous materials could be transported to nearby surface waterways in stormwater runoff, wash water, and dust control water, potentially reducing the quality of the receiving waters. During construction activities, soil would be disturbed and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. The release of sediments and other pollutants during construction could adversely affect water quality in receiving waters.

Because construction of the proposed Project would disturb greater than 1 acre of land, the Project would be subject to the requirements of the State Water Board's National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by Orders No. 2010-0014-DWQ and 2012-0006-DWQ) (Construction General Permit). In compliance with the requirements of the Construction General Permit, a Stormwater Pollution Prevention Plan (SWPPP) would be prepared, and construction Best Management Practices (BMPs) detailed in the SWPPP would be implemented during construction activities. A SWPPP identifies all potential pollutants and their sources, including erosion, sediments and construction materials and includes a list of BMPs to reduce discharges of construction-related stormwater pollutants. A SWPPP includes a detailed description of controls to reduce pollutants, outlines maintenance and inspection procedures, and is kept onsite for ongoing monitoring requirements. The SWPPP also requires a construction site monitoring program. Depending on a particular project's risk level, the monitoring program may include visual observations of site discharges, water quality monitoring of site

discharges (pH, turbidity, and non-visible pollutants, if applicable), and receiving water monitoring (pH, turbidity, suspended sediment concentration, and bioassessment). The Construction General Permit requires that all dischargers develop a sampling and analysis strategy for monitoring non-visible pollutants in stormwater at any construction site where the discharge can cause or contribute to an exceedance of a water quality objective.

The Project would also be subject to the Clean Water Act Section 401 Water Quality Certification, Clean Water Act, Section 402 NPDES permit, Clean Water Act, Section 404, Discharge into Waters of the U.S., and Porter-Cologne Water Quality Act. Dewatering may be required during construction activities involving excavation or when construction would occur in wetted channels. The Construction General Permit allows non-stormwater discharge of dewatering effluent if the water is not contaminated and is properly filtered or treated using appropriate technologies such as clarifier tanks or sand filters. If the dewatering activity is deemed by the Regional Water Board not to be covered by the Construction General Permit or other NPDES permit, and discharge of groundwater to the storm drain system is planned, then the discharger would be required to prepare a Report of Waste Discharge, and if approved by the Regional Water Board, be issued site-specific waste discharge requirements (WDRs) under NPDES regulations. Site-specific WDRs contain rigorous monitoring requirements and performance standards that, when implemented, ensure that receiving water quality is not substantially degraded. The discharge of dewatering effluent is authorized under the Construction General Permit if the following conditions are met:

- The discharge does not cause or contribute to a violation of any water quality standard.
- The discharge does not violate any other provision of the Construction General Permit.
- The discharge is not prohibited by the applicable Basin Plan.
- The discharger has included and implemented specific BMPs required by the Construction General Permit to prevent or reduce the contact of the non-stormwater discharge with construction materials or equipment.
- The discharge does not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants.
- The discharge is monitored and meets the applicable numeric action levels.
- The discharger reports the sampling information in the annual report.

Heavy construction activities would be limited to dry-weather months to ensure construction within the ordinary high waterline will occur when stream flows are at their lowest (typically July through October). The Project would use bioengineering methods along Lewis Gulch Creek to protect areas experiencing accelerated erosion that impacts infrastructure. Bioengineering is a method of construction combining live plants with dead plants or inorganic materials, to produce living, functioning systems which prevent erosion, control sediment and other pollutants, and provide habitat (USEPA, 2022).

In order to ensure that potentially significant water quality impacts are mitigated, Mitigation Measure HYD-1, which addresses erosion/sediment control and pollution prevention, would be implemented during Project construction activities. Additional measures in accordance with NPDES permit requirements, including incorporation of standard construction stormwater BMPs to reduce pollutants of concern in stormwater runoff and protect water quality, would also be implemented.

Compliance with Mitigation Measure HYD-1 and NPDES permit requirements as discussed above would ensure that potential impacts related to surface water or groundwater quality would be less than significant.

Mitigation Measure HYD-1: Water Quality Protection

The following measures shall be implemented during Project-related construction activities:

1. Heavy construction shall be limited to the dry-weather months. Construction within the ordinary high waterline will occur when stream flows are at their lowest (typically July through October). All disturbed soils will be stabilized by October 31.
2. Workers shall receive an erosion, sediment control, and pollution prevention training and would be instructed to avoid conducting activities beyond the construction zone including storage of tools, materials, and soil.
3. Erosion and sediment control measures, such as silt fences and certified weed seed-free rice straw fiber rolls (wattles), shall be installed as needed to eliminate the potential for sediment movement. The use of erosion control measures and mulches that contain non-native plant seeds or non-biodegradable material shall be prohibited. Only rice straw-filled fiber rolls will be permitted, or sterilized seed, to prevent inadvertent introduction of wheat and barley species. The use of erosion control measures that may trap small animals shall be prohibited. Erosion control measures will not contain plastic netting or monofilament.
4. Sites where activities result in exposed soil shall be stabilized to prevent erosion as soon as feasible after Project activities are complete.
5. Excavated materials shall be stockpiled outside of drainages, contained with appropriate sediment controls, and covered with geo-fabrics or plastic sheeting.
6. Soils excavated during ground-disturbing activities shall be reused to the extent that these locally derived materials are found to be clean and weed-free. Any such reuse is subject to applicable County policies and guidance.
7. Regular site inspections shall be conducted during construction to ensure that erosion control measures remain in place and are maintained and functioning properly. Sediment control devices that collect sediment shall be regularly cleaned out and the sediment added to soil stockpiles.
8. Once Project actions are completed, native vegetation that was removed and saved as part of Project activities shall be replanted or used for passive seeding to support revegetation and erosion control activities.
9. Proper storage, use, and disposal of chemicals, fuels, and other toxic materials is required. Soil, silt, bark, rubbish, creosote-treated wood, raw cement, concrete (including washings), asphalt, paint, oil or other petroleum products, or other substances that could affect water quality and be harmful to aquatic biota shall be prevented from entering the soil and/or waters of the State.
10. Any chemicals stored on site (for fueling or equipment maintenance) shall be stored in a locked container with secondary containment in case of leaks.
    a. If maintenance must occur on-site, it shall occur in designated areas located at least 100 feet from drainages and channels and protected with perimeter controls and non-permeable surfaces placed under the equipment. Secondary containment, such as a drain pan or drop cloth, to catch spills or leaks, shall be used when removing or

changing fluids. Fluids shall be stored in appropriate containers with covers, and properly recycled or disposed of off-site.

b. Emergency spill containment and clean-up materials shall be kept on the Project site.

11. Power tools shall be refueled only in upland areas and away from all surface water zones to prevent fuel spills near sensitive habitats. Tools shall be inspected for oil and gas leaks before being brought on-site and regularly while on-site.
12. Equipment parked on site overnight shall be placed over a non-permeable surface such as a tarp or plastic sheeting to prevent leaks and spills.
13. All trash and construction debris shall be contained in a covered debris box (or similar) and removed regularly from the Project site and disposed of appropriately off-site.
14. For all vehicles and equipment operated in or near Lewis Gulch Creek:
    a. All vehicles and equipment shall be kept clean. Excessive build-up of oil or grease shall be avoided.
    b. All equipment used in the creek channel shall be inspected for leaks each day prior to initiation of work. Action shall be taken to prevent or repair leaks, if necessary.
15. During bridge construction, a sheet of Visqueen® or similar material shall be attached under the bridge to catch wood dust, metal dust, loose hardware, etc., to avoid pollutants entering channels. These materials shall be bagged and removed from the site.
16. All soil and/or rock materials imported to the Project site shall be tested to ensure that they do not contain hazardous materials (such as heavy metals) above applicable screening levels such as those adopted by the State Water Resources Control Board.

b) Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

No Impact

As discussed above, the Project site is not located within a designated groundwater basin. The Project would not increase the use of groundwater since no new uses are proposed. The Project would remove the crossover road section of Fairfax Bolinas Road to achieve an unimpeded flow of surface and groundwater in the Bolinas Wye wetland while increasing groundwater recharge to counteract drought effects by allowing a greater connection of Lewis Gulch Creek with its floodplain.

Therefore, the Project would result in no impact related to decreasing groundwater supplies, interfering with groundwater recharge, or impeding sustainable groundwater management of the basin.

c) Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) Result in substantial erosion or siltation on- or off-site?

Less-than-Significant Impact

The proposed Project would remove the crossover road section of Fairfax Bolinas Road, elevate Olema Bolinas Road, and realign the Lewis Gulch Creek channel. The realignment of Leiws Gulch Creek will restore it to its historic water course as discussed in the Project Need, Purpose and Objectives section of this document. Currently, sediment is accumulating in Bolinas Lagoon instead of the wetland areas, which indicates that the alluvial fan is not functioning properly. Once constructed, the Project would restore natural flooding and alluvial fan processes, including the dispersal of nutrient rich sediment, in the Bolinas Wye wetland where it is needed for wetland accretion to keep pace with SLR. In addition, the Project would use bioengineering methods along Lewis Gulch Creek to protect areas experiencing accelerated erosion that increases sedimentation into the creek and adversely affects water quality. As discussed above under Checklist Item a), compliance with NPDES permits during construction activities and implementation of Mitigation Measure HYD-1 would ensure that the Project would not result in substantial erosion or siltation during construction. Therefore, the Project would have a less-than-significant and beneficial impact related to substantial erosion or siltation on- or off-site associated with changing the existing drainage pattern of the Project site.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Less-than-Significant Impact

The proposed Project would reduce the amount of impervious surface on the Project site by removing the crossover road section of Fairfax Bolinas Road, and therefore would reduce the amount of runoff compared to existing conditions. The Project would reconnect Lewis Gulch Creek with its historic floodplain by realigning Lewis Gulch Creek through the Bolinas Wye wetland. The Project would construct a new bridge over Lewis Gulch Creek that would be sized to pass the 100-year flood event and account for 5.5 feet of sea-level rise (SLR), which would allow for upstream flows to pass through the Bolinas Wye wetland and protect Olema Bolinas Road from flooding and extreme weather events in the long term. In addition, raising Olema Bolinas Road and realigning the Lewis Gulch Creek channel would reduce or eliminate the near-annual flooding of the roads which occurs and will increase over time with SLR; therefore, the Project would have a less-than-significant and beneficial impact related to flooding on- or off-site as a result of altering the course of a stream or river.

iii) Create runoff which would exceed capacity of stormwater drainage systems or provide additional sources of polluted runoff?

Less-than-Significant Impact

As discussed above, the Project would reduce the amount of impervious surface on the Project site which would reduce the amount of runoff compared to existing conditions; therefore, the Project would have no impact related to creating runoff that could exceed the capacity of

stormwater drainage systems. As discussed under Checklist Item (a), compliance with NPDES permits and implementation of Mitigation Measure HYD-1 ensures that the Project would have a less-than-significant impact related to contributing additional sources of polluted runoff.

iv) Impede or redirect flood flows?

Less-than-Significant Impact

The eastern portion of the proposed Project site is located within a 100-year flood hazard zone. A detailed Hydrology and Hydraulics Modeling Report was completed as discussed in the Project Development section, and the design evaluated to ensure that proposed work would not exacerbate existing flooding, and that the proposed bridge over Lewis Gulch Creek would be designed to pass the 100-year flood event and account for 5.5 feet of SLR. The proposed Project would not involve placement of fill or structures within the 100-year flood hazard zone which could impede or redirect flood flows. The Project would include removal of two spoils piles and would excavate a new channel for Lewis Gulch Creek within the 100-year flood hazard zone. These activities were evaluated in the Hydrology and Hydraulics Modeling Report and found to have a beneficial effect related to flooding by increasing the flood water storage capacity of the Project site. As discussed in the Project Description, the proposed Project would reconnect Lewis Gulch Creek with its historic floodplain and raise and realign roadways, which would reduce roadway flooding. Therefore, the Project would have a less-than-significant impact related to impeding or redirecting flood flows.

d) Would the Project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Less-than-Significant Impact

Inundation of construction sites can release pollutants as construction materials (that could include hazardous materials) which can be released into floodwaters. Once the Project is constructed, there would be no storage of hazardous materials or other pollutants at the Project site that could be released into floodwaters.

As discussed above, the eastern portion of the Project site is located within the 100-year flood hazard zone. Heavy construction activities for the Project would be limited to dry-weather months to ensure construction within the ordinary high waterline will occur when stream flows are at their lowest (typically July through October). In addition, construction staging areas would not be located within the 100-year flood hazard zone; therefore, the Project would have a less-than-significant impact related to the potential release of pollutants due to inundation of a flood hazard zone.

The Project site is located within a tsunami hazard zone mapped by the California Geologic Survey (County of Marin, 2022). The construction windows of the Project are relatively short, and the likelihood of a tsunami occurring during construction of the Project is very low. In addition, due to the limited scope and size of the Project, storage of large quantities of hazardous materials at the Project site is not anticipated; therefore, the Project would have a less-than-significant impact related to the potential release of pollutants due to inundation from a tsunami.

A seiche is the oscillation of a body of water. Seiches occur most frequently in enclosed or semi-enclosed basins such as lakes, bays, or harbors and may be triggered by strong winds, changes in atmospheric pressure, earthquakes, tsunami, or tides. Triggering forces that set off a seiche are most effective if they operate at specific frequencies relative to the size of an enclosed basin. The Project

site could be susceptible to inundation due to a seiche in Bolinas Lagoon; however, based on the very shallow water depth throughout much of the Bolinas Lagoon, a seiche would not be expected to cause significant inundation of the Project site. The likelihood of a seiche occurring during the relatively short construction windows of the Project is very low, and as discussed above, storage of large quantities of hazardous materials at the Project site is not anticipated; therefore, the Project would have a less-than-significant impact related to the potential release of pollutants due to inundation from a seiche.

e) Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less-than-Significant Impact

The applicable water quality control plan for the Project site is the Basin Plan (SFBRWQCB, 2017). The State Water Board and Regional Water Board enforce compliance with the water quality objectives of the Basin Plan through the issuance of NPDES permits. The Project would comply with NPDES permit requirements and would not conflict with the beneficial uses of surface waters identified in the Basin Plan; therefore, compliance with permit requirements would ensure that the Project would result in less-than-significant impacts related to, conflicting with, or obstructing implementation of the Basin Plan.

As discussed above, the Project site is not located within a designated groundwater basin. No significant groundwater resources are located at the Project site, and there is no groundwater management plan for the area of the Project site; therefore, the proposed Project would have no impacts related to, conflicting with, or obstructing implementation of a sustainable groundwater management plan.

K. LAND USE AND PLANNING

Table 26. Land Use and Planning Checklist Questions

	Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a)	Physically divide an established community?	☐	☐	☐	☒
b)	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

SETTING

The Project site is zoned as Open Area (APN 188-110-10) and Coastal Agriculture Residential Planned, 5-acre minimum lot size (C-ARP-5; APN 188-140-04,). The Project site includes parcels owned and/or maintained by the County of Marin (APN 188-110-10) and MCOSD (APN 188-140-04).

CEQA CONTEXT

A project would normally result in a significant impact to land use and planning if it would conflict with the adopted land use and zoning regulations or if would disrupt or divide the physical arrangement of an established community.

a) Would the Project physically divide an established community?

No Impact

The proposed Project is located within land that is managed as open space, with rural residential uses to the northwest. The adjacent lands to the north and south are also managed as open space. The Project site is not located within an established community; therefore, the Project would not physically divide an established community and no impact would occur.

b) Would the Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact

The proposed Project would not change the existing use, zoning and land use designations of the Project parcels. Assessor's Parcel Number (APN) 188-140-04 is currently a vacant lot that is zoned Coastal, Agricultural Residential Planned with a five-acre minimum lot size. There would be minimal work on the land, and it would be limited to work within Lewis Gulch Creek and improvements to allow for improved drainage into the Bolinas Wye. This work is allowed in the C-ARP-5 and Open Area zoning districts. As discussed in the Biological Resources section above, the proposed Project would

not conflict with the Marin Countywide Plan policies regarding the protection of biological resources, No impact would occur.

L. MINERAL RESOURCES

Table 27. Mineral Resources Checklist Questions

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

SETTING

The State Mining and Reclamation Act of 1975 requires that counties adopt policies to protect certain state-designated mineral resource sites from land uses that preclude or inhibit mineral extraction needed to satisfy local market demand on a timely basis. The purpose of the act is to ensure that construction materials are available to all areas of the state at a reasonable cost. Eight mineral resource sites in Marin County have been designated by the California State Department of Conservation Division of Mines and Geology as having significant mineral resources for the North Bay region. Of the eight mineral sites, two no longer meet the minimum threshold requirements and are exempt from application of mineral resource policies (Marin County, 2005). There are no mineral resource sites located on the Project site (Marin County, 2017).

CEQA CONTEXT

A project would normally result in a significant impact to mineral resources if a loss of known mineral or of a locally important mineral resources recovery area would result from implementation of the Project.

a) Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact

The proposed Project is a wetland restoration and roadway relocation project. The proposed Project would not include mineral extraction and would not impact a known mineral resource. For these reasons, implementation of the proposed Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

b) Would the Project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact

As discussed above, no known mineral resource sites are located on the Project site; therefore, the Project would not result in loss of a known mineral resource or mineral resource recovery site. For these reasons, implementation of the proposed Project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. No impact would occur.

M. NOISE

Table 28. Noise Checklist Questions

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

SETTING

This section provides background information on noise and vibration, how to quantify the sound level associated with noise, and how to evaluate the possible impact associated with noise and vibration that could result from implementation of the project.

General Information on Noise

Noise is defined as unwanted sound that annoys or disturbs people and can have an adverse psychological or physiological effect on human health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of the sound and are described in terms of decibels. The decibel (dB) is based on a logarithmic scale and express the ratio of the sound pressure level being measured to a standard reference level. The starting point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Decibels and other acoustical terms are defined in Table 29. The human ear is only capable of hearing sound within a limited frequency range. To better characterize noise levels perceived by a human ear, a decibel scale called A-weighting (dBA) is typically used. On this scale, the low and high frequencies are given less weight than the middle frequencies. Typical A-weighted noise levels at specific distances are shown for different noise sources in Table 30.

Table 29. Definition of Acoustical Terms

TERM	DEFINITION
Decibel (dB)	A unit describing the amplitude of sound on a logarithmic scale. Sound described in decibels is usually referred to as sound or noise "level." This unit is not used in this analysis because it includes frequencies that the human ear cannot detect.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level (dBA)	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, in a manner similar to the frequency response of the human ear, and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted.
Maximum Sound Levels (Lmax)	The maximum sound level measured during a given measurement period.
Equivalent Noise Level (Leq)	The average A-weighted noise level during the measurement period. For this CEQA evaluation, Leq refers to a 1-hour period unless otherwise stated.
Ambient Noise Level	The existing level of environmental noise at a given location from all sources near and far.
Vibration Decibel (VdB)	A unit describing the amplitude of vibration on a logarithmic scale.
Peak Particle Velocity (PPV)	The maximum instantaneous peak of a vibration signal.
Root Mean Square (RMS) Velocity	The average of the squared amplitude of a vibration signal.

Source: Charles M. Salter Associates, Inc., 1998. Acoustics – Architecture, Engineering, the Environment, William Stout Publishers. Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September.

Table 30. Typical Sound Levels Measured in the Environment and Industry

Noise Source (Distance in Feet)	A-Weighted Sound Level in Decibels (dBA)
Jet Aircraft (200)	112
Subway Train (30)	100
Truck/Bus (50)	85
Vacuum Cleaner (10)	70
Automobile (50)	65
Normal Conversation (3)	65
Whisper (3)	42

Source: Charles M. Salter Associates Inc., 1998. Acoustics – Architecture, Engineering, the Environment, William Stout Publishers.

Because sound pressure levels are based on a logarithmic scale, they cannot be added or subtracted using linear methods. For instance, if one noise source emits a sound level of 90 dBA, and a second source at the same location also emits a sound level of 90 dBA, the combined sound level will be 93 dBA, not 180 dBA. In other words, a doubling of sound source is equivalent to an increase of 3 dBA. When the second noise source is lower than the first noise source by at least 10 dBA, the contribution from the second noise source to the overall sound level is negligible (i.e., close to zero). For example, when adding an 80-dBA source to a 95-dBA source, the higher noise source dominates, and the combined noise level will be 95 dBA.

General Information on Vibration

Vibration is an oscillatory motion (a motion that repeats itself) through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. Typically, ground-borne vibration generated by human activities attenuates rapidly with distance from the source of the vibration, meaning vibration will quickly become imperceptible the further it gets from its source. Sensitive receptors to vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment. Vibration amplitudes are usually expressed as either Peak Particle Velocity (PPV) or as Root Mean Square (RMS) velocity. PPV is appropriate for evaluating potential damage to buildings, but it is not suitable for evaluating human response to vibration because it takes the human body time to respond to vibration signals. The response of the human body to vibration is dependent on the average amplitude of a vibration event. Thus, RMS is more appropriate for evaluating human response to vibration. PPV and RMS are described in units of inches per second (in/sec), and RMS is also often described in vibration decibels (VdB).

Regulatory Setting

In California, noise is primarily regulated at the local level, through the implementation of general plan policies and local noise ordinances. The State of California provides guidance for the preparation of general plan noise elements. The purpose of a local general plan is to identify the general principles intended to guide land use and development, and cities and counties commonly adopt ordinances to specify the standards and requirements for implementing the principles of the general plan.

Federal and State Guidance for Noise and Vibration

The Federal Transit Administration (FTA) has established a general construction threshold of 90 dBA 1-hour Leq at the nearest noise-sensitive receptor (FTA, 2006). According to the FTA, if the combined noise level in 1 hour from the two noisiest pieces of equipment exceeds the 90 dBA threshold at a residential land use (or other noise-sensitive receptors), then there may be a substantial adverse reaction.

The FTA has developed vibration thresholds to prevent disturbances to (i.e., annoyance of) building occupants based on the frequency of a vibration event (FTA, 2018). Construction vibrations that are equal to or exceed the vibration thresholds could result in potential disturbance to people or activities. For infrequent vibration events during construction (fewer than 30 vibration events of the same kind per day), FTA recommends a threshold of 80 VdB to prevent potential disturbance to nearby residents.

The California Department of Transportation (Caltrans) has developed vibration thresholds based on PPV values to evaluate the potential impact of construction vibration on structures (Caltrans, 2020). Construction vibrations that are equal to or exceed the vibration thresholds could result in potential damage to structures. For frequent intermittent vibratory sources during construction (e.g., vibratory compaction equipment), Caltrans recommends a threshold of 0.5 in/sec to prevent potential damage to older residential structures.

CEQA CONTEXT

Operation of a project would normally result in a significant impact to noise if it would substantially increase the ambient noise levels for adjoining areas or if it exceeded the noise levels recommended in an adopted plan or noise ordinance. Operation of the proposed Project would not be expected to generate a net increase in ambient noise levels and would not result in any noise impacts; therefore, the following evaluation focuses on potential noise impacts related to Project construction.

a) Would the Project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less-than-Significant with Mitigation Incorporated

Construction activities would temporarily increase noise levels in the vicinity of the Project site. The primary source of noise during construction would be generated by off-road equipment activity on the Project site. Construction noise levels would vary from day to day, depending on the number and condition of the equipment being used, the types and duration of activity being performed, the distance between the noise source and the receptor, and the presence or absence of barriers, if any, between the noise source and receptor.

The assumptions regarding the types of construction equipment that would be used on the Project site are based on a project-specific equipment list provided by the Project engineer. In accordance with the Conservation Measures listed in the Project Description section of this document, Project construction activities would generally be limited between 7 AM and 6 PM Monday through Friday,

and in accordance with the requirements of bird nesting season and between two hours after sunrise and two hours before sunset.

In accordance with guidance from the FTA, construction noise impacts were evaluated by quantifying the maximum noise levels that would result from the simultaneous operation of the two noisiest pieces of equipment near the perimeter of the Project site closest to a sensitive receptor. The types of construction equipment that would be used on the Project site and the associated noise calculations are presented in the noise modeling analysis, available upon request. As shown in Table 31, the Project's construction noise levels were estimated at the nearest noise-sensitive receptor, a single-family home located about 200 feet southwest of the Project site, for each construction phase. Based on this analysis, Project construction would not generate noise levels above the FTA's recommend threshold of 90 dBA.

Table 31. Potential Noise Impacts from Construction Equipment

Construction Phase	Noise Levels at Nearest Residence (dBA Leq)	Noise Threshold (dBA Leq)	Threshold Exceeded?
Roadway Construction	72	90	No
Bridge Construction	65		No
Restoration	70		No

Source: Noise calculations are available upon request.

The proposed Project does not include new designated parking or other amenities that would normally contribute to a significant increase in visitors, new types of visitors, or create a destination attraction. However, construction noise generated by the Project could impact nesting birds within the vicinity. Mitigation Measure NOI-1 requires that pre-construction nesting bird surveys be conducted and, if nests are found, that species-appropriate buffers be established. With implementation of the Conservation Measures for Noise Control and Mitigation Measure NOI-1, implementation of the proposed Project would result in a less-than-significant impact associated with generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Mitigation Measure NOI-1: Noise Buffers

If noise-inducing work occurs during the bird nesting season (February 1–July 31), pre-construction surveys for nesting birds shall be conducted. If nests are found, buffers will be established according to the species detected and state and federal regulations. Otherwise, if no nests are found, then noise-inducing activities will only take place between two hours after sunrise and two hours before sunset. If activities are particularly noisy, meaning louder than applicable county noise thresholds, sound barriers shall be erected around noise-inducing work sites to limit noise impacts to wildlife.

b) Would the Project result in generation of excessive ground-borne vibration or ground-borne noise levels?

Less-than-Significant Impact

Construction activities can result in varying degrees of ground vibration, depending on the equipment, activity, and relative proximity to sensitive receptors. The primary types of equipment that would

generate ground vibration during Project construction and the associated vibration calculations are listed in the noise modeling analysis, available upon request. The use of pile drivers is not anticipated for the Project.

To evaluate the Project's potential vibration effects on nearby sensitive receptors, a buffer distance that would be needed to avoid exceeding the FTA and Caltrans construction vibration thresholds was estimated for each type of equipment. The estimated buffer distances for potential disturbance to residents and damage to older residential buildings are summarized in Tables 32 and 33, respectively. Based on this analysis, Project construction would not generate vibration levels above the vibration disturbance and building damage thresholds; therefore, Project construction would not generate excessive ground-borne vibration in the Project vicinity and this impact would be less than significant.

Table 32. Potential Vibration Disturbance to Residents during Construction

Equipment	Vibration Threshold	Buffer Distance to Threshold	Distance to Closest Receptor	Threshold Exceeded?
Unit	**VdB**	**feet**	**feet**	
Vibratory roller	80	73	300	No
Large bulldozer		43		No
Loaded truck		40		No
Small bulldozer		5		No

Source: Vibration calculations are available upon request.

The California Department of Transportation (Caltrans) has developed vibration thresholds based on PPV values to evaluate the potential impact of construction vibration on structures. Construction vibrations that are equal to or exceed the vibration thresholds could result in potential damage to structures. For frequent intermittent vibratory sources during construction (e.g., vibratory compaction equipment), Caltrans recommends a threshold of 0.3 in/sec to prevent potential damage to older residential structures.

Table 33. Potential Vibration Damage to Older Residential Buildings during Construction

Equipment	Vibration Threshold	Buffer Distance to Threshold	Distance to Closest Receptor	Threshold Exceeded?
Unit	**in/sec**	**feet**	**feet**	
Vibratory roller	0.3	20	300	No
Large bulldozer		11		No
Loaded truck		10		No
Small bulldozer		1		No

Source: Vibration calculations are available upon request.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use

airport, would the Project expose people residing or working in the Project area to excessive noise levels?

No Impact

The Project site is not located within the vicinity of a private airstrip or an airport land use plan, or within 2 miles of a public airport or public use airport; therefore, the Project would have no impact related to the exposure of people to excess noise levels from aircraft noise.

N. POPULATION AND HOUSING

Table 34. Population and Housing Checklist Questions

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

SETTING

The Project site is zoned as Open Area and Agriculture Residential Planned. There is no housing, or any business located within the Project site. The Project site is unpopulated.

CEQA CONTEXT

A project would normally result in a significant impact to population and housing if it would cause substantial population growth or would remove existing housing.

a) Would the Project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact

The proposed Project would not directly or indirectly induce growth in the area. The Project would involve restoration of wetland areas, relocation of a stream channel, removal of a segment of Fairfax Bolinas Road, and the construction of a new bridge and intersection of Olema Bolinas Road and SR-1. The Project does not include new homes, businesses, or infrastructure that would induce unplanned population growth in the area. The construction workers are anticipated to live and commute to the Project site from Marin County or adjacent counties and would not require housing. Therefore, there the proposed Project would not induce substantial unplanned population growth in the area, either directly or indirectly.

b) Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact

There is no housing located on the Project site. Therefore, the proposed Project would not displace any housing or people or necessitate the construction of replacement housing elsewhere.

O. PUBLIC SERVICES

Table 35. Public Services Checklist Questions

	Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a)	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
	Fire protection?	☐	☐	☐	☒
	Police protection?	☐	☐	☐	☒
	Schools?	☐	☐	☐	☒
	Parks?	☐	☐	☐	☒
	Other public facilities?	☐	☐	☐	☒

SETTING

The Project area is located within the unincorporated area of Marin County. The Project area is served by Bolinas Fire Protection District located at 100 Mesa Road and Marin County Sheriff's Office (Point Reyes Substation). The nearest school to the Project site is Bolinas-Stinson Union Elementary located approximately 0.5 mile to the northwest. There are no park facilities such as parking, restrooms, or playgrounds in the Project area and none are proposed as part of the Project.

CEQA CONTEXT

A project would normally result in a significant impact to public services if it would result in the need for new or additional public services in order to maintain acceptable service ratios, including response times and other performance objectives.

a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental

impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

- **Fire protection?**
- **Police protection?**
- **Schools?**
- **Parks?**
- **Other public facilities?**

No Impact

Implementation of the proposed Project would improve the wetland habitat, restore a more natural ecosystem, and reduce the occurrence of flooding within the Project area. The proposed bridge and removal of the Fairfax Bolinas Road crossover segment within the Project site would improve safe vehicle access to Bolinas from SR-1, including increasing protection from flooding, which would be a beneficial effect. Existing access through Olema Bolinas Road would be maintained during construction.

The Bolinas Fire Protection District and Marin County Sheriff's Office would continue to provide fire and police protection, respectively, to the Project area during construction and operation of the Project. The proposed Project does not include new housing, or commercial or industrial development which could result in the need for new or improved public services, such as fire protection, police protection, schools, parks, or other public facilities; therefore, implementation of the proposed Project would not result in the need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other public facilities. No impact would occur.

P. RECREATION

Table 36. Recreation Checklist Questions

	Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a)	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b)	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

SETTING

Bolinas Lagoon, an Audubon Important Bird Area, is within the Greater Farallones National Marine Sanctuary, within the Golden Gate National Biosphere Reserve, and one of only seven Ramsar Wetlands of International Importance in the western U.S. (Marin County Parks, 2022). Bolinas Lagoon provides recreational opportunities for hiking, fishing, and kayaking in the region. The Project site contains no recreational facilities, and none are proposed as a part of the Project.

CEQA CONTEXT

A project would normally result in a significant impact to recreation if it would conflict with the established recreational uses of the Project area.

a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact

The proposed Project would ensure safe access to the western side of the Bolinas Lagoon along Olema Bolinas Road through the Project site by elevating a section of Olema Bolinas Road and installing a full span bridge. The proposed Project would account for a 100-year storm event and 5.5 feet of future SLR. The Project would restore wetland habitat by realigning Lewis Gulch Creek with its historic channel and floodplain and removing the crossover segment of Fairfax Bolinas Road. None of these Project components would adversely impact other regional or local parks,but would allow continued safe access to parklands that are currently publicly available. Therefore, the proposed Project actions would not induce population growth nor increase the use of the existing parks or other recreational facilities such that physical deterioration of the facilities would occur or be accelerated. Therefore, there would be no impact.

b) Would the Project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

No Impact

The proposed Project would not construct or necessitate the construction of any recreational facilities since it only includes infrastructure improvements that will ensure continued access to public lands that are currently available for recreational activities. Therefore, no impact would occur.

Q. TRANSPORTATION

Table 37. Transportation Checklist Questions

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

SETTING

The proposed Project is within the unincorporated area of Marin County. SR-1 traverses the eastern side of the Project area and is mentioned in various local and regional policies addressing the circulation system, including the *Marin Countywide Plan*, the *Caltrans District 4 Bike Plan*, and the *Marin County Unincorporated Area Bicycle and Pedestrian Master Plan*. There are currently no designated pedestrian or bicycle facilities along SR-1, Fairfax Bolinas Road, or Olema Bolinas Road. The sections of SR-1 to the north and south of the Project site generally have no shoulders. The section of SR-1 within the Project area includes turnouts on both sides of the roadway and an unimproved shoulder. The SR-1 corridor is known as a popular route for bicyclists, who share the travel lanes with vehicle traffic; however, the lack of designated pedestrian and bicycle facilities in the area is typical of rural areas.

Traffic counts were conducted in 2017 (AECOM). In 2020, Fehr & Peers conducted revised traffic counts and prepared a Traffic Engineering Assessment Technical Memo (Fehr & Peers, 2020). The memo presented analysis in support of the Caltrans Design Engineering Evaluation Report (DEER) process. In 2022, an Intersection Control Evaluation (ICE) was completed following Caltrans guidance (TOPD 13-02) (Fehr & Peers, 2020). An ICE is required when modifying intersections on a state highway. Fehr & Peers completed a traffic analysis to determine appropriate and feasible control options based on existing traffic

volumes under AM, PM and weekend mid-day peak hour conditions. Lastly, Fehr & Peers prepared an updated Traffic Engineering Assessment Technical Memo in 2023 that includes updated traffic counts and collision history and a left-turn lane warrant analysis (Fehr & Peers, 2023).

CEQA CONTEXT

Senate Bill (SB) 743 established Vehicle Miles Traveled (VMT) associated with a Project as the metric for use in determining a Project's transportation impacts, replacing the use of the delay-based criteria associated with a Level of Service (LOS) analysis. While many jurisdictions still maintain policies establishing a LOS goal, a CEQA impact cannot be identified based on adverse impacts on traffic operations associated with a Project, even if the resulting delay conflicts with a local agency' policy. As a result, no LOS analysis was conducted as part of this evaluation.

Whether adopting a threshold of significance, or evaluating transportation impacts on a case-by-case basis, a lead agency should ensure that the analysis addresses:

a) Direct, indirect, and cumulative effects of the transportation Project (CEQA Guidelines, §15064, subds. [d], [h])
b) Near-term and long-term effects of the transportation Project (CEQA Guidelines, §15063, subd. [a][1], §15126.2, subd. [a])
c) The transportation Project's consistency with state greenhouse gas reduction goals (Pub. Resources Code, §21099)
d) The impact of the transportation Project on the development of multimodal transportation networks (Pub. Resources Code, §21099)
e) The impact of the transportation Project on the development of a diversity of land uses (Pub. Resources Code, §21099)

a) Would the Project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Less than Significant with Mitigation

Regional and Local Plans

Marin Countywide Plan (2007)

The following goals and policies were determined to be relevant to the proposed Project.

- **Policy TR-1.2. Maintain Service Standards.** Establish level of service standards for vehicles on streets and highways and performance standards for transit, bicycles, pedestrians, and other modes of transportation.
- **Policy TR-1.d. Coordinate with Local Agencies.** Work with a proposed City-County Planning Committee, Department of Public Works, Transportation Authority of Marin, Metropolitan Transportation Commission, and other Bay Area counties to coordinate transportation system planning, including updating the County Congestion Management Program and the Capital Improvement Program to prioritize the projects that will meet the goals of the County Transportation Vision.
- **Goal TR-4. Protection of Environmental Resources.** Minimize environmental disruption and energy use related to transportation.
- **Policy TR-4.1. Maintain Disturbance and Condemnation.** Limit environmental disruption and condemnation of land due to transportation projects.

- **Implementing the Program TR-4.a. Limit Project Impacts.** Work with Caltrans and private transportation contractors to minimize environmental damage and storm water runoff through best management practices, and to avoid condemnation of private or publicly owned land in conjunction with transportation improvement projects.

The Proposed project would not increase traffic volumes or alter levels of service at the intersection of Olema Bolinas Road and SR-1 **(Fehr & Peers, 2022)**. Relevant performance standards for bicycle and pedestrian use have been incorporated into the Project design, including a pullout for bicyclists at the existing Fairfax Bolinas Road/SR-1 intersection. Thus, the proposed Project is consistent with Policy TR-1.2.

Caltrans has been consulted throughout the process of Project design, as has the Marin County Department of Public Works. The Transportation Authority of Marin has been included in Project stakeholder updates at the 30 and 60 percent design stages. Input from each agency has been incorporated into the Project. Thus, the proposed Project is consistent with Policy TR-1.d.

The proposed Project will reduce the area devoted to transportation infrastructure at the Project site and would not increase traffic volumes. As an environmental restoration and enhancement project, the proposed Project would result in increased protection of environmental resources. Thus, the proposed Project is consistent with Goal TR-4.

The proposed Project would remove a roadway segment of Fairfax Bolinas Road in order to restore a historic wetland complex along Lewis Gulch Creek. No condemnation of land would result from implementation of the proposed Project, nor would environmental disruption (other than that necessary to restore natural processes) occur. Thus, the proposed Project is consistent with Goal TR-4.1.

The proposed Project will comply with applicable Caltrans stormwater management requirements and best management practices, as described in the Conservation Measures listed in the Project Description section of this document. No land condemnation would result from implementation of the proposed Project. Thus, the proposed Project is consistent with Program TR-4.a.

Caltrans District 4 Bike Plan, 2018

The *Caltrans District 4 Bike Plan* identifies priorities for improving bicycle access along or parallel to the state highway network. SR-1 improvements in west Marin near the Project area are identified as a Caltrans mid-tier priority for further planning and study. The section of SR-1 adjacent to the Project site currently has an unimproved shoulder and turnout. The proposed Project would include a four-foot minimum width paved shoulder along SR-1 and Olema Bolinas Road near the proposed new Olema Bolinas Road/SR-1 intersection. Also included in the proposed Project is a retained paved section of the "Crossover Road" at SR-1 that could be used by southbound cyclists before turning left and crossing SR-1 onto Fairfax Bolinas Road. These Project components are being reviewed by Caltrans and would result in improvements to bicycle safety. Thus, the proposed Project would be consistent with the objectives in the *Caltrans District 4 Bike Plan*.

Marin County Unincorporated Area Bicycle and Pedestrian Master Plan 2018 Update

SR-1 is identified as a proposed Class IIr bikeway, which consists of Class II pavement width without stenciling or signage as a bike lane. The Plan includes a recommendation to continue implementation of the Rural Roads Improvement Project by Marin County in partnership with Caltrans. This includes the County's program to "widen where feasible," to add or widen shoulders along designated roadways as part of resurfacing projects. SR-1 from Tamalpais Valley to the Sonoma County line is

identified as one route for improvements. Objective D.2 in the Plan states that the repair and construction of transportation facilities should minimize disruption to the bicycling and walking environment to the extent practical. The proposed Project is consistent with this recommendation as it would retain the existing shoulders along SR-1 in the Project area and improve them within the area of encroachment along SR-1.

The Plan also includes recommendations regarding countywide projects, noting under Recommendation #2 that the need of bicyclists and pedestrians should be considered in performing maintenance and repair work. This includes providing suitable construction warning signs where appropriate and, where necessary, providing detour routes around areas undergoing construction.

As noted above, the proposed Project would include a four-foot minimum width paved shoulder along SR-1 and Olema Bolinas Road near the proposed new Olema Bolinas Road/SR-1 intersection. The proposed Project includes provisions for bicyclists and pedestrians to access and pass through the Project area safely during both construction and Project operation and the implementation of Mitigation Measure TRAN-01 below would ensure that the proposed Project will be consistent with this recommendation in the *Marin County Unincorporated Area Bicycle and Pedestrian Master Plan 2018 Update.*

Existing Facilities

Marin Transit Route 61 operates between Bolinas and Marin City in the vicinity of the Project location, but there are no stops in the Project area. The Project would result in a minimal impact on travel times given the small increase in travel distance.

The existing shoulders and turnouts along SR-1 near the Project site would be retained and improved, so the Project would not impact the potential to establish continuous bicycle or pedestrian facilities. Transit service would not be impacted by the Project as there are no bus stops in the Project area and transit access from SR-1 to Bolinas would remain. There would be potential impacts to circulation for all modes of travel during the construction period. Mitigation Measure TRAN-01 would require providing smooth surface for bicyclists and providing detour and warning signage to inform bicyclists and drivers regarding road conditions. With the implementation of Mitigation Measure TRAN-01, the Project impact would be less than significant.

Mitigation Measure TRAN-01: Bicyclist Safety

Bicyclists share the road with vehicles at the Project location under typical conditions, so maintaining an adequate travel way or detour route through the area would be needed for both transportation modes in each direction along SR-1, Olema Bolinas Road, and Fairfax Bolinas Road. To ensure that the route is adequate for bicyclists, a smooth surface shall be provided along with detour and warning signage on the approaches to the Project area to raise awareness for drivers and bicyclists of the temporary conditions.

b) Would the Project Conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

Less-than-Significant Impact

SB 743 established VMT associated with a project as the metric for use in determining a project's transportation impacts, replacing the use of the delay-based criteria associated with a LOS analysis.

Marin County has not yet adopted a policy or threshold of significance regarding VMT. As a result, the proposed closing of a segment of Fairfax Bolinas Road, geometric modification of the intersection

of SR-1/Olema Bolinas Road, and measures to mitigate flooding were evaluated based on guidance provided by the California Governor's Office of Planning and Research (OPR) in the publication *Transportation Analysis Under CEQA, First Edition: Evaluating Transportation Impacts of State Highway System Projects,* 2020.

In analyzing the VMT impacts of transportation projects, the primary consideration is if the Project would result in an increase in capacity, which is expected to result in induced vehicle travel and an increase in VMT. The OPR guidance includes an extensive list of project types that would not be expected to lead to a substantial or measurable increase in vehicle travel, and therefore generally should not require an analysis of induced travel. The guidance indicates that this is not a comprehensive list of projects for which a VMT analysis would not be required, but identifies the following types of projects that would be expected to have a less-than-significant impact in terms of VMT:

- Rehabilitation and maintenance projects that do not add motor vehicle capacity
- Roadside safety devices or hardware installation such as median barriers and guardrails
- Roadway shoulder enhancements to provide "breakdown space," dedicated space for use only by transit vehicles, to provide bicycle access, or to otherwise improve safety, but which will not be used as automobile vehicle travel lanes.
- Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left-turn, right-turn, and U-turn pockets, two-way left-turn lanes, or emergency breakdown lanes that are not used as through lanes
- Reduction in number of through lanes
- Installation or reconfiguration of traffic-calming devices

The Caltrans guidance regarding project screening for transportation projects is consistent with that provided by OPR. Specifically, the guidance states that a detailed VMT impact analysis may not be necessary if the project, "would not be likely to lead to a measurable and substantial increase in VMT." Since the proposed Project would not increase the capacity of the impacted transportation facilities, there would be no induced travel associated with the Project. The OPR guidance is also cited, noting that safety projects are included among the project types not likely to lead to an increase in VMT.

The roadway modifications associated with the proposed Project would have a nominal impact on VMT. There would be no impact for vehicles traveling between Bolinas and points north along SR-1, as the Project would shift the location of the intersection approximately 200 feet to the south and would modify the intersection geometry. For vehicles traveling between the community of Bolinas and Fairfax Bolinas Road or points to the south on SR-1, the trip length would be increased by approximately 500 feet. As determined in TAM's *Origin and Destination Study,* 2018, the average trip length in unincorporated Marin County is 9.1 miles; the increased travel distance associated with the Project represents an increase of 1.0% for the average trip.

As noted in the Caltrans CEQA guidance, the primary concern regarding construction impacts is related to drivers opting for circuitous routes to avoid the Project site. Otherwise, "vehicle trips used for construction purposes would be temporary, and any generated VMT would generally be minor, limited to construction equipment and personnel, and would not result in long-term trip generation."

The Project would not result in increased roadway capacity. There would be a nominal impact on VMT due to the proposed closure of Fairfax Bolinas Road between Olema Bolinas Road and SR-1 and there would be a negligible and temporary increase in VMT during construction. The Project

could therefore be presumed to have a less-than-significant VMT impact and thus screened out from a detailed VMT analysis.

c) Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less than Significant with Mitigation

Among the goals of the Project is to reduce flooding on County roads and improve traffic safety. Several components of the Project would reduce roadway flooding—Olema Bolinas Road would be raised and realigned to reduce roadway flooding during winter storm and high tide events; Lewis Gulch Creek, which crosses under the road, would be rerouted; and the bridge over the creek would be replaced to better withstand high water events. The flooding on Fairfax Bolinas Road would be eliminated by the road closure. These Project features would support the maintenance of safer access to and from Bolinas.

The Project would also modify the geometrics of the intersection of SR-1 (Shoreline Highway)/Olema Bolinas Road. As currently configured, the intersection is skewed, which could result in limited visibility and difficulty turning left for northbound drivers in large vehicles. With the modification, the two roadways would intersect at approximately a right angle, enabling drivers turning left onto SR-1 to see traffic approaching from the right more easily. The proposed modification would also require southbound drivers traveling toward Bolinas to reduce their speed to turn right onto Olema Bolinas Road, whereas currently they can proceed with a slight turn. This is expected to reduce vehicle speeds as drivers transition from SR-1 to enter Bolinas.

Sight distance at the proposed location was evaluated in the field in accordance with corner sight distance criteria provided in the Caltrans *Highway Design Manual.* Due to the curvature of the roadway, the relocation of the intersection to the south would result in a reduction in the sight distance between the intersection and points to the north. There are no speed limit signs posted near the proposed intersection, so the prima facie speed of 55 mile per hour (mph) was assumed for the sight distance evaluation. The recommended sight distance for a roadway with a 55-mph design speed is 605 feet. The sight distance as measured from the minor street approach at the proposed location of the intersection is over 1,000 feet in both directions, which exceeds the minimum requirements and is adequate for speeds over 70 mph (W-Trans, 2022). In accordance with Caltrans standards, the Project design includes the grading and graveling of the SR-1 shoulder near Wilkins Ranch to minimize the potential growth of vegetation that could impact sight distances.

Consideration was also given to the adequacy of sight lines for drivers on SR-1 to observe and react to a vehicle slowing or stopping to turn left or right onto Olema Bolinas Road. Given the flat and relatively straight alignment of SR-1 near the proposed intersection location, stopping sight far exceeds the 500 feet needed for a 55-mph approach speed (W-Trans, 2022).

Potential impacts of Project construction were assessed based on the proposed two-year phasing plan. During Year 1, the new SR-1/Olema Bolinas Road intersection would be constructed; during this time, traffic along SR-1 would be impacted and traffic control provided in accordance with Caltrans standards. Fairfax Bolinas Road will remain open during the Year 1 construction activities to provide a detour route to connect SR-1 to Bolinas. A temporary paved ramp will be required for the transition from Olema Bolinas Road to Fairfax Bolinas Road. Approximately 2,820 sf of temporary paving will also be added to the intersection of Fairfax Bolinas Road and SR-1 to allow for vehicles to turn onto Fairfax Bolinas Road from southbound SR-1.

During Year 2 of construction, Fairfax Bolinas Road will be closed to traffic and the realigned Olema Bolinas Road intersection would be open. Staging areas will be located off-road in locations that would be decommissioned after Project completion. The Year 2 staging area may require transport of construction materials across the road. There may be impacts to traffic during Year 1 construction along SR-1 at the relocated SR-1/Olema Bolinas Road intersection and during Year 2 construction at the Fairfax Bolinas Road intersection. Mitigation Measure TRAN-02 would require placing of construction and detour warning signs in advance and implementing temporary control measures to direct traffic. With implementation of Mitigation Measure TRAN-02, temporary Project construction impacts would be reduced to a less-than-significant level.

Once constructed, the proposed closure of the segment of Fairfax Bolinas Road and relocation of the SR-1/Olema Bolinas Road intersection would not result in an increase to hazardous conditions due to design features. No new roadway uses would be introduced as a result of the Project. Operational impacts would be less than significant. The proposed Project would not result in a substantial increase in hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Mitigation Measure TRAN-02: Construction Signage

Construction and detour warning signs shall be placed on SR-1 in advance of construction activities along the roadway for both northbound and southbound traffic. Additional signage, as well as traffic control personnel, may be required at the intersection based on proximity of construction activities to the roadway and whether any temporary modifications of the travel lanes are required. Detour signage shall also be placed at both ends of Horseshoe Hill Road, indicating that this route is not suitable for use as a construction zone bypass.

During Year 2 construction, to the degree that construction materials are required to be transported across the road to and from the staging area, temporary traffic control shall be required. To the extent that the staging area encroaches upon the roadway, traffic control may be required to maintain adequate clearances. Construction warning signage shall be stationed upstream of active construction and staging areas.

d) Would the Project result in inadequate emergency access?

Less than Significant with Mitigation

The reconfigured intersection at SR-1/Olema Bolinas Road will be designed to provide an adequate turning radius for fire trucks per the applicable Caltrans Design Exceptions standards for SR-1. The intersection layout is designed to accommodate a 40-foot bus and an American Association of State Highway and Transportation Officials (AASHTO) WB-40 truck. Therefore, once constructed, it is expected that the emergency vehicle access at the Project location would be adequate. As described in Impact c) above, construction activities could result in temporary circulation and access impacts—including turning radii for trucks and emergency vehicles as well as encroachments into the roadway, which could similarly impact emergency access.

The temporary closure of the Olema Bolinas Road intersection could potentially impact emergency vehicle access during Year 1 of construction. However, adequate access would continue to be maintained throughout the construction period, although travel times may occasionally be delayed. Once constructed, the Project would provide adequate access for emergency vehicles. Mitigation Measure TRAN-02 would require short-term improvements on the roadway to accommodate movements of emergency vehicles, if needed. Consultation with the Marin County Fire department and Bolinas Fire Protection District has occurred during the Project design process and has

addressed the maintenance of adequate emergency access, meeting turning radius needs, and providing adequate traffic control.

With implementation of Mitigation Measure TRAN-02 during the construction period, the impact of the proposed Project would be less than significant.

R. TRIBAL CULTURAL RESOURCES

Table 38. Tribal Cultural Resources Checklist Questions

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

SETTING

The following discussion has been summarized from the Archaeological Survey Report prepared by Far Western (Far Western, 2023).

The proposed Project is centered in Marin County, where the Coast Miwok spoke one of the California Penutian languages, and were closely related linguistically to the nearby Lake Miwok (Barret S. A., 1908) (Georke, 2007) (Kelly, 1978) (Kroeber, 1925). They had one of the highest population densities in the Bay Area (Milliken R. , 2010). Prior to European contact, the native people of the Bay Area were hunters and gatherers with a heavy reliance on marine food resources. The Coast Miwok settlement system consisted of a primary village located along a principal stream, with satellite communities or special-use sites, usually seasonally occupied, in the surrounding countryside. The Bay Miwok were particularly impacted by Spanish missionization in the late 1700s. When missions were secularized in the 1830s, many Natives transitioned to servitude to Mexican landowners. Following European settlement, a series of acts and bills passed by congress in the mid-1800s left Native Californians landless and legally powerless until 1920, when the Bureau of Indian Affairs purchased a 15.45-acre tract of land in Graton to create a “village home” for dispersed people of Marshall, Bodega, Tomales, and Sebastopol (Federated Indians of Graton Rancheria, 2020). In 1958, Congress passed the California Rancheria Act which terminated all 41 Rancherias in the state, extinguished the recognition of their residents as American Indians, and removed the land from Federal Trust. As with many other California Tribes, federal recognition for the Coast Miwok was not

restored until decades later. For the Graton Rancheria, campaigning began in 1990, with recognition restored in December 2000, and a tribal constitution ratified by the Bureau of Indian affairs in 2002, allowing the tribe to re-establish a land base, funding for cultural preservation, and establishment of tribally owned businesses to achieve self-sufficiency (Federated Indians of Graton Rancheria, 2020). Today, the "Graton Rancheria community is a federation of Coast Miwok and Southern Pomo groups recognized as a tribe by the United States Congress. The Miwok of west Marin County have, through the years, been referred to as Marshall Indians, Marin Miwok, Tomales, Tomales Bay, and Hookooeko. The Bodega Miwok (aka, Olamentko) traditionally lived in the area of Bodega Bay. The neighboring Southern Pomo Sebastopol group lived just north and east of the Miwok" (Federated Indians of Graton Rancheria, 2020).

Cultural Resource Studies

Archaeological Survey Report

An *Archaeological Resources Inventory Report* for the Project was prepared by Far Western in January 2023. Because the report contains confidential information about the locations and characteristics of archaeological sites and tribal cultural resources, the technical report is not included in this Initial Study for public review but a redacted version that omits culturally sensitive information can be made available to agencies and other professionals for review as necessary.

The technical report included a cultural resources records search, consultation with the Federated Indians of Graton Rancheria (FIGR), outreach with the Bolinas Museum and Marin History Museum, buried site sensitivity assessment, and pedestrian surveys of the Project site conducted in 2020 and 2021. Additionally, the report included results of presence/absence archaeological testing, which consisted of drilling two deep cores and nine hand augers in accessible areas adjacent to the proposed bridge footings and shallow hand augers along the proposed creek channel.

Survey field methods are described in detail in the Cultural Resources section of this document. Additional archaeological testing was conducted to test for the presence or absence of Native American archaeological deposits within the APE, specifically the area of direct impact for the new bridge ad channel reconstruction efforts. Testing consisted of drilling two deep cores and nine hand augers in accessible areas adjacent to the proposed bridge footings and shallow hand augers along the proposed creek channel. Testing was conducted on September 13, 2021, in coordination with FIGR.

Based on the results of the records search and literature review, no previously identified archaeological sites have been documented within the Project site. Two previously identified historic-era resources intersect with the Project site and are discussed in detail in the Cultural Resources section of this document.

Archaeological testing within the APE for the bridge footings and new creek channel did not result in the identification of any cultural deposits and determined a general lack of buried archaeological sensitivity within the APE, except the upper 9 feet in the area of the bridge footings where archaeological materials could be present due to landform age and formation, however beyond that depth the underlaying strata are too old to contain archaeology. No archaeological materials were identified when visually examining all sediments uncovered from hand augurs and cores and dry screening select contexts.

POTENTIAL FOR BURIED PRECONTACT ARCHAEOLOGICAL RESOURCES

Applicable Regulations

California Register of Historic Resources

The California Register is a listing of State of California resources that are significant within the context of California's history, and includes all resources listed in or formally determined eligible for the National Register. The criteria used to determine the significance of an impact to a "historical resource" (important archaeological or built-environment resources) are based on Appendix G of the CEQA Guidelines. California regulations require that effects to cultural resources be considered only for resources meeting the criteria for eligibility to the California Register, as outlined in PRC §5024.1. The California Register identifies resources considered to be important for state and local planning purposes and affords certain protection under CEQA. Resources must possess physical integrity, as well as integrity of setting, and meet at least one of the following criteria (CEQA Guidelines, CCR §15064.6).

A resource that is eligible to the California Register is one that:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. is associated with the lives of persons important in California's past;
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic value; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

Demolition, replacement, substantial alteration, or relocation of an eligible resource are actions that could change the eligibility of a resource. Under CEQA Guidelines, effects to cultural resources may be considered significant if a project alternative would result in any of the following:

- cause a substantial adverse change in the significance of a historical resource, as defined in CEQA Guidelines (CCR §15064.5);
- cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines (CCR §15064.5); or
- disturb any human remains, including those interred outside formal cemeteries.

In addition, a project that has potential to impact a traditional cultural property such that it would cause a substantial adverse change constitutes a significant effect on the environment unless mitigation reduces such effects to a less-than-significant level.

AB 52

AB 52 amended CEQA to address California Native American tribal concerns regarding how cultural resources of importance to tribes are treated under CEQA. With the addition of AB 52, CEQA now specifies that a project that may cause a substantial adverse change in the significance of a "tribal cultural resource" [as defined in PRC 21074(a)] is a project that may have a significant effect on the environment. According to the AB 52, tribes may have expertise in tribal history and "tribal knowledge about land and tribal cultural resources at issue should be included in environmental assessments for projects that may have a significant impact on those resources."

The AB 52 process entails the following:

- The CEQA lead agency must begin consultation with a California Native American tribe(s) that is traditionally and culturally affiliated with the geographic area of the proposed project, if the tribe(s) requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area and the tribe(s) requests consultation.
- A proposed Negative Declaration, Mitigated Negative Declaration (MND), or a Draft EIR cannot be released for public review before the tribe(s) has had the opportunity to request consultation.
- If the tribe(s) requests formal consultation, a MND cannot be released for public review until consultation between the tribe(s) and the lead agency is completed and mitigation measures acceptable to the tribe(s) are incorporated into the MND and the related Mitigation Monitoring or Reporting Program (MMRP).

Native American Outreach and Consultation

Far Western contacted the Native American Heritage Commission (Commission) on October 27, 2020, informing them of the Project and requesting a review of their Sacred Lands File and list of contacts who might have knowledge concerning cultural and tribal resources within the proposed Project. The Commission responded on November 2, 2020, that the Sacred Lands File did not indicate any Native American resources in the immediate area but cautioned that the lack of information did not indicate the absence of such resources. A list of potentially interested Native American individuals and organizations was provided by the Commission. Far Western sent outreach letters to FIGR and Guidiville Indian Rancheria on behalf of the County to initiate Project outreach, informing them of the background environmental studies and inviting their participation in the consultation process. Based on a response from FIGR, formal consultation was initiated between FIGR and MCOSD and numerous meetings were held to discuss the Project details and identification efforts. As a result of consultation, FIGR requested presence/absence testing in locations proposed for deep disturbances, such as for the new bridge footings and grading within the creek channel. Far Western, in coordination with FIGR, conducted the testing (two deep cores and nine augers) and no cultural deposits were encountered. MCOSD will continue to update FIGR as the Project's environmental and cultural compliance progresses.

CEQA CONTEXT

A project would normally result in a significant impact to tribal cultural resources if it would adversely change the significance of a tribal cultural resource, including those identified by tribes.

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code §5020.1(k)?

b) Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources

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

Less than Significant with Mitigation Incorporated

Two historic-era resources (one site/Oyster House Site and one isolate/bottle) were encountered within the APE during the field site survey conducted by Far Western. A second isolate was identified immediately adjacent to the APE on the former Wilkins Ranch property and includes a California Division of Highways survey monument (C-Block). These resources do not qualify as tribal cultural resources, and the ARS did not identify any other tribal cultural resources within the Project site. Formal consultation was initiated between FIGR and MCOSD and numerous meetings were held to discuss the Project details and identification efforts. As a result of consultation, FIGR requested presence/absence testing in locations proposed for deep disturbances, such as for the new bridge footings and grading within the creek channel. Far Western, in coordination with FIGR, conducted the testing (two deep cores and nine augers) and no cultural deposits were encountered. MCOSD will continue to update FIGR as the Project's environmental and cultural compliance progresses. MCOSD will continue to update FIGR as the Project's environmental and cultural compliance progresses. The Project will implement Mitigation Measures CUL-1, CUL-2, AND CUL-3 (see the Cultural Resources section of this CEQA Checklist) to reduce impacts to tribal cultural resources to a less-than-significant level.

S. UTILITIES AND SERVICE SYSTEMS

Table 39. Utilities and Service Systems Checklist Questions

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

SETTING

The Project site is an undeveloped area containing roadway infrastructure. Overhead PG&E power lines are located along SR-1 and Olema Bolinas Road within the Project site. Existing uses of the Project site do not include parking, restrooms, drinking water, or other similar facilities that would require utilities, such as electricity, natural gas, telecommunication, potable water, or wastewater.

CEQA CONTEXT

A project would normally result in a significant impact on utilities and service systems if it would exceed or conflict with existing standards, service capacities, and/or entitlements. Potentially significant impacts to utilities and service systems have been evaluated by determining if new or altered services would be required to implement the proposed Project.

a) Would the Project require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects?

Less-than-Significant Impact

Implementation of the proposed Project would not require the relocation, construction, or expansion of any utility or public service facility other than the roadways on-site. Water would be trucked to the Project area during construction for dust control. Construction equipment would be powered by diesel fuel, gasoline, and generators, and would not require electrical infrastructure. Surface runoff from impervious surfaces on the Project site would flow to the roadside ditches and would not generally change the existing stormwater drainage patterns, except that rainfall would infiltrate rather than runoff in the area currently occupied by the crossover segment of Fairfax Bolinas Road. During construction, portable toilets would be transported to the Project site for use by construction workers. The portable toilet waste generated during the construction period would be trucked to an appropriate wastewater treatment facility. No expansion of wastewater treatment facility capacity would be required to accommodate this small, temporary quantity of waste. For these reasons, implementation of the proposed Project would result in a less-than-significant impact associated with the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects.

b) Would the Project have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years?

No Impact

Implementation of the proposed Project would require water for dust control. Water would be imported and tracked to the Project site. Implementation of the proposed Project would not require a regular supply of water. The Project site currently does not require water service, and none is proposed as part of the Project. Implementation of the proposed Project would not create new demands for water supply and would not include or require any drinking fountains, irrigation, or water facilities. For these reasons, implementation of the proposed Project would result in no impact associated with the sufficiency of water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years.

c) Would the Project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact

There are no existing restrooms or water facilities available within the Project area. Implementation of the proposed Project does not include new restrooms that would increase projected demand for wastewater treatment. Refer to the analysis under Impact a) above for a discussion of the need for portable toilets during construction. Implementation of the proposed Project would not result in any impact associated with adequate wastewater treatment capacity to serve the Project's projected demand in addition to the provider's existing commitments.

d) Would the Project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less-than-Significant Impact

Grading and existing road demolition activities during construction of the proposed Project would result in the need for disposal of up to 500 cubic yards of cut soil and demolition materials. Materials would likely be transferred to the Marin Resource Recovery Center in San Rafael for disposal or recycling. The materials that are determined to not be recyclable would be disposed of at the Redwood Landfill in the City of Novato. The Redwood Landfill has a permitted throughput capacity which allows receipt of 2,300 tons per day of waste material, has a design capacity of 26,000,000 cubic yards, and is estimated to cease operations in July 2024 (CalRecycle, 2022). The volume of construction-related solid waste would not exceed the capacity of the Redwood Landfill.

Implementation of the proposed Project would comply with applicable county, State, and federal regulations regarding solid waste disposal; therefore, implementation of the proposed Project would have a less-than-significant impact with respect to the generation of solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or the attainment of solid waste reduction goals.

e) Would the Project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact

As discussed in Impact d) above, implementation of the proposed Project would generate solid waste, primarily associated with grading and road demolition activities. This waste would be disposed of at the Redwood Landfill, located in Novato. The volume of construction-related solid waste would not exceed existing landfill capacity. The proposed Project would comply with applicable county, State, and federal regulations regarding solid waste disposal; therefore, implementation of the proposed Project would not result in any impact associated with compliance with federal, state, and local management and reduction statutes and regulations related to solid waste.

T. WILDFIRE

Table 40. Wildfire Checklist Questions

	If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a)	Impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b)	Due to slope, prevailing winds, and other factors, would the Project exacerbate wildfire risks and thereby expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c)	Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d)	Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

SETTING

CalFire has mapped areas of high wildfire hazards throughout California, including Marin County. The Project site is mapped as Moderate Fire Hazard Severity Zone within the State responsibility area (CalFire, 2022). No areas within the Project vicinity are classified as Very High Fire Hazard Severity Zones.

CEQA CONTEXT

A project would normally result in a significant impact on wildfire if it is located in or near State responsibility areas or lands classified as a very high fire hazard severity zone and would increase wildfire risk, air pollution concentration from wildfire due to topographic features or prevailing winds, risk to people or structures form post-wildfire flooding or landslides, or conflict with an adopted emergency response plan or emergency evacuation plan.

a) Would the Project impair an adopted emergency response plan or emergency evacuation plan?

No Impact

The Project site is not within an adopted emergency response plan area or an emergency evacuation plan area. Implementation of the Project would improve ingress/egress of visitors and residents through the Project area in case of an emergency. Emergency vehicles would continue to access the Bolinas community through the Project area during construction and operation of the Project. Therefore, implementation of the proposed Project would not result in any impact associated with impairment of an adopted emergency response plan or emergency evacuation plan.

b) Due to slope, prevailing winds, and other factors, would the Project exacerbate wildfire risks and thereby expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less-than-Significant Impact

The Project site would continue to be an undeveloped area containing a road and bridge connecting the Bolinas community to SR-1. No structures or amenities would be developed that could potentially exacerbate wildfire risks.

Equipment used during Project construction activities could generate sparks which could result in wildland fire. The MCOSD would require the construction contractor to minimize risk of wildfire that could be initiated from equipment to construct and maintain the proposed Project, by requiring vehicles be equipped with fire extinguishers to address small fires ignited by construction or maintenance activities. This provision would be included in the standard construction document specifications. For these reasons, implementation of the proposed Project would result in a less-than-significant impact associated with exacerbation of wildfire risks.

c) Would the Project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact

The proposed Project would not include the installation or maintenance of fuel breaks, emergency water sources, power lines, or other utilities. Implementation of the proposed Project would improve wetland habitat and safe access to the Bolinas community. New infrastructure proposed includes the relocation of the Olema Bolinas Road intersection with SR-1, and removal of the Crossover Road. Therefore, fewer roads would be present post construction. The roadway improvements proposed as part of the Project would reduce the need for regular maintenance since the risk of flooding would be reduced with the installation of a full span bridge to route flows from Lewis Gulch Creek, versus the

existing undersized culvert that requires frequent cleanouts. For these reasons, implementation of the proposed Project would result in no impact associated with the installation or maintenance of associated infrastructure, such as roads, fuel breaks, emergency water sources, power lines, or other utilities that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.

d) Would the Project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact

As discussed in the Project Description and in the Hydrology and Water Quality section of this CEQA Checklist, the proposed Project would move roadways out of flood inundation areas by removing the Fairfax Bolinas Road between SR-1 and Olema Bolinas Road and constructing a new intersection at Olema Bolinas Road/SR-1 with an elevated roadway and new bridge crossing over the realigned Lewis Gulch Creek on Olema Bolinas Road. Removing the section of the Fairfax Bolinas Road and realigning Lewis Gulch Creek within the Project site would reconnect the creek with its historic floodplain, which would improve floodplain function and reduce flood risk. The Project would also stabilize the eastern bank of Lewis Gulch Creek north of the Olema Bolinas Road/SR-1 intersection to prevent further stream bank erosion and incision. With these improvements, there would be an unrestricted floodplain that would allow for flow and sediment dispersal outside of the roadway. For these reasons, implementation of the proposed Project would result in no impact associated with the exposure of people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

U. MANDATORY FINDINGS OF SIGNIFICANCE

Table 41. Mandatory Findings of Significance Checklist Questions

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

SETTING

Implementation of the proposed Project would result in an overall beneficial effect to the environment as it would restore more natural hydrologic, geomorphic, and ecological processes to the aquatic, wetland, and upland habitat in the Bolinas Wye wetlands. Potential impacts described in this document that could

result from implementation of the proposed Project would be temporary and mitigation measures have been included in the document to reduce the significance of potentially significant impacts to less-than-significant levels.

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

Less than Significant with Mitigation Incorporated

The proposed Project would restore the Bolinas Wye wetlands' natural geomorphic and biological processes by reconstructing the physical and biological linkages between Lewis Gulch Creek and Bolinas Lagoon. The proposed Project would realign both Olema Bolinas Road and Lewis Gulch Creek to allow space for natural geomorphic and biological process to occur. The proposed Project would remove the section of Fairfax Bolinas Road that passes through the Bolinas Wye wetland between SR-1 and Olema Bolinas Road to allow for the realignment of Lewis Gulch Creek and to allow for wetland migration with an anticipated 5.5 feet of SLR and a 100-year storm event (8 feet of combined SLR). Restoration work would include earthmoving, construction of road and bridge infrastructure, erosion control planting, placement of large woody debris for habitat, removal of non-native species, restoration of native wetland habitat, and management of invasive species.

Potentially significant construction-related impacts to biological resources would be reduced to less-than-significant levels with the implementation of Mitigation Measures BIO-1 through BIO-7 and Mitigation Measure NOI-1. Potentially significant impacts to cultural and tribal cultural resources would be reduced to less-than-significant levels with the implementation of Mitigation Measures CUL-1 through CUL-3.

For these reasons, with mitigation measures identified in this document, the implementation of the proposed Project would result in a less-than-significant impact associated with the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory.

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

Less-than-Significant Impact

In recent years, the County of Marin has granted coastal permits in Bolinas for residential structures, site improvements, lot modifications, and agricultural purposes. Current projects on the County of Marin Community Development Agency's website include (County of Marin Community Development Agency, 2022):

- Cascado Coastal Permit, 8 Ocean Avenue
- Bolinas community Land Trust Coastal Permit, vacant lot on Aspen Road
- Loeb Bobbi Coastal Permit, 95 Nymph Road

- Satris Jones Coastal Permit and Merger, 230 Larch Road
- David Alexander Separate Trust Etal Coastal Permit and Design Review, vacant parcel with frontage on Elm Road, Hawthorne Road, and Grove Road

These permitted projects are not in the vicinity of the Project site and thus, would not combine with the proposed Project to generate cumulative impacts.

The Project is part of the MCOSD's larger strategy for improving climate change/SLR resiliency and improving natural habitat functionality at the north end of Bolinas Lagoon. Projects developed in accordance with this strategy (see the Project Description) are expected to have a net-positive impact on Bolinas Lagoon and surrounding environments. As such, the proposed Project is anticipated to contribute to cumulative net positive impacts resulting from Bolinas Lagoon restoration projects. For these reasons, implementation of the proposed Project would not result in adverse impacts that are individually limited, but cumulatively considerable.

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

Less-than-Significant Impact with Mitigation Incorporated

The Project site is located in a largely undeveloped, unpopulated area. The nearest residential receptor is located approximately 200 feet to the southwest of the Project site. The proposed Project would restore the Bolinas Wye wetlands' natural geomorphic and biological processes by reconstructing the physical and biological linkages between Lewis Gulch Creek and Bolinas Lagoon. The proposed Project would realign both Olema Bolinas Road and Lewis Gulch Creek to allow space for natural geomorphic and biological process to occur. The proposed Project would remove the section of Fairfax Bolinas Road that passes through the Bolinas Wye wetland between SR-1 and Olema Bolinas Road to allow for the realignment of Lewis Gulch Creek and to allow for wetland migration with an anticipated 5.5 feet of SLR and a 100-yer storm event (8 feet of combined SLR). Restoration work would include earthmoving, construction of road and bridge infrastructure, erosion control planting, placement of large woody debris for habitat, removal of non-native species, restoration of native wetland habitat, and management of invasive species.

The proposed Project does not include new parking areas or recreational amenities that would normally contribute to a significant increase in visitors, new types of visitors, or create a destination. Potential impacts to humans in the vicinity have been analyzed in this Initial Study, including Air Quality, Greenhouse Gas Emissions, Noise, and Transportation. Mitigation Measures HYD-1, NOI-1, and TRAN-1 through TRAN-3 for potentially significant water quality, noise, and transportation-related impacts have been identified. Implementation of these mitigation measures would reduce potential Project impacts to a less-than-significant level. All other identified human impacts associated with implementation of the proposed Project have been concluded to be less than significant. For these reasons, implementation of the proposed Project would result in a less-than-significant impact associated with environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.

XVII. REFERENCES

AECOM. (2015). *Bolinas Lagoon North End Project Technical Memorandum for Biological and Cultural Resources.* Oakland.

AECOM. (2016). *Bolinas Lagoon North End Restoration Project - Site Conditions Report.*

AECOM. (2016). *Bolinas Lagoon North End Restoration Project - Site Conditions Report.* AECOM.

AECOM. (2016). *Bolinas Lagoon North End Restoration Project-Site Conditions Report.* AECOM.

AECOM. (2017, June 23). Bolinas Lagoon North End Restoration Project Geotechnical Evaluation Report (Draft).

AECOM. (2017, June 23). Bolinas Lagoon North End Restoration Project Geotechnical Evaluation Report (Draft).

AECOM. (2017, December). Bolinas Lagoon North End Restoration Project: Conceptual Design Report.

AECOM and Watershed Sciences. (2016). *Bolinas Lagoon North End Restoration Project Technical Memorandum Current and Historic Geomorphology and Hydrology.* AECOM.

BAAQMD. (2009). *Revised Draft Options and Justification Report: California Environmental Quality Act Thresholds of Significance.* Bay Area Air Quality Management District.

BAAQMD. (2012). *Recommended Methods for Screening and Modeling Local Risks and Hazards.* Bay Area Air Quality Management District.

BAAQMD. (2017). *Final 2017 Clean Air Plan.* Bay Area Air Quality Management District.

BAAQMD. (2017a). *California Environmental Quality Act Air Quality Guidelines.* Bay Area Air Quality Management District.

BAAQMD. (2017b). *2017 Clean Air Plan: Spare the Air, Cool the Climate.* Bay Area Air Quality Management District.

BAAQMD. (2019). *Raster files with health risks values modeled for all highways/freeways and roadways with over 30,000 AADT provided to Baseline Environmental Consulting.* Bay Area Air Quality Management District.

BAAQMD. (2022, November 05). *Bay Area Air Quality Management District Stationary Source Screening Map*. Retrieved from https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=845658c19eae4594b9f4b805fb9d89a3

Barret, P. M. (1981). *Investigation of Cultural Resources within the Richmond Harbor Redevelopment Project 11-A, Richmond, Contra Costa County, California.* Richmond: California Archaeological Consultants, Inc. .

Barret, S. A. (1908). *The Geography and Dialets of the Miwok Indians.* University of California Publications in American Archaeology and Ethnology.

Blackmore, H. (2019). *Historic Resources Evaluation Report for the Capital Maintenance Project: MRN 1 22.8-32.1, 32.95 & 45.0-50.5, EA IJ960/E-FIS 041400403.* California Department of Transportation, District 4, Division of Environmentla Planning and Engineering, Cultural Resources Studies.

CalEPA. (2022). *Cortese List Data Resources*. Retrieved August 18, 2022, from https://calepa.ca.gov/sitecleanup/corteselist/

CalFire. (2022, April 13). *FHSZ Viewer*. Retrieved from https://egis.fire.ca.gov/FHSZ/

California Department of Conservation. (2022, April 11). *California Important Farmland Finder*. Retrieved April 11, 2022, from https://maps.conservation.ca.gov/DLRP/CIFF/

CalRecycle. (2022, April 13). *Facility/Site Summary Details: Redwood Landfill (21-AA-0001)*. Retrieved from https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/3054?siteID=1727

Caltrans. (2020). *Transportation and Construction Vibration Guidance Manual.* California Department of Transportation.

Caltrans. (2022, April 14). *California State Scenic Highway System Map*. Retrieved April 14, 2022, from https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa

CARB. (2017). *California's 2017 Climate Change Scoping Plan.* California Air Resources Board.

CDFW. (2022). Retrieved from Califoria Natural Diversity Database.

CO-CAT. (2013). *State of California Sea-Level Rise Guidance Document.* March 2013 update. Retrieved from http://www.opc.ca.gov/webmaster/ftp/pdf/docs/2013_SLR_Guidance_Update_FINAL1.pdf

Cook, S. F. (1968). Relationships among Houses, Settlement Areas, and Population in Aboriginal California. In K. Chang (Ed.), *Settlement Archaeology* (pp. 79-116). Palo Alto, California: National Press Books.

County of Marin. (2022, October 07). *Tsunami Hazard Area MAp*. Retrieved from https://www.conservation.ca.gov/cgs/Documents/Publications/Tsunami-Maps/Tsunami_Hazard_Area_Map_Marin_County_a11y.pdf

County of Marin Community Development Agency. (2022). *Projects by Geographical Location*. Retrieved from marincounty.org: https://www.marincounty.org/depts/cd/divisions/planning/projects

Crawford & Associates, Inc. (2020). *Marin County Open Space District Bolinas Lagoon Wye Wetlands Project Preliminary Foundation Report.* Sacramento: Crawford & Associates, Inc.

C-SMART and Marin County Community Development Agency. (2015). *Marin Ocean Coast Sea Level Rise Vulnerability Assessment.* Retrieved from marinslr.org

ESA. (2016). Bolinas Lagoon Bathymetry Reassessment.

ESA. (2020). *North End Bolinas Lagoon Water Year 2020 Monitoring Report.*

Far Western. (2023). *Archaeological Survey Report for the Bolinas Wye Wetland Resiliency Project in Bolinas, Marin County, California.*

Federated Indians of Graton Rancheria. (2020, December). *Federated Indians of Graton Rancheria Coast Miwok and Southern Pomo*. Retrieved from www.gratonrancheria.com/home/

Fehr & Peers. (2020). *Traffic Engineering Assessment Technical Memorandum.* San Francisco.

Fehr & Peers. (2022). *Traffic Engineering Assessment Memorandum.* San Francisco.

Fehr & Peers. (2023). *Traffic Engineering Assessment Technical Memorandum.* San Francisco.

FEMA. (2017). *Flood Rate Insurance Map (FIRM) No. 06041C0440E, effective August 15*. Retrieved from Federal Emerency Management Agency: https://msc.fema.gov/portal/search?AddressQuery=bolinas%2C%20ca#searchresultsanchor

FTA. (2006). *Transite Noise and Vibration Impact Assessment. FTA-VA-90-1003-06.* Federal Transit Administration, Office of Plannig and Environment.

FTA. (2018). *Transit Noise and Vibration Impact Assessment Manual, FTA Report No. 0123.* Fedral Transit Administration.

Georke, B. (2007). *Chief Marin: Leader, Rebel, and Legend.* Berkeley, California: Heyday Books.

GFNMS. (2008, August). Bolinas Lagoon Ecosystem Restoration Project: Recommendations for Restoration and Management.

GGNPC. (2021). *Bolinas Wye Wetlands Resiliency Project Vegetation Management Plan.*

Grimmer, A. E. (2017). *The Secretary of Interiors Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitiating, Restoring & Reconstructing Historic Buildings.* Washington, District of Columbia: USDOI-NPS.

Kelly, I. (1978). *Coastal Miwok. Handbook of North American Indians* (Vol. 8). (R. F. Heizer, Ed.) Washington, D.C.: Smithosonian Institution.

Kroeber, A. L. (1925). *Handbook of the Indians of California.* Washington, D.C.: Smithsonian Institution.

Livingston, D. A. (1995). *A Good Life: Dairy Farming in the Olema Valley.* Self-published.

Marin County. (2004). *Integrated Pest Management Policy.* Retrieved from Marin County Parks: https://www.parks.marincounty.org/-/media/files/sites/marin-county-parks/projects-and-plans/ipm/ordinance-and-policy/ipmpolicy_61813bosapprovedenglish.pdf?la=en

Marin County. (2005, November). Geology, Mineral Resources and Hazardous Materials Technical Background Report. *Marin Countywide Plan*.

Marin County. (2017, June 21). *Marin GeoHub: Mineral Resources Preservation Site*. Retrieved from https://gisopendata.marincounty.org/datasets/MarinCounty::mineral-resource-preservation-site/explore?location=38.034871%2C-122.526771%2C10.60

Marin County. (2017, June 21). *Marin GeoHub: Williamson Act Parcel*. Retrieved from https://gisopendata.marincounty.org/datasets/1adc88017cd84b4a9a70f360d872eb9f/explore?location=37.933585%2C-122.695786%2C16.33

Marin County. (2020, November 10). *Marin GeoHub-Expansive Soil*. Retrieved from https://gisopendata.marincounty.org/datasets/MarinCounty::expansive-soil/explore?location=37.937859%2C-122.694972%2C16.02

Marin County. (2022). *MarinMap Map Viewer*. Retrieved August 18, 2022, from https://www.marinmap.org/Html5Viewer/Index.html?viewer=smmdataviewer

Marin County Community Development Agency. (2019). *Marin County Local Coastal Program Land Use Plan.*

Marin County Community Development Agency. (2020). *Climate Action Plan.* Marion County Unincorporated Area.

Marin County Flood Control and Water Conservation District. (2003). *Major Streams and Watersheds of West Marin.*

Marin County Open Space District. (2021). *Draft Initial Study/Mitigated Negative Declaration for the proposed Cascade Canyon Bridges and Trail Improvement Project.* San Rafael: Marin County Open Space District.

Marin County Parks. (2022, April 13). *Bolinas Lagoon Preserve*. Retrieved from https://www.parks.marincounty.org/parkspreserves/preserves/bolinas-lagoon

Meyer, J. a. (2004). Landscape Evolution and the Archaeological Record: A Geoarchaeological Study of the Southern Santa Clara Valley and Surrounding Region. *Center for Archaeological Research at Davis Publicaiton 14*.

Miller and Caywood. (2008). *National Register Nomination Form: Olema Valley/Lagunitas Loop Ranches Historic District.* Missoula, Montana: Historical Research Associates, Inc.

Milliken, R. (2009). *Ethnohistory and Enthogeography of the Coast Miwok and their Neighbors, 1783-1840.* San Francisco, California: Prepared for the National Park Service, Golden Gate National Recreation Area.

Milliken, R. (2010). The Contact-Period Native California Community Distribution Model: A Dynamic Digital Atlas and Wiki Encyclopedia. Davis, California: Far Western Anthropological Research Group, Inc. Submitted to California Department of Transportation, District 6, Fresno.

National Park Service. (2018, November). Geologic Map of Point Reyes National Seashore.

NMFS. (2000). *Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act.*

NPS. (2020). *Point Reyes.* Retrieved December 2020, from https://www.nps.gov/pore/learn/historyculture/index.htm#:~:text=The%20cultural%20history%20of%20Point,European%20explorer%20to%20do%20so

OEHHA. (2015). *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.* Office of Environmental Health Hazard Assessment.

OPC. (2018). *State of California Sea-Level Rise Guidance (Update).*

Philip Williams & Associates, Ltd (PWA). (2006). *Protecting the Future Evolution of Bolinas Lagoon.* Prepared in association with WRA, Inc.

Reed, W. G. (1923). *History of Sacramento County California with Biographical Sketches of the Leading Men and Women of the County who Have been Identified with its Growth and Development from the Early Days to the Present.* Los Angeles, California: Historic Record Company.

Sanctuary Advisory Council. (2008). *Bolinas Lagoon Ecosystem Restoration Project: Recommendations for Restoration and Management.*

Sawyer, J. (2009). *A Manual of California Vegetation, 2nd Edition.* Sacramento: California Native Plant Society in collaboration with California Department of Fish and Game.

Sawyer, J. O.-W. (2009). *A Manual of California Vegetation, 2nd Edition.* Sacramento: California Native Plant Society in collaboration with California Department of Fish and Game.

Sawyer, K. O.-W. (2009). *A Manual of California Vegetation, 2nd Edition.* Sacramento, California: California Native Plant Society in collaboration with California Department of Fish and Game.

SFBRWQCB. (2017). *San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Incorporating Amendments as of May 4.* San Francisco Bay Regional Water Quality Control Board.

Slate. (2022, March). Bolinas Lagoon Wye Wetland Project Surface Fault Rupture Study.

Slate Geotechnical Consultants. (2022, March). Draft Surface Fault Rupture Study.

Thorne, K., MacDonald, G., Ambrose, R., Buffington, K., Freeman, C., Janousek, C., . . . Takekawa, a. J. (2016). Effects of Climate Change on Tidal Marshes Along a Latitudinal Gradient in California. *U.S. Geological Survey Open-File Report 2016-1125, 75p.*

U.S. Fish and Wildlife Service. (2015). *Ramsar Wetlands Convention*. Retrieved from http://www.fws.gov/international/wildlife-without-borders/ramsar-wetlands-convention.html

USDA Natural Resources Conservation Service. (2019). *Web Soil Survey*. Retrieved from Web Soil Survey: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

USDOI-NPS. (1998). *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques.* Washington, District of Columbia: Interagency Resources Division, National Park Service.

USEPA. (2022). *Principles of Wetland Restoration*. Retrieved from Unitd States Environmental Protection Agency: https://www.epa.gov/wetlands/principles-wetland-restoration#:~:text=Bioengineering%20is%20a%20method%20of,other%20pollutants%20and%20provide%20habitat

USFWS. (2010). *Appending the Proposed Marin County Culvert Maintenance Project in Marin County, California to the Programmatic Formal Endangered Species Act Consultation on Issuance of Permits under Section 404 of the CWA or Authorizations under the Nationwide Permit.* United States Fish and Wildlife Service.

USFWS. (2013). Endangered and Threatened Wildlife and Plants, Designation of Critical Habitat for Tidewater Goby, 78 U.S.C. 8745.

WRA. (2017). *Fish Passage Assessment Memo.*

WRA. (2019). *Monitoring Summary following road maintenance at Olema Bolinas Road box culvert.*

WRA. (2020). *Aquatic Resources Delineation Report, Bolinas Wye Wetlands Resiliency Project.*

WRA. (2020). Bolinas Wye Wetland Restoration Project: Basis of Design Reoprt - 30% Design.

WRA. (2020, October). Section 7 NMFS Biological Assessment.

WRA. (2021, April). Arborist Survey Report - Bolinas Lagoon Wye Wetlands Project.

WRA. (2021). *Arborist Survey Report, Bolinas Lagoon Wye Wetlands Project.*

WRA. (2021). *Rare Plant Surey Report, Bolinas Wye Wetlands Resiliency Project.*

WRA. (2022). *NMFS Section 7 Biological Assessment, Bolinas Wye Wetlands and Aquatic Habitat Restoration Project.*

WRA. (2022). *USFWS Section 7 Biological Assessment, Bolinas Wye Wetlands and Aquatic Habitat Restoration Project.*

WRA. (2023). *Bolinas Lagoon Wye Wetlands Resiliency Project Hydrologic and Hydraulic Modeling Technical Report.* San Rafael.

WRA. (Updated 2022). *Fish Passage Design Criteria and Guidance Report, Bolinas Lagoon Wye Wetland Restoration Project.*

W-Trans. (2022). *Initial Study Checklist for the Bolinas Wye.* W-Trans.

Yarbrough, E. (2023). *Cultural Landscape Report at Bolinas Fairfax Road, Olema Bolinas Road & California State Route 1.*