

Carmel River Floodplain Restoration and Environmental Enhancement Project

Monterey County, California
Route 1, Post Mile 71.9 to 72.3



Draft Environmental Impact Report/ Environmental Assessment

March 2019

Prepared For:

NEPA Lead Agency
U.S. Fish and Wildlife Service



CEQA Lead Agency
County of Monterey



Prepared By:

Denise Duffy & Associates, Inc.



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Carmel River Floodplain Restoration and Environmental Enhancement Project

**Modification of the existing levees along the south-bank of the Carmel river adjacent to State
Route 1 (SR 1) to allow flood flow to enter the historic floodplain and construction of a
causeway through SR 1 to convey those flood flows to the Carmel Lagoon.**

Draft Environmental Impact Report/ Environmental Assessment

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2) C and 49 USC 303

COUNTY OF MONTEREY
Resource Management Agency
and the
UNITED STATES FISH AND WILDLIFE SERVICE

Approved by:



Date: 10/24/18

Melanie Beretti, Special Programs Manager
County of Monterey Resource Management Agency
CEQA Lead Agency



Date: 10/29/2018

Lawrence M. Riley, Chief – Wildlife & Sport Fish Restoration Program
United States Fish and Wildlife Service, Region 8
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General Information About This Document

What's in this document:

The County of Monterey (County) is the lead agency under the California Environmental Quality Act (CEQA). The United States Fish and Wildlife Service (Service) is the lead agency under the National Environmental Policy Act (NEPA). Caltrans (as assigned by the Federal Highways Administration [FHWA]) is serving as a federal cooperating agency. This Draft EIR/EA examines the potential environmental impacts for the Carmel River Floodplain Restoration and Environmental Enhancement Project (Project). This document explains why the Project is being proposed, the alternatives being considered for the Project, the existing environment that could be affected by the Project, and the proposed avoidance, minimization, and/or mitigation measures.

What you should do:

Please read the document.

This Draft EIR/EA will be circulated for public review on March 8, 2019. A public information meeting will be scheduled during public review. We would like to hear what you think. If you have any comments regarding the Proposed Project, please attend the public information meeting and/or send your written comments to the County and the Service.

Submit comments via U.S. mail to:

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and

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Submit comments via email to:

BerettiM@co.monterey.ca.us

CEQAcomments@co.monterey.ca.us

and

Justin_cutler@fws.gov

The deadline for submitting comments is April 22, 2019.

What happens next:

After comments are received from the public and reviewing agencies, the County and Service may (1) give environmental approval to the Proposed Project, (2) do additional environmental studies, or (3) abandon the Project. If the Project is given environmental approval and funding is appropriated, the Project Proponents could design and construct all or part of the Project.

SUMMARY

S.1 Introduction

Through a cooperative agreement with the California Department of Transportation (Caltrans), the County of Monterey (County) is acting as the Lead Agency under California Environmental Quality Act (CEQA) for the Carmel River Floodplain Restoration and Environmental Enhancement Project (Proposed Project or Project). Through a separate cooperating agreement with Caltrans, the United States Fish and Wildlife Service (Service) is acting as the Lead Agency under National Environmental Policy Act (NEPA). Caltrans District 5 (as the expected delegated authority for the Federal Highways Administration [FHWA]) is serving as a federal cooperating agency. The County and Big Sur Land Trust (BSLT) will be co-applicants for all Project permits and authorizations with the exception of the Caltrans Project Report Approval and the Caltrans encroachment permit for which the County will be the only applicant¹.

S.2 Overview of the Project Area

The Proposed Project is located at the downstream end of the Carmel River Watershed, approximately half a mile from the river mouth, immediately east and west of State Route 1 (SR 1) (**Figures S-1 and S-2**). The Project is located on property owned by BSLT (Assessor's Parcel Numbers [APNs] 243-071-005-000, 243-071-006-000, and 243-071-007-000), California Department of Parks and Recreation (State Parks; APN 243-021-007-000), Monterey Peninsula Regional Park District (MPRPD; APNs 157-121-001-000 and 243-081-005-000), and Clinton and Margaret Eastwood (APN 243-071-008-000). Prior to the current ownership the land was owned and farmed by the Odello family. The portion of the Project site that is west of SR 1 is referred to as Odello West, while the portion on the east side is referred to as Odello East.

Approximately 19 projects are either proposed, ongoing, or recently developed in the project vicinity. These include two restoration projects (Carmel River Lagoon Enhancement Project, Caltrans River Mitigation Bank), four flood control project (Carmel Lagoon EPB, SRPS, and ISMP Project, Carmel Area Wastewater District (CAWD) Wastewater Treatment Plant Access Road, Carmel River Notch, and CSA-50 flood control improvements), five water supply and use projects (Aquifer Storage and Recovery, Eastwood Water Rights Petition and Split License, Rancho Cañada Water Rights Forbearance/Streamflow Enhancement, Monterey Peninsula Water Supply Project, and Pure Water Monterey Groundwater Replenishment Project), two general plan developments (Palo Corona Regional Park and Carmel Area State Parks General Plans), a dam removal project (San Clemente Dam Removal and Carmel River Reroute), the construction of a parking lot (Palo Corona Parking Lot), a subdivision (Rancho Cañada Villages), widening of SR 1

¹ The County is identified as the Project Sponsor in the Cooperative Agreement between the County and Caltrans.



Project Vicinity Map

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 S-1

(SR 1 Climbing Lane Project), and various CAWD improvements (CAWD Capital Improvements Program and CAWD Calle la Cruz Pipeline Replacement Project).

For a more complete description of proposed projects in the Environmental Impact Report (EIR)/Environmental Assessment (EA) study area, refer to **Section 2.4 Cumulative Impacts**, of this document.

S.3 Purpose, Need, and Objectives

Project Purpose

The primary purpose of this Project is to improve the natural and historic functions and values of the lower Carmel River and Carmel Lagoon through the hydraulic reconnection of the Carmel River, its southern floodplain, and the lagoon while addressing the long-standing problems of flood management and floodplain habitat loss within the lower Carmel River Basin.

Project Need

Flood Management

Previous flooding events have caused expensive and severe damage to the lower reaches of the Carmel River Basin. The most notable flood events in recent history include the March 1995 flood and the February 1998 flood. The 1995 flood was considered a 20- to 30-year flood event and destroyed the SR 1 Bridge and flooded development on both sides of SR 1 within the north floodplain. Bridge repairs and the implementation of a variety of flood protection measures reduced the flooding impacts of the February 1998 event; however, water still overtopped SR 1 and almost overtopped Val Verde Drive, the point where water had previously overflowed into developed areas north of the river. Climate change may increase or exacerbate these conditions. The Proposed Project will significantly reduce flood elevations within the north floodplain and could preclude the need for over \$14M in infrastructure improvements that would otherwise be needed to achieve the same level of flood protection within County Community Services Area 50 (CSA 50).

Floodplain Habitat Loss

The Proposed Project site was historically an important part of the Carmel River floodplain, providing connectivity directly with the coastal and estuarine waters of the Carmel Lagoon. The resulting ecosystem of seasonal wetlands, brackish lagoon, and riparian habitat was a biologically diverse habitat mosaic which supported sensitive habitats and wildlife species. The construction of the south bank levees, however, significantly reduced the lateral dispersal of floodwater onto the south floodplain. The site was further impacted with the construction of SR 1, which limited the conveyance of flood flows and effectively isolated the 100 acres of floodplain which lie upstream of SR 1 from the western portion of the floodplain and Carmel Lagoon. As a result, a

significant portion of the historic floodplain habitat has been lost and was converted to active agriculture.

An ambitious plan to restore the lower Carmel River floodplain and Carmel Lagoon was developed over a number of decades, starting in the 1990s (PWA et al. 1999). Significant milestones in the implementation of the overall plan include creation of the Carmel River Mitigation Bank (CRMB) and the Carmel River Lagoon Enhancement Project (CRLEP), both located within the Carmel River State Beach on the west side of SR 1. Implementation of the Proposed Project will allow for the realization of the long-term vision for the Carmel Lagoon and lower Carmel River floodplain to function as one dynamic, self-sustaining system that resembles, as closely as possible, its pre-development conditions. The Proposed Project will hydrologically connect the historic floodplain to the lagoon under SR 1, via the Causeway into the south arm restoration. Without flushing flows there is a real potential for the south arm restoration to silt-in over the long-term, resulting in the alteration or reduction of habitat and further loss of flood control function. However, with the implementation of the Proposed Project, the significant and on-going restoration efforts around the Carmel Lagoon will be maximized.

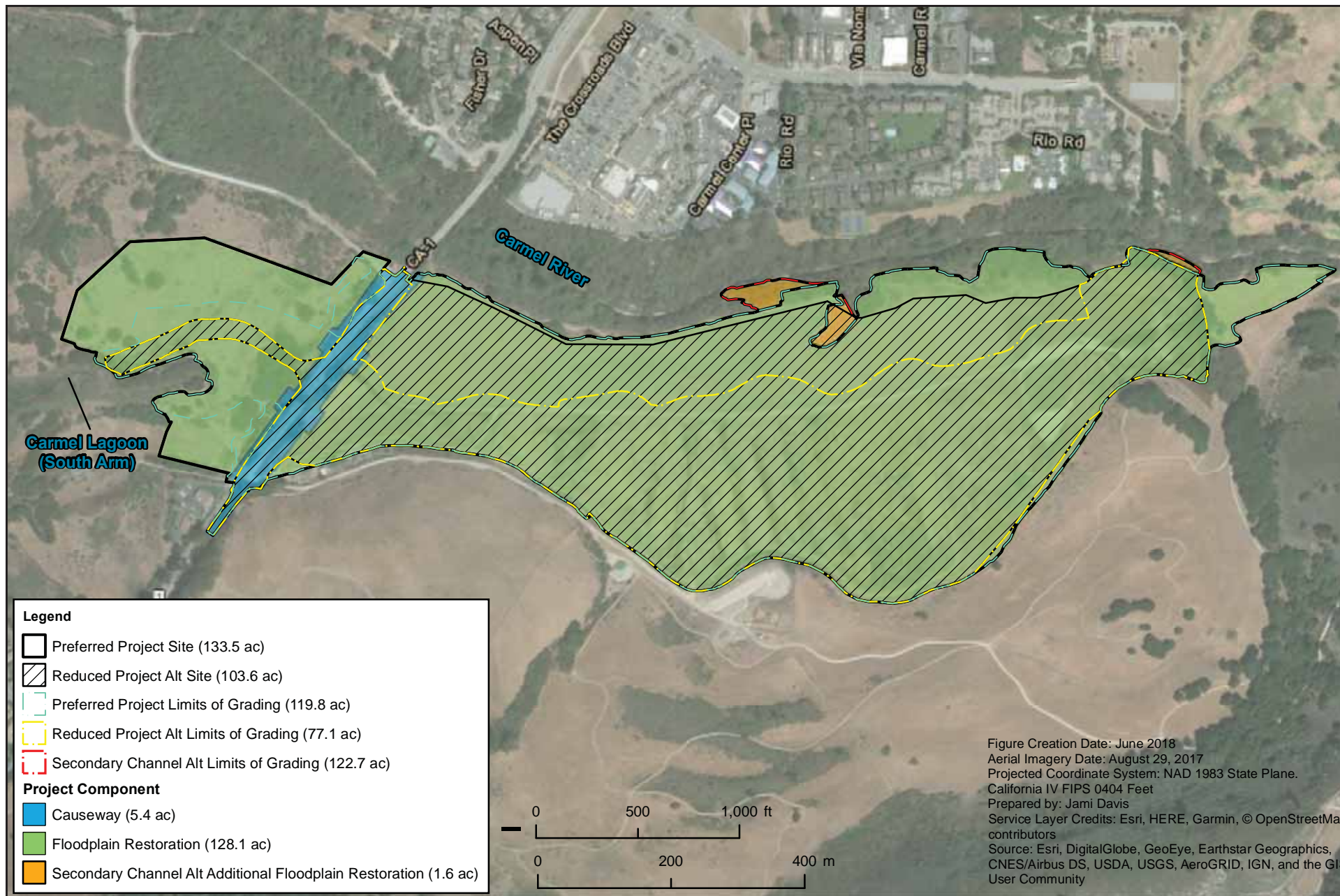
Project Objectives

- Reduce flooding hazards along the north floodplain
- Improve the natural and historic functions and values of the lower Carmel River and Carmel Lagoon
- Create a self-sustaining hydrologic connection and interaction of the floodplain and south arm of the Carmel Lagoon
- Improve habitat conditions for sensitive wildlife species
- Restore approximately 100 acres of natural habitat
- Improve the quality of water entering the Carmel Lagoon
- Create conditions that allow for adaptation to sea level rise and other climate change impacts
- Maintain active agricultural operation

S.4 Proposed Action

Project Description

The Proposed Project entails two interdependent Project components (**Figure S-3**), the Floodplain Restoration Component and the Causeway Component. The Floodplain Restoration Component consists of (1) removing a portion of the non-structural earthen levees on the south side of the Carmel River channel; (2) grading to restore the site's ecological function as a floodplain by creating the hydrogeomorphic characteristics necessary to support floodplain restoration activities; (3) grading to elevate approximately 23 acres of the existing farmland above the 100-year floodplain elevation to create an agricultural preserve; and (4) implementation of the Restoration



Project Components and Grading Limits

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Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 S-3

Management Plan (RMP). The RMP includes restoration of a mosaic of native habitats across the site in two phases, and maintenance, monitoring, and reporting protocols to ensure the success of the revegetation specific to compensatory mitigation requirements.

SR 1 is currently a two-lane conventional highway that has 12-foot travel lanes with four-foot to eight-foot shoulders. Once construction of the Causeway is complete, SR 1 would remain a two-lane conventional highway with 12-foot travel lanes; however, the Causeway incorporates eight-foot wide shoulders, transitioning to match existing four-foot wide shoulders at the southern project limits. The Causeway would also include a southbound left turn lane at the Palo Corona Regional Park entrance.

This draft EIR/EA evaluates a No-Build (No-Action) Project and three Build Alternatives to improve the natural and historic functions and values of the lower Carmel River and Carmel Lagoon. The Build Alternatives are: (1) Preferred Project, (2) Reduced Project Alternative, and (3) Secondary Channel Alternative. The Build Alternatives all include the following components: removing a portion of the existing levee, floodplain restoration grading to accommodate conveyance of flows over the floodplain, construction of a causeway to convey flows under SR 1 into the south arm of the Carmel Lagoon, an agricultural preserve elevated out of the floodplain, public access and trails, and both active and passive restoration of native habitats (**Figures S-4 and S-5**). However, the components vary in the size, extent, and configuration between the Build Alternatives; the common and unique aspects of each alternative are discussed in **Section 1.4 Project Alternatives**. The analysis contained in this EIR/EA is based on 60% Project Design Plans and Design Basis Report for the Preferred Alternative (Whitson Engineers 2017 and Balance Hydrologics, Inc. 2015a) and conceptual design plans for the Reduced Project and Secondary Channel Alternatives (Balance Hydrologics, Inc. 2018).

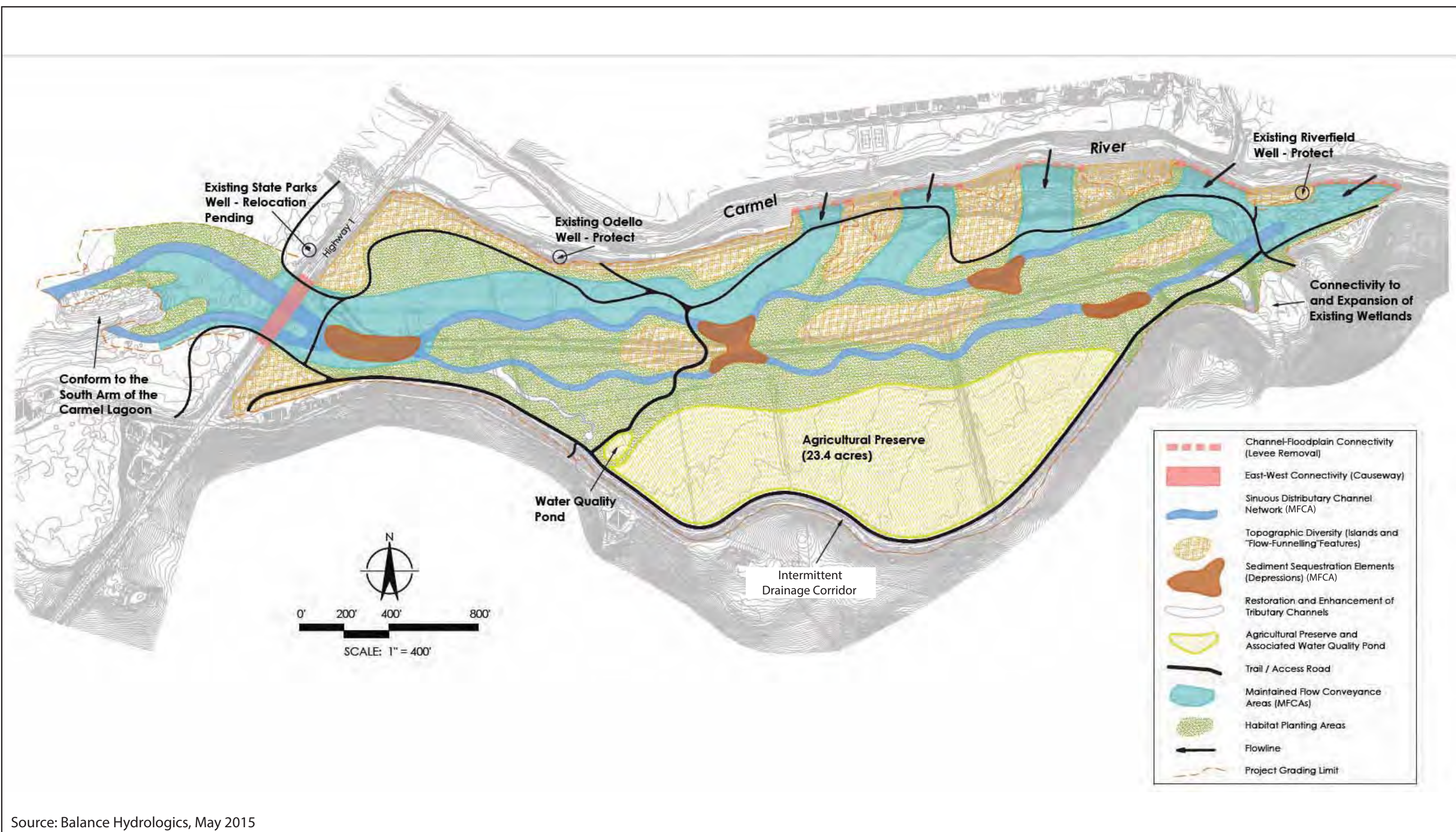
After comparing and weighing the benefits and impacts of all feasible alternatives, some of which are summarized in **Table 1.4-1**, the Project Development Team has identified Build Alternative 1: Preferred Project as the preferred alternative, subject to public review. Final identification of a preferred alternative will occur after the public review and comment period.

S.5 Construction Costs

Project funding has been obtained from several Federal and State Agency grant programs, including the U.S. Environmental Protection Agency (EPA), Service, California State Coastal Conservancy, California Wildlife Conservation Board, California Department of Water Resources, and Caltrans (from the SHOPP Minor “A” program). In 2010, the Service awarded funds under the National Coastal Wetlands Conservation (NCWC) Grant Program for the Proposed Project. The grant award was specially conditioned to preclude a substantial portion of those funds for any construction/earth-moving activities until environmental compliance requirements could be fulfilled. Local funding match is being provided, in part, by the value of the Eastwood’s land donation of a portion of the Project area. The total Project cost for construction is approximately

Summary

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Source: Balance Hydrologics, May 2015

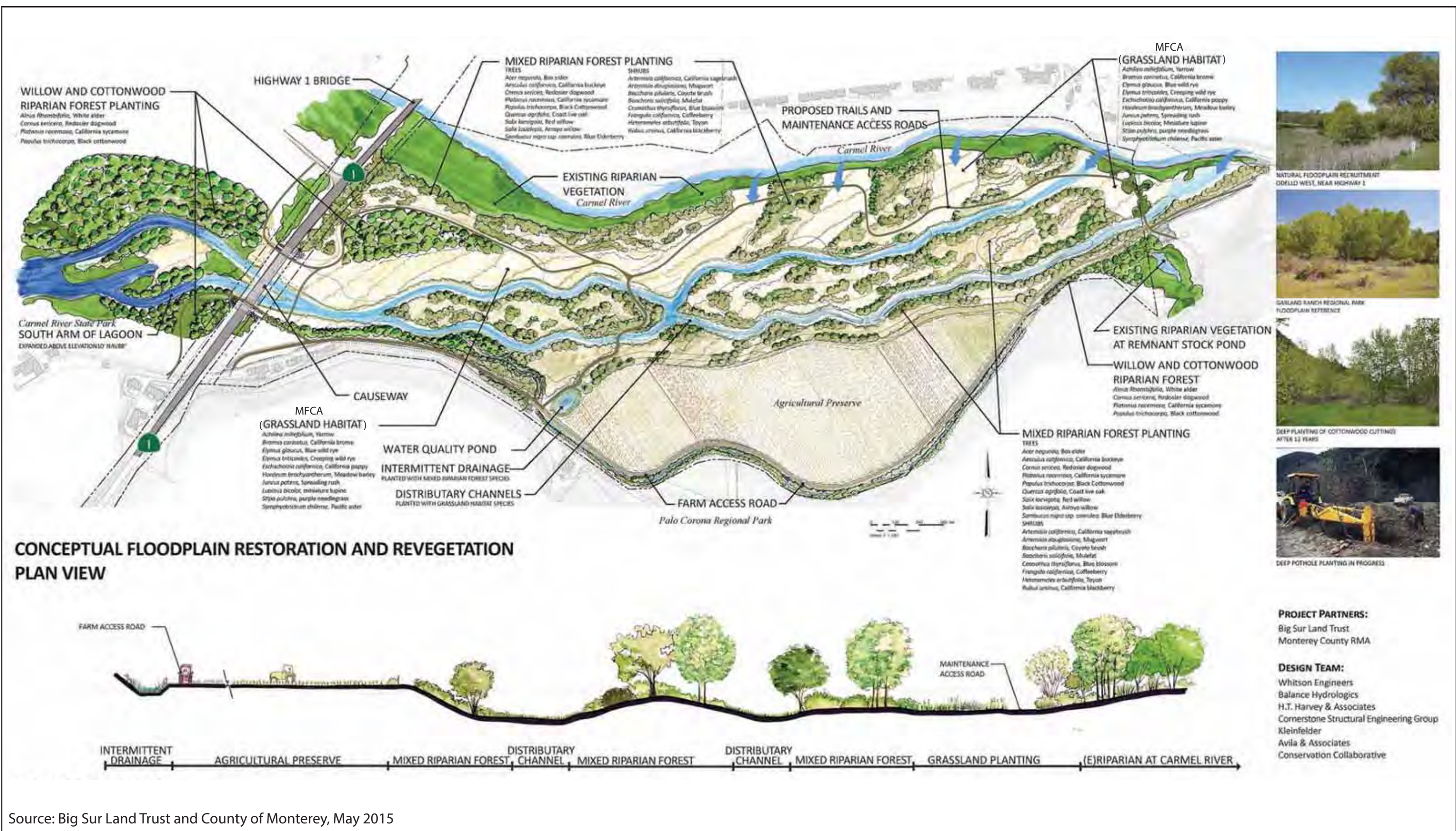


Project Design Features

June 2018

Figure
S-4

Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA



Source: Big Sur Land Trust and County of Monterey, May 2015



Conceptual Design Plan

June 2018

Figure
S-5

Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA

\$25M, the construction cost of the Caltrans portion being \$14.5M. In addition to grant funding for construction of the Project, BSLT has established an endowment fund for long term management of the Project, with a fundraising goal of \$2M to cover at least 20 years of adaptive restoration and maintenance activities. Project construction is contingent on acquiring the identified funding totals.

S.6 Joint CEQA/NEPA Document

The Project is subject to federal, as well as Monterey County and state environmental review requirements. Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. This document combines under one cover, an EA under NEPA and an EIR under CEQA. One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS, or a lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) as a whole has the potential to “significantly affect the quality of the human environment.” The determination of significance is based on context and intensity.

Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. NEPA does not require that a determination of significant impacts be stated in the environmental document. CEQA, on the other hand, does require the CEQA lead agency to identify each “significant effect on the environment” resulting from the project and ways to mitigate each significant effect. Project documentation has been prepared in compliance with both CEQA and NEPA.

Chapter 1 provides a detailed description of the project alternatives. This description details features that are common to all of the alternatives and features that are unique to some or one of the alternatives. **Chapter 2** describes the affected environment relevant to both the CEQA and NEPA in addition to providing a significance determination under NEPA. **Chapter 3** is specific to CEQA and makes a determination of significance for each environmental checklist item under CEQA (Appendix G of the CEQA Guidelines). Discussion and analysis of the effects and significance determinations are made for each of the alternatives within **Chapter 2** and **Chapter 3** for NEPA and CEQA, respectively. **Chapter 4** through **Chapter 7** provide important public disclosure information.

After receiving comments from the public and reviewing agencies, a Final EIR/EA is expected to be prepared. The County and the Service may prepare additional environmental and/or engineering studies to address comments. The Final EIR/EA will include responses to comments received on the Draft EIR/EA and will identify the preferred alternative. If the decision is made to approve the Project, a Notice of Determination will be published in compliance with CEQA, and the Service will decide whether to issue a Finding of No Significant Impact (FONSI), mitigated FONSI, or require an Environmental Impact Statement (EIS) for compliance with NEPA. If an EIS is required, a Notice of Intent (NOI) would be published and sent to the affected units of

federal, state, and local government, and to the State Clearinghouse, as appropriate. Otherwise, the FONSI/mitigated FONSI and the Final EIR/EA will be made available to the public.

S.7 Project Impacts

Table S-1 summarizes the potential significant environmental impacts under CEQA for all alternatives analyzed; **Table S-2** summarizes the potential impacts under NEPA. Both tables cover short-term construction impacts long-term operational impacts of the Proposed Project. For a complete description of potential effects and recommended mitigation measures, please refer to the specific sections within **Chapter 2** for NEPA and **Chapter 3** for CEQA.

Summary

Table S-1. Potential CEQA Impacts

Environmental Topic	No Build Alternative	Alternative 1 Preferred Project	Alternative 2 Reduced Project Alternative	Alternative 3 Secondary Channel Alternative	Avoidance, Minimization and Mitigation Measures
<i>Key to Acronyms: NI – No Impact; LS – Less than Significant; LSM – Less than Significant with Mitigation, SU – Significant Unavoidable, Beneficial Impact - BI</i>					
Aesthetics					
a) Have a substantial adverse effect on a scenic vista?	NI	LSM	LSM	LSM	Mitigation Measures VA-1 through VA-4 and NC-1 through NC-3
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	NI	LSM	LSM	LSM	Mitigation Measures VA-1 through VA-4 and NC-1 through NC-3
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	NI	LSM	LSM	LSM	Mitigation Measures VA-1 through VA-4 and NC-1 through NC-3
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	NI	NI	NI	NI	None
Agriculture and Forest Resources					
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?	LS	LS	LS	LS	None
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	NI	NI	NI	NI	None
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	NI	NI	NI	NI	None
d) Result in the loss of forest land or conversion of forest land to non-forest use?	NI	NI	NI	NI	None

Summary

Table S-1. Potential CEQA Impacts

Environmental Topic	No Build Alternative	Alternative 1 Preferred Project	Alternative 2 Reduced Project Alternative	Alternative 3 Secondary Channel Alternative	Avoidance, Minimization and Mitigation Measures
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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?	LS	LS	LS	LS	None
Air Quality					
a) Conflict with or obstruct implementation of the applicable air quality plan?	NI	NI	NI	NI	None
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	NI	NI	NI	NI	None
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	NI	NI	NI	NI	None
d) Expose sensitive receptors to substantial pollutant concentrations?	NI	LSM	LSM	LSM	Mitigation Measures AQ-1 & AQ-2
e) Create objectionable odors affecting a substantial number of people?	NI	LS	LS	LS	None

Summary

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Biological Resources					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	LS	LSM	SU	LSM	Mitigation Measures HAZ-3, NC-1 through NC-5, TE-1 through TE-5, and AS-1 through AS-6 Please note additional mitigations would be necessary for the Secondary Channel Project Alternative to avoid or reduce impacts to individual S-CCC steelhead habitat.
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	LS	LSM	LSM	LSM	Mitigation Measures HAZ-3, NC-1 through NC-4, and IS-1 & IS-2 (IS-3 for Secondary Channel Alternative only)
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	LS	LSM	LSM	LSM	Mitigation Measures HAZ-3 and NC-1 through NC-4
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?	NI	NI	NI	NI	None
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	NI	NI	NI	NI	None

Summary

Table S-1. Potential CEQA Impacts

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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?	NI	NI	NI	NI	None
Cultural Resources					
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	NI	LSM	LSM	LSM	Mitigation Measures CUL-1 through CUL-10 (CUL-9 would not apply for the Reduced Project Alternative)
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	NI	LSM	LSM	LSM	Mitigation Measures CUL-1 through CUL-8 and CUL-10
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	NI	LSM	NI	LSM	Mitigation Measures PAL-1 & PAL-2
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	NI	LSM	LSM	LSM	Mitigation Measures CUL-1 through CUL-7 and CUL-10
Energy					
a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation?	NI	LS	LS	LS	None
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	NI	NI	NI	NI	None
Geology and Soils					
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	-	-	-	-	-

Summary

Table S-1. Potential CEQA Impacts

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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?	NI	NI	NI	NI	None
ii) Strong seismic ground shaking?	NI	LSM	LSM	LSM	Mitigation Measures GEO-1 & GEO-2
iii) Seismic-related ground failure, including liquefaction?	NI	LSM	LSM	LSM	Mitigation Measures GEO-1 & GEO-2
iv) Landslides?	NI	NI	NI	NI	None
b) Result in substantial soil erosion or the loss of topsoil?	NI	LSM	LSM	LSM	Mitigation Measures WAQ-1, NC-1 through NC-4, and GEO-1
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?	NI	NI	NI	NI	None
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	NI	NI	NI	NI	None
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	NI	NI	NI	NI	None
Greenhouse Gas Emissions					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	NI	LS	LS	LS	None

Summary

Table S-1. Potential CEQA Impacts

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<i>Key to Acronyms: NI – No Impact; LS – Less than Significant; LSM – Less than Significant with Mitigation, SU – Significant Unavoidable, Beneficial Impact - BI</i>					
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	NI	NI	NI	NI	None
Hazards and Hazardous Materials					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	NI	LSM	LSM	LSM	Mitigation Measures HAZ-1 & HAZ-2
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?	NI	LSM	LSM	LSM	Mitigation Measure HAZ-3
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	NI	NI	NI	NI	None
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?	NI	NI	NI	NI	None
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 for people residing or working in the project area?	NI	NI	NI	NI	None
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	NI	NI	NI	NI	None

Summary

Table S-1. Potential CEQA Impacts

Environmental Topic	No Build Alternative	Alternative 1 Preferred Project	Alternative 2 Reduced Project Alternative	Alternative 3 Secondary Channel Alternative	Avoidance, Minimization and Mitigation Measures
<i>Key to Acronyms: NI – No Impact; LS – Less than Significant; LSM – Less than Significant with Mitigation, SU – Significant Unavoidable, Beneficial Impact - BI</i>					
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	NI	LSM	LSM	LSM	Mitigation Measure TT-1
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	NI	NI	NI	NI	None
Hydrology and Water Quality					
a) Violate any water quality standards or waste discharge requirements?	NI	LSM	LSM	LSM	Mitigation Measure WAQ-2
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	NI	NI	NI	NI	None
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	NI	LSM	SU	LSM	Mitigation Measures HF-1 and WAQ-1
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	NI	LSM	LSM	LSM	Mitigation Measures CUL-9, and HF-3 through HF-5

Summary

Table S-1. Potential CEQA Impacts

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e) 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?	NI	NI	NI	NI	None
f) Otherwise substantially degrade water quality?	NI	NI	NI	NI	None
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	NI	LSM	LSM	LSM	Mitigation measure HF-2
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	NI	NI	NI	NI	None
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	NI	LSM	LSM	LSM	Mitigation Measures CUL-9, and HF-3 through HF-5
j) Inundation by seiche, tsunami, or mudflow	NI	NI	NI	NI	None
Land Use and Planning					
No Impact					
Mineral Resources					
No Impact					
Noise					
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	NI	LSM	LSM	LSM	Mitigation Measures TE-5 and NSE-1 through NSE-3
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	NI	LSM	LSM	LSM	Mitigation Measures TE-5 and NSE-1 through NSE-3

Summary

Table S-1. Potential CEQA Impacts

Environmental Topic	No Build Alternative	Alternative 1 Preferred Project	Alternative 2 Reduced Project Alternative	Alternative 3 Secondary Channel Alternative	Avoidance, Minimization and Mitigation Measures
<i>Key to Acronyms: NI – No Impact; LS – Less than Significant; LSM – Less than Significant with Mitigation, SU – Significant Unavoidable, Beneficial Impact - BI</i>					
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	NI	NI	NI	NI	None
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	NI	LSM	LSM	LSM	Mitigation Measures TE-5 and NSE-1 through NSE-3
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 expose people residing or working in the project area to excessive noise levels?	NI	NI	NI	NI	None
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	NI	NI	NI	NI	None
Population and Housing					
No Impact					
Public Services					
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:	-	-	-	-	-
a) Fire protection?	NI	LSM	LSM	LSM	Mitigation Measure TT-1
b) Police protection?	NI	LSM	LSM	LSM	Mitigation Measure TT-1

Summary

Table S-1. Potential CEQA Impacts

Environmental Topic	No Build Alternative	Alternative 1 Preferred Project	Alternative 2 Reduced Project Alternative	Alternative 3 Secondary Channel Alternative	Avoidance, Minimization and Mitigation Measures
<i>Key to Acronyms: NI – No Impact; LS – Less than Significant; LSM – Less than Significant with Mitigation, SU – Significant Unavoidable, Beneficial Impact - BI</i>					
c) Schools?	NI	NI	NI	NI	None
d) Parks?	NI	LSM	LSM	LSM	Mitigation Measure TT-1
e) Other public facilities?	NI	LSM	LSM	LSM	Mitigation Measure TT-1
Recreation					
No Impact					
Transportation/Traffic					
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	NI	LSM	LSM	LSM	Mitigation Measure TT-1
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	NI	LSM	LSM	LSM	Mitigation Measure TT-1
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	NI	NI	NI	NI	None
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	NI	NI	NI	NI	None
e) Result in inadequate emergency access?	NI	LSM	LSM	LSM	Mitigation Measure TT-1

Summary

Table S-1. Potential CEQA Impacts

Environmental Topic	No Build Alternative	Alternative 1 Preferred Project	Alternative 2 Reduced Project Alternative	Alternative 3 Secondary Channel Alternative	Avoidance, Minimization and Mitigation Measures
<i>Key to Acronyms: NI – No Impact; LS – Less than Significant; LSM – Less than Significant with Mitigation, SU – Significant Unavoidable, Beneficial Impact - BI</i>					
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	NI	NI	NI	NI	None
Tribal Cultural Resources					
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	-	-	-	-	-
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	NI	LSM	LSM	LSM	Mitigation Measures CUL-1 through CUL-8 and CUL-10
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.	NI	LSM	LSM	LSM	Mitigation Measures CUL-1 through CUL-8 and CUL-10
Utilities and Service Systems					
No Impact					

Summary

Table S-1. Potential CEQA Impacts

Environmental Topic	No Build Alternative	Alternative 1 Preferred Project	Alternative 2 Reduced Project Alternative	Alternative 3 Secondary Channel Alternative	Avoidance, Minimization and Mitigation Measures
<i>Key to Acronyms: NI – No Impact; LS – Less than Significant; LSM – Less than Significant with Mitigation, SU – Significant Unavoidable, Beneficial Impact - BI</i>					
Mandatory Findings of Significance					
a) Does the project have the potential to 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?	LS	LSM	SU	LSM	Please see mitigations outlined above
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	NI	BI	SU	BI	None
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	NI	LS	LS	LS	None

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
Land Use					
No Impact					
Parks and Recreation					
Conversion of parklands	None	Conversion of one acre from State Parks land to Caltrans Right of Way would not be a substantial adverse effect. Conversion of a large portion of the current land use from agricultural to open space will be a beneficial effect to parklands.	Same as Alternative 1	Same as Alternative 1	None
Change in access to a parkland	None	A series of access roads/trails that will connect the adjacent parks to the Proposed Project site and to each other will increase access to parklands. This is a beneficial effect.	Similar to Alternative 1, except new trails on State Parks and MPRPD land and connections would not be included.	Same as Alternative 1	None
Farmlands					
Conversion of Farmlands	Impacts to Prime and Grazing Farmland would not be adverse in the context of the continuing agricultural activities.	Impacts to Prime and Grazing Farmland would not be substantially adverse in the context of the remaining agricultural preserve and consistency with applicable state, regional, and local plans, programs, and agricultural policies.	Same as Alternative 1	Same as Alternative 1	None

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
Utilities/Emergency Services					
Utilities	No Impact	Potential adverse effects to the CAWD outfall and sewer force main pipelines due to increased velocity of water directed under the causeway. Temporary relocation of utilities during construction would not be a substantial adverse effect.	Same as Alternative 1	Same as Alternative 1	Mitigation Measures HF-3 through HF-5
Emergency Services	No Impact	Potential delay in emergency access during construction due to temporary construction-related traffic. Minimal adverse impact.	Same as Alternative 1	Same as Alternative 1	Mitigation Measure TT-1.
Traffic and Transportation/Pedestrian and Bicycle Facilities					
Bicycle Facilities	No Impact	Construction of a series of trails that connect with existing neighboring trails would be a beneficial effect.	Construction of a series of trails would be a beneficial effect.	Same as Alternative 1	None
Pedestrian Facilities	No Impact	Construction of a series of trails that connect with existing neighboring trails would be a beneficial effect.	Construction of a series of trails would be a beneficial effect.	Same as Alternative 1	None

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
Traffic Circulation	No Impact	Addressing existing deficiencies associated with this segment of SR 1, including constructing a southbound left turn lane at the Palo Corona Regional Park entrance, and constructing a series of access roads and trails would be a beneficial effect. Temporary construction traffic would be a minor adverse effect.	Same as Alternative 1	Same as Alternative 1	Mitigation Measure TT-1
Visual/Aesthetics					
Adverse effect on scenic views/damage scenic resources	No Impact	Construction of a new causeway structure, resulting a somewhat more engineered visual character, and tree removal would be a minor adverse effect.	Same as Alternative 1, however, potential visual impact would be somewhat lessened due to the reduced size of the proposed causeway and the decreased amount of grading for this alternative.	No Impact	Mitigation Measures VA-1 through VA-4 and NC-1 through NC-3
Degradation of existing visual character or quality	Improved overall visual character.	Improved overall visual character.	Same as Alternative 1.	Same as Alternative 1	None
Create a new source of light or glare	No Impact	No Impact	No Impact	No Impact	None

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
Cultural					
Create an adverse change in the significance of an historical or archeological resource	No Impact	Increased WSE at State Parks Barn Complex and disturbance of buried artifacts would be a substantial adverse effect.	Disturbance of buried artifacts would be a substantial adverse effect. Decreased WSE at State Parks Barn Complex would be a beneficial impact.	Same as Alternative 1	Mitigation Measures CUL-1 through CUL-10 (CUL-9 would not apply for the Reduced Project Alternative)
Disturbance to human remains	None expected	Potential adverse effect during construction.	Same as Alternative 1	Same as Alternative 1	Mitigation Measures CUL-1 through CUL-7 and CUL-10
Hydrology and Floodplain					
Encroachment on a 100-year floodplain	No Impact	Flooding would increase within the undeveloped south floodplain consistent with the objectives of the Proposed Project; this is considered a beneficial effect of the Project. Does not constitute a significant floodplain encroachment as defined in 23 CFR Section 650.105.	Same as Alternative 1, except the encroachment would be less. Does not constitute a significant floodplain encroachment as defined in 23 CFR Section 650.105.	Same as Alternative 1, except additional encroachment where the secondary channel is proposed. Does not constitute a significant floodplain encroachment as defined in 23 CFR Section 650.105.	None
FEMA Flood Insurance Rate Map	No Impact	Changes in WSE that are predicted to occur could invalidate the BFEs cited.	Same as Alternative 1	Same as Alternative 1	HF-2

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
Flooding	No Impact	<p>Increased flooding in the south floodplain would reduce flooding in the developed north overbank area.</p> <p>Causeway will reduce the damming effects of the existing SR 1 embankment.</p> <p>The agricultural preserve would be elevated out of the 100-year flood elevation.</p> <p>The red houses would no longer be within the 100-year flood elevation.</p> <p>Flood elevations reduced at the CAWD facility.</p> <p>These are beneficial effects.</p>	<p>Increased flooding in the south floodplain would reduce flooding in the developed north overbank area, although to a lesser extent.</p> <p>Damming effects of the existing SR 1 embankment reduced but not eliminated. Project design would not pass the flood events as per standard Caltrans design requirements.</p> <p>The agricultural preserve would be elevated out of the 100-year flood elevation.</p> <p>Flooding slightly reduced at the red houses; however, they would remain within the 100-year flood elevation.</p> <p>Flood elevations reduced at the CAWD facility, although to a lesser extent.</p>	Same as Alternative 1	None
State Parks Barn Complex Flooding	No Impact	<p>Flood elevations would increase by 0.1 feet at this location during the 100-year flood event. This is not a substantial adverse effect as the structures are already within the 100-year flood elevation.</p>	<p>Flood elevations would be reduced by 0.4 feet at this location during the 100-year flood event. This would be a beneficial effect.</p>	Same as Alternative 1	<p>Mitigation Measure CUL-9 will further reduce Project impacts. (CUL-9 would not apply for the Reduced Project Alternative)</p>

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
CAWD outfall and sewer force main pipelines	No Impact	Flood velocities at the CAWD outfall and sewer force main pipelines would increase beyond the threshold for erosion and scour.	Same as Alternative 1, although increases in WSE and velocity are nominally smaller.	Same as Alternative 1	Mitigation Measures HF-3 through HF-5
Carmel River Flow	No Impact	No Impact	Could impact Carmel River flow if channel avulsion ² occurs.	Flow in the Carmel River would be reduced slightly due to the secondary channel but would not adversely affect the flow.	None (effects under the Reduced Project Alternative would be significant and unavoidable)
Scour	No Impact	No bridge scour anticipated at existing SR 1 Carmel River Bridge. Potential for bridge scour at the causeway could cause adverse effects. Scour at levee plugs is not anticipated to be substantial.	Increased risk of scour associated with a less stable geomorphic configuration of the floodplain channel could result in adverse effects.	Same as Alternative 1	Mitigation Measure HF-1 (effects under the Reduced Project Alternative would be significant and unavoidable)
Drainage Patterns	No Impact	No Impact	Increased risk of channel avulsion associated with the limitation of one notch through which flows will enter the floodplain during flood events could result in adverse effects.	Drainage patterns within the Carmel River would change associated with construction of the secondary channel. This is considered a beneficial effect.	None (effects under the Reduced Project Alternative would be significant and unavoidable)

² Avulsion refers to the potential for the Carmel River to change its course and jump out of the current main stem channel and onto the floodplain.

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
Erosion	No Impact	<p>Natural sediment deposits on the floodplain are not anticipated to be substantial.</p> <p>Larger flood events have the capacity to flush the Carmel Lagoon of sediment.</p> <p>Well-established riparian habitat and cobble lining in steeper parts of the distributary channels should limit the amount of sediment generated from the floodplain.</p> <p>Floodplain design will reduce sediment transport.</p> <p>Levee plugs will reduce sedimentation while floodplain vegetation establishes.</p> <p>Tier I and II restoration will reduce erosion long-term.</p> <p>These are considered beneficial effects.</p>	Increased risk of erosion associated with a less stable geomorphic configuration of the floodplain channel could result in adverse effects.	Same as Alternative 1	None (effects under the Reduced Project Alternative would be significant and unavoidable)
Groundwater	No Impact	Beneficial effects to groundwater by reducing water use from agricultural activities and increasing groundwater recharge by restoring the floodplain.	Same as Alternative 1, although reduced.	Same as Alternative 1	None

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
Water Quality and Stormwater Runoff					
Result in substantial drainage pattern alteration	No Impact	Altered drainage patterns would be a beneficial impact; however, potential resulting erosion would be an adverse effect.	Substantial adverse effect could result associated with a less stable geomorphic configuration of the floodplain channel.	Same as Alternative 1	Mitigation Measures HAZ-1 and WAQ-1 through WAQ-2.
Violation of water quality standards	No Impact	No Impact	No Impact	No Impact	None
Change to groundwater supply or groundwater recharge	No Impact	Enhanced groundwater recharge. This is a beneficial effect.	Same as Alternative 1	Same as Alternative 1	None
Substantially degrade water quality	No Impact	Substantial beneficial effects to water quality; however, potential resulting erosion would be an adverse effect.	Substantial adverse effect could result associated with a less stable geomorphic configuration of the floodplain channel.	Same as Alternative 1	Mitigation Measures HAZ-1 and WAQ-1 through WAQ-2.
Geology/Soils/Seismic/Topography					
Expected likelihood of seismic related issues, including ground shaking and liquefaction	No Impact	Potential for moderate to high seismic activity could expose remnant non-structural levees to seismic-related hazards.	Same as Alternative 1, except risk reduced.	Same as Alternative 1	Mitigation Measures GEO-1 and GEO-2
Liquefaction	No Impact	Potential adverse effects.	Same as Alternative 1	Same as Alternative 1	Mitigation Measures GEO-1 and GEO-2
Landslides	No Impact	No Impact	No Impact	No Impact	None

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
Erosion	No Impact	Potential resulting erosion would be an adverse effect.	Substantial adverse effect could result associated with a less stable geomorphic configuration of the floodplain channel.	Same as Alternative 1	Mitigation Measures WAQ-1, NC-1 through NC-4, and GEO-1
Mineral resources	No Impact	No Impact	No Impact	No Impact	None
Paleontology					
Destruction of paleontological resources (e.g., fossil remains and sites) as a result of ground disturbance	No Impact	The small area mapped as TUS has high potential for paleontological resources which could result in substantial adverse if paleontological resources were present and disturbed during grading.	No Impact	Same as Alternative 1.	Mitigation Measure PAL-1 & PAL-2
Hazardous Waste/Materials					
Risk of hazardous material release to humans or the environment	Potential substantial adverse impacts as a result of exposure during ongoing agricultural operations and weed management.	Improper disposal of any identified hazardous waste (such as highway striping and treated wood) would result in a substantial adverse effect. Potential substantial adverse impacts as a result of exposure during ongoing agricultural operations and weed management	Same as Alternative 1	Same as Alternative 1	Mitigation Measures HAZ-1 through HAZ-3

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
Air Quality					
Increase exposure of criteria pollutant emissions	No effect	No effect during operations. Temporary adverse effect due to increase in total maximum and average daily criteria pollutants emissions exposure during construction.	Same as Alternative 1.	Same as Alternative 1.	Mitigation Measures AQ-1 & AQ-2
Noise					
Increase in noise on sensitive receptors	No Impact	No effect during operations. Temporary substantial increase in noise to adjacent properties during construction. Pile driving is unlikely have adverse effects to S-CCC steelhead in the Carmel Lagoon and Carmel River.	Similar to Alternative 1, with shorter duration for the pile driving.	Same as Alternative 1.	Mitigation Measures NSE-1 & NSE-2
Energy					
No Impact					
Sensitive Natural Communities					
Impacts to sensitive natural communities	No Impact	Overall beneficial long-term impacts to natural communities. Temporary adverse effects to riparian vegetation associated with grading activities.	Similar to Alternative 1, however temporary impact to riparian habitat would be reduced.	Similar to Alternative 1, however temporary impact to riparian habitat would be increased at secondary channel.	Mitigation Measures HAZ-3, NC-1 through NC-4.

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
Wetlands and Other Waters					
Effects to wetlands and other waters	No impact	Expansion of coastal wetland habitat throughout the site. Temporary adverse effects to coastal wetlands and very small areas of federal wetlands and Other Waters as a result of grading and potential erosion.	Similar to Alternative 1, however temporary impact to coastal wetland would be reduced. Substantial adverse effect could result associated with erosion from a less stable geomorphic configuration of the floodplain channel.	Similar to Alternative 1, however temporary impact to coastal wetland and Other Waters would be increased at secondary channel.	Mitigation Measures HAZ-3, NC-1 through NC-4.
Plant Species					
Effects to Special-Status Plants	No Impact	Removal of Monterey pine and Monterey cypress trees would not result in adverse effects.	Same as Alternative 1	Same as Alternative 1	None
Animal Species					
Effects to migratory corridors	No Impact	Increased habitat and migratory corridors would be a beneficial effect.	Same as Alternative 1	Same as Alternative 1	None
Special-status Bat Species	No Impact	Overall beneficial effect of increased habitat and improved habitat values. Potential adverse effect due to vegetation removal and grading. Long-term maintenance activities may result in adverse effects.	Same as Alternative 1	Same as Alternative 1	Mitigation Measures AS-1 through AS-3.

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
Monterey Dusky-footed Woodrat	No Impact	Overall beneficial effect of increased habitat and improved habitat values. Potential adverse effect due to vegetation removal and grading. Long-term maintenance activities may result in adverse effects.	Same as Alternative 1	Same as Alternative 1	Mitigation measures AS-1 through AS-4 and NC-1 through NC-4.
Nesting and Special-Status Raptors, Riparian Avian Species, Special-Status Ground-Dwelling Avian Species, and Other Special-Status Avian Species	No Impact	Overall beneficial effect of increased habitat and improved habitat values. Potential adverse effect due to vegetation removal and grading. Long-term maintenance activities may result in adverse effects to nests.	Same as Alternative 1	Same as Alternative 1	Mitigation measures AS-1 through AS-3, AS-5, and NC-1 through NC-4.
Coast Range Newt	No Impact	Overall beneficial effect of increased habitat and improved habitat values. Potential adverse effect due to vegetation removal and grading. Long-term maintenance activities may result in adverse effects.	Same as Alternative 1	Same as Alternative 1	Mitigation Measures AS-1 through AS-3, As-6, and NC-1 through NC-4.

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
California Legless Lizard	No Impact	Overall beneficial effect of increased habitat and improved habitat values. Potential adverse effect due to vegetation removal and grading. Long-term maintenance activities may result in adverse effects.	Same as Alternative 1	Same as Alternative 1	Mitigation Measures AS-1 through AS-3, AS-6, and NC-1 through NC-4.
Western Pond Turtle	No Impact	Overall beneficial effect of increased habitat and improved habitat values. Potential adverse effect due to vegetation removal and grading. Long-term maintenance activities may result in adverse effects.	Increased risk of channel avulsion, erosion, and sedimentation associated with a less stable geomorphic configuration of the floodplain channel could result in adverse effects.	Same as Alternative 1	Mitigation Measures AS-1 through AS-3, AS-6, and NC-1 through NC-4. (effects under the Reduced Project Alternative would be significant and unavoidable)
Threatened or Endangered Species					
California Red-legged Frog	No Impact	Overall beneficial effect of increased habitat and improved habitat values. Potential adverse effect due to vegetation removal and grading. Long-term maintenance activities may result in adverse effects.	Increased risk of channel avulsion, erosion, and sedimentation associated with a less stable geomorphic configuration of the floodplain channel could result in adverse effects.	Same as Alternative 1	Mitigation Measures TE-1 through TE-4, HAZ-3, NC-1 through NC-4, and AS-1 through AS-3. (effects under the Reduced Project Alternative would be significant and unavoidable)

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
South-Central California Coast Steelhead	No Impact	Overall beneficial effect of increased habitat and improved habitat values. Potential sedimentation and reduced water quality may result in adverse effects.	Increased risk of channel avulsion, erosion, and sedimentation associated with a less stable geomorphic configuration of the floodplain channel could result in adverse effects.	Same as Alternative 1, except secondary channel would introduce a new wetted area that would be beneficial to steelhead.	Mitigation Measures TE-5, HAZ-3, NC-1 through NC-4, and AS-1 through AS-3. (effects under the Reduced Project Alternative would be significant and unavoidable)
Tricolored Blackbird	No Impact	Overall beneficial effect of increased habitat and improved habitat values. Potential adverse effect due to vegetation removal and grading. Long-term maintenance activities may result in adverse effects.	Same as Alternative 1	Same as Alternative 1	Mitigation Measures and AS-1 through AS-3, AS-5, and NC-1 through NC-4.
Essential Fish Habitat	No Impact	Overall beneficial effect of increased habitat and improved habitat values. Potential sedimentation and reduced water quality may result in adverse effects.	Increased risk of channel avulsion, erosion, and sedimentation associated with a less stable geomorphic configuration of the floodplain channel could result in adverse effects.	Same as Alternative 1	Mitigation Measures TE-5, NC-1 through NC-4, and HAZ-3. (effects under the Reduced Project Alternative would be significant and unavoidable)

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
Invasive Species					
Bullfrog	No Impact	If the agricultural water quality pond holds water sufficient to support bullfrog breeding, adverse effects may result.	Same as Alternative 1	Same as Alternative 1	Mitigation Measure IS-2.
Striped Bass and New-Zealand Mudsnail	No Impact	No Impact	No Impact	New Zealand mudsnails may be transferred to other aquatic resources on construction equipment if not properly cleaned. This would be an adverse effect.	Mitigation Measure IS-3 for Secondary Channel Alternative only.
Invasive Plants	Reduction of invasive plant population within the Project site	Reduction of invasive plant population within the Project site. Potential to spread invasive species by moving seed to and from the site would be an adverse effect.	Same as Alternative 1	Same as Alternative 1.	Mitigation Measure IS-1.
Cumulative Impacts					
Cumulative Hydrology Impacts	No Impact	Overall new beneficial cumulative impact.	Increased risk of channel avulsion, erosion, and sedimentation associated with a less stable geomorphic configuration of the floodplain channel could result in cumulative adverse effects.	Overall new beneficial cumulative impact.	None (effects under the Reduced Project Alternative would be significant and unavoidable)

Summary

Table S-2. Potential NEPA Impacts

Environmental Topic	No Build Alternative	Alternative 1 <i>Preferred Project</i>	Alternative 2 <i>Reduced Project Alternative</i>	Alternative 3 <i>Secondary Channel Alternative</i>	Avoidance, Minimization and Mitigation Measures
Cumulative Water Quality Impacts	No Impact	Overall new beneficial cumulative impact.	Increased risk of channel avulsion, erosion, and sedimentation associated with a less stable geomorphic configuration of the floodplain channel could result in cumulative adverse effects to water quality in the Carmel Lagoon.	Overall new beneficial cumulative impact.	None (effects under the Reduced Project Alternative would be significant and unavoidable)
Cumulative Biological Impacts	No Impact	Overall new beneficial cumulative impact.	Increased risk of channel avulsion, erosion, and sedimentation associated with a less stable geomorphic configuration of the floodplain channel could result in cumulative adverse effects to biological resources.	Overall new beneficial cumulative impact.	None (effects under the Reduced Project Alternative would be significant and unavoidable)

S.8 Coordination with Public and Other Agencies

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, level of analysis, potential impacts and mitigation measures, and related environmental requirements. Agency and tribal consultation and public participation for this Project have been accomplished through a variety of formal and informal methods, including Project development team meetings and interagency coordination meetings, public meetings, and public notices. Coordination with the general public and appropriate public agencies has been ongoing since 2006, a detailed list of coordination activities can be referenced in **Chapter 4 Comments and Coordination**.

A complete list of the parties to whom the document has been sent can be found in **Chapter 6 Distribution List**. This list includes members of the public who attended meetings, business and property owners near the Project area, nearby school districts, utility operators within the Project area, and local elected officials.

Required Permits and Approvals

The County and BSLT will be co-applicants for all Project permits and authorizations with the exception of the Caltrans Project Report Approval and the Caltrans encroachment permit, for which the County will be the only applicant³. **Table S-3** lists the permits, licenses, agreements, reviews, and approvals will be required for Project.

Table S-3 Permits and Approvals Needed

Agency	Permit/Approval	Status
<i>U.S. Army Corps of Engineers</i>	Clean Water Act (CWA) Section 404 Permit Pursuant to a Jurisdictional Determination (JD)	JD acquired from USACE on February 29, 2016 – Approved JD acquired from USACE on September 2, 2016 - A Nationwide Permit is anticipated for the Project.
<i>U.S. Fish and Wildlife Service</i>	Federal Endangered Species Act Section 7 Incidental Take Statement	Formal Intra-Service consultation initiated October 2016.
<i>National Marine Fisheries Service</i>	Federal Endangered Species Act Section 7 Incidental Take Statement	Formal consultation was concluded and a BO was issued on July 27, 2018. An Erratum Letter was provided on October 22, 2018 that provides clarifications and editorial corrections to the BO.
<i>Natural Resource Conservation Service</i>	Farmland Conversion Impact Rating (Form AD 1006, Part I and III) and coordination	Farmland Conversion Impact Rating (Form AD 1006, Part I and III) completed by NRCS in September 2015.

³ The County is identified as the Project Sponsor in the Cooperative Agreement between the County and Caltrans.

Summary

Table S-3 Permits and Approvals Needed

Agency	Permit/Approval	Status
<i>U.S. Fish and Wildlife Service</i>	Section 106 of the National Historic Preservation Act (NHPA) compliance	Section 106 consultation was completed by the Service - A memo from the State Historic Preservation Officer (SHPO) concurring with the finding of no adverse effect for the undertaking was received dated August 30, 2016. Consultation was re-initiated in November 2016 based on newly identified impacts and is ongoing. A memo from SHPO on March 2, 2017 concurred that the Project will result in a less than adverse effect with implementation of the proposed mitigation.
<i>U.S. Fish and Wildlife Service</i>	Native American Consultation	Concluded – no comments received from tribes.
<i>Local Tribes</i>	AB-52 Consultation	Consultation with the Ohlone/Costanoan-Esselen Nation (OCEN) was initiated on December 8, 2015. The County provided OCEN with proposed mitigation on September 11, 2018 based on coordination and communication over the duration of the consultation. Consultation was closed on October 5, 2018; OCEN provided no formal response to the proposed mitigation.
<i>Federal Emergency Management Agency</i>	Approval of a Conditional Letter of Map Revision (CLOMR) and a Letter of Map Revision (LOMR)	CLOMR will be processed prior to construction and the LOMR following the completion of the Project.
<i>California Coastal Commission</i>	Coastal Development Permit (CDP)	A CDP application will be submitted concurrent with public circulation of the EIR/EA.
<i>California Department of Transportation District 5</i>	Encroachment Permit	A permit application will be submitted subsequent to adoption of the EIR/EA.
<i>California Department of Transportation District 5</i>	Public Resources Code 5024 Compliance	Consultation concluded August 2016.
<i>California Regional Water Quality Control Board</i>	Clean Water Act Section 401 Certification or Waiver and National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit	A permit application will be submitted concurrent with public circulation of the EIR/EA.
<i>California Department of Fish and Wildlife</i>	Section 1602 Streambed Alteration Agreement	A notification will be submitted concurrent with to public circulation of the EIR/EA.
<i>California Department of Fish and Wildlife</i>	Section 2081 Incidental Take Permit	A permit application will be submitted concurrent with to public circulation of the EIR/EA.

Summary

Table S-3 Permits and Approvals Needed

Agency	Permit/Approval	Status
<i>Monterey Peninsula Water Management District</i>	River Work Permit	A permit application will be submitted concurrent with to public circulation of the EIR/EA.
<i>County of Monterey</i>	Grading Permit	Issuance Prior to Construction.
<i>County of Monterey</i>	Administrative Design Approval	Issuance Prior to Construction.
<i>Monterey Peninsula Regional Park District</i>	Encroachment Permit	Issuance Prior to Construction
<i>California Department of Parks and Recreation</i>	Right of Entry Permit	Issuance Prior to Construction

Summary

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Chapter 1 Proposed Project

1.1 Introduction

Through a cooperative agreement with the California Department of Transportation (Caltrans), the County of Monterey (County) is acting as the Lead Agency in accordance with the requirements of California Environmental Quality Act (CEQA) Guidelines §15050(a). Through a separate cooperating agreement with Caltrans, the United States Fish and Wildlife Service (Service) is acting as the Lead Agency in accordance with the requirements of the National Environmental Policy Act (NEPA) regulation 40 Code of Federal Regulations (CFR) §1501. Caltrans District 5 (as the expected delegated authority for the Federal Highways Administration [FHWA]) is serving as a federal cooperating agency. The County and Big Sur Land Trust (BSLT) will be co-applicants for all Project permits and authorizations with the exception of the Caltrans Project Report Approval and the Caltrans encroachment permit for which the County will be the only applicant⁴. The County and BSLT, a 501(c)(3) non-profit organization, are co-sponsors of the Carmel River Floodplain Restoration and Environmental Enhancement Project (herein referred to as the “Proposed Project” or “Project”) to improve flood control and to restore native riparian and floodplain habitat and hydrologic function to a portion of the lower floodplain along the Carmel River, the majority of which is currently agricultural fields. The Proposed Project would consist of modifying the existing levees along the south-bank of the Carmel river adjacent to State Route 1 (SR 1) to allow flood flow to enter the historic floodplain and constructing a causeway through SR 1 to convey those flood flows to the Carmel Lagoon.

The Proposed Project is located at the downstream end of the Carmel River Watershed, approximately half a mile from the river mouth, immediately east and west of SR 1 (**Figures 1.1-1 and 1.1-2**). The Project is located on property owned by BSLT (Assessor’s Parcel Numbers [APNs] 243-071-005-000, 243-071-006-000, and 243-071-007-000), California Department of Parks and Recreation (State Parks; APN 243-021-007-000), Monterey Peninsula Regional Park District (MPRPD; APNs 157-121-001-000 and 243-081-005-000), and Clinton and Margaret Eastwood (APN 243-071-008-000) (**Figure 1.1-3**). Prior to the current ownership the land was owned and farmed by the Odello family. The portion of the Project site that is west of SR 1 is referred to as Odello West, while the portion on the east side is referred to as Odello East.

The analysis contained in this Environmental Impact Report/Environmental Assessment (EIR/EA) is based on 60% Project Design Plans and the Design Basis Report for Build Alternative 1 (Whitson Engineers 2017 and Balance Hydrologics, Inc. 2015a; **Figure 1.1-4**) and conceptual design plans for Build Alternatives 2 and 3 (Balance Hydrologics, Inc. (2018a).

⁴ The County is identified as the Project Sponsor in the Cooperative Agreement between the County and Caltrans.

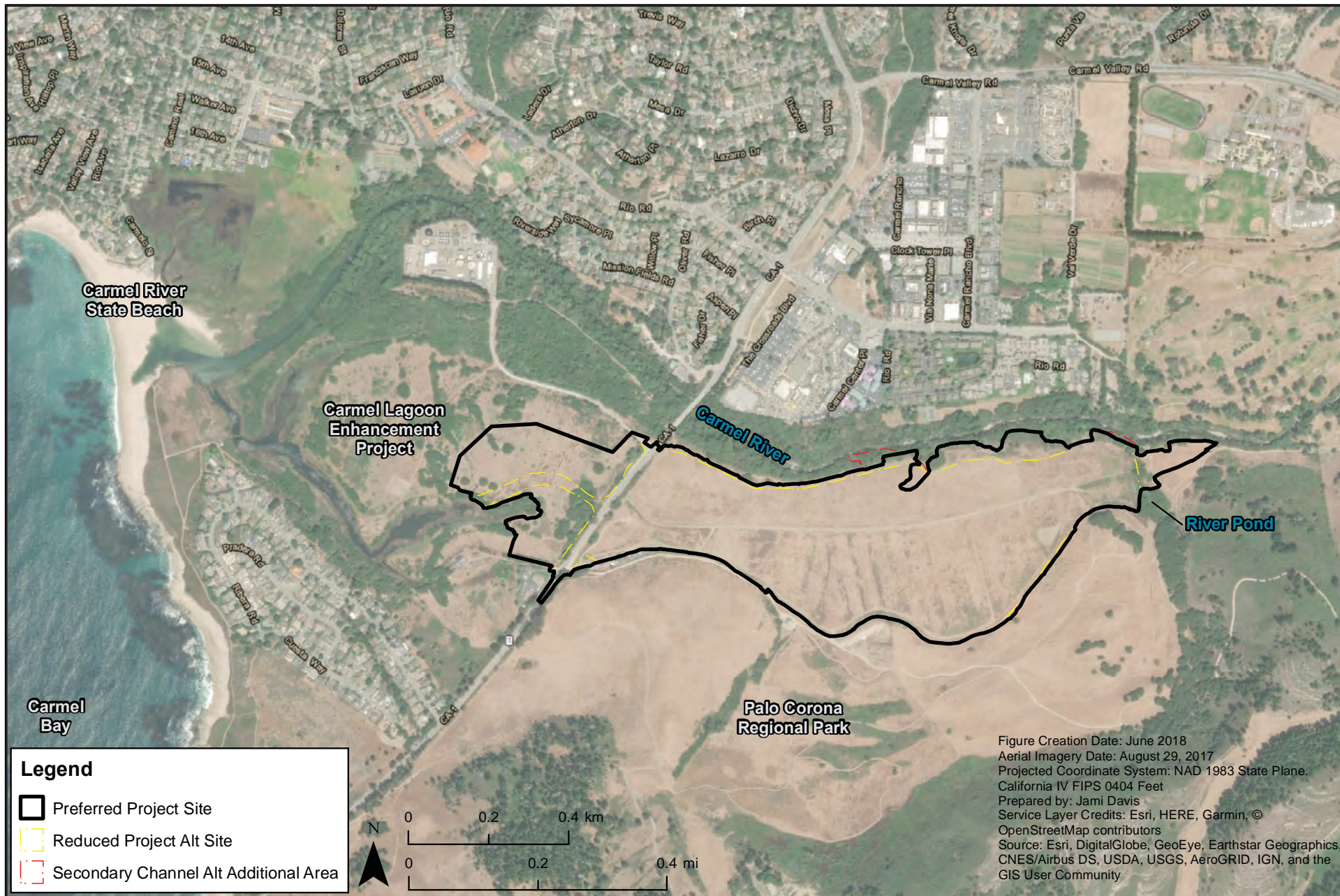


Project Vicinity Map

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 1.1-1

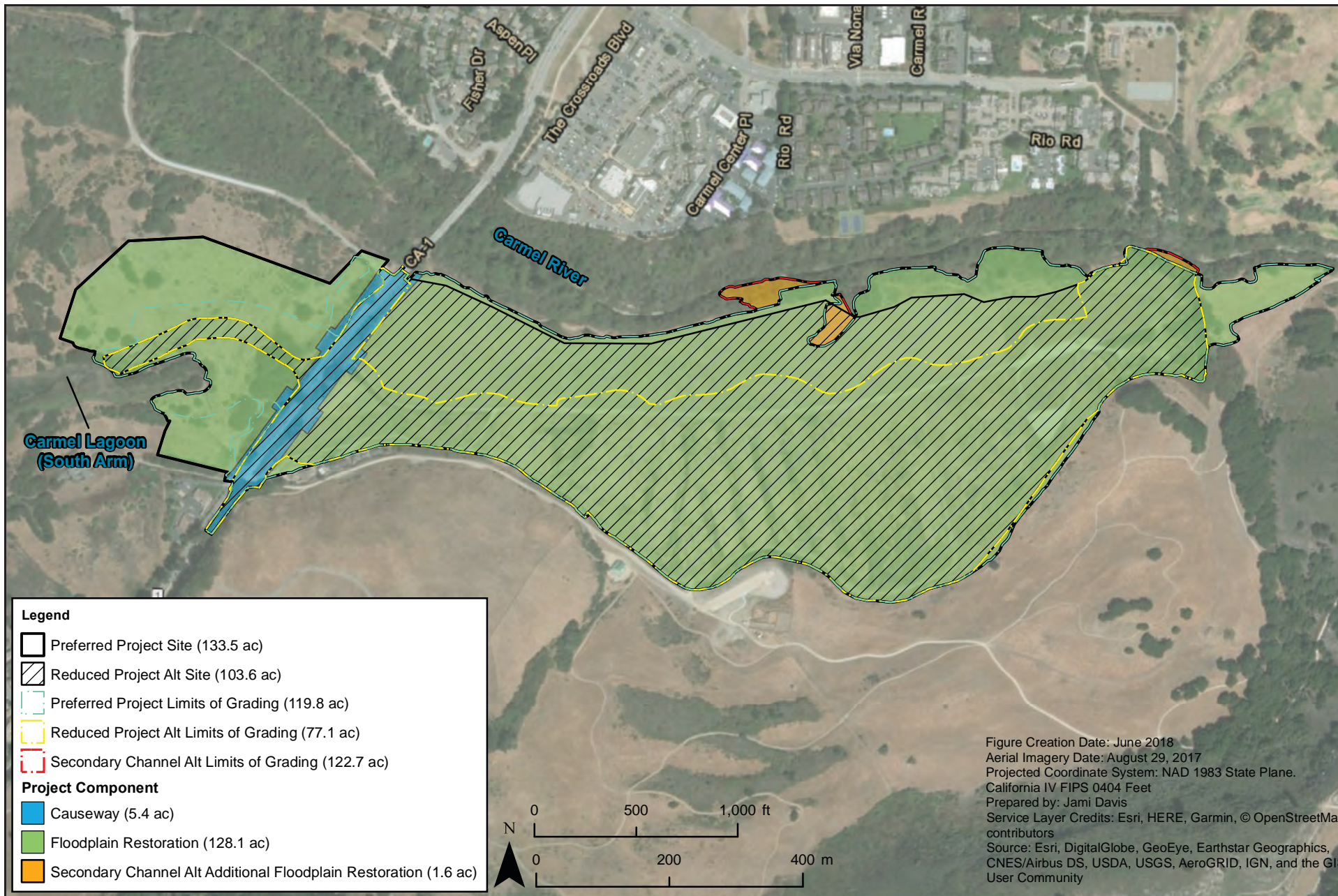


Project Location Map

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 1.1-2



Project Components and Grading Limits

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 1.1-4

1.1.1 General Document Structure

The Project is subject to federal, as well as Monterey County and state environmental review requirements. Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. This document combines under one cover, an EA under NEPA and an EIR under CEQA. One of the primary differences between NEPA and CEQA is the way significance is determined. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. CEQA requires that a determination of significant impacts be stated in the environmental document, while NEPA does not.

Chapter 1 provides a detailed description of the project alternatives. This description details features that are common to all of the alternatives and features that are unique to some or one of the alternatives. **Chapter 2** describes the affected environment relevant to both CEQA and NEPA, in addition providing to a significance determination under NEPA. **Chapter 3** is specific to CEQA and makes a determination of significance for each environmental checklist item under CEQA (Appendix G of the CEQA Guidelines). Discussion and analysis of the effects and significance determinations are made for each of the alternatives within **Chapter 2** and **Chapter 3** for NEPA and CEQA, respectively. **Chapter 4** through **Chapter 7** provide important public disclosure information.

1.2 Purpose, Need, and Objectives

1.2.1 Purpose

The primary purpose of this Project is to improve the natural and historic functions and values of the lower Carmel River and Carmel Lagoon through the hydraulic reconnection of the Carmel River, its southern floodplain, and the lagoon while addressing the long-standing problems of flood management and floodplain habitat loss within the lower Carmel River Basin.

1.2.2 Need

Flood Management

Previous flooding events have caused expensive and severe damage to the lower reaches of the Carmel River Basin. The most notable flood events in recent history include the March 1995 flood and the February 1998 flood. Flooding also occurred in January 1998. The 1995 flood was considered a 20- to 30-year flood event and destroyed the SR 1 Bridge and flooded development on both sides of SR 1 within the north floodplain, including the Crossroads Shopping Center and residential developments adjacent to river main channel. Bridge repairs and the implementation of a variety of flood protection measures reduced the flooding impacts of the February 1998 event; however, water still overtopped SR 1 and almost overtopped Val Verde Drive, the point where water had previously overflowed into developed areas north of the river. Climate change may increase or exacerbate these conditions. The Proposed Project will significantly reduce flood elevations within the north floodplain and could preclude the need for over \$14M in infrastructure improvements that would otherwise be needed to achieve the same level of flood protection within County Community Services Area 50 (CSA 50).

Floodplain Habitat Loss

The Proposed Project site was historically an important part of the Carmel River floodplain, providing connectivity directly with the coastal and estuarine waters of the Carmel Lagoon. The resulting ecosystem of seasonal wetlands, brackish lagoon, and riparian habitat was a biologically diverse habitat mosaic which supported sensitive habitats and wildlife species. The construction of the south bank levees, however, significantly reduced the lateral dispersal of floodwater onto the south floodplain. The site was further impacted with the construction of SR 1, which limited the conveyance of flood flows and effectively isolated the 100 acres of floodplain which lie upstream of SR 1 from the western portion of the floodplain and Carmel Lagoon. As a result, a significant portion of the historic floodplain habitat has been lost and was converted to active agriculture.

An ambitious plan to restore the lower Carmel River floodplain and Carmel Lagoon was developed over a number of decades, starting in the 1990s (PWA et al. 1999). Significant milestones in the implementation of the overall plan include creation of the Carmel River Mitigation Bank (CRMB)

and the Carmel River Lagoon Enhancement Project (CRLEP), both located within the Carmel River State Beach on the west side of SR 1. Caltrans and State Parks cooperatively funded the 43-acre CRMB. The CRMB site was restored to mitigate for future unavoidable impact to wetlands and riparian habitats associated with transportation projects in the Monterey area. Under the restoration plan, 37 acres of woody riparian species and six acres of freshwater wetland species were planted within the CRMB site from 1996 to 1998. The vegetation communities at the CRMB are now mature riparian forest, coastal marsh, and central-coast riparian scrub. The CRLEP involved the excavation and restoration of the south arm of the Carmel Lagoon within the former Odello West agricultural fields. Major earthwork occurred in 2004 by State Parks and planting and management of wetland, riparian, and upland habitats is ongoing.

The Proposed Project will hydrologically connect the historic floodplain to the lagoon under SR 1, via the Causeway into the south arm restoration. Without flushing flows there is a real potential for the south arm restoration to silt-in over the long-term, resulting in the alteration or reduction of habitat and further loss of flood control function. However, with the implementation of the Proposed Project, the significant and on-going restoration efforts around the Carmel Lagoon will be maximized. This will allow for the realization of the long-term vision for the Carmel Lagoon and lower Carmel River floodplain to function as one dynamic, self-sustaining system that resembles, as closely as possible, its pre-development conditions.

1.2.3 Objectives

- Reduce flooding hazards along the north floodplain
- Improve the natural and historic functions and values of the lower Carmel River and Carmel Lagoon
- Create a self-sustaining hydrologic connection and interaction of the floodplain and south arm of the Carmel Lagoon
- Improve habitat conditions for sensitive wildlife species
- Restore approximately 100 acres of natural habitat
- Improve the quality of water entering the Carmel Lagoon
- Create conditions that allow for adaptation to sea level rise and other climate change impacts
- Maintain active agricultural operation

1.3 Project Description

This section describes the proposed action and the Project alternatives developed to meet the purpose and need of the Project while avoiding or minimizing environmental impacts. There are four Alternatives being considered: a No-Build Alternative and three Build Alternatives as described in **Section 1.4** below (**Figure 1.1-4**).

- Alternative 1: Preferred Project
- Alternative 2: Reduced Project Alternative
- Alternative 3: Secondary Channel Alternative
- Alternative 4: No Build Alternative

The Proposed Project entails two interdependent Project components (**Figure 1.1-4**), the Floodplain Restoration Component and the Causeway Component. The Floodplain Restoration Component consists of (1) removing a portion of the non-structural earthen levees on the south side of the Carmel River channel; (2) grading to restore the site's ecological function as a floodplain by creating the hydrogeomorphic characteristics necessary to support floodplain restoration activities; (3) grading to elevate approximately 23 acres of the existing farmland above the 100-year floodplain elevation to create an agricultural preserve; and (4) implementation of the Restoration Management Plan (RMP). The RMP includes restoration of a mosaic of native habitats across the site in two phases, and maintenance, monitoring, and reporting protocols to ensure the success of the revegetation specific to compensatory mitigation requirements.

SR 1 is currently a two-lane conventional highway that has 12-foot travel lanes with four-foot to eight-foot shoulders. Once construction of the Causeway is complete, SR 1 would remain a two-lane conventional highway with 12-foot travel lanes; however, the Causeway incorporates eight-foot wide shoulders, transitioning to match existing four-foot wide shoulders at the southern project limits. The Causeway would also include a southbound left turn lane at the Palo Corona Regional Park entrance.

Three Build Alternatives and a No-Build (No-Action) Alternative are being proposed for this Project, as described in **Section 1.4** below (**Figure 1.1-4**). The analysis contained in this EIR/EA is based on 60% Project Design Plans for the Preferred Alternative (Whitson Engineers 2017 and Balance Hydrologics, Inc. 2015a) and conceptual design plans for the Reduced Project and Secondary Channel Alternatives (Balance Hydrologics, Inc. (2018).

1.3.1 Funding

Project funding has been obtained from several Federal and State Agency grant programs, including the U.S. Environmental Protection Agency (EPA), Service, California State Coastal Conservancy, California Wildlife Conservation Board, California Department of Water Resources, and Caltrans (from the SHOPP Minor “A” program). In 2010, the Service awarded funds under the National Coastal Wetlands Conservation (NCWC) Grant Program for the Proposed Project. The grant award was specially conditioned to preclude a substantial portion of those funds for any construction/earth-moving activities until environmental compliance requirements could be fulfilled. Local funding match is being provided, in part, by the value of the Eastwood’s land donation of a portion of the Project area. The total Project cost for construction is approximately \$25M, the construction cost of the Caltrans portion being \$14.5M. In addition to grant funding for construction of the Project, BSLT has established an endowment fund for long term management of the Project, with a fundraising goal of \$2M to cover at least 20 years of adaptive restoration and maintenance activities. Project construction is contingent on acquiring the identified funding totals.

1.4 Alternatives

This section describes the proposed action and the Project alternatives developed to meet the purpose and need of the Project while avoiding or minimizing environmental impacts. There are four alternatives being considered: a No-Build Alternative and three Build Alternatives: (1) Preferred Project, (2) Reduced Project Alternative, and (3) Secondary Channel Alternative. The Build Alternatives all include the same following components: removing a portion of the existing levee, floodplain restoration grading to accommodate conveyance of flows over the floodplain, construction of a causeway to convey flows under SR 1 into the south arm of the Carmel Lagoon, an agricultural preserve elevated out of the floodplain, public access and trails, and both active and passive restoration of native habitats. **Figures 1.4-1 and 1.4-2** show illustrative and schematic views of the Proposed Project. The common aspects of these components are discussed below in **Section 1.4.1**. However, the components vary in the size, extent and configuration within some of the Build Alternatives and the differences, or unique aspect of each component, are discussed in **Section 1.4.2**.

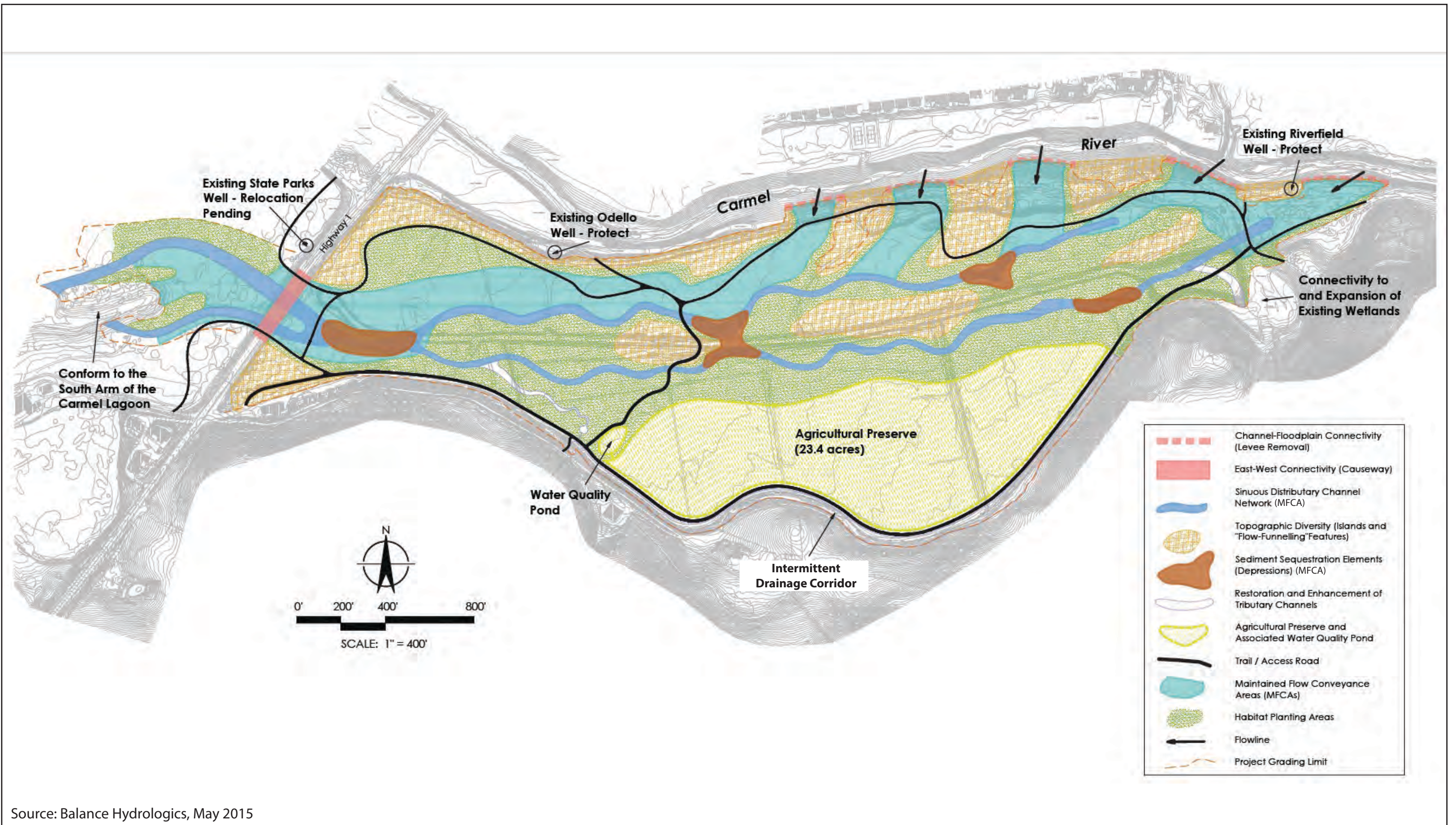
Significant differences between alternatives include the Reduced Project Alternative having a smaller levee opening than the other alternatives. The design attempts to reduce or eliminate potentially significant impacts associated with downstream infrastructure owned by State Parks and the Carmel Area Wastewater District (CAWD). In addition, this alternative is responsive to comments received during the scoping for this EIR that a reduced Project be considered in the hopes it would be less expensive and therefore more likely to get approved and built in an expedited manner. The floodplain grading and causeway size are also reduced in this alternative to the appropriate size needed to convey the reduced flows. The agricultural preserve stays the same size for this alternative, but its final elevation is lower than the other two alternatives as a result of less soils being generated from less floodplain grading compared to the other two alternatives. The Secondary Channel Alternative is very similar to the Proposed Project in that the levee removal, causeway, agricultural preserve and restoration will be the same as the Proposed Project. The significant difference is that the Secondary Channel Alternative includes more grading on the floodplain to create desired habitat features for sensitive fish and wildlife resources, most specifically, the south-central California Coast steelhead (S-CCC steelhead). The Secondary Channel alternative includes design features proposed for evaluation by NOAA during the scoping phase of this EIR.

1.4.1 Common Design Features of the Build Alternatives

Floodplain Restoration

The Floodplain Restoration Component would consist of the following components for all of the Build Alternatives: (1) remove varying portions of the south bank levee in order to improve floodplain hydrology and reduce off-site flooding, (2) restore floodplain topography to areas of

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Source: Balance Hydrologics, May 2015

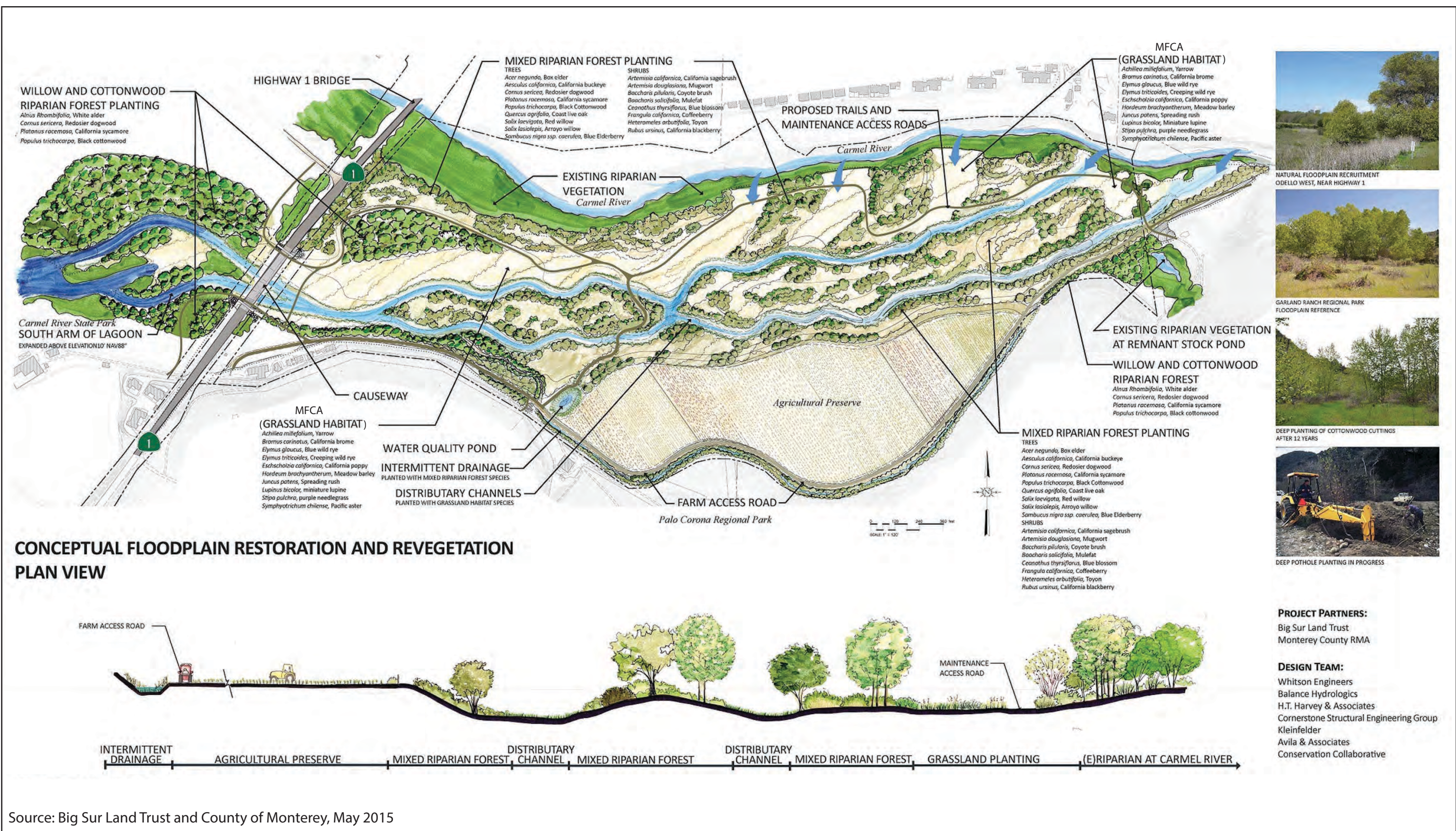


Project Design Features

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Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA

Figure
1.4-1



Source: Big Sur Land Trust and County of Monterey, May 2015



Conceptual Design Plan

June 2018

Figure
1.4-2

Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA

existing farmland to support native habitat restoration, (3) preserve the agricultural heritage of the site by creating an approximately 23-acre agricultural preserve using fill material from the other Project components, (4) provide access and maintenance roads and trails for the on-going restoration and maintenance of the site, as well as public access; and (5) implementation of the RMP.

Construction activities associated with the Floodplain Restoration Component would include clearing, grading, excavation, and planting of native vegetation within the historic floodplain. Existing farmland would be graded to create the topographic characteristics necessary to support the restoration of native floodplain habitats. The following is a more detailed discussion of each of the key elements associated with the Floodplain Restoration Component common to all of the Build Alternatives. However, the sizing and configuration of some of the elements varies and is unique to certain Build Alternatives as described in **Section 1.4.2**.

Levee Removal

Currently, the system of south bank non-engineered levees serves to contain existing river flows and floodwaters in the main river channel. The Proposed Project would reduce the height of portions of the existing levees in order to allow flows to spread under certain high flow conditions into the south overbank area, which is part of the historical floodplain. Removing portions of the existing levee would have positive flood attenuation benefits to developed areas to the north of the Project which experience historic and on-going flooding during high river events. Portions of the existing levee would remain in place to preserve important areas of existing vegetation that would support colonization and expansion of riparian plant communities to the floodplain. Partial levee removal would improve the overall ecological function of the Odello East property as a floodplain by providing the hydrologic conditions to support the restoration of native vegetation communities within the floodplain. Substantial change in flood flow patterns as a result of removal of levee sections will be transitioned by retaining berms at the levee openings to assist floodplain vegetation establishment by limiting the volume and velocities of flows entering the floodplain during the first several flood seasons (please refer to Sheet G-7 of the 60% Restoration Plans: in Balance Hydrologics, Inc., Whitson Engineers, and H.T. Harvey & Associates [HTH] 2016). The unique designs of levee removal are discussed in **Section 1.4.2** for each Build Alternative.

Floodplain Grading

The floodplain would be graded to create the topographic characteristics necessary to support floodwater conveyance under SR 1 and restore the site's longitudinal connectivity with the Carmel Lagoon. Floodplain improvements would include topographic modifications consistent with riparian habitat conditions, channelization to resemble flow paths in older floodplains, and segments designed to support native habitat. The varied topography will create a vegetation mosaic that will provide soil stability where larger rooted trees and shrubs occur, reduce channel blockage and scour where herbaceous vegetation occurs, and create various types of habitat for a diversity of wildlife species. The excess fill will be utilized to elevate approximately 23 acres of

the existing agricultural fields to function as an agricultural preserve and for construction of the Causeway Component. Specific topographic components of the floodplain grading are discussed below.

Maintained Flood Conveyance Areas (MFCAs)

The central design feature of the floodplain restoration is the ability for flows to enter onto and pass through the floodplain. Maintained Flood Conveyance Areas (MFCAs) will be established to maintain proper flood conveyance on the floodplain (**Figure 1.4-1**). These areas will be mowed and maintained free of woody vegetation in order to retain the flood conveyance capacity in the Project design. Planting in the MFCAs is limited to vegetation that will not impede flows during flood events. If the configuration of the MFCAs is altered following high flow events, post-storm maintenance and restoration will be limited to the total acreage of MFCA for each alternative, even if the precise location has changed.

Floodplain Channel(s)

In order to stabilize nascent channel geometry while vegetation takes hold and to minimize erosion upstream of the Carmel Lagoon, the Build Alternatives include a two-foot layer of cobble bed fill material to line the bottom of the floodplain channel(s) from approximately the causeway to just upstream of the lagoon. The bed fill material will be made up of a combination of rounded river cobble and gravel consistent with the existing bed in the main river channel in the vicinity of SR 1. The unique designs of the floodplain channels are discussed in **Section 1.4.2** for each Build Alternative.

Intermittent Drainage Channel

The watersheds on the southern side of the Project site encompass a total of 300 acres ranging up to elevations over 800 feet within Palo Corona Regional Park. Much of the watershed is underlain by shallow soils over steep bedrock with substantial runoff potential, particularly in years of above average rainfall. Previously, most of this runoff has been confined to narrow toe ditches along the edge of the existing agricultural operations for conveyance around the floodplain. The Project will replace the toe ditches with an intermittent drainage channel and enhancements to the local tributary systems.

The intermittent drainage channel begins near the eastern end of the agricultural field and flows to the west, forming a border between the agriculture preserve and the Palo Corona Regional Park lands to the south. The longest intermittent drainage reach will be located on the south side of the agricultural access road and will collect runoff from the agricultural preserve to the north as well as the adjacent hillslopes to the south along its 3,000-foot length. It will feature a sinuous low-flow channel with average widths of five to 10 feet and depths of one to two feet. The drainage channel will extend westerly to a new confluence with the existing ephemeral drainage that comes down past the Palo Corona barn. The remaining gradient down to the restored floodplain will be quite steep and will be accommodated by a series of three boulder step-pools (please refer to Sheet

D-1 of the 60% Restoration Plans: Balance Hydrologics, Inc., Whitson Engineers, and HTH 2016) that will make up the grade difference between the confluence point and the floodplain floor. Once on the floodplain, a 600-foot reach will join the floodplain channel(s). Additionally, a gently sloping area would be created within the Project site, adjacent to the existing River Pond, over which sheet flow would be conveyed to the floodplain channel(s) within the restored floodplain.

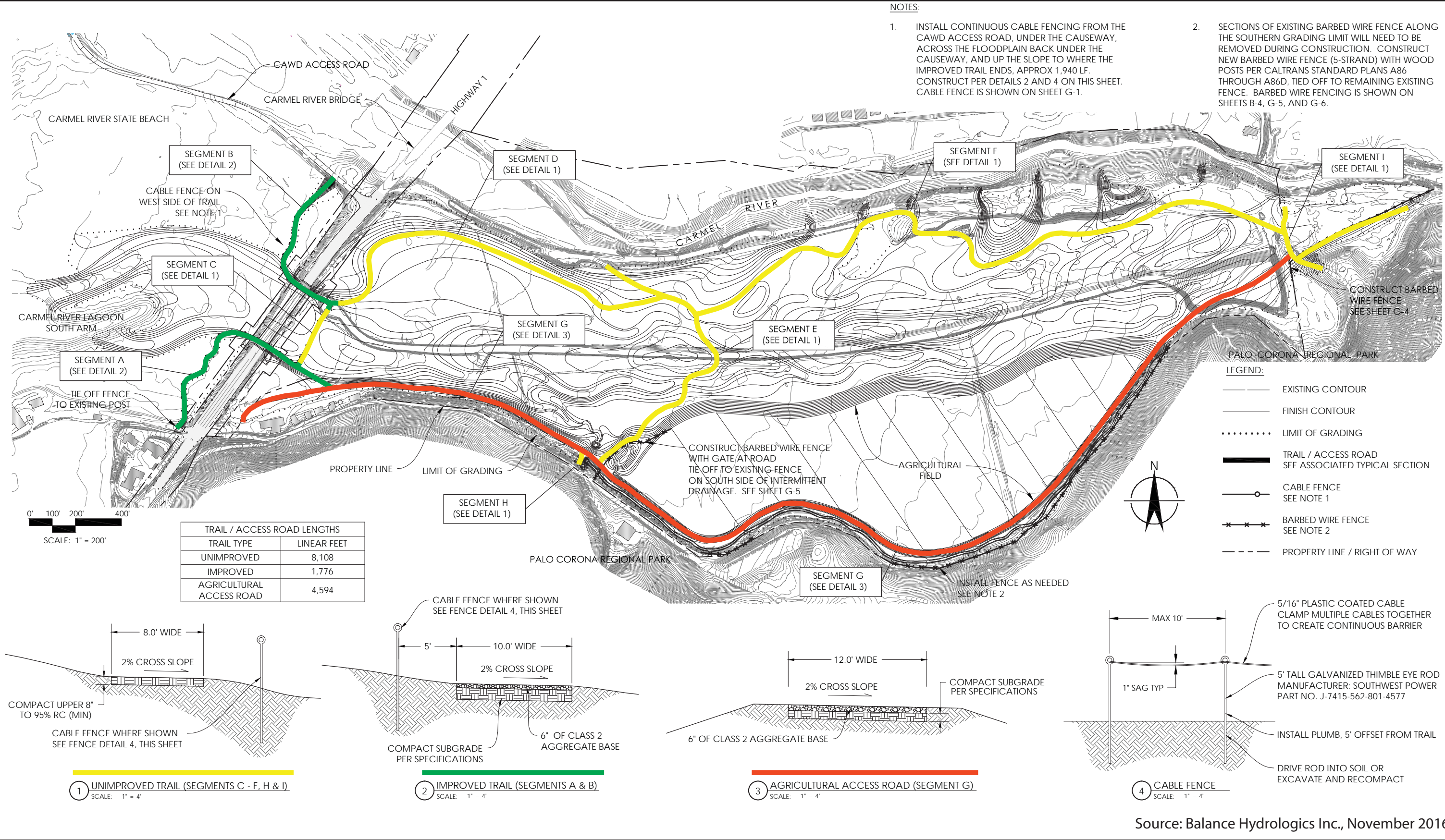
Agricultural Preserve

An approximately 23-acre agricultural preserve would be constructed on the southern portion of the site, where agricultural uses would be consolidated in order to maintain the agricultural heritage of the area for all Build Alternatives. Construction of the agricultural preserve would entail creating an elevated terrace to avoid or reduce inundation from floods. The elevated agricultural preserve would be created using excess fill material from the levee removal, floodplain grading, and construction of the Causeway Component. The agricultural preserve is designed in such a way that it slopes away from the floodplain and drains towards the southwest corner of the field. Agricultural runoff will be collected in a drainage ditch that runs along the north side of the agricultural field access road (please refer to Sheet D-2 of the 60% Restoration Plans: Balance Hydrologics, Inc., Whitson Engineers, and HTH 2016), specifically designed to keep agricultural runoff from flowing into the restored intermittent drainage channel on other side of the road. At the eastern terminus of the agricultural runoff ditch, the runoff will be conveyed via a 36-inch culvert into a water quality pond for settling and percolation. An outlet riser will be included in order to protect the water quality pond levees from erosion due to overtopping during large events.

Access Roads and Trails

A network of access roads/trails is included as part of all of the Build Alternatives. **Figure 1.4-3** is representative of the Proposed Project and shows all of the potential trails and access road components for all of the Build Alternatives. The proposed access roads/trails will either be unimproved (native dirt) or surfaced with natural aggregate (such as a Caltrans and State Parks-approved engineered aggregate base, 3/4" size rock material). The access roads/trails will provide access for restoration and maintenance activities, safety patrols, and agricultural activities. The access roads/trails also have the ability to function as public recreational trails, where appropriate. Through a long-term maintenance agreement, public access on the access roads/trails will be managed by each respective land owner and coordinated jointly by BSLT, State Parks, and MPRPD, based on allowed uses on public lands, ongoing restoration and maintenance activities, and seasonal conditions. Types of use on public lands, and directional and interpretive signage will be guided by adopted General Plans or Management Plans and will be implemented by the long-term maintenance agreement for post-construction long term management of the Project pursuant to adopted plans. The specific locations of the access trails/roads are discussed In **Section 1.4.2** below for each alternative.

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Access Roads/Trails

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Figure
1.4-3

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Wells

Three existing domestic and/or irrigation wells are present within the Project area, belonging to State Parks, BSLT, and MPRPD (shared with the owner of the Fish Ranch inholding at Palo Corona Regional Park) (**Figure 1.1-3**).

State Parks' well is currently located adjacent to the west side SR 1. It will be relocated outside of the expanded Caltrans ROW adjacent to the access road identified as segment A on **Figure 1.4-4**. Irrigation from this well will be used for establishment of the Tier 1 restoration areas west of SR 1, as described below, as well as for long term State Park uses at Carmel River State Beach.

BSLT has an irrigation well (identified as Odello Well #2 on **Figure 1.1-3**) located on the south bank levee, west of the levee notches, that is outside of the grading limits and will be retained and protected in place. BSLT's well is the point of diversion for Water Right License 13888 and will be used for restoration activities in both Tier 1 and Tier 2 areas and for future agricultural uses on the agricultural preserve. MPRPD's well is also located outside of the Project grading limits and will not be impacted by the Project. The MPRPD well is proposed to be raised above the 100-year flood elevation and protected from streamwood with agreed upon measures by MPRPD and the shared use inholding land owner.

Two existing groundwater monitoring wells will be directly impacted by construction grading of the Project: MW-A and MW-B. A third monitoring well, the Odello Well #1 previously used for baseline groundwater monitoring, has already been destroyed. BSLT intends to install three monitoring wells in the same general locations as the existing monitoring sites following completion of grading for the Project as part of the Tier 2 restoration activities. In addition, a fourth monitoring well may be installed at the west end of the Project site, located at the uppermost extent of the south arm of the Carmel Lagoon.

Restoration Management Plan

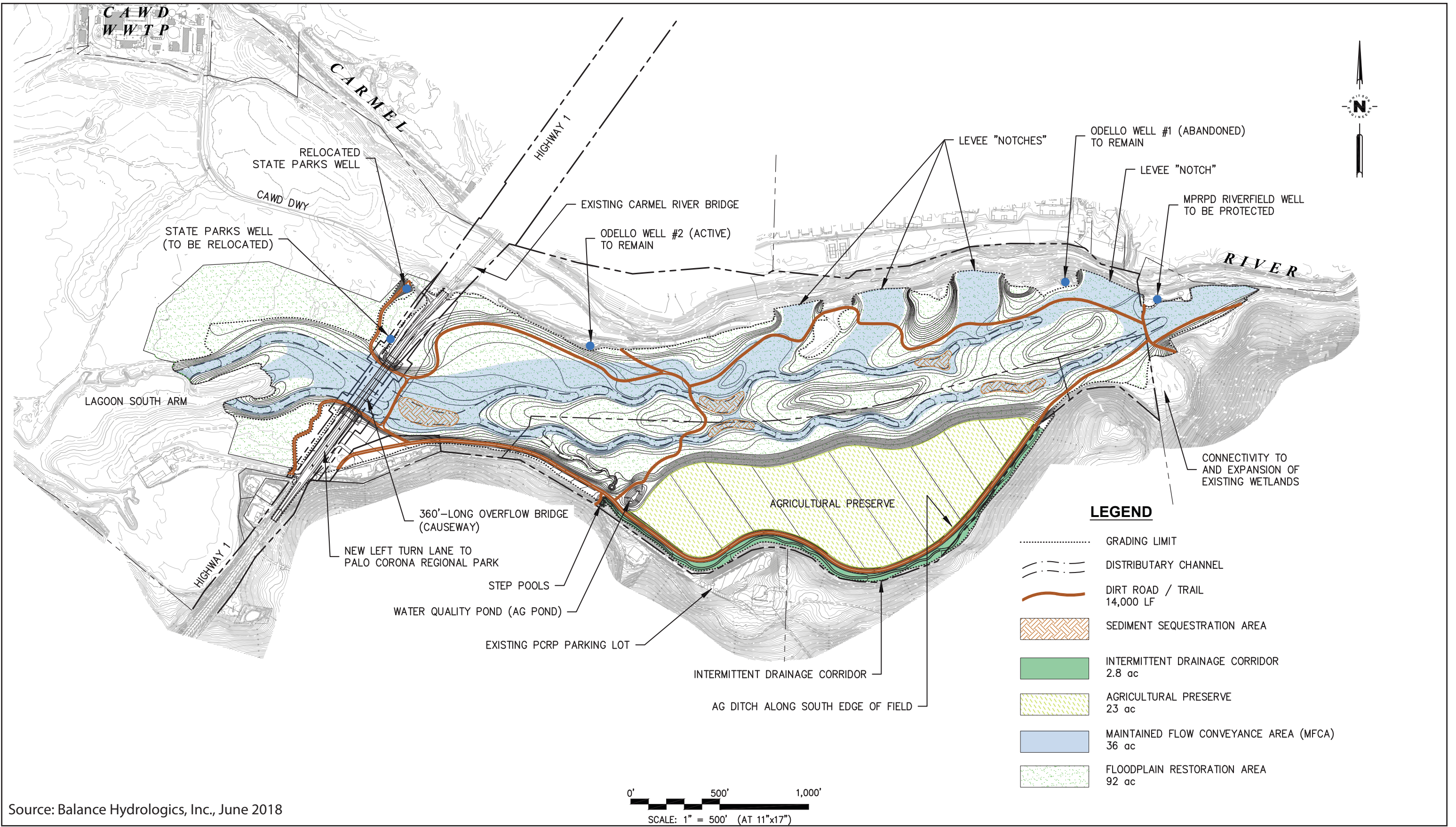
A portion of the Project site will be actively revegetated following grading according to the RMP prepared for the Project in order to accelerate native vegetation establishment and to meet expected compensatory mitigation requirements, referred to as Tier 1 (**Appendix F**). Other portions will be passively and adaptably restored, referred to as Tier 2. Revegetation implementation will establish a mosaic of habitats across the site, including willow and cottonwood riparian forest, mixed riparian forest, coastal scrub, and grassland that will feature various canopy heights and structures. This mosaic will provide a diverse array of foraging, breeding, and nesting habitats for birds and other wildlife. Willow and cottonwood riparian forest will be planted in dense stands, primarily in downstream portions of the Project site, including an area adjacent to willows at the south arm of the Carmel Lagoon and the lower elevation floodplain locations west and east of the SR 1 road alignment. Mixed riparian forest will be planted on the southern side of the lower floodplain, near the downstream end of the intermittent drainage corridor. The MFCAs will be seeded with native

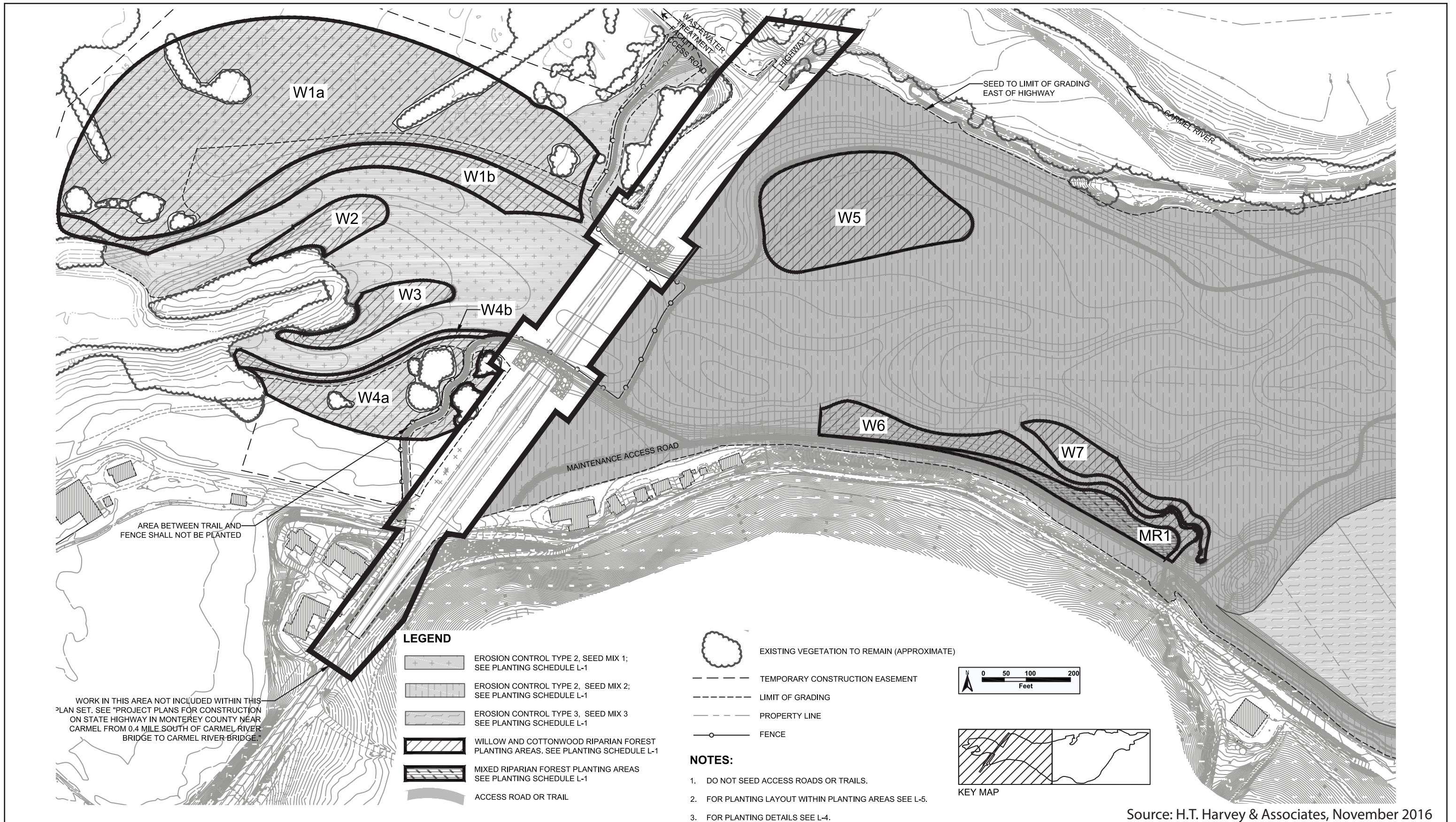
grass species to provide grassland habitat in linear strips that will bisect the Project site and further enhance the diversity of site habitats.

Restoration areas will be restored with a phased planting approach. This approach is necessary given the large size of the Project site, limited water supplies, and other resources constraints (such as funding), and because a phased planting approach provides the opportunity to gather and apply information on what planting techniques are successful in early phases (adaptive management). The restoration phases are identified as Tier 1: compensatory mitigation occurring as a component of the Project construction (**Figure 1.4-5**), and Tier 2: non-compensatory restoration of the remainder of the site occurring subsequent to the compensatory actions, with an undefined duration. Following construction of the Project, revegetation of the Tier 1 restoration areas would begin immediately, and the Tier II restoration areas would be seeded with a native seed mix to avoid erosion during the passive restoration of native habitats within this area. All compensatory mitigation will be installed during Tier 1, and Tier 2 will target restoration of the remaining areas on the Project site. The RMP provides a detailed restoration design for Tier 1 and guidance for Tier 2.

The RMP also includes maintenance, monitoring, and reporting of the compensatory mitigation areas. Maintenance activities within the restoration areas are discussed below. Monitoring data collected by a qualified restoration ecologist will be used to evaluate the success of Tier 1 compensatory mitigation. Information obtained through this monitoring program will be used to guide maintenance throughout Tier 1 and help ensure that the revegetation areas achieve the success criteria outlined in the RMP. The maintenance, interim, and final success criteria described in the RMP apply only to the required acreage of compensatory mitigation. Additional restoration areas addressed in Tier 2 will not be held to these criteria.

The compensatory mitigation areas restored in Tier 1 will be monitored over a 10-year period following installation, during Years 1–5, 7, and 10. All monitoring will be conducted by a qualified restoration ecologist, land manager, or other natural resources professional. Maintenance, interim, and final success criteria will be based on tree and shrub percent survival, canopy percent cover, and a riparian habitat functional assessment. Hydrologic, geomorphic, and flood conveyance monitoring will be conducted to track the functioning of the site's hydrology. By Year 10, the Tier 1 revegetation areas will be sufficiently established to determine whether they will eventually reach the long-term goals with little chance of failure. If the final success criteria have not been met by Year 10, monitoring will continue until they have been met. The Project Applicants will be responsible for the successful mitigation of biological impacts associated with construction of the Project, including long-term monitoring and any required remedial actions in Tier 1. The unique application of the Resource Management Plan is discussed in **Section 1.4.2** below for each Build Alternative.





Compensatory Mitigation (Tier 1)

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Figure
1.4-5

Maintenance Activities

Regular maintenance of the access roads/trails, MFCAs and intermittent drainage channel will be necessary following construction of the Project. Maintenance of the MFCAs and intermittent drainage channel will be necessary to limit the establishment of woody vegetation in those defined areas that would alter the roughness coefficient and impede flood flows, while maintenance of the access roads/trails will be necessary to continue to provide vehicle and pedestrian access, as appropriate. Regular maintenance of these areas will include mowing and vegetation removal to keep the areas open and free of vegetation. As identified above, if the configuration of the MFCAs is altered following high flow events, post-storm maintenance and restoration will be limited to original area designated for MFCAs, even if the precise location or alignment of these features have changed. Maintenance of the intermittent drainage would be limited to the originally designated 2.8 acres. Scraping or grading to maintain access roads/trails may also be required to reshape localized sections periodically after flooding events. No excavation and removal of accumulated sediments will occur within the MFCAs or intermittent drainage.

Pre-maintenance biological surveys will be conducted in coordination with maintenance activities to avoid and reduce impacts to biological resources. These surveys are detailed in **Section 2.3.4 Animal Species**. Through a long-term maintenance agreement, maintenance on the access roads/trails will be managed by each respective land owner and coordinated jointly by the County, BSLT, State Parks, and MPRPD.

Maintenance will also be necessary during the plant establishment period for both the Tier 1 and Tier 2 restoration areas. Maintenance within the restoration areas will involve replacing dead plants, irrigating, and controlling animal browsing and weeds. The Tier 1 mitigation areas will be maintained during the first three years following installation to aid in plant establishment and increase the likelihood that the plants will become self-sustainable. The plant establishment period and associated site maintenance will be extended beyond three years if significant plant replacement is required because of low plant survivorship. Maintenance activities may also be adjusted as part of adaptive management of the Tier 2 area.

Causeway

The Causeway Component consists of replacing a portion of the SR 1 roadway embankment with an overflow bridge (causeway) (**Figure 1.1-4**). Construction-related activities would temporarily disturb approximately six acres within Caltrans Right of Way for the removal of a portion of the existing SR 1 embankment and Project grading. The bridge rail will be Type 80 with architectural texture and color. Because SR 1 is a designated bicycle facility, tubular steel bicycle railing is also proposed. All new and replaced guardrail and end treatments will be colored to reduce reflectivity and blend with the natural setting.

The purpose of the Causeway Component is to accommodate flood flows that come into the south overbank area through removal of a portion of the levee and to increase hydrologic and habitat

connectivity between the Carmel Lagoon and the Project site. The Causeway would allow floodwaters to pass from the Odello East property under SR 1 to the floodplain and south arm of the Carmel Lagoon to the west. The Causeway would reduce flooding hazards to SR 1 under existing conditions.

The Causeway would also partially address existing deficiencies associated with this segment of SR 1 and construct a southbound left turn lane at the Palo Corona Regional Park entrance. In order to accommodate a center left turn lane providing access to the existing driveway serving the Palo Corona Ranch Regional Park and the Odello East Property, the approach roadway south of the bridge will consist of one 12-foot wide travel lane in each direction, a 12-foot center left turn lane, and eight -foot wide paved shoulders. The proposed eight -foot shoulders are transitioned to match to the existing four -foot shoulders south of the Palo Corona Regional Park driveway.

Construction of the Causeway Component would include construction of a temporary detour road, demolition of existing culverts and paving, two phases of utility relocation, pile driving, bridge construction, paving, signage and striping, and removal of the temporary detour road.

The temporary detour road will be constructed to maintain traffic during bridge construction (please refer to Sheet DE-2 of the 60% Causeway Plans: Whitson Engineers and Cornerstone Structural Engineering Group 2018). The paving where the temporary detour road ties-in to the existing SR 1 would be performed at night under temporary traffic control. With the tie-ins complete, traffic would then be directed over to the temporary detour road for the duration of the causeway construction work. While traffic is being directed over the temporary detour road, the speed limit would be reduced from 55 to 45 miles per hour.

Similarly, after the causeway and associated SR 1 work is complete, the final (permanent) paving where the highway ties-in to the temporary detour road would again be performed at night under temporary traffic control and traffic will be moved on to the completed highway. After the causeway is complete, the temporary detour road would be removed and a haul road would be constructed under the causeway to allow the excess cut soil from the west side of the highway to be hauled under the causeway as needed. Contractor staging areas will be located on both sides of SR 1 so that construction can occur with a minimal movement of construction equipment across the highway. Once contractor staging is complete, the haul road would become a permanent maintenance access road for the Project (see discussion of Access Roads and Trails). The unique designs of the Causeway are discussed In **Section 1.4.2** below for each Build Alternative.

Memorandums of Understanding and Agreements

The County, Monterey County Water Resources Agency, Monterey Peninsula Water Management District (MPWMD), State Parks, and BSLT entered into a MOU for the purpose of coordinating planning activity for the Project on November 24, 2010. A subsequent MOU for the construction phase of the Proposed Project, to be executed concurrent with the certification of this EIR/EA, will

be entered into by the same parties in addition to MPRPD, for the purpose of describing the roles and responsibilities of each party through the completion of Project construction. The construction phase MOU will commit the three Project area land owners (State Parks, MPRPD, and BSLT) to their respective contributions of land area for the purposes of the Project, and will commit all parties to cooperate, proceed, and construct the Project to protect, conserve, restore, and enhance the Project area in a manner consistent with the goals of flood protection and habitat restoration. A separate and subsequent long-term maintenance agreement is proposed to be entered into by the land owners and the County prior to the completion of construction. The long-term maintenance agreement will delineate the parties' roles and responsibilities for long term and adaptive maintenance activities post-construction of the Project.

Schedule

Construction of the Proposed Project is anticipated to occur over an approximately two-year period beginning in late 2020. The Causeway Component would begin with construction of a temporary detour road in late 2020 and would end with removal of said detour road and excavation of the floodplain channel below the newly constructed causeway in early 2022. The Floodplain Restoration Component grading work east of the highway would occur in 2021 (concurrently with the highway work) or in 2022 (concurrently with the work west of SR 1), and would entail mass grading, limited utility work, and fine grading. The Floodplain Restoration Component grading work west of the highway would begin in 2022 after removal of the highway bypass road, as construction vehicles and equipment would then be able to safely cross under the highway. Alternatively, if a conveyor system were constructed (e.g., utilizing a pipe crossing under the highway), it could allow the mass earthwork on the west side of the highway to occur concurrently with bridge construction, and so could allow a reduction in overall construction duration of up to one year.

In order to reduce the risk of erosion of the newly graded floodplain during initial vegetation establishment, temporary earthen plugs are proposed to be constructed in the completed levee notch(es). These plugs would remain in place for the first several flood seasons after the floodplain grading has been completed and would be removed only once the floodplain is adequately revegetated.

Removal of the notch portions of the existing river levee and temporary highway detour would also not occur prior to completion of the CAWD project to underground their outfall and sewer force main pipelines (CAWD project). The CAWD project is anticipated to be completed prior to construction the Proposed Project; however, in the event that the CAWD project is not complete prior to initiation of construction of the Proposed Project, the Project phasing will be adjusted to maintain the existing river levees intact, until the CAWD project is complete. Additionally, the temporary bypass road embankment will be constructed to the elevation of the existing highway embankment and will remain in place until the CAWD project is complete.

Implementation of the RMP will be broken into two phases: Tier 1 will begin immediately after completion of site grading and will include irrigation and planting over a defined portion of the Project site to address the required mitigation areas. At that time, the remainder of the Project site (the Tier 2 area) would be seeded with a native seed mix, but not planted or irrigated. Subsequent active and passive restoration of the Tier 2 area will be accomplished subsequent to the successful completion of Tier 1 efforts.

1.4.2 Unique Features of Build Alternatives

Build Alternative 1: Preferred Project⁵

Floodplain Restoration

The Floodplain Restoration Component for the Preferred Project would occur on 128.1 acres within the 133.5-acre Project site, as shown on **Figure 1.4-4**. Unique features of this component for the Preferred Project include: (1) removal of approximately 1,470 feet of the south bank levee, (2) restoration of floodplain topography to approximately 102 acres of existing farmland, and (3) approximately 14,000 linear feet of access and maintenance roads and trails for the on-going restoration and maintenance of the site, as well as public access.

Levee Removal

Under the Preferred Project, approximately 1,470 feet of the 4,650-foot south bank levee (from SR 1 to the upstream [eastern] Project limit) would be removed (**Figures 1.4-1 and 1.4-4**). The levees would be cut to set the top of bank elevations approximately equivalent to, or just slightly below, that of the two to five-year flood event. No work is proposed to occur below ordinary high water (OHW) in the main channel. Approximately 3,180 feet of the existing levee would remain in place to preserve important areas of existing vegetation that would support colonization and expansion of riparian plant communities to the floodplain.

Floodplain Grading

Under the Preferred Project, grading activities within the floodplain would entail approximately 471,000 cubic yards of cut and 67,000 cubic yards of fill⁶. The excess fill (330,000 cubic yards) will be utilized to elevate the approximately 23-acre agricultural preserve out of the 100-year floodplain and for construction of the Causeway Component. Specific topographic components of the floodplain grading are discussed below.

⁵ This is the Preferred Project subject to public review. Please refer to **Section 1.4.4** below.

⁶ Please note that the cut and fill quantities take into consideration compaction during grading.

Maintained Flood Conveyance Areas (MFCAs)

A total of 36 acres are identified as MFCAs for the Preferred Project (**Figure 1.4-4**). If the configuration of the MFCAs is altered following high flow events, post-storm maintenance and restoration will be limited to this total acreage, even if the precise location has changed.

Floodplain Channel(s)

The overall floodplain restoration design for the Preferred Project provides a set of distributary channels (**Figures 1.4-1 and 1.4-4**) that are a direct result of historical analysis showing the potential for a multi-channel system, coupled with geomorphic modeling indicating dual flow path geometries that are shallow (1-2 feet deep) and wide (60-foot channel bottom with 8:1 side slopes). These are meant as starter channels such that the floodplain can evolve while providing connectivity between the removed levee sections and the south arm of the Carmel Lagoon. Geometries are predicted to be stable over a full range of anticipated flood magnitudes. The channels, and the floodplain in general, would not begin to inundate until the mainstem of the Carmel River reaches its two- to five-year flood stage, would not be inundated for long periods (generally on the order of one day or less, as peaks are brief), and would not pond as flows recede through the geomorphically appropriate channel configuration. The floodplain's microtopography and distributary channel network are anticipated to adjust naturally in response to large flood events.

The distributary channel network extends across the floodplain, underneath the Causeway Component, and into the Carmel Lagoon, providing a newly naturalized pattern of floodplain connectivity (**Figures 1.4-1 and 1.4-4**). The range of elevations in the proposed channels and bars immediately adjacent to the upstream end of the south arm of the Carmel Lagoon would allow the lagoon environment significant additional horizontal and vertical space to adjust over time to outside drivers such as sea level rise.

The distributary channel environment includes several sediment sequestration elements to capture and retain excess sediment associated with the first few inundation events (**Figure 1.4-1**). The furthest upstream elements are designed to interact with the floodplain slope to shed transporting sediment well upstream of the lagoon. One additional element is located mid-Project, and another approximately 200 feet upstream of the Causeway Component in order to provide additional areas for sediment to settle out before reaching the south arm of the Carmel Lagoon. The mid-Project element will contain streamwood logs with rootwads (please refer to Sheet C-1 of the 60% Restoration Plans: Balance Hydrologics, Inc., Whitson Engineers, and HTH 2016), which provide habitat complexity under all conditions, wet or dry. Each sediment sequestration element has a positive outlet that allows for downstream gravity drainage and no residual ponding, and is specifically designed to minimize the potential for fish stranding through careful grading. This will provide a defined flow outlet such that migrating fish are able to sense the falling limb and vacate downstream along with the flood flow. The positive downstream outlets will prevent any ponding (no residual water), and as the floodplain matures naturally over time, the sequestration

elements are expected to fill up with deposited sediments. It is expected that the floodplain will become increasingly vegetated and stabilize over time, resulting in reduced sediment transport. No sediment removal is planned for these elements.

Willow plantings will be strategically placed between the distributary channels in order to provide a root network and bank stability (**Figure 1.4-2**). Overall, restoration of the transition zone will be greatly supplemented by many acres of new riparian vegetation. Additionally, the central portion of the floodplain will include multiple areas of high ground (referred to throughout this document as “islands”), which will serve to separate distributary channels, control flood flows entering through the removed levee sections, and provide dry refuge for wildlife during flood events.

Agricultural Preserve

Under the Preferred Project, an approximately 23 acre agricultural preserve would be elevated above the 100-year floodplain using excess fill material (approximately 275,000 cubic yards) from the levee removal, floodplain grading, and construction of the Causeway Component.

Access Roads and Trails

The following provides detail on the access roads/trail segments for the Preferred Project by land owner:

Segments A and B (State Parks and BSLT)

On the Carmel River State Beach property, access roads/trails are proposed parallel to the highway from the two existing driveways west of SR 1 (**Figure 1.4-3**). Segment A runs north from the shared driveway at the private residences and Odello West historic barn complex. Segment B runs south from the CAWD access road. Both segments turn east under the causeway and meet Segment C (described below). A short section of Segment A continues southeast, past the connection with Segment C, to connect with Segment H (described below). Segments A and B will be utilized for public safety patrols as well as maintenance in the causeway. The access roads will be used to access the Tier 1 restoration areas for active irrigation, planting, and maintenance and monitoring. Public access to the Tier 1 area will be restricted during the establishment period, and over time will also be limited in areas of sensitive resources and restricted during high flow events.

These access road/trail segments are designed pursuant to State Parks access standards and will be surfaced with Caltrans Class II aggregate base (3/4” size rock) that is colored brown (not grey), and 100% virgin (no recycled material). Simple post and cable fencing will delineate the access roads to restrict public access into the south arm of the Carmel Lagoon and restored areas.

Public use of Segments A and B will be determined by State Parks in accordance with the Carmel River State Beach General Plan and subsequent trail/access plans. Access from State Park lands

to BSLT and MPRPD property will be coordinated via a long-term maintenance agreement in terms of types of uses, timing, directional and interpretive signage, and entry points. Connection of these road/trail segments to other trails or to other public access points within Carmel River State Beach are not included as part of this Project and will be determined separately by State Parks.

Segments C, D, E, & F (BSLT)

Access road/trail Segments C, D, E, and F will be unimproved dirt access roads/trails to provide access into the Tier 2 restoration area as well as to the MFCAs, which include the levee openings and distributary channels (**Figure 1.4-3**). Segment C connects Segments A and B on the east side of SR 1. Segment D branches off from the convergence of Segments B and C, and runs first north, then eastward towards the active well and parallel to the Carmel River channel. Segment D terminates at Segment E. Segment E branches off from Segment G (described below) near the proposed agricultural water quality pond and traverses the floodplain in a north-south direction over one of the topographic diversity islands and terminates northwest of the convergence with Segment D. Segment F runs along the north side of the Project site, parallel to the Carmel River, from the convergence of Segments D and E to the convergence of Segments G and I (described below). Simple post and cable fencing will delineate the access roads/trails to keep trail users out of restoration or sensitive resource areas.

Within the floodplain restoration area east of SR 1, a primary objective is to allow for natural floodplain functions. Following large flow events, the alignment and location of the access roads/trails, MFCAs, and distributary channels may shift or meander. Therefore, Segments D, E, and F will not be surfaced with aggregate base or other road materials, and will be native dirt and kept free of vegetation, as described below. Public access may be limited in areas of active restoration or sensitive resources and will be restricted during high flow events.

Segment G (BSLT)

Segment G provides the primary access road from the SR 1 driveway entrance into Palo Corona Regional Park and the Project area, at the “Red Houses” (**Figure 1.4-3**). This segment follows the southern boundary of the Project site, providing access to the Agricultural Preserve, ending at the convergence of Segments F and I, near the existing River Pond on Palo Corona Regional Park. It runs parallel to MPRPD’s Palo Corona Regional Park access road and the south boundary intermittent drainage channel.

Segment G will both provide access to the Agricultural Preserve and potentially serve as a multi-use trail facility for pedestrian and bicycle access from Palo Corona Regional Park, in coordination with MPRPD and the Palo Corona Regional Park General Plan. Because this road will provide the access for agricultural activities on the Agricultural Preserve, Segment G will be surfaced with aggregate base and maintained for vehicle and equipment access. A buffer will be provided on the Agricultural Preserve to set back agricultural activities from the access road/multi-use trail.

Segments H and I (MPRPD)

Segment H includes a short access point from the access road on Palo Corona Regional Park to BSLT Segment G, just west of the water quality pond, Agricultural Preserve, and convergence of Segments E and G (**Figure 1.4-3**). Segment I is located in the easternmost portion of the Project site and runs from the convergence of Segments F and G to BSLT's south bank trail and the existing trail network on the Palo Corona Regional Park frontal slopes to the east of the Project site. These trail segments will be unimproved and consistent with the trail descriptions for Segments C through F, presented above.

Public use of Segments H and I will be determined by MPRPD in accordance with the Palo Corona Regional Park General Plan and other trail/access plans. Access from MPRPD lands to BSLT and State Parks property will be coordinated through a long-term maintenance agreement in terms of types of uses, timing, directional and interpretive signage, and entry points.

Wells

The existing State Parks irrigation well, located adjacent to the west side SR 1 (**Figure 1.1-3**), will be relocated under the Preferred Project due to the planned expansion of the SR 1 Right of Way for the Project (**Figure 1.4-4**). The well is planned to be relocated to the north of its current location.

Maintenance Activities

As identified above, if the configuration of the MFCAs is altered following high flow events, post-storm maintenance and restoration will be limited to 36 acres under the Preferred Project, even if the precise location or alignment of these features have changed.

Causeway

The Causeway Component of the Preferred Project consists of replacing a portion of the SR 1 roadway embankment with a 360-foot long, 43'-6" to 52'-7" causeway (**Figure 1.4-4**). The Causeway Component under this alternative is approximately 5.4 acres. Grading activities, including the temporary detour road, would entail approximately 41,000 cubic yards of cut and 22,000 cubic yards of fill⁷.

Cut/Fill

Grading activities associated with the construction of the Preferred Project, including all Project components, would potentially disturb approximately 120.5 acres; the Preferred Project would result in approximately 512,000 cubic yards of cut and 419,000 cubic yards of fill⁸. All grading

⁷ Please note that the cut and fill quantities take into consideration compaction during grading.

⁸ Please note that no soil will be exported off-site.

activities would balance on-site and no soil would need to be imported or exported from the Project site.

Build Alternative 2: Reduced Project Alternative

The Reduced Project Alternative was design in an effort to eliminate or reduce potential significant impacts compared to the Proposed Project. The Project's key components (i.e., levee removal, floodplain grading for conveyance, and causeway) are all interrelated in that, each must be sized and configured based on and appropriate to others. The Reduced Project Alternative minimizes the levee removal component, limiting the amount of water entering the floodplain, which in turn allows for a reduced grading effort and smaller causeway.

Floodplain Restoration

Under the Reduced Project Alternative, the Floodplain Restoration Component would occur on 98.5 acres within the Project site, as shown on **Figure 1.4-6**. Unique features of this component for the Reduced Project Alternative include: (1) lowering the elevation of the existing "Notch" so that it engages at approximately the two- to five-year river stage; (2) limited floodplain restoration within approximately 50 acres of existing farmland to support native habitat restoration, (3) and approximately 12,000 linear feet of access and maintenance roads and trails for the on-going restoration and maintenance of the site, as well as public access; and (4) implementation of the RMP within the reduced restoration area.

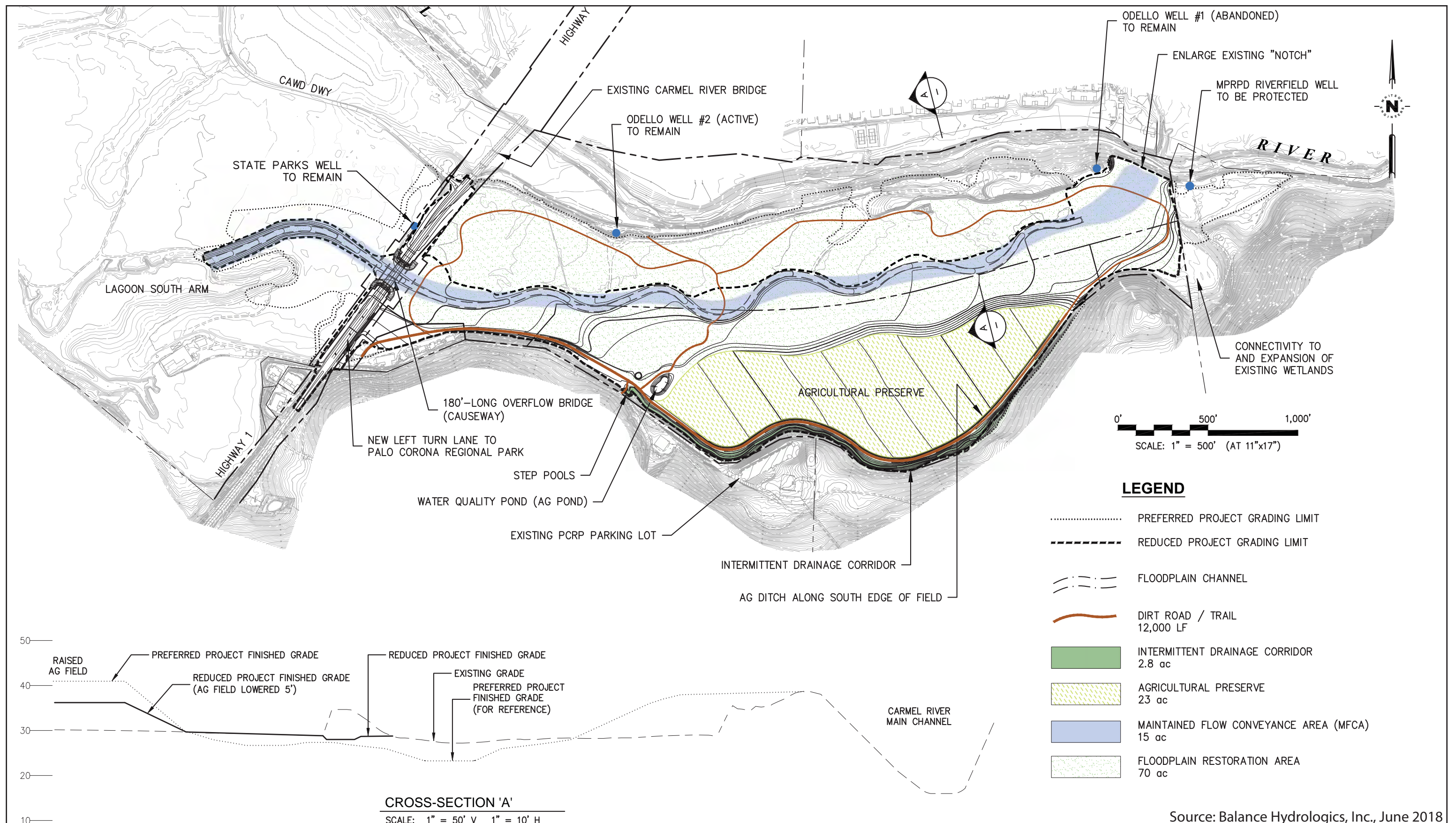
Levee Removal

Under the Reduced Project Alternative, a 200'-long segment of the existing "Notch", which was created in response to the 1995 floods, would be lowered to engage at approximately the two- to five-year river stage (the "Notch" is estimated to currently engage at approximately the 10-year river stage). Lowering the "Notch" will allow flood flows to enter the south overbank area during lower-return storm events. The added flow capacity is integral to obtaining the Project's flood control objectives, and the more frequent inundation would improve the overall ecological function of the Odello East property as a floodplain by providing the hydrologic conditions to support the restoration of native vegetation communities within the floodplain. No additional notches will be created under this alternative, and similar to the Proposed Project, no work is proposed to occur below OHW in the main channel.

Floodplain Grading

Under the Reduced Project Alternative, the floodplain would be graded on a very limited basis to create topographic characteristics necessary to support floodwater conveyance across the floodplain and provide longitudinal connectivity with the Carmel Lagoon (**Figure 1.4-6**). Unlike the Preferred Project, which focuses on enhancing the floodplain for native vegetation restoration, the grading for the Reduced Project Alternative is significantly reduced in order to reduce overall Project cost, construction timeline, habitat impacts along the river corridor due to notch grading,

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Reduced Project Alternative Overview Map

June 2018

Figure
1.4-6

Carmel River Floodplain Restoration and Environmental Enhancement Project
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and impacts due to the Project's overall earthwork volume. Approximately 77.1 acres of existing farmland would be graded to create the channel; the remaining 26.5 acres of floodplain would be left essentially at existing grade.

Floodplain improvements under the Reduced Project Alternative, would include topographic modifications consistent with riparian habitat conditions, particularly near the expanded "Notch" and a single channel guiding flows to the causeway. Grading activities within the floodplain would entail approximately 139,000 cubic yards of cut. The cut soil (approximately 107,000 cubic yards⁹) will be utilized to elevate the approximately 23-acre agricultural preserve and for construction of the Causeway Component. Specific topographic components of the floodplain grading are discussed below.

Maintained Flood Conveyance Areas (MFCAs)

A total of 15 acres would be anticipated to be designated as MFCA in this alternative in order to convey the 7,800 cubic feet per second (cfs) design flow (**Figure 1.4-6**). If the configuration of the MFCAs is altered following high flow events, post-storm maintenance and restoration will be limited to this total acreage, even if the precise location has changed.

Floodplain Channel(s)

Under the Reduced Project Alternative, one meandering channel with depths of 1-2 feet, a width of 30 feet, and 8:1 side slopes would extend from the "Notch" through the floodplain, underneath the causeway, and into the Carmel Lagoon (**Figure 1.4-6**). Sediment sequestration elements, distributary channels, and islands are not proposed in this alternative due to the simplified restoration approach employed.

Agricultural Preserve

Under the Reduced Project Alternative, the elevated agricultural preserve would be similar as described for the Preferred Project, except it would be approximately five feet lower to account for the reduced soil excavation (**Figure 1.4-6**).

Access Roads and Trails

Under the Reduced Project Alternative, the trails network on Odello East could be relatively the same as those described for Preferred Project (trail Segments C-H), except that slight modification may be made of trail locations only (due to revised grading approach) and trail Segment I would be reduced to only a short trail connecting Segments F and G and would not connect to trails on Palo Corona Regional Park (**Figure 1.4-6**). Due to the reduced grading proposed under the causeway and the reduced width of the causeway, trail connections under the causeway are not possible, and not included in this alternative. The trail segments on State Parks property (Segments

⁹ Please note that the cut and fill quantities take into consideration compaction during grading.

A and B) are not included, as they no longer would connect to any other trails open to the public (i.e., on Odello East or Palo Corona Regional Park).

Wells

There are two options under the Reduced Project Alternative for the existing State Parks well, located adjacent to the west side of SR 1 (**Figure 1.4-6**). One option would be protecting it in place because the causeway construction under this alternative can avoid impacting the well. The well would need to be protected against the increased flood elevations; which would entail raising the well head, pump motor, and electrical controls/boxes to above flood elevation. A second option would be to relocate the well, as described above for the Preferred Project.

Restoration Management Plan

The implementation of the RMP would be generally unchanged from that described above for the Project, except that the area for both Tier 1 restoration activities would be significantly reduced. Tier 2 activities would also be reduced, but not as much as Tier 1. As shown on **Figure 1.4-6**, within State Parks property, restoration activities would be limited to only the floodplain channel area. As discussed in **Section 2.2.1 Hydrology and Floodplain**, the implementation of the RMP under this alternative is anticipated to be less successful than the other Build Alternatives due to the reduced grading. Less floodplain grading would yield a higher elevation ground surface which would not be inundated by low flows (i.e. the single channel) and is then a further distance from the local groundwater source. Less available groundwater for riparian plantings could lead to less vigorous vegetation establishment.

Maintenance Activities

As identified above, post-storm maintenance and restoration of the MFCA will be limited to 15 acres under the Reduced Project Alternative, even if the precise location or alignment of these features have changed. Changes to planting plans (as compared to the Preferred Alternative) as a result of potentially less successful restoration elements may or may not require less or more maintenance.

Causeway

The Causeway Component of the Reduced Project Alternative consists of replacing a portion of the SR 1 roadway embankment with a 180-foot long causeway (**Figure 1.4-6**). The Causeway Component under this alternative is approximately 4.6 acres. Grading activities, including the temporary detour road, would entail approximately 23,000 cubic yards of cut and 26,000 cubic yards of fill. In this alternative, the Causeway Component is reduced in scope to only accommodate the additional flows that come into the south overbank area as a result of “Notch” expansion. The result is a 180-foot long causeway that would allow the 10-year flood to pass under SR 1 (without causing overtopping of SR 1); but during the 100-year event, floodwaters

would back up and overtop the highway in a manner similar to (but less than) what is predicted under existing conditions.

The Reduced Project Alternative causeway would be designed to reduce flooding hazards to SR 1 relative to existing conditions, but would not be designed to pass the flood events as per standard Caltrans design requirements. This design approach would require that Caltrans grant an Exception to Design Standards for Highway Design Manual Topic 821.3 Selection of the Design Flood. HDM Topic 821.3 states:

“The basic rule for the hydraulic design of bridges (but not including those culvert structures that meet the definition of a bridge) is that they should pass a 2 percent probability flood (50-year). Freeboard, vertical clearance between the lowest structural member and the water surface elevation of the design flood, sufficient to accommodate the effects of bedload and debris should be provided. Alternatively, a waterway area sufficient to pass the 1 percent probability flood without freeboard should be provided. Two feet of freeboard is often assumed for preliminary bridge designs. The effects of bedload and debris should be considered in the design of the bridge waterway.”

Instead of passing the 100-year flood without freeboard, the causeway in the Reduced Project Alternative is designed only to mitigate the additional flow which the Project would allow to enter the south floodplain. The result is that the causeway would continue to overflow the SR 1 embankment during the 100-year flood event (i.e., the bridge would operate under pressure flow), though the overtopping would be to a lesser depth than in existing conditions. Because the Reduced Project Alternative would operate under pressure flow during the design flood, pressure flow scour would need to be estimated and accounted for in the bridge design.

This design approach is not standard and is not anticipated to be preferred by Caltrans, but there is precedence for this approach as a mitigation measure, e.g., to minimize downstream flooding impacts to the CAWD outfall and sewer force main pipes crossing or the State Parks Barn Complex. In this event, it would need to be demonstrated that the reduction in impacts (to CAWD and State Parks facilities) outweighs the added risks, loss in utility, reduction in flood benefits, and reduction in restoration outcomes that this alternative would entail.

Cut/Fill

Grading activities associated with the construction of the Reduced Project Alternative, including all Project components, would potentially disturb approximately 75 acres. The Reduced Project Alternative would result in approximately 162,000 cubic yards of cut and 133,000 cubic yards of fill¹⁰. All grading activities would balance on-site and no soil would need to be imported or exported from the Project site.

¹⁰ Please note that no soil will be exported off-site. The volume difference is the result of different in-place soil densities.

Build Alternative 3: Secondary Channel Alternative

The Secondary Channel Alternative was specifically designed to provide additional benefits to S-CCC steelhead in response to discussions with the Service and National Marine Fisheries Service (NMFS) during the scoping phase of the EIR and ESA consultation between the Service and NMFS. This alternative entails construction of the Proposed Project but adds a Secondary Channel Component to the Project. This would create an off-channel habitat zone that would seek to mimic the historical attributes of a multi-threaded channel. NMFS suggested that constructing a secondary channel, which would be inundated on a regular basis (approximately annually), would introduce wetted area that would be beneficial to S-CCC steelhead as a transition zone between the upstream mainstem channel of the Carmel River and the downstream Carmel Lagoon.

Floodplain Restoration

The Floodplain Restoration Component for the Secondary Channel Alternative would occur on an additional 1.6 acres compared to the Preferred Alternative, as shown on **Figure 1.4-7**; the total area would be approximately 135.1 acres. Unique features of this component for the Secondary Channel Alternative include: (1) removal of approximately 1,470 feet of the south bank levee, (2) a secondary channel that would be excavated from the upstream end of the Project down to the most westerly proposed “notch,” (3) restoration of floodplain topography to approximately 103 acres of existing farmland, and (4) approximately 14,000 linear feet of access and maintenance roads and trails for the on-going restoration and maintenance of the site, as well as public access.

Levee Removal

Under the Secondary Channel Alternative, levee removal would be the same as described for the Preferred Project (cut to set the top of bank elevations approximately equivalent to, or just slightly below, that of the two to five-year flood event), except at the two locations where the secondary channel connects to the main river channel where the grading will be to a much lower elevation (almost to river bottom; please refer to the discussion of the floodplain grading below) (**Figure 1.4-7**). This would impact an additional one acre of levee/riverbank at the upstream and downstream notches from that described for the Preferred Project.

Floodplain Grading

Under the Secondary Channel Alternative, floodplain grading will be the same as described for the Preferred Project, except where the secondary channel is proposed (**Figure 1.4-7**). The Secondary Channel Alternative is predicated on activating an approximate 10- to 15-acre habitat zone directly adjacent to the mainstem channel through grading. The 2,400-foot long, 30- to 40-foot wide secondary channel would be excavated from the upstream end of the Project down to the most westerly proposed notch (which is located approximately 2,000 feet upstream of the causeway). The secondary channel would become wetted at approximately 200 to 500 cfs river flow and would have a bottom area of approximately two acres. The area of alternative grading (relative to the

Preferred Project) would encompass approximately 20 acres. Approximately 105,000 cubic yards of additional excavation are anticipated (relative to the Preferred Project).

The concept would seek to mimic the historical attributes of a multi-threaded channel ecosystem, as was present to the north of the Carmel River prior to European settlement and subsequent development. The secondary channel area itself would be limited to a width similar to that of the mainstem, while length would be dictated by the position of the upstream and downstream openings and the design pattern. The remaining area would be riparian habitat and potentially other habitat type zones, depending on existing topography and the specific grading plan. The creation of a secondary channel would provide opportunities for additional habitat enhancements, and of different types than the Preferred Project, which does not propose any work below OHW on the main river channel.

The two levees and notches associated with the Preferred Project that would be impacted by the secondary channel and associated habitat zone would be relocated to the south and west of the new secondary channel (**Figure 1.4-7**). Notches would be graded to set top of notch elevations approximately equivalent to engagement at the two- to five-year flood event under the Preferred Project (Balance Hydrologics 2015a). The top of bank elevations in the riparian habitat zones of the Secondary Channel Alternative would also be approximately equivalent to the two- to five-year flood event, except at the two locations (upstream and downstream) where the secondary channel connects to the main river channel.

Maintained Flood Conveyance Areas (MFCAs)

A total of 24 acres would be anticipated to be designated as MFCAs in this alternative (**Figure 1.4-7**). If the configuration of the MFCAs is altered following high flow events, post-storm maintenance and restoration will be limited to this total acreage, even if the precise location has changed.

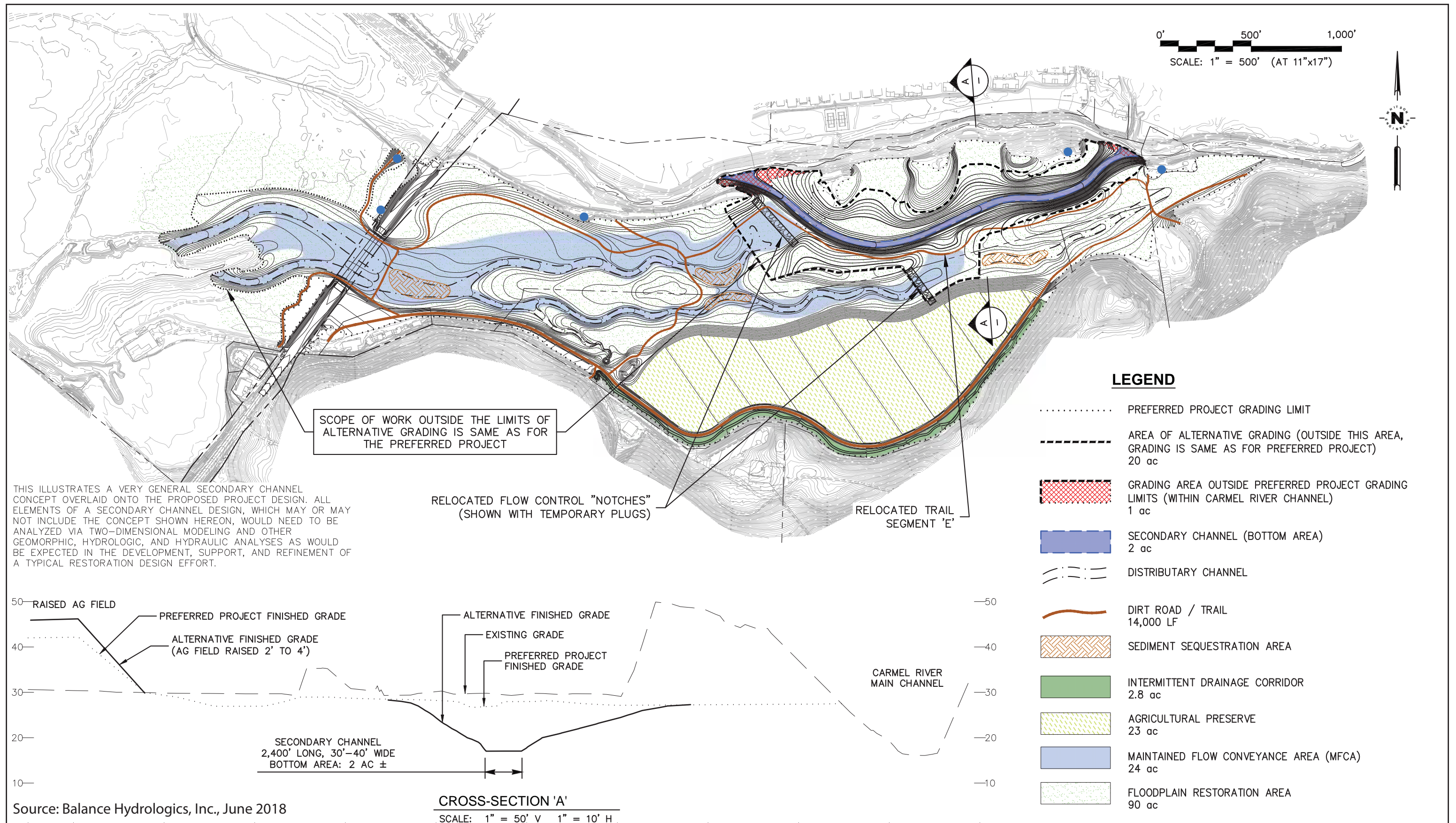
Floodplain Channel(s)

Floodplain channels under the Secondary Channel Alternative would be the same as described above for the Preferred Project (including sediment sequestration elements, distributary channels, and islands) except within the secondary channel footprint (**Figure 1.4-7**).

Agricultural Preserve

Under the Secondary Channel Alternative, the elevated agricultural preserve would be similar as described for the Preferred Project, except it would be raised an additional two- to four-feet to accommodate the additional 150,000 cubic yards of soil excavated to create the secondary channel (**Figure 1.4-7**).

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Secondary Channel Alternative Overview Map

June 2018

Figure
1.4-7

Carmel River Floodplain Restoration and Environmental Enhancement Project
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Access Roads and Trails

Outside of the secondary channel footprint of this alternative, access and maintenance roads and trails would be the same as described under the Secondary Channel Alternative (trail Segments A through D and G through I) (**Figure 1.4-7**). Trail Segment F, as described above for the Preferred Project would be relocated to stay on the south side of the secondary channel.

Wells

Similar to the Preferred Project, the existing State Parks irrigation well will be relocated under the Secondary Channel Alternative due to the planned expansion of the SR 1 Right of Way for the Project (**Figure 1.4-7**).

Restoration Management Plan

The implementation of the RMP would be generally unchanged from that described above for the Project; except additional restoration opportunities present themselves with the creation of a secondary channel under this alternative.

Maintenance Activities

As identified above, post-storm maintenance and restoration of the MFCAs will be limited to 24 acres under the Secondary Channel Alternative, even if the precise location or alignment of these features have changed. Additionally, maintenance activities may be necessary within the two acres of the secondary channel.

Causeway

The Causeway Component under the Secondary Channel Alternative would be the same as described above for the Preferred Project (**Figure 1.4-7**).

Cut/Fill

Grading activities associated with the construction of the Secondary Channel Alternative, including all Project components, would potentially disturb an additional 1.6 acres relative to the Preferred Project; and would result in a total of 617,000 cubic yards of cut and 505,000 cubic yards of fill¹¹. All grading activities would balance on-site and no soil would need to be imported or exported from the Project site.

1.4.3 No-Action (No-Build) Alternative

The No-Action (No-Build) Alternative would maintain the existing conditions at of SR 1 embankment and would preclude the proposed removal of levees between the main river channel and the south floodplain upstream of the highway. The County would not implement the Preferred Alternative and the Service would not provide funding. The existing configuration of the Project

¹¹ Values reflect changes in soil density.

site presents flood risk to adjacent developed areas north of the Proposed Project site and leaves the SR 1 embankment at risk of overtopping and sustaining significant damage during flood events, potentially resulting in closure of the highway and limited to no access from north to south on SR 1. Re-connection of the south floodplain to the main river channel is necessary for restoration of the historic floodplain's functions and value, as well as reducing the flood risk in the developed northern floodplain.

Currently, the Project site is used for agricultural activities and provides very little, low quality, habitat for wildlife species. Under the No-Build Alternative, BSLT would implement a modified restoration approach on APNs 243-071-006-000 and 243-071-007-000 (**Figure 1.1-3**) to install native vegetation in lieu of agricultural uses on the disturbed areas of these parcels and would maintain the existing riparian vegetation along the river corridor. However, variation in the types of native plants would be limited and success rates for plant establishment may diminish without the benefits of hydrologic reconnection with the Carmel River. Phasing for plant establishment would be based on a limited availability of water from BSLT's water right (28.1 acre-feet per year). Without the floodplain grading and levee removal to create hydrologic connection with the river main stem, revegetation with native plants would not benefit from activation of the floodplain during storm events or from improved depths to groundwater and groundwater recharge. Habitat restoration goals would only be partially achieved. Further, the agricultural preserve would not be raised out of the 100-year floodplain and continued agricultural uses on APN 243-071-005 would also be constrained by limited water availability. The No-Action (No-Build Alternative) would not meet the Project purpose and need and is therefore not recommended.

1.4.4 Comparison of Alternatives

The criteria for the evaluation of the alternatives used within the EIR/EA includes whether the alternatives: (1) meet the Project purpose and need, (2) are feasible, and (3) eliminates or significantly reduces one or more impacts. These criteria were selected in an attempt to define important differences between the alternatives. **Table 1.4.1** provides a summary comparison of the features of each Project alternative discussed above. **Table 1.4.2** provides a comparison of each of the alternatives for the criteria identified above.

Alternatives

Table 1.4.1 Comparison of Project Alternatives Features

Project Component	Preferred Project	Reduced Project Alternative	Secondary Channel Alternative	No-Build Alternative
Floodplain Restoration	<ul style="list-style-type: none"> 128.2 acres 	<ul style="list-style-type: none"> 98.5 acres 	<ul style="list-style-type: none"> 129.8 acres 	Approximately 79 acres
Levee Removal	<ul style="list-style-type: none"> 4 new notches plus expansion of existing “Notch” 1,470 feet of levee removed Notch cuts to set the top of bank elevations approximately equivalent to, or just slightly below, that of the 2- to 5-year flood event No work below OHW 	<ul style="list-style-type: none"> Expand existing “Notch” “Notch” top of bank elevation approximately equivalent to, or just slightly below, that of the 2- to 5-year flood event No new notches No work below OHW 	<ul style="list-style-type: none"> 4 new notches plus expansion of existing “Notch” Notch cuts to set the top of bank elevations approximately equivalent to, or just slightly below, that of the 2- to 5-year flood event except two notches lowered to channel bed elevation (secondary channel) 1,470 feet of levee removed Work below OHW 	None
Floodplain Grading	<ul style="list-style-type: none"> 471,000 CY cut 67,000 CY fill 	<ul style="list-style-type: none"> 139,000 CY cut 0 CY fill 	<ul style="list-style-type: none"> 592,000 CY cut 48,000 CY fill 	None
MFCAs	<ul style="list-style-type: none"> 36 acres 	<ul style="list-style-type: none"> 15 acres 	<ul style="list-style-type: none"> 24 acres 	None
Floodplain Channel(s)	<ul style="list-style-type: none"> Two distributary channels 1-2 feet deep, 60-ft wide, 8:1 side slopes Sediment sequestration elements High ground islands separating channels 	<ul style="list-style-type: none"> One channel 1-2 feet deep, 30-ft wide, 8:1 slopes No sediment sequestration elements No high ground islands 	<ul style="list-style-type: none"> Two distributary channels 1-2 feet deep, 60-ft wide, 8:1 side slopes Sediment sequestration elements High ground islands separating channels 	None
Intermittent Drainage Channel	<ul style="list-style-type: none"> 2.8 acres 	<ul style="list-style-type: none"> 2.8 acres 	<ul style="list-style-type: none"> 2.8 acres 	None
Agricultural Preserve	<ul style="list-style-type: none"> 23 acres 330,000 CY fill 	<ul style="list-style-type: none"> 23 acres 107,000 CY fill 5 feet lower than Preferred Project 	<ul style="list-style-type: none"> 23 acres 435,000 CY fill 4 feet higher than Preferred Project 	Agricultural practices would continue on APN 243-071-005-000 (approximately 49 acres) but would be limited by available water supplies
Access Roads and Trails	<ul style="list-style-type: none"> 14,000 linear feet Connection to trails on adjacent parks properties and under SR 1 	<ul style="list-style-type: none"> 12,000 linear feet No trails west on State Parks or MPRPD property or under SR 1 	<ul style="list-style-type: none"> 14,000 linear feet Connection to trails on adjacent parks properties and under SR 1 	None planned, although existing access roads could be used as trails

Alternatives

Table 1.4.1 Comparison of Project Alternatives Features

Project Component	Preferred Project	Reduced Project Alternative	Secondary Channel Alternative	No-Build Alternative
<i>Monitoring and Irrigation Wells</i>	<ul style="list-style-type: none"> State Parks wells relocated MPRPD well protected in place BSLT well protected in place Monitoring wells MW-A & MW-B removed 2-4 monitoring wells installed post-construction 	<ul style="list-style-type: none"> State Parks well protected in place or relocated MPRPD well protected in place BSLT well protected in place Monitoring wells MW-A & MW-B removed 2-4 monitoring wells installed post-construction 	<ul style="list-style-type: none"> State Parks well relocated MPRPD well protected in place BSLT well protected in place Monitoring wells MW-A & MW-B removed 2-4 monitoring wells installed post-construction 	None impacted
<i>Restoration Management Plan</i>	<ul style="list-style-type: none"> Tier 1 restoration includes all required compensatory mitigation revegetation Tier 2 restoration includes non-compensatory restoration of the remainder of the site occurring subsequent to the compensatory actions 	<ul style="list-style-type: none"> Same as Preferred Project except restoration area reduced, especially on State Parks property; no work on MPRPD property 	<ul style="list-style-type: none"> Same as Preferred Project except secondary channel may present additional restoration opportunities of different habitat types 	Modified restoration approach on APNs 243-071-006-000 and 243-071-007-000 (approximately 79 acres) to maintain existing riparian vegetation and install native vegetation in lieu of agricultural uses
<i>Maintenance Activities</i>	<ul style="list-style-type: none"> 38.8 acres (MFCAs and intermittent drainage) 	<ul style="list-style-type: none"> 17.8 acres (MFCA and intermittent drainage) 	<ul style="list-style-type: none"> 28.8 acres (MFCAs, intermittent drainage, and secondary channel) 	Maintenance would likely be reduced to invasive weed control and would not include native vegetation removal as no floodplain channels would be created
<i>Causeway</i>	<ul style="list-style-type: none"> 5.4 acres 360 feet long Temporary detour road 41,000 CY cut 22,000 CY fill 	<ul style="list-style-type: none"> 4.6 acres 180 feet long Temporary detour road Would require Caltrans to grant an Exception to Design Standards 23,000 CY cut 26,000 CY fill 	<ul style="list-style-type: none"> 5.4 acres 360 feet long Temporary detour road 41,000 CY cut 22,000 CY fill 	None
<i>Cut/Fill</i>	<ul style="list-style-type: none"> 512,000 CY cut 419,000 CY fill 	<ul style="list-style-type: none"> 162,000 CY cut 133,000 CY fill 	<ul style="list-style-type: none"> 167,000 CY cut 505,000 CY fill 	None

Alternatives

Table 1.4.2 Comparison of Criteria for Project Alternatives

Criteria	Preferred Project	Reduced Project Alternative	Secondary Channel Alternative	No-Build Alternative
Meets Project Objectives	Yes	Some	Yes	Few
<i>Improves the natural and historic functions and values of the lower Carmel River and Carmel Lagoon</i>	Yes	Yes, but significantly reduced compared to the Preferred Project	Yes, and may provide additional enhancement compared to the Preferred Project	Yes, but significantly reduced compared to Build Alternatives
<i>Creates a self-sustaining hydrologic connection and interaction of the floodplain and south arm of the Carmel Lagoon</i>	Yes	No, the reduced amount of water entering the floodplain and no sediment sequestration elements would result in more sediment within the Carmel Lagoon. Additionally, the steeper profile of the single floodplain channel results in a geomorphically unstable configuration. The floodplain is anticipated to “unzip” over time, causing sedimentation of the Carmel Lagoon and potential avulsion of the Carmel River channel.	Yes, same as Preferred Project	No
<i>Improves habitat conditions for sensitive wildlife species</i>	Yes	Yes, but significantly reduced compared to the Preferred Project	Yes, and may provide additional enhancement compared to the Preferred Project	Yes, but significantly reduced compared to Build Alternatives
<i>Restores approximately 100 acres of natural habitat</i>	Yes	Yes, but reduced success rates for the restoration are anticipated due to the reduced grading, which would place the vegetation further away from the groundwater and less floodwater would enter the floodplain.	Yes, and may provide additional enhancement compared to the Preferred Project	No, restoration and maintenance of existing riparian vegetation would occur on only approximately 79 acres and success rates would be expected to be less successful due to no increased floodwater on the floodplain.

Alternatives

Table 1.4.2 Comparison of Criteria for Project Alternatives

Criteria	Preferred Project	Reduced Project Alternative	Secondary Channel Alternative	No-Build Alternative
<i>Reduces flooding hazards along the north floodplain, to SR 1, and to the red houses</i>	Yes	Yes, but significantly reduced compared to the Preferred Project	Yes, same as Preferred Project	No
<i>Improves the quality of water entering the Carmel Lagoon</i>	Yes	No, the reduced amount of water entering the floodplain and no sediment sequestration elements would result in more sediment within the Carmel Lagoon, However, filtration into the groundwater would occur, but at a reduced rate compared to the Preferred Project.	Yes, same as Preferred Project	No, no effect on water quality compared to existing conditions
<i>Maintains active agricultural operation</i>	Yes	Yes, same as Preferred Project	Yes, same as Preferred Project	Yes, approximately 26 acres more than the Build Alternatives, but would be limited by available water supplies
<i>Creates conditions that allow for adaptation to sea level rise and other climate change impacts</i>	Yes	Yes, but significantly reduced compared to the Preferred Project	Yes, same as Preferred Project	No
Economically Feasible	Yes	Yes	Not Currently	Yes
Reduces hydrologic impacts to downstream resources (CAWD treatment plant, CAWD outfall and sewer force main pipelines, and State Parks Barn Complex)	No, some downstream resources would be impacted; however, not at a significant level with the implementation of the mitigation measures provided	Yes, impacts to CAWD outfall and sewer force main pipelines slightly reduced and impacts to State Parks Complex eliminated compared to Preferred Project	No, same as Preferred Project, some downstream resources would be impacted; however, not at a significant level with the implementation of the mitigation measures provided	N/A

After comparing and weighing the benefits and impacts of all feasible alternatives, some of which are summarized in **Table 1.4-1**, the Project Development Team has identified Build Alternative 1: Preferred Project as the preferred alternative, subject to public review. Final identification of a preferred alternative will occur after the public review and comment period.

After the public circulation period, all comments will be considered, and the County and Service will select a preferred alternative and make the final determination of the Project's effect on the environment. Under CEQA, the County will certify that the Project complies with CEQA, prepare findings for all significant impacts identified, prepare a Statement of Overriding Considerations for impacts that will not be mitigated below a level of significance, and certify that the findings and Statement of Overriding Considerations have been considered prior to project approval. The County will then file a Notice of Determination (NOD) with the State Clearinghouse that will identify whether the Project will have significant impacts, if mitigation measures were included as conditions of project approval, that findings were made, and that a Statement of Overriding Considerations was adopted. Similarly, if USFWS, determines the NEPA action does not significantly impact the environment, the USFWS will issue a Finding of No Significant Impact (FONSI). If it is determined that the Project is likely to have a significant effect on the environment, an Environmental Impact Statement (EIS) will be prepared.

1.4.5 Alternatives Considered but Eliminated from Further Discussion

Floodplain Restoration Component

Initial conceptual analysis of the Floodplain Restoration Component of the Project considered multiple Project alternatives. One of the alternatives was identified as the preferred and is detailed above within the Build Alternative. Floodplain Restoration Component alternatives that were considered and rejected are described below.

Initial Restoration Concept

An IS/MND was prepared for the initial restoration concept in 2011. The previous alternative included grading the existing farmland and access road to create an elevated agricultural preserve on approximately 40 acres on the southern edge of the Odello East site, outside of the 100-year floodplain elevation, and grading to restore approximately 55 acres of existing farmland to riparian floodplain. This Project alternative was rejected based on subsequent analysis of the floodplain grading plan in favor of the Preferred Project Alternative. The Preferred Project Alternative improves upon this original concept by:

- Increasing the area proposed for restoration by decreasing the area proposed for agricultural preservation;
- Optimizing the sediment transport characteristics of the Project by including geomorphically appropriate channel configurations into the floodplain, adding sediment sequestration elements to the floodplain, and optimizing the overall floodplain profile

Alternatives

(including grading under the causeway and approximately 30 acres to the west of SR 1, to tie into the south arm of the Carmel Lagoon);

- Optimizing the site for wetland and riparian habitat establishment by lowering the floodplain in key locations, thereby decreasing the depth to groundwater; and
- Reducing the cost of the Causeway Component by reducing floodplain grade below the bridge, thereby reducing the bridge length from approximately 550 feet to approximately 360 feet.

Passive versus Active Restoration

The Proposed Project Alternative described above includes active restoration in a portion of the Project site as compensatory mitigation for impacts resulting from the Project. The remainder of the site is proposed to be passively restored. Active restoration was considered for the whole of the Project Site, but was rejected. Review of active restoration efforts at State Parks' CRLEP completed in 2004 revealed substantial loss of active restoration plants due to site conditions, including destruction of irrigation systems by deer and other animals, irregular water availability due to pump and well issues, and soil conditions. However, passive restoration areas at the CRLEP recruited well and were more robust in species leading to the decision to select a passive restoration approach for the Project site.

Additional factors that led to the selection of a passive restoration approach were awareness of existing ongoing drought conditions and costs associated with an entire active restoration approach at the Project site. Active restoration costs were much higher than passive approaches due to lack of competitive contract growing contractors, restrictions on seed collection areas due to adjacent protected lands, storage limitations for contract growing of plants, and high probability for browsing and damage to plants from the prolific wildlife in the area.

No Agriculture Preserve

The No Agriculture Preserve was eliminated for design consideration due to the conservation easement recorded on the title for the parcel owned by BSLT, in addition to consideration of local and adjacent land use designations, historical land uses, and the values of a historic landscape associated with agriculture. The easement intent is to maintain active open space, restoration, and agriculture on the property. In addition, retaining a small portion of the site in agriculture was considered a priority to the State Coastal Conservancy, one of the Project funders. The No Agriculture Preserve was found to be inconsistent with the intent of the easement and historical use of the property and was eliminated from consideration.

Causeway Component

A Design Alternatives Analysis (Balance Hydrologics 2007a) was prepared subsequent to the initial conceptual analysis that considered two Project Alternatives for the Causeway Component of the Project. One of the alternatives was identified as the preferred and is detailed above within

the Build Alternative. The second design alternative considered was the Box Culvert Alternative. A third alternative, the Structure Alternative was evaluated in the Structure Type Selection Report. These two rejected alternatives are described below.

Box Culvert Alternative

The Box Culvert Alternative presented a less ambitious SR 1 design component at the cost of reduced Project benefits from a flood control and habitat perspective. Revisions to SR 1 at the south overbank crossing were still proposed as part of the alternative, but at a reduced scale that required four-foot by 10-foot box culverts in place of the Causeway. This alternative would have required much less highway and utility work, and so would have had significantly smaller impacts and cost.

A necessarily smaller portion of the south overbank levee would have been removed as part of this alternative. In order to keep the balance between additional flows routed through the south overbank, while not increasing overtopping at SR 1, the density of the vegetation within the restored areas of the Odello property would have needed to have been closely monitored. Vegetation allowed to grow too thick in this area would have had the potential to significantly reduce conveyance in the south overbank, increasing flooding risk in the developed areas to the north, while too little vegetation would have allowed for flows in the overbank area which would have been greater than the capacity of the box culverts, resulting in increased risk of floodwaters overtopping of SR 1.

This alternative was rejected because it would not meet the goals and objectives of the Project; it would provide substantially less than the desired hydraulic capacity and would provide much less habitat restoration compared to the Build Alternative.

Structure Alternative

The alternative structure considered was a cast in place conventionally reinforced concrete (CIP/RC) slab bridge supported by 16 in. diameter cast-in-steel-shell (CISS) piles. Because of the relatively weak, slender piles, the structure would be incapable of sustaining the anticipated ground displacements due to lateral spreading. Therefore, this alternative would include ground remediation in the form of stone columns to strengthen the soils by minimizing the pore pressure within the bridge foundation soils.

Advantages of a CIP/RC slab superstructure include its low cost, small superstructure depth, ease of maintenance, rapid construction schedule, and widespread familiarity with this type of construction among contractors. However, because this alternative would require that the existing soil be remediated in order for the structure to be structurally adequate, the cost of the Structure Alternative (including ground remediation) is higher than the proposed CIP P/S box girder bridge founded on large-diameter CISS piles. The Structure Alternative also has a significantly higher

Alternatives

risk of incurring additional, unanticipated costs than the Build Alternative structure type, due to the required ground improvement.

Since the Structure Alternative does not provide any unique benefits, it was rejected in favor of the Build Alternative structure.

1.5 Permits and Approvals Needed

The County and BSLT will be co-applicants for all Project permits and authorizations with the exception of the Caltrans Project Report Approval and the Caltrans encroachment permit, for which the County will be the only applicant¹². The following permits, agreements, reviews, and approvals will be required for Project:

Table 1.5.1 Permits and Approvals Needed

Agency	Permit/Approval	Status
<i>U.S. Army Corps of Engineers</i>	Clean Water Act (CWA) Section 404 Permit Pursuant to a Jurisdictional Determination (JD)	JD acquired from USACE on February 29, 2016 – Approved JD acquired from USACE on September 2, 2016 - A Nationwide Permit is anticipated for the Project.
<i>U.S. Fish and Wildlife Service</i>	Federal Endangered Species Act Section 7 Incidental Take Statement	Formal Intra-Service consultation initiated October 2016.
<i>National Marine Fisheries Service</i>	Federal Endangered Species Act Section 7 Incidental Take Statement	Formal consultation was concluded and a BO was issued on July 27, 2018. An Erratum Letter was provided on October 22, 2018 that provides clarifications and editorial corrections to the BO.
<i>Natural Resource Conservation Service</i>	Farmland Conversion Impact Rating (Form AD 1006, Part I and III) and coordination	Farmland Conversion Impact Rating (Form AD 1006, Part I and III) completed by NRCS in September 2015.
<i>U.S. Fish and Wildlife Service</i>	Section 106 of the National Historic Preservation Act (NHPA) compliance	Section 106 consultation was completed by the Service - A memo from the State Historic Preservation Officer (SHPO) concurring with the finding of no adverse effect for the undertaking was received dated August 30, 2016. Consultation was re-initiated in November 2016 based on newly identified impacts and is ongoing. A memo from SHPO on March 2, 2017 concurred that the Project will result in a less than adverse effect with implementation of the proposed mitigation.
<i>U.S. Fish and Wildlife Service</i>	Native American Consultation	Concluded – no comments received from tribes.
<i>Local Tribes</i>	AB-52 Consultation	Consultation with the Ohlone/Costanoan-Esselen Nation (OCEN) was initiated on December 8, 2015. The County provided OCEN with proposed mitigation on September 11, 2018 based on coordination and communication over the duration of the consultation. Consultation was closed on October 5, 2018; OCEN provided no formal response to the proposed mitigation.

¹² The County is identified as the Project Sponsor in the Cooperative Agreement between the County and Caltrans.

Permits and Approvals Needed

Table 1.5.1 Permits and Approvals Needed

Agency	Permit/Approval	Status
<i>Federal Emergency Management Agency</i>	Approval of a Conditional Letter of Map Revision (CLOMR) and a Letter of Map Revision (LOMR)	CLOMR will be processed prior to construction and the LOMR following the completion of the Project.
<i>California Coastal Commission</i>	Coastal Development Permit (CDP)	A CDP application will be submitted concurrent with public circulation of the EIR/EA.
<i>California Department of Transportation District 5</i>	Encroachment Permit	A permit application will be submitted subsequent to adoption of the EIR/EA.
<i>California Department of Transportation District 5</i>	Public Resources Code 5024 Compliance	Consultation concluded August 2016.
<i>California Regional Water Quality Control Board</i>	Clean Water Act Section 401 Certification or Waiver and National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit	A permit application will be submitted concurrent with public circulation of the EIR/EA.
<i>California Department of Fish and Wildlife</i>	Section 1602 Streambed Alteration Agreement	A notification will be submitted concurrent with to public circulation of the EIR/EA.
<i>California Department of Fish and Wildlife</i>	Section 2081 Incidental Take Permit	A permit application will be submitted concurrent with to public circulation of the EIR/EA.
<i>Monterey Peninsula Water Management District</i>	River Work Permit	A permit application will be submitted concurrent with to public circulation of the EIR/EA.
<i>County of Monterey</i>	Grading Permit	Issuance Prior to Construction.
<i>County of Monterey</i>	Administrative Design Approval	Issuance Prior to Construction.
<i>Monterey Peninsula Regional Park District</i>	Encroachment Permit	Issuance Prior to Construction
<i>California Department of Parks and Recreation</i>	Right of Entry Permit	Issuance Prior to Construction

Chapter 2 National Environmental Policy Act (NEPA) Evaluation

Determining Significance Under NEPA

The Proposed Project is subject to federal, as well as Monterey County and state environmental review requirements. Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. This document contains under one cover, an EA under NEPA and an EIR under CEQA. This chapter provides a technical discussion of the effects of the Project under NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS, or a lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) as a whole has the potential to “significantly affect the quality of the human environment.” The determination of significance is based on context and intensity.

Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. NEPA does not require that a determination of significant impacts be stated in the environmental documents. CEQA, on the other hand, does require the CEQA lead agency to identify each “significant effect on the environment” resulting from the project and ways to mitigate each significant effect. Please see **Chapter 3 California Environmental Quality Act (CEQA) Evaluation** for a determination of significance under CEQA.

Please note that while this chapter provides a significance determination under NEPA, it describes the affected environment relevant to both the CEQA and NEPA. The affected environment described in this chapter is incorporated by reference into **Chapter 3**. The purpose of **Chapter 3** is to provide a separate CEQA significance determination based on the common affected environment information presented in this chapter.

This chapter analyzes the impacts that the Project will have on the human, physical, and biological environments in the Project area. It describes the existing environment that could be affected by the Project, potential impacts from each of the alternatives, and proposed avoidance, minimization, and/or mitigation measures. Any potential impacts are included in the general impacts analysis and discussions that follow. A checklist of CEQA determinations is provided in **Chapter 3**.

As part of the scoping and environmental analysis done for the Project, the following environmental issues were considered; however, no adverse impacts were identified and no further discussion of these issues is provided within this document:

- **Timberland** — No timberland lies within the Project area (Field visit, June 21, 2014, and the 1982 Monterey County General Plan).
- **Community Impacts** — The Project is not located in a developed community and will not require relocation of any homes or businesses (Field visit June 21, 2014, and Project Study Report [PSR], Whitson Engineers 2010). Caltrans relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 U.S. Code 2000d, et seq.). All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have been considered in this Project. Caltrans' commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the Director, which can be found in **Appendix B** of this document. No minority or low-income populations that would be adversely affected by the Proposed Project have been identified. Therefore, this Project is not subject to the provisions of Executive Order 12898. (PSR, Caltrans 2010a).
- **Growth** — The Project is not expected to cause unplanned growth because the build alternative will provide no additional carrying capacity to SR 1 (PSR, Whitson Engineers 2010).
- **Wild and Scenic Rivers** – The Carmel River is not designated as a Wild and Scenic River by the California Wild and Scenic Rivers Act (California Public Resources Code [PRC] Section 5093.50 et seq.), or the National Wild and Scenic Rivers Act (16 United States Code [USC] 1271). (PSR, Whitson Engineers 2010).

2.1 Human Environment

2.1.1 Land Use

This section analyzes potential impacts to land use that would occur if the Project was implemented, and describes the existing land uses within and in the vicinity of the Proposed Project site and the applicable plans, policies, and regulations that address land use. Potential impacts from Project construction and operation are evaluated and analyzed for each alternative to determine the potential for the Project to affect such resources through the displacement, disturbance, or direct conversion of these uses.

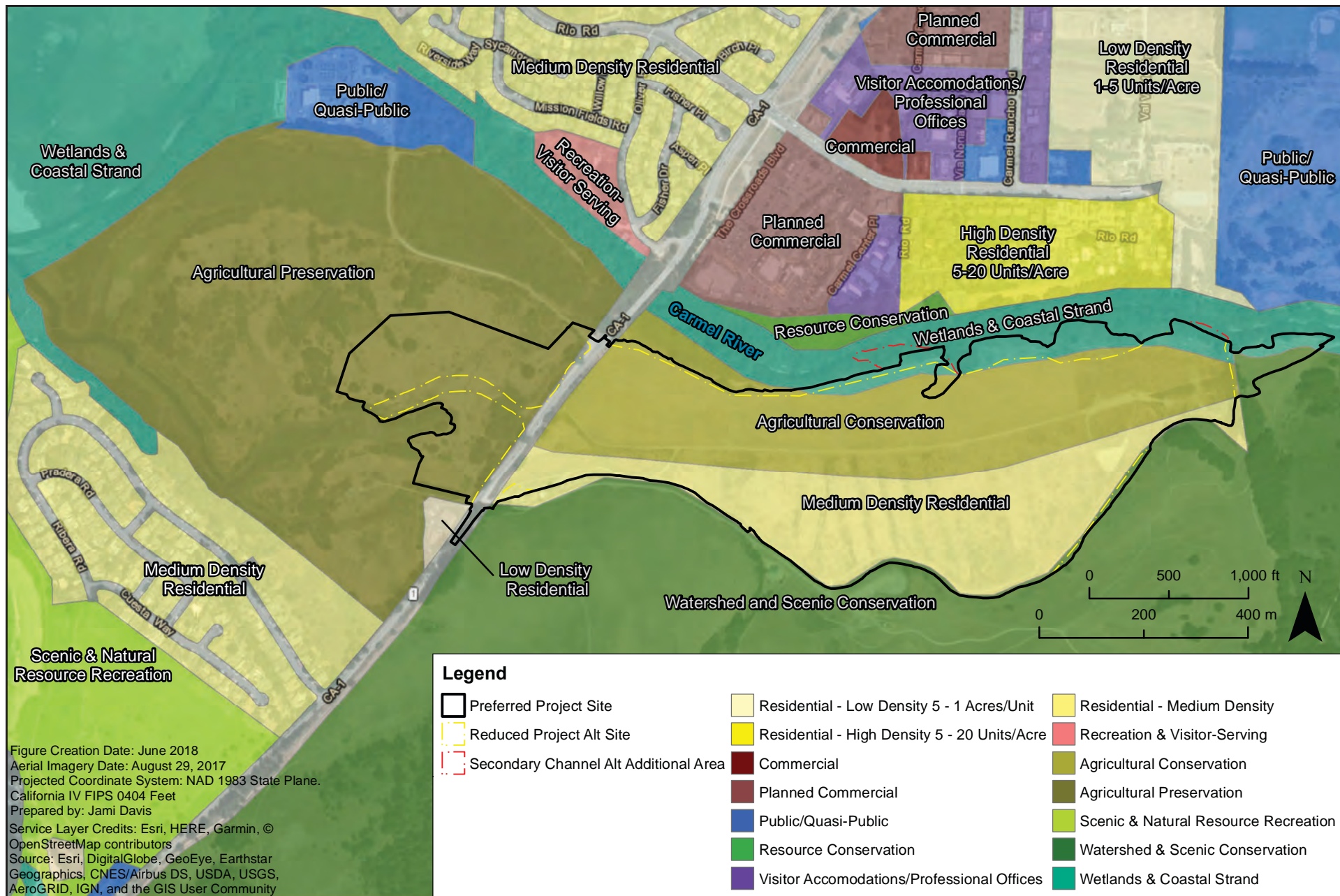
Regulatory Setting

The Project is located in the Coastal Zone. The Project's boundaries intersect the Monterey County Carmel Area Land Use Plan Area (LUP) and California Coastal Commission (CCC) original permit jurisdiction (**Figures 2.1.1-1 and 2.1.1-2**). The four certified LUPs, together with the Monterey County Coastal Implementation Plan (Title 20 of the Monterey County Code) comprise the County's certified Local Coastal Program (LCP). The Carmel Area LUP, together with Part 1 (Zoning Ordinance) and Part 4 (Chapter 20.146, Regulation for Development in the Carmel Area LUP) of Title 20 govern the Project site area. Within the Coastal Zone the certified LUP functions as the General Plan, as supplemented by the 1982 Monterey County General Plan for matters not addressed by the LUP. The parties have agreed for the CCC to process the coastal development permit, while the County is the lead agency for the purposes of CEQA. The basis for CCC review will be the LCP. In addition, the portion of the Project west of SR 1 is subject to State Parks' Point Lobos State Reserve and Carmel River State Beach General Plan and subsequent amendments (State Parks General Plan).

Coastal Zone

The Coastal Zone Management Act of 1972 (CZMA) is the main federal law enacted to preserve and protect coastal resources. This act sets up a program under which coastal states are encouraged to develop coastal management programs. States with an approved coastal management plan are able to review federal permits and activities to determine if they are consistent with the State's management plan.

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

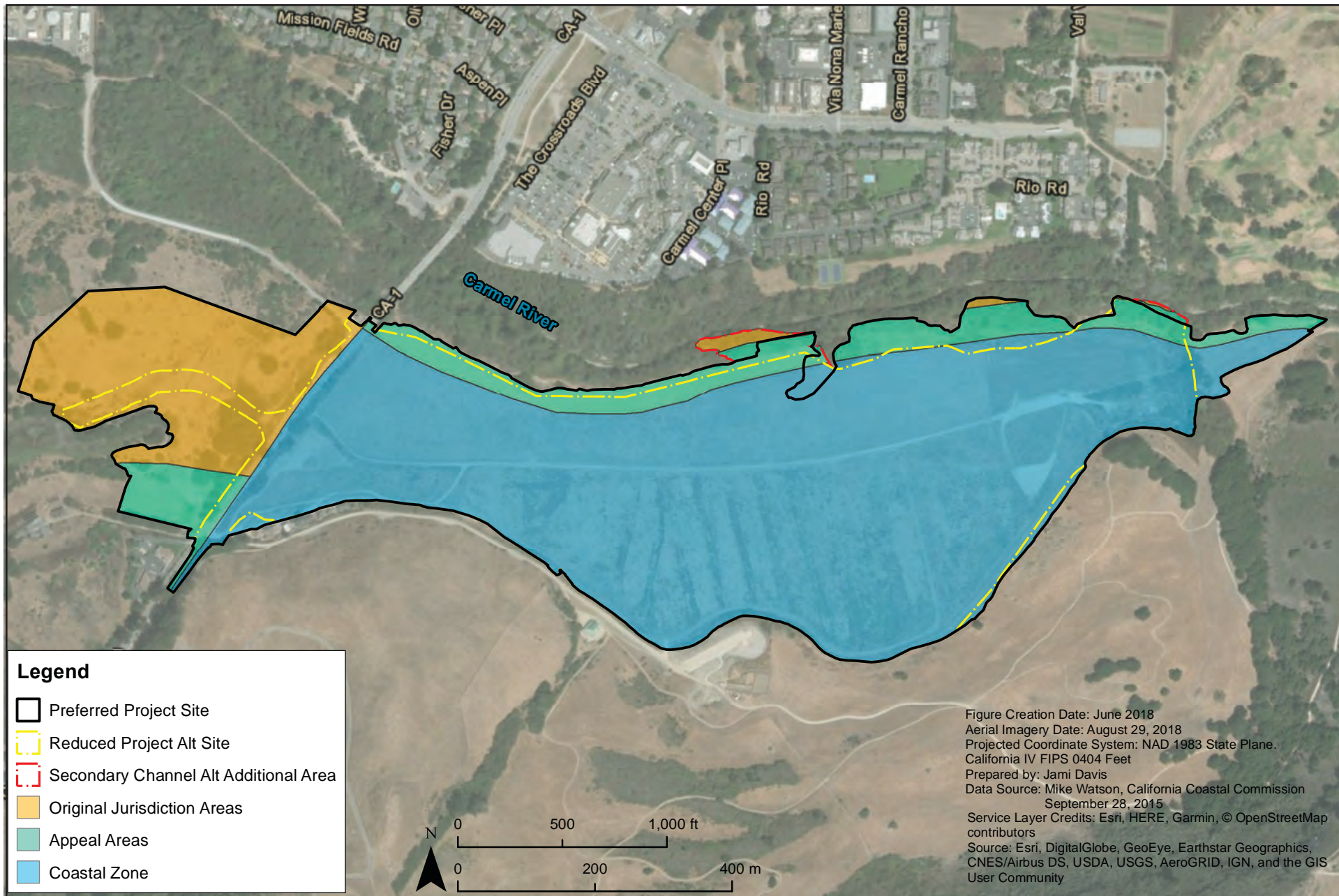


Land Use Map

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA

Figure
2.1.1-1



Coastal Zone Map

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.1.1-2

Just as the CZMA delegates power to coastal states to develop their own coastal management plans, the Coastal Act delegates power to local governments (15 coastal counties and 58 cities) to enact their own LCPs. These local programs govern the short-term and long-term use of coastal resources in their jurisdiction consistent with the Coastal Act goals. After certification of an LCP, Coastal Development Permit (CDP) authority is delegated to the appropriate local government, but the CCC retains original permit jurisdiction over certain specified lands (such as tidelands and public trust lands). The CCC also has appellate authority over development approved by local governments in specified geographic areas as well as certain other developments. A portion of the Project site falls within the original permit jurisdiction of the CCC.

Monterey County developed its own LCP for the Carmel Area, which was certified by the CCC in 1982, incorporated into the 1982 Monterey County General Plan, and includes additional certified amendments. The Monterey County LCP is the determining plan and regulation for areas in the coastal zone except for areas of original permit jurisdiction. Development within the coastal zone may not commence until a CDP has been issued by either the CCC or a local government that has a CCC-certified LCP. In cases where a project is located within both a certified LCP and original jurisdiction, the CCC and the local government can prepare coastal development permits for their areas of jurisdiction, or, as in the case of this Project, the CCC can prepare one CDP for an entire project by agreement with the local government.

The CCC will determine, through the CDP process, that the Project is consistent with the Coastal Act as a requirement of issuing the permit.

Carmel Area Land Use Plan/1982 Monterey County General Plan

The Project site is identified as “Wetland & Coastal Strand,” “Agricultural Preservation,” “Agricultural Conservation,” and “Medium Density Residential” land in the Carmel Area LUP. Project consistency with applicable Carmel Area LUP policies and the 1982 Monterey County General Plan policies is provided in **Appendix F Project Consistency with Relevant Land Use Policies**.

Monterey County Zoning Ordinance, Title 20

According to Title 20 (Coastal Zoning), the Project site is zoned as Medium Density Residential/3 units/acre (MDR/3) and Coastal Agricultural Preserve (CAP). The Proposed Project does not conflict with either designation. The Project would continue existing land uses west of SR 1 and would provide agriculture, native habitat, and open space preservation on the east side, consistent with the approved uses as zoned. The residential designation does not require residences be built and does not preclude restoration or agriculture. Project consistency with applicable Monterey County Zoning Ordinance, Title 20 policies is provided in **Appendix F Project Consistency with Relevant Land Use Policies**.

Point Lobos State Reserve and Carmel River State Beach General Plan

The portion of the Project site owned by State Parks is subject to policies contained in the Point Lobos State Reserve and Carmel River State Beach General Plan. Project consistency with applicable Point Lobos State Reserve and Carmel River State Beach General Plan policies is provided in **Appendix F Project Consistency with Relevant Land Use Policies**.

Affected Environment

The Carmel coastal area supports natural and cultural resources. Carmel Point's shoreline panoramas and architecturally noteworthy residences, the Carmel Mission Basilica just outside the Carmel area, the Point Lobos State Reserve, and the Carmel River State Beach, which includes the lower Carmel River and Carmel Lagoon, are just a few of these valuable resources for which this area is renowned. To date, the greater Carmel area has been maintained in open space and low-intensity rural uses, thereby affording protection for scenic vistas and a biota characterized as diverse and rich.

Development of the Carmel area has been limited by natural constraints and hazards such as rugged terrain and difficult access; limited water; steep, unstable slopes; unsuitable soils; and fire and flood potential. Many of the more accessible locations adjacent to SR 1 have been the focus of residential and visitor-commercial development and use. The north floodplain includes both commercial and residential development, including the Crossroads Shopping Center and two condominium/townhouse complexes. However, the historic lower south floodplain of the Carmel River has been farmed for close to a century and remains free of residential or commercial development.

Future Land Use

Current and future land use trends were identified using zoning maps for the Carmel Area LUP, including the LCP and the Implementation Plan. The 2002 Association of Monterey Bay Area Governments (AMBAG) Conformity Model provided future housing, population, employment and traffic projections for the area. Much of the Carmel Area LUP planning area is not appropriate for intensive development due to the sensitivity of its natural resources and water overdraft issues, but some portions of the planning area are zoned for residential. **Table 2.1.1-1** shows future land uses and the major developments proposed within the Carmel Area LUP planning area.

Table 2.1.1-1 Proposed Future Land Uses and Developments near the Project Site

Name	Jurisdiction	Proposed Uses	Status
<i>CSA 50 Flood Control Improvements</i>	Monterey County	The Project would consist of improvements to levees, construction of flood walls, improvements in pumping, and other actions to remove CSA 50 from the 100-year flood plain.	The Pre-Final Report was approved on October 13, 2014. It is anticipated that any flood control improvements proposed by CSA 50 will undergo CEQA review at such time as CSA 50 is prepared to move forward with any project.
<i>Carmel Lagoon – Ecosystem Protective Barrier, Scenic Road Protection Structure, and Interim Sandbar Management Plan Project</i>	Monterey County	The Project would consist of the construction of a protective barrier which would allow water levels to rise and breach the Carmel Lagoon naturally without increasing flood risk to surrounding development. The Project also includes plans for protection and preservation of Scenic Road.	The Draft EIR was circulated for public review from December 2, 2016 to January 31, 2017.
<i>Monterey Peninsula Water Supply Project</i>	Monterey County; Cities of Marina, Seaside, Monterey, and Pacific Grove	Construction of a desalination facility and associated improvements to CalAm’s distribution system intended to provide additional supply to help reduce CalAm’s pumping from the Carmel River.	The Final EIR was certified on September 13, 2018. Pending litigation, construction is anticipated to begin in 2019.
<i>Pure Water Monterey Groundwater Replenishment Project</i>	Monterey County; Cities of Marina, Seaside, Monterey, and Pacific Grove	Advanced treated water would be injected into the Seaside Groundwater Basin for later extraction to help reduce CalAm’s pumping from the Carmel River	The project is currently under construction and is expected to be operational in 2019.
<i>Rancho Cañada Village Specific Plan</i>	Monterey County	The Project would replace a portion of the former Rancho Cañada golf course with residential units and a restored riparian open-space corridor.	The Final EIR was certified and the project was approved on December 13, 2016; however, the approval was rejected by the Monterey County Superior Court in April 2018.
<i>Palo Corona Regional Park General Development Plan</i>	Monterey County	Open Space land uses in the Palo Corona Regional Park will be managed under this plan. Includes a portion of the former Rancho golf course.	Palo Corona Regional Park General Development Plan is currently being drafted.
<i>Carmel Area State Parks General Plan</i>	State Parks	Open Space land uses in State Park areas in the Carmel Area will be managed under this plan.	A regional General Plan for four park units located in the Carmel area is currently being prepared.
<i>CAWD Capital Improvements Program 15-Year Master Plan</i>	Monterey County	Wastewater Treatment Plant facility upgrades.	The Capital Improvements Program has been implemented since 2013.

Table 2.1.1-1 Proposed Future Land Uses and Developments near the Project Site

Name	Jurisdiction	Proposed Uses	Status
<i>CAWD Calle la Cruz Pipeline Replacement Project</i>	Monterey County	Improvements to the CAWD outfall and sewer force main pipes that cross the south arm of the Carmel Lagoon	The IS/MND for the project was approved in June 2018; however, based on concerns raised by NMFS, additional project design analysis and recirculation of the document is needed.
<i>SR 1 Climbing Lane Project</i>	Monterey County and Caltrans	Widening of northbound SR 1 from Rio Road to Carmel Valley Road to provide a truck climbing lane that will connect to the existing climbing lane north of Carmel Valley Road.	Construction began April 2, 2018.

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

The Proposed Project includes land donation of approximately one acre from BSLT to Caltrans to facilitate an expanded Caltrans right-of-way on the east side of SR 1. Additionally, a Transfer of Jurisdiction from State Parks to Caltrans of approximately one acre on the west side of SR 1 will be completed to expand Caltrans Right of Way of the west side of SR 1 in accordance with Right of Way Manual Section 8.21.05. Please note that only the control of the land will be transferred on the west side, as the State owns the land.

Appendix F Project Consistency with Relevant Policies assesses and discusses the consistency of the Proposed Project with the applicable state, regional, and local land use, transportation, and habitat conservation plans and programs adopted for the area. The Build Alternatives would not conflict with any applicable land use plan, policy, or regulation. The Build Alternatives are consistent with the Carmel Area LUP, 1982 Monterey County General Plan, California Coastal Act, Monterey County Zoning Ordinance Title 20, and Point Lobos State Reserve and Carmel River State Beach General Plan. The Build Alternatives would achieve many of the goals and objectives of the evaluated policies by enhancing the site's ecological and hydrological value while also preserving the agricultural heritage of the site. Therefore, the Proposed Project will have no impacts on land use.

No-Build Alternative

Under the No-Build Alternative, no causeway would be built and no donation of land from the County to Caltrans or transfer of control from State Parks to Caltrans would occur as there would be no need for an expanded right-of-way. Additionally, the land east of SR 1 would likely remain partially in agricultural use and would not be fully restored. BSLT would implement a modified restoration approach on APNs 243-071-006-000 and 243-071-007-000 to maintain existing riparian vegetation along the Carmel River and install native vegetation in lieu of agricultural uses;

however, this would not conflict with any applicable land use plan, policy, or regulation. The No-Build Alternative would achieve some of the goals and objectives of the evaluated policies by enhancing the site's ecological value while also preserving the agricultural heritage of the site; however, this would be less than the Build Alternatives.

Short-Term or Construction Impacts

Construction of the Build Alternatives would not conflict with any applicable land use plan, policy, or regulation.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization or mitigation measures are planned.

2.1.2 Parks and Recreational Facilities

Regulatory Setting

Park Preservation Act

This Project will affect facilities that are protected by the Park Preservation Act (PRC Sections 5400-5409). The Park Preservation Act prohibits local and state agencies from acquiring any property which is in use as a public park at the time of acquisition unless the acquiring agency pays sufficient compensation or land, or both, to enable the operator of the park to replace the park land and any park facilities on that land.

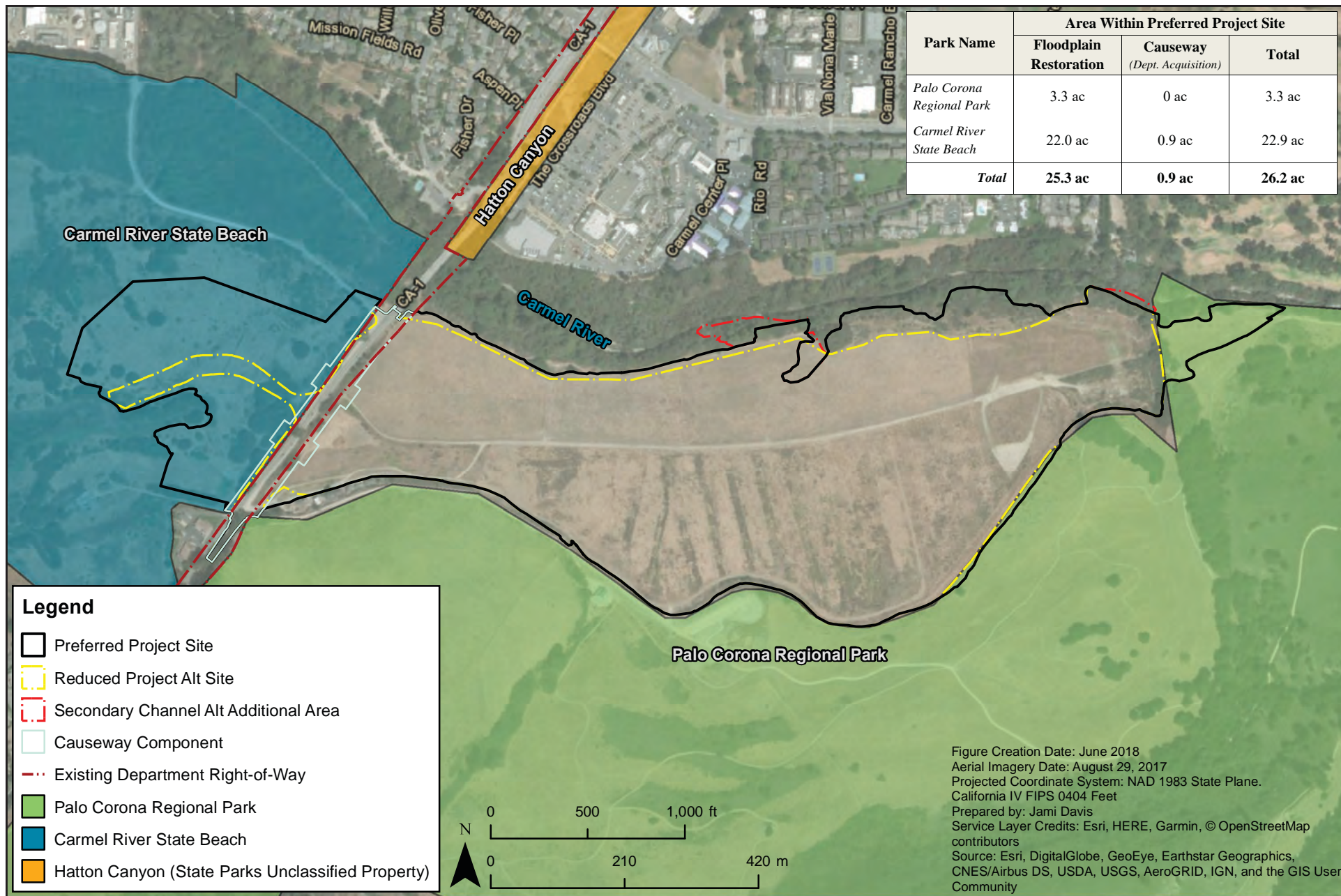
Section 4(f) of the Department of Transportation Act

Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966 prohibits the FTA and other USDOT agencies from using land from publicly owned parks, recreation areas (including recreational trails), wildlife and water fowl refuges, or public and private historic properties, unless there is no feasible and prudent alternative to that use and the action includes all possible planning to minimize harm to the property resulting from such a use (23 CFR Part 774). Section 4(f) has since been recodified at 23 USC Section 138 and 49 USC Section 303, but it is still referred to as Section 4(f) today.

Affected Environment

According to the 1982 Monterey County General Plan, almost 14% of the County's total land area is devoted to parks and recreational facilities operated and maintained by various governmental entities. This includes eight Monterey County parks, nine MPRPD parks, 19 State Parks or State Beaches, and the Los Padres National Forest that offer a variety of recreational opportunities for residents and tourists. A portion of the Project falls within two of these parks: Palo Corona Regional Park, located on the eastern side of the Project site, and Carmel River State Beach, located on the western side of the Project site (**Figure 2.1.2-1**).

State Parks and MPRPD are Project partners and have been involved in the Project from inception through design. The Proposed Project is one component of a larger conceptual restoration for the lower Carmel River and Carmel Lagoon (PWA et. al. 1999). The first phase of the larger restoration, known as the CRLEP, was completed in 2004 by State Parks on their property and included restoration of the south arm of the Carmel Lagoon. The Proposed Project will be physically and hydrologically connected to the south arm and will, to a large extent, complete the lower Carmel River and Carmel Lagoon restoration effort that was envisioned almost two decades prior. State Parks, MPRPD, BSLT, and the County have worked collaboratively to bring these projects forward to improve habitat conditions, flood attenuation, and public access to the State Park and MPRPD resources associated with the Project within and along the Carmel River, Carmel Lagoon, and historic floodplain.



Parks in Project Vicinity and Caltrans Acquisition

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA

Figure
2.1.2-1

There are multiple recreational trails and bike paths within areas adjacent to the Project site (**Figure 2.1.2-2**) and the Proposed Project includes access roads/trails that will be used to connect these existing recreational facilities (**Figure 1.4-4**). Currently, there is no dedicated bike or pedestrian crossing of SR 1 in the vicinity of Carmel River State Beach or Palo Corona Regional Park. The Preferred Project and Secondary Channel Alternative would include a trail under SR 1. This trail would provide public access from the Carmel River State Beach, through the Project site, and onto Palo Corona Regional Park, as well as to the south bank trail east of the Project site that connects to the new Rancho Cañada unit of Palo Corona Regional Park. The Reduced Project Alternative will also include access roads/trails east of SR 1 and connection to Palo Corona Regional Park; however, the trail segments on State Parks property and connection under the highway (trail Segments A and B) would not occur due to the reduced grading under the causeway and the reduced width of the causeway. Additionally, the trail segment on MPRPD property (trail Segment I on Palo Corona Regional Park) would be reduced to only a connector trail under the Reduced Project Alternative as grading on MPRPD property is significantly reduced for this alternative. Through a long-term maintenance agreement, public access on the access roads/trails will be managed by each respective land owner and coordinated jointly by BSLT, State Parks, and MPRPD, based on allowed uses on public lands, ongoing restoration and maintenance activities, and seasonal conditions.

Other recreational facilities within 0.5 mile of the Project site include Hatton Canyon, a State Parks unclassified property located approximately 300 feet north of the Project site.

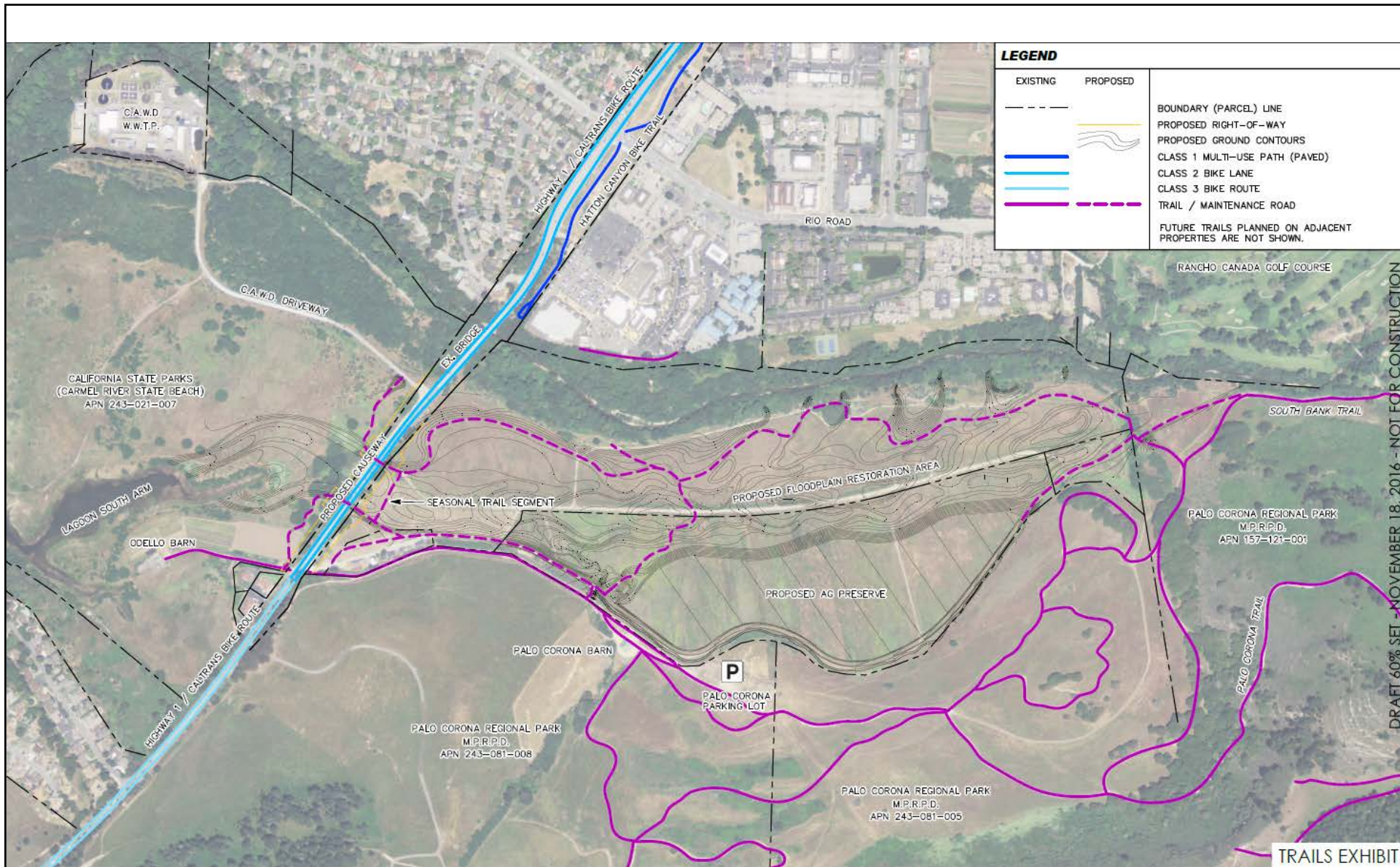
As identified in **Appendix A**, Caltrans has determined that the Proposed Project is not subject to Section 4(f) of the USDOT Act.

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

Placement of the Causeway will result in an expanded Right of Way for Caltrans into Carmel River State Beach. A Transfer of Jurisdiction from State Parks to Caltrans of approximately one acre on the west side of SR 1 will be in accordance with Right of Way Manual Section 8.21.05 within the expanded Right of Way. Please note that only the control of the land will be transferred on the west side as the State owns the land and no real property will change ownership. As identified in **Appendix A**, Caltrans has determined that the Proposed Project is not subject to Section 4(f) of the USDOT Act.



Aerial Imagery Date: NAIP 2012
 Horizontal Coordinate System: NAD 83, Calgrid Zone 4
 Vertical Coordinate System: NAD 88

Source: Whitson Engineers, November 2016



Trails in Project Vicinity

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.1.2-2

DRAFT 60% SET - NOVEMBER 18, 2016 - NOT FOR CONSTRUCTION

A portion of the Proposed Project will also occur on MPRPD land for the Preferred Project and the Secondary Channel Alternative. Access and maintenance of the Project area on MPRPD property will be established through a long-term maintenance agreement with the Project Proponents for these alternatives. No real property will change ownership. No work will occur on MPRPD land for the Reduced Project Alternative.

The Project will result in substantial beneficial impacts to the park and recreational resources within the region. The Proposed Project will change a large portion of the current land use from agricultural to open space and will provide increased public access to the Carmel River State Beach and coastal resources. In addition, the Preferred Project and the Secondary Channel Alternative will include a series of access roads/trails which will connect the adjacent parks to the Proposed Project site and to each other and provide a dedicated crossing under SR 1, which currently does not exist. The Reduced Project Alternative will also include access roads/trails east of SR 1; however, it will not include the trail segments on State Parks property west of SR 1 and connection under the highway (trail Segments A and B), and the trail segment on MPRPD property (trail Segment I on Palo Corona Regional Park) would be reduced to connect only to existing trails.

No-Build Alternative

Under the No-Build Alternative, no causeway would be built and no donation of land from the County to Caltrans or transfer of control from State Parks to Caltrans would occur as there would be no need for an expanded Right of Way. Additionally, no work would occur on MPRPD property and no trails would be constructed. There would be no impacts related to any parks or recreational facilities associated with the No-Build Alternative; however, there would also be no benefit of the increased trail system as there would be under the Build Alternatives.

Short-Term or Construction Impacts

Construction activities such as grading, staging and restoration will occur on approximately 23 acres of Carmel River State Beach for the Preferred Project and the Secondary Channel Alternative and approximately 2.6 acres for the Reduced Project Alternative. Construction activities will also occur on approximately 3.3 acres of MPRPD land for the Preferred Project and Secondary Channel Alternative. No construction activities would occur on MPRPD land under the Reduced Project Alternative. Temporary construction easements will be acquired for the construction phase of the Project as necessary for the Preferred Alternative.

The Project will result in adverse impacts to native vegetative habitats as a result of the Project. Please see **Section 2.3 Biological Environment** and **2.1.7 Cultural Resources** for detailed descriptions of the potential impacts resulting from the construction of the Project.

Avoidance, Minimization, and/or Mitigation Measures

Please see **Section 2.3 Biological Environment** and **2.1.7 Cultural Resources** for detailed avoidance, minimization, and/or mitigation measures.

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2.1.3 Farmland

Regulatory Setting

National Environmental Policy Act

NEPA and the Farmland Protection Policy Act (FPPA, 7 USC 4201-4209; and its regulations, 7 CFR Part 658) require federal agencies, such as the Service, to coordinate with the Natural Resources Conservation Service (NRCS) if their activities may irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance.

California Environmental Quality Act

CEQA requires the review of projects that would convert Williamson Act contract land to non-agricultural uses. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth. The Williamson Act provides an incentive to landowners through reduced property taxes to discourage the early conversion of agricultural and open space lands to other uses.

Farmland Mapping & Monitoring Program

The Farmland Mapping and Monitoring Program (FMMP) provides maps and statistical data that are used for analyzing impacts on California's agricultural resources. The FMMP provides Important Farmland Maps (IFMs), which are a hybrid of resource quality (soils) and land use information. The IFM for the County of Monterey identifies two agricultural-related categories plus one non-agricultural listing on the Project site: Prime Farmland, Grazing Land, and Other Land. Each category is summarized below:

- *Prime Farmland* is land that has the best combinations of physical and chemical characteristics for crop production. It has the soil quality, growing season, and moisture needed to produce sustained high yields of crops when appropriately treated and managed.
- *Grazing Land* is land which the existing vegetation, grown naturally or through management, is suited for the grazing of livestock.
- *Other Land* is land not included in any mapping category which may be low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and non-agricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

California Coastal Act

The CCC regulates agricultural lands within the Coastal Zone through the Coastal Act. The County of Monterey has a certified LUP (Carmel Area LUP) to administer the Coastal Act within

the Project Area. In addition, the 1982 Monterey General Plan is applicable to the Project area for issues not directly addressed in the LUP.

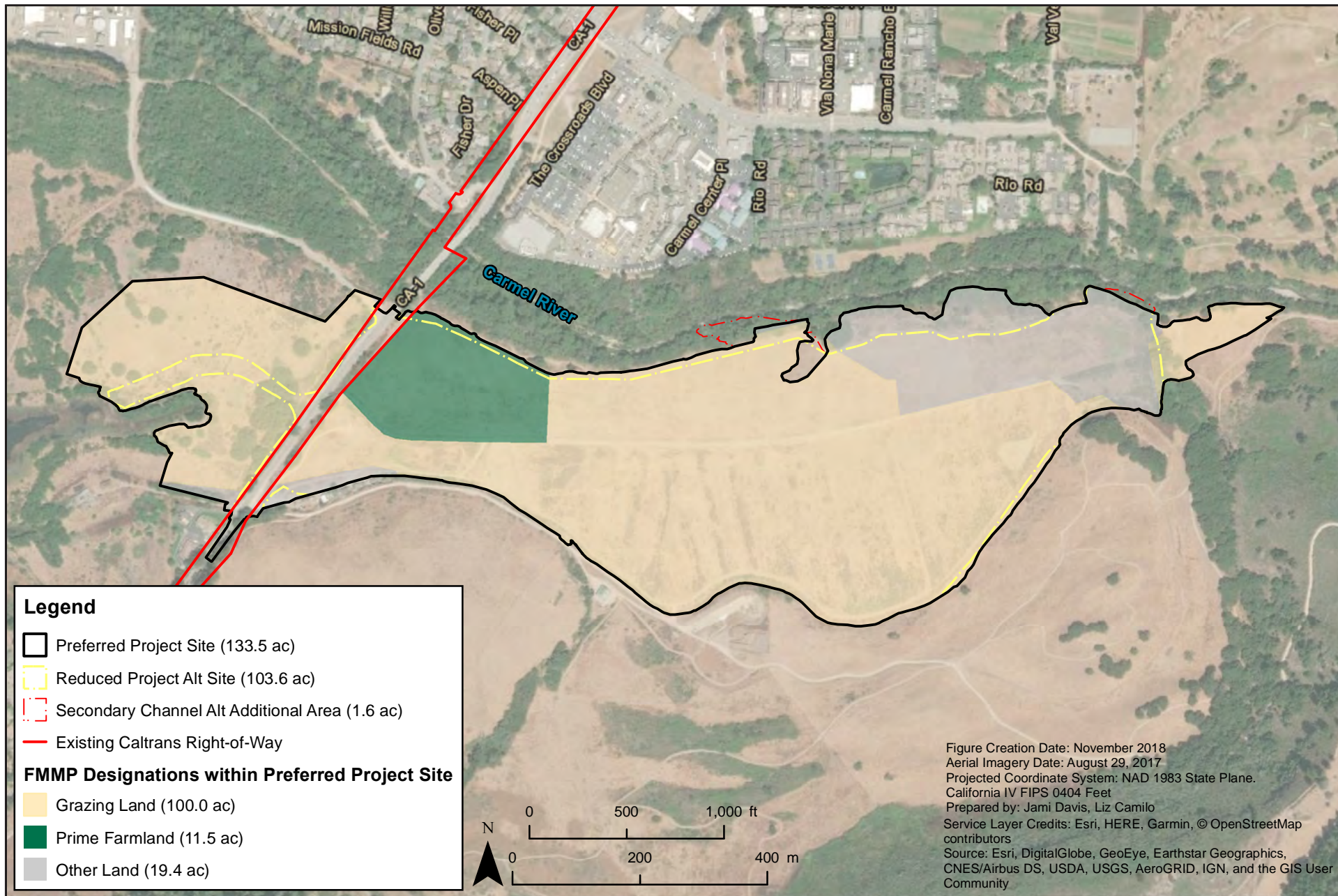
1982 Monterey County General Plan/Carmel Area Land Use Plan

The 1982 Monterey County General Plan and Carmel Area Land Use Plan contain policies designated for the conservation of agricultural resources in Monterey County. Generally, these policies are designed to preserve prime farmland for agricultural use. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with applicable state, regional, and local plans, programs, and agricultural policies.

Affected Environment

The Proposed Project site was historically used for agricultural production beginning in the early 20th century. According to the California Department of Conservation, the Project site includes land designated as Prime Farmland, Grazing Land, and Other Land as reported by the FMMP. The Preferred Project area consists of approximately 11.5 acres of Prime Farmland, 100.0 acres of Grazing Land, 19.4 acres of Other Land, and 3.6 acres of existing Caltrans right-of-way. In addition, there are existing agricultural easements within the Project site, equaling approximately 23.4 acres, that preclude the conversion from agricultural use. The Project site is not under a Williamson Act contract. **Figure 2.1.3-1** depicts the FMMP farmland designations within the Project site.

Approximately 22.8 acres within the Project site are zoned as Agricultural Preservation and 53.4 acres are zoned as Agricultural Conservation according to the Carmel Area LUP (**Figure 2.1.1-1**). The entire Project site is within the Coastal Zone and is subject to the Coastal Act. Please refer to **Section 2.1.1 Existing and Future Land Use** for a detailed discussion.



Farmland Map

November 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.1.3-1

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

Table 2.1.3-1 identifies that acreage of impacts to FMMP farmland that would result from the Build Alternatives. These areas would change to Other Lands. However, consistent with existing agricultural easements, approximately 23.4 acres of Grazing Land would remain under all Build Alternatives and would be elevated out of the floodplain and put in permanent conservation as an agricultural preserve.

Table 2.1.3-1. FMMP Type Impacts from Project Alternatives

Alternative	Prime Farmland	Grazing Land
<i>Preferred Project</i>	11.5 ac	75.6 ac
<i>Reduced Project Alternative</i>	11.0 ac	51.5 ac
<i>Secondary Channel Alternative</i>	11.5 ac	76.3 ac
<i>No-Build Alternative</i>	11.1 ac	51.6 ac

As required, an NRCS Farmland Conversion Impact Rating Form AD-1006 (Form) was completed for the Proposed Project by the federal lead agency and all federal lead agency consultation requirements under the FPPA have been satisfied (**Appendix G**). The NRCS considers only land classified as Prime/Unique and Statewide/Local Importance on the Form. The farmland within the Project site is located solely in Monterey County. The Form determines the relative value of farmland to be converted by using a formula that weighs farmland classification, soil characteristics, irrigation, acreage, creation of non-farmable land, availability of farm services and other factors. The Form was reviewed and approved by the NRCS, concluding consultation. Pursuant to regulation 7 CFR Ch. VI, the results of the consultation determined the farmland conversion resulting from the Project need not be given further consideration for protection. Impacts would be the same under the Secondary Channel Alternative because no additional Prime farmland would be impacted under this Alternative. Impacts would be slightly less under the Reduced Project Alternative as approximately 0.5 fewer acres of Prime farmland would be impacted under this Alternative. Based on the results of the NRCS consultation and an analysis of consistency with local land use policy, the conversion of farmland within the Project site is not a substantial adverse effect.

No-Build Alternative

Under the No-Build Alternative, no grading would occur; however, BSLT would implement a modified restoration approach on APNs 243-071-006-000 and 243-071-007-000 to maintain existing riparian vegetation along the Carmel River and install native vegetation in lieu of agricultural uses. **Table 2.1.3-1** identifies that acreage of impacts to FMMP farmland that would result from restoration activities within this parcel under the No-Build Alternative. The area of Prime farmland impacted would be less than identified for the Preferred Project Build Alternative; therefore, a Farmland Conversion Impact Rating was not calculated for the No-Build Alternative.

Farmland

Additionally, agricultural uses would continue on APN 243-071-005 under the No-Build Alternative and 49.0 acres of Grazing Land would remain within this parcel.

Short-Term or Construction Impacts

Although construction of the Build Alternatives will impact farmland through grading and vegetation removal, these impacts are permanent and are considered above as long-term impacts.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization or mitigation measures are required.

Farmland

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2.1.4 Utilities and Emergency Services

Regulatory Environment

1982 Monterey County General Plan/Carmel Area Coastal Implementation Plan

The 1982 Monterey County General Plan contains policies that require consideration of utilities within public rights-of-way. Additionally, the Carmel Area Coastal Implementation Plan includes visual public resources policies related to utilities. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with applicable State, Regional, and Local plans, programs, and utility policies.

Affected Environment

The Proposed Project would result in a removal of an existing segment of the SR 1 embankment and replacing it with a causeway. A number of utilities are located within the Project site that could be affected by construction of the Proposed Project. Utilities affected by the construction of the Proposed Project include telecommunication lines owned and operated by AT&T, overhead electric lines and poles owned and operated by PG&E, a gas main owned and operated by PG&E, overhead cable television line owned and operated by Comcast, a water main owned and operated by California American Water Company (CalAm), and a well and an electric service panel owned and operated by State Parks. Wells and associated support facilities owned by BSLT and MPRPD will be protected in place. CAWD owns and operates a wastewater treatment plant and related facilities west of the Project site. Within the SR 1 right-of-way, utilities would be placed underground. Existing overhead utilities east of SR 1 would be placed underground if relocated. As discussed in **Section 2.1.6 Visual/Aesthetics and Measure VA-5**, utilities that remain in place will be evaluated to determine if riparian planting will effectively screen the utilities. If they cannot be effectively screened, they will be placed underground.

The Proposed Project would not discharge wastewater, result or require the construction of new or expanded water or wastewater treatment facilities, require the construction of new or expanded storm water drainage facilities, or generate substantial solid waste that would exceed the permitted capacity of the MPWMD Landfill.

SR 1 is identified as an emergency access route in the 1982 Monterey County General Plan. First responders may include the California Highway Patrol, California Department of Forestry and Fire Protection (Cal Fire), Monterey County Sheriff's Department, and private emergency medical transportation. Emergency services include fire protection, emergency medical service, and police protection. Emergency services provided within 10 miles of the Project site are identified in **Table 2.1.4-1**.

Utilities and Emergency Services

Table 2.1.4-1 Emergency Service Providers within 10 miles of the Project Site

Service	Address	Approximate Distance from Project
<i>Monterey Fire Department</i>	582 Hawthorne St. Monterey CA 93940	5.2 Miles
<i>Seaside Police Department</i>	Seaside City Hall, 440 Harcourt Ave Seaside, CA 93955	5.3 Miles
<i>Freedom Medical Transportation</i>	1195 Trinity Ave Seaside, CA 93955	5.7 Miles
<i>Monterey County Regional Fire District</i>	8455 Carmel Valley Rd Carmel-By-The-Sea, CA 93923	4.2 Miles
<i>Sand City Police Department</i>	1 Sylvan Way Seaside, CA 93955	6.0 Miles
<i>Monterey Fire Department Station No. 3</i>	401 Dela Vina Ave Monterey, CA 93940	4.8 Miles
<i>Carmel Fire Department</i>	6 th Ave Carmel-By-The-Sea, CA 93923	1.4 Miles
<i>Carmel Police Department</i>	Junipero Ave. Carmel-By-The-Sea, CA 93955	1.5 Miles
<i>Cypress Fire Protection District</i>	3775 Rio Rd. Carmel-By-The-Sea, CA 93923	0.3 Miles
<i>Monterey Fire Department</i>	351 Madison St. Monterey, CA 93940	4.3 Miles
<i>Cal Fire Pebble Beach Fire Station</i>	3101 Forest Lake Rd. # B Pebble Beach CA 93953	4.0 Miles
<i>Cal Fire San Benito-Monterey Unit</i>	2221 Garden Rd. Monterey, CA 93940	4.1 Miles
<i>Cal Fire Carmel Hill Fire Station</i>	4180 17 Mile Dr. Pebble Beach, CA 93953	2.6 Miles
<i>Emergency Services Offices</i>	Monterey, CA 93940	4.4 Miles
<i>Monterey County Sheriff's Department</i>	1200 Aguajito Rd. #002. Monterey, CA 93940	4.2 Miles
<i>Carmel Highlands Fire Department</i>	73 Fern Canyon Rd. Carmel-By-The-Sea, CA 93922	2.3 Miles
<i>Monterey Police Patrol Division</i>	351 Madison St. Monterey, CA 93940	4.3 Miles

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

The Proposed Project would not increase the traffic volume or decrease capacity. There would be no increase in demand for emergency services as a result of the Proposed Project. However, impacts to the CAWD outfall and sewer force main pipeline crossing has the potential to be substantial. See discussion in **Section 2.2.1 Hydrology and Floodplain** and **Measures HF-3** through **HF-5**.

No-Build Alternative

Under the No-Build Alternative, the causeway would not be built, no grading would occur, and utilities would not be moved or otherwise affected. BSLT would implement a modified restoration approach on APNs 243-071-006-000 and 243-071-007-000 to maintain existing riparian vegetation along the Carmel River and install native vegetation in lieu of agricultural uses; however, this would not increase the traffic volume or decrease capacity and there would be no increase in demand for emergency services. Therefore, the No-Build Alternative would have no effect on utilities.

Short-Term or Construction Impacts

The Build Alternatives would generate construction waste and debris; however, waste would be recycled to the extent possible consistent with construction waste diversion practices and would not exceed the permitted capacity of the existing landfill. Other than limited construction debris, no solid waste would be generated by the Project. The Project would comply with federal, state, and local statutes and regulations related to solid waste.

Construction of the Proposed Project would result in the relocation of existing utilities located in the SR 1 right-of-way as part of causeway construction. **Table 2.1.4-2** identifies the utility owners and the type of utilities that exists within the Causeway Component area and indicates which utilities will be relocated as a result of the Preferred Project and the Secondary Channel Alternative. Utilities relocated as a result of the Reduced Project Alternative would be the same or fewer. Information concerning the relocation of utilities is preliminary and subject to change during the final design phase.

The construction of the Build Alternatives would require the relocation of utilities, as identified above. Utilities that do not conflict with the construction of the Causeway or grading of the floodplain would be left in place. During construction, utilities are anticipated to be temporarily relocated to minimize disruptions in service. For some utilities there would be a short service interruption while service is switched to the temporary utility lines. A second brief interruption would occur during the switch from the temporary to the permanent utility lines. The specific

resolutions to potential conflicts will depend on the utility in question, and the utility owner's specific requirements and design.

Table 2.1.4-2 Affected Public Utilities within the Causeway Component Area

Utility Owner	Type of Utility Impacted	Location	Potential Conflict	Proposed Resolutions
AT&T	Telecommunication manhole	In shoulder, Sta. 473+28 LT 17'	Grading Changes	Reset cover to finish grade
AT&T	Telecommunication manhole	In SR1 shoulder Sta. 473+31 RT 20'	Grading Changes	Reset cover to finish grade
AT&T	Telecommunication manhole	In SR1 shoulder Sta. 476+32 RT 22'	Grading Changes	Reset cover to finish grade
AT&T	Underground Telecommunications Conduit Duct Bank	In SR1 embankment	Conflicts with proposed overflow bridge	Relocate between Stations 477+20 and 481+50 +/-.
AT&T	Telecommunication manhole	In SR1 shoulder Sta. 485+93 LT 18'	Grading Changes	Reset cover to finish grade
PG&E	Overhead Electric. 12KV transmission	Right (east) side of SR1 (four poles)	Poles conflict with proposed Clear Recovery Zone and Grading.	Relocate to underground between Stations 472+50 and 486+03 +/-.
PG&E	Overhead Electric. Service to well owned by State Parks.	Crossing and left side of SR1 (three poles)	The well is proposed to be relocated	Relocate as needed to serve relocated well.
PG&E	6-inch Gas Main	In SR1 embankment	Conflicts with proposed overflow bridge	Relocate between Stations 477+20 and 481+50 +/-
Comcast	Overhead Cable Television.	Right (east) side of SR1	Poles conflict with proposed Clear Recovery Zone and Grading	Relocate to underground between Stations 472+50 and 486+03 +/-
CalAm	Underground water. 8-inch Water Main	In SR1 embankment	Conflicts with proposed rock slope protection and grading	Relocate between Stations 477+00 and 482+00 +/-
CalAm	Underground water. Abandoned 8-inch Water Main	In SR1 embankment	Conflicts with proposed rock slope protection and grading	Relocate between Stations 477+00 and 482+00 +/-
CalAm	Fire hydrant	In shoulder, Sta. 473+20, 30' Lt	Conflicts with proposed Clear Recovery Zone	Relocate to outside the proposed Clear Recovery Zone

Source: Based on Caltrans Draft 60% Design Plans, 11/18/16 (Whitson Engineers 2016)

Construction of the Causeway Component could result in adverse impacts such as inadequate emergency access during construction due to temporary construction-related traffic, as well as potential increased congestion as a result of traffic delays and temporary lane closures. Please refer to **Section 2.1.5 Traffic and Transportation/Pedestrian and Bicycle Facilities** for more information regarding impacts related to traffic.

Avoidance, Minimization, and/or Mitigation Measures

A Transportation Management Plan would be in place to ensure timely access for first responders. Additional detail concerning the Transportation Management Plan is provided in **Section 2.1.5 Traffic and Transportation/Pedestrian and Bicycle Facilities** and **Measure TT-1**.

Substantial adverse impacts to utilities would be avoided as existing utilities located in construction area would be relocated as part of the construction. Both the temporary and permanent utility relocation designs will be reviewed and approved by the utility owners. Any utility relocation outside of the boundaries of the environmental studies completed for the Proposed Project may require separate environmental studies. Impacts to the CAWD outfall and sewer force main pipeline crossing has the potential to be substantial. See discussion in **Section 2.2.1 Hydrology and Floodplain** and **Measures HF-3** through **HF-5**.

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2.1.5 Traffic and Transportation/Pedestrian and Bicycle Facilities

Regulatory Setting

The Proposed Project includes improvements to SR 1. Caltrans is responsible for the maintenance, operation, and construction of the State Highway system, including SR 1. Caltrans controls the planning of the state highway system and accessibility to the system. Caltrans establishes Level of Service (LOS) goals for highways and works with local and regional agencies to assess impacts and develop funding sources for improvements to the State Highway system. Caltrans requires encroachment permits from agencies or new development before any construction work may be undertaken within the State's right-of-way. The construction, design, and approval of the Causeway Component is subject to the discretionary approval of Caltrans. The causeway is required to comply with all applicable Caltrans design standards related to bridge specifications, as well as applicable local management plans, including the *Big Sur Coast Highway Management Plan*, which contains recommendations related to lane and shoulder width, aesthetic character of new bridge, bridge rail and guardrail, and the development of non-motorized transportation and transit facilities.

Caltrans, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, the USDOT issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR Part 27) implementing Section 504 of the Rehabilitation Act (29 USC 794). FHWA has enacted regulations for the implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to federal-aid projects, including Transportation Enhancement Activities.

1982 Monterey County General Plan/Carmel Area Land Use Plan

The 1982 Monterey County General Plan and Carmel Area LUP provide policies that promote a safe, effective, and economical transportation system that will service the existing and future land uses of the County. Evaluation for Project consistency with applicable 1982 Monterey County General Plan policies and Carmel Area LUP policies is provided in **Appendix F Project Consistency with Relevant Policies**.

Affected Environment

The following analysis incorporates the findings of the PSR prepared by Whitson Engineers (2010) in connection with the Causeway Component, except where updated information is noted.

The Proposed Project is located adjacent to SR 1, south of the SR 1 Carmel River Bridge. SR 1 is a two-lane conventional highway that operates at a LOS D or better within the Project vicinity. SR 1 has 12-foot travel lanes with four-foot to eight-foot shoulders; these shoulder widths are less than the Caltrans standard of eight feet. Pavement cross-slope varies from approximately 2% crowned to a 6% superelevation. Clear recovery zone (CRZ) is nonstandard and varies from approximately 15 to 20 feet, on account of existing fill slopes being steeper than 4:1 as well as the presence of several trees. The CRZ required for this facility classification is 20 feet. The existing highway, where it crosses the southern Carmel River floodplain, is constructed on an embankment that varies in height from approximately six to 15 feet above the adjacent floodplain. The embankment side slopes are approximately 2:1 (H:V).

Average Annual Daily Traffic (AADT) for the year 2014 was 14,200 (Caltrans 2014). In 2006, this portion of SR 1 was operating at a LOS D/F. AADT is projected to increase to 16,400 in 2025 with LOS falling to E/F. SR 1 is identified as an emergency access route in the 1982 Monterey County General Plan.

There are four driveways within the Project vicinity that would be potentially affected as a result of the Project. The first driveway serves the CAWD Treatment Plant and is located approximately 70 feet south of the existing SR 1 Carmel River Bridge; this driveway is located along the northern boundary of the site. Three other driveways are located along the southern end of the Project. These driveways provide access to Palo Corona Regional Park and the Odello East Property located on the east of SR 1, and residences and a cluster of buildings on State Parks land west of SR 1. Major traffic generators in the Project vicinity include Garrapata State Park, Point Lobos State Reserve, Carmel River State Beach, and various tourist destinations on the Monterey Peninsula.

There are no bicycle facility signs or pavement markings within the Project site; however, SR 1 is a designated (Class III) bike route, as identified in the Transportation Agency for Monterey County's (TAMC's) *2011 General Bikeways Plan*. Additionally, TAMC's *2014 Regional Transportation Plan* identifies SR 1 south of Carmel as the "Pacific Coast Route."

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

The Causeway Component consists of replacing a portion of the SR 1 roadway embankment (Route 1, Post Mile 71.9 to 72.3) with a causeway section. The Causeway Component would

accommodate flows that come into the south overbank area and increase hydrologic and habitat connectivity between the Carmel Lagoon and the Project site. The causeway would allow floodwaters to pass from the Odello East property under SR 1 to the floodplain and south arm of the Carmel Lagoon to the west without causing overtopping of SR 1. The causeway would reduce flooding hazards to SR 1 under existing conditions. For the Preferred Project and Secondary Channel Alternatives, the proposed causeway would increase flood conveyance in the lower watershed for all floods, including a 100-year flood. The Reduced Project Alternative causeway would allow the 10-year flood to pass under SR 1 (without causing overtopping of SR 1); but during the 100-year event, floodwaters would back up and overtop the highway in a manner similar to (but to a lesser depth than) what is predicted under existing conditions.

The causeway would also partially address existing deficiencies associated with this segment of SR 1 and construct a southbound left turn lane at the Palo Corona Regional Park entrance. In order to accommodate a center left turn lane providing access to the existing driveway serving the Palo Corona Ranch Regional Park and the Odello East Property, the approach roadway south of the bridge consists of one 12-foot wide travel lane in each direction, a 12-foot center left turn lane, and eight -foot wide paved shoulders. The proposed eight-foot shoulders are transitioned back to the existing four -foot shoulders using straight tangents. The reason for this design exception is that standard eight-foot wide paved shoulders would have right of way and utility impacts and result in unnecessary and excessive tree removal. The Causeway Component would also remove existing fixed objects within the CRZ and flatten embankment slopes to current design standards.

Bicycle facilities were considered in the design of the Proposed Project. A trails coordination meeting was held on November 20, 2014 that included representatives from the County, BSLT, State Parks, MPRPD, TAMC, Carmel Development Company, and bicycle advocate and then-Carmel City Councilperson Victoria Beach. During construction, the temporary detour road would accommodate bike traffic along eight-foot wide shoulders. The causeway incorporates eight-foot wide shoulders, transitioning to match existing four-foot wide shoulders at the southern project limits. This shoulder width satisfies Class II and Class III bicycle facility requirements. As such, the Causeway Component of the Proposed Project would partially address existing deficiencies associated with this segment of SR 1. Non-standard four-foot wide shoulders are proposed south of the existing State Parks and Palo Corona Regional Park driveways due to an existing steep road cut which limits the potential for roadway widening. No Class I facility (separated bike path) is proposed as part of this Project.

Through a long-term maintenance agreement, use of the access roads/trails by bicycles will be managed by each respective land owner and coordinated jointly by BSLT, State Parks, and MPRPD, based on allowed uses on public lands, ongoing restoration and maintenance activities, and seasonal conditions. Types of use on public lands and directional and interpretive signage will be guided by adopted General Plans or Management Plans and will be implemented by the long-

term maintenance agreement for post-construction long term management of the Project, pursuant to adopted plans.

The Proposed Project would not result in any long-term or operational impacts on traffic circulation. Compared to the existing facilities, the Proposed Project would not increase the traffic volume or capacity. The Proposed Project would overall provide beneficial impacts by addressing some of the existing deficiencies associated with this segment of SR 1, constructing a southbound left turn lane at the Palo Corona Regional Park entrance, and constructing a series of trails/access roads that connect with existing neighboring trails.

No-Build Alternative

The No-Build Alternative would not result in any long-term or operational impacts on traffic circulation. However, the existing deficiencies associated with this segment of SR 1 would not be addressed and a southbound left turn lane at the Palo Corona Regional Park entrance would not be constructed. Additionally, there would not be the benefit of the increased trail system as there would be under the Build Alternatives.

Short-Term or Construction Impacts

The Proposed Project would generate temporary increases in trips to the Project site but would result in little to no increases in traffic resulting from construction. The Project has been designed to avoid traffic impacts. The main feature to accomplish this is the temporary detour road.

During the two-year duration of Project construction, approximately 50 trips a day would be generated by personal vehicles and light duty trucks. In addition, equipment movement and deliveries during general construction would result in two additional truck trips a day. Beyond the daily general construction trips generated, there would be a number of short term and higher intensity construction events. At the beginning and the end of certain phases of the Project equipment would move-in and move out of the site. This would result in approximately ten truck trips a day for two weeks. The bridge deck pour would require approximately 80 concrete truck trips a day for two days.

The typical average number of trips to the site per day totals approximately 52 based on the number provided above. In addition to this, for approximately 30 days over the course of the two-year construction window, there would be 80 additional truck trips generated to the site. Adding these two numbers, the total upper limit of daily trips generated would be 132, while the vast majority of the time it would be 50 trips per day. Given that the AADT for the year 2014 was 14,200 (Caltrans 2014), these additional trips are negligible.

For the Restoration Component, all construction would be performed without any temporary road closures or detours. No substantial effects to residents or businesses would occur as a result of the construction of this component.

Construction of the Causeway Component would result in temporary lane closures and could result, temporarily, in reduced emergency access during construction. However, a temporary detour road would be constructed to maintain traffic during bridge construction (please refer to Sheet DE-2 of the 60% Causeway Plans: Whitson Engineers and Cornerstone Structural Engineering Group 2018). The majority of the temporary detour road would be constructed to the east side of SR 1, and as a result would have no effect on traffic during its construction. The paving where the temporary detour road ties-in to the existing SR 1 would be performed at night under temporary traffic control. With the tie-ins complete, traffic would then be directed over to the temporary detour road for the duration of the causeway construction work. While traffic is being directed over the temporary detour road during Project construction, the speed limit would be reduced from 55 to 45 miles per hour. However, this reduction in speed would not increase traffic because the Project is located where the current speed limit transitions from 55 to 45 mph. Therefore, while this transition will occur approximately one tenth of a mile south of the current location, the reduction in speed would be consistent with existing conditions and would not result in any new traffic impacts.

Similarly, after the causeway and associated SR 1 work is complete, the final (permanent) paving where the highway ties-in to the temporary detour road would again be performed at night under temporary traffic control and traffic will be moved on to the completed highway. After the causeway is complete, the temporary detour road would be removed, and a haul road would be constructed under the causeway to allow the excess cut soil from the west side of the highway to be hauled under the causeway as needed. Contractor staging areas will be located on both sides of SR 1 so that construction can occur with a minimal movement of construction equipment across the highway. Once contractor staging is complete, the haul road would become a permanent maintenance access road for the Project.

However, minor modifications to the driveways identified above, as a result of changes in profile grade and construction of the temporary detour road may result in temporary impacts associated with the construction of these modifications. All work will be coordinated with the affected property owners to ensure that access is satisfactorily maintained during construction.

Avoidance, Minimization, and/or Mitigation Measures

The Causeway Component includes the construction of a temporary detour road adjacent to SR 1 to ensure continued access through the duration of Project construction to minimize potential adverse traffic effects. The proposed shoulder of the temporary detour road will minimize adverse impacts to bicycle traffic during construction of the Causeway Component. Staging areas on both sides of the highway will reduce temporary lane closures and interruptions to traffic. Additionally, the construction of a haul road under the causeway following the removal of the temporary detour road would minimize adverse impacts to traffic associated with the Project because it will be used for maintenance access.

In addition to these design elements of the Project, implementation of the following measure would reduce potential adverse effects associated with the Proposed Project to a less-than-significant level:

- TT-1** In order to minimize the extent of impacts associated with construction-related traffic, a Transportation Management Plan shall be prepared by a designated representative and submitted to Caltrans and the County for review and approval, prior to the issuance of an encroachment permit in connection with the Causeway Component. The Transportation Management Plan shall provide information related to public awareness, temporary traffic control measures, traffic diversions and lane closures, safety measures, construction notification information, and other information as deemed necessary by Caltrans.

2.1.6 Visual/Aesthetics

Regulatory Setting

National Environmental Policy Act

NEPA, as amended, establishes that the federal government use all practicable means to assure for all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 USC 4331[b][2]). To further emphasize this point, the FHWA in its implementation of NEPA (23 USC 109[h]) directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

California Environmental Quality Act

CEQA establishes that it is the policy of the state to take all action necessary to provide the people of the state “with...enjoyment of aesthetic, natural, scenic and historic environmental qualities” (PRC Section 21001[b]).

National Scenic Byways Program

SR 1 from Carmel south to Big Sur (and beyond) is designated as an “All American Road” under the FHWA’s National Scenic Byways Program. All roads that are nationally designated are considered part of America’s Byways collection and must possess at least one of the following six intrinsic qualities: historic, cultural, natural, scenic, recreational, and/or archaeological. To receive an All-American Road designation, a road must possess multiple intrinsic qualities that are nationally significant and contain one-of-a-kind features that do not exist elsewhere. The road must also be considered a “destination unto itself,” and must provide an exceptional travel experience.

California State Scenic Highway Program

The California State Scenic Highway program was created by the State Legislature in 1963. Its purpose is to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. The program includes a list of highways that are either designated or eligible for designation as a scenic highway. Portions of SR 1 along the California coastline are either designated as a State Scenic Highway or eligible for State Scenic Highway’s designation. The section of SR 1 adjacent to the Project site is a designated State Scenic Highway. This section of SR 1 traverses a series of hills, offering views of Carmel-by-the-Sea, Carmel Valley, Point Lobos State Reserve, and the Pacific Ocean.

California Coastal Act

The Coastal Act includes specific policies (see Division 20 of the PRC) that address issues such as shoreline public access and recreation, lower cost visitor accommodations, terrestrial and marine habitat protection, visual resources, landform alteration, agricultural lands, commercial

fisheries, industrial uses, water quality, offshore oil and gas development, transportation, development design, power plants, ports, and public works. Section 30251 of the Coastal Act is pertinent to scenic and visual resources:

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alternation of natural land forms, to be visually compatible with the character of surrounding areas, and where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

1982 Monterey County General Plan/Carmel Area Land Use Plan

The 1982 Monterey County General Plan and Carmel Area LUP contain numerous policies related to the preservation and protection of scenic resources. These policies are intended to preserve and enhance the County's scenic character, minimize visual impacts on scenic resources, and ensure that future development activities are consistent with the visual character of the area. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for more information concerning the Project's consistency with visual policies.

Affected Environment

As part of the visual analysis, the visual character and quality of the Project Site and adjacent areas located in and around the subject property were characterized using the criteria for visual impact assessments developed by the FHWA. These criteria were developed to evaluate the potential visual impacts associated with highway projects and are pertinent to the Proposed Project, in particular the Causeway Component. The terminology developed by FHWA to describe the existing visual quality and character of a particular area was used to analyze potential visual impacts as summarized below.

- **Vividness** is the degree of drama, memorability, or distinctiveness of the landscape components. Vividness is composed of four elements—landform, vegetation, water features, and human-made elements—that usually influence the degree of vividness.
- **Intactness** is a measure of the visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes, as well as in natural settings. High intactness means that the landscape is free of eyesores and is not broken up by features that appear to be out of place. Intactness is composed of two primary elements—development and encroachment—that influence the degree of intactness.

- **Unity** is the degree of visual coherence and compositional harmony of the landscape when it is considered as a whole. High unity frequently attests to the careful design of individual components and their relationship in the landscape.

The FHWA's Visual Impact Assessment methodology typically assigns numeric ratings to the three criteria – vividness, intactness and unity - that determine visual quality and then averages the ratings to establish an overall visual quality score. For purposes of this analysis, rather than using numerical ratings, a qualitative assessment was conducted for each of the criteria and then an overall assessment was provided to assign a “high, medium or low” value. Applying this approach yields a scale that reasonably represents the range of visual quality within the Project area. This approach is considered adequate for the purposes of: a) determining the visual quality of the Project area and b) determining whether the Project would (or would not) result in a change in the visual environment that would constitute an adverse environmental impact. The overall visual quality of each of the criteria identified above is described as high, medium, or low, which are defined as follows:

- **Low Visual Quality.** Features seem visually out of place, lack visual coherence, do not have compositional harmony, and contain eyesores.
- **Medium Visual Quality.** Pleasant appearing but may lack distinctiveness, memorability, drama, and compositional harmony, or may simply be common and ordinary landscapes.
- **High Visual Quality.** Memorable, distinctive, unique (in a positive way), intact natural or park-like areas, or urban areas with strong and consistent architectural and urban design features.

The Proposed Project is located within the unincorporated area of Monterey County south of the City of Carmel-by-the-Sea (**Figure 1.1-2**). The visual character of the Project Site is primarily comprised of agricultural land and riparian habitat associated with the Carmel River. Several agricultural support buildings and residences are also located on the southern boundary of the Project site adjacent to the existing farm access road. The northern boundary of the site is characterized by riparian habitat, man-made levees, and the Carmel River. This portion of the site includes dense riparian vegetation that creates a visual buffer between the site and surrounding developed areas located to the north. Views of Palo Corona Regional Park and portions of the Santa Lucia mountains can be viewed looking south and east; views looking west consist primarily of State Park land that was recently restored in connection with the CRLEP. Scenic resources located on-site that could be affected by the Proposed Project include portions the Carmel River Corridor. The Carmel River Corridor is considered a scenic resource for the purposes of the following analysis.

The Proposed Project site also includes a portion of SR 1, which is a State designated scenic highway, and a federally designated scenic byway and All-American Road. Scenic resources

visible from SR 1 include the Carmel Lagoon and Carmel Bay to the west; the Carmel River to the north, Palo Corona Regional Park to the east; and the Santa Lucia Mountains to the south.

The visual character of the site, due to its proximity to SR 1, can be described as consisting of a high degree of vividness, intactness, and unity. The site includes agricultural elements, the Carmel River, riparian habitat, and human-made elements that all interact to create a distinctly unique and vivid visual character that is representative of the scenic nature of the area. The visual integrity of the site is also characterized by a high level of intactness; the site is devoid of urban or man-made features that appear out of context or would detract from the visual quality of the site and its surroundings. The site represents an important visual transition from an urban to a more natural setting that includes a mixture of low-density residential uses and undeveloped open space. The site provides a sense of visual continuity and cohesion that creates a sense of unity between the site, the Carmel River, and the surrounding open space areas to the east, west, and south. As a result, the site's visual character and quality is considered extremely high. The visual character of the site is distinct, incorporates natural landscapes with agricultural elements, and is devoid of significant urban encroachments that would detract from the visual quality of the area. **Figure 2.1.6-1** contains a map of representative viewpoints of the Project Site while corresponding site photos from the viewpoints are contained in **Figures 2.1.6-2 through 2.1.6-4**.

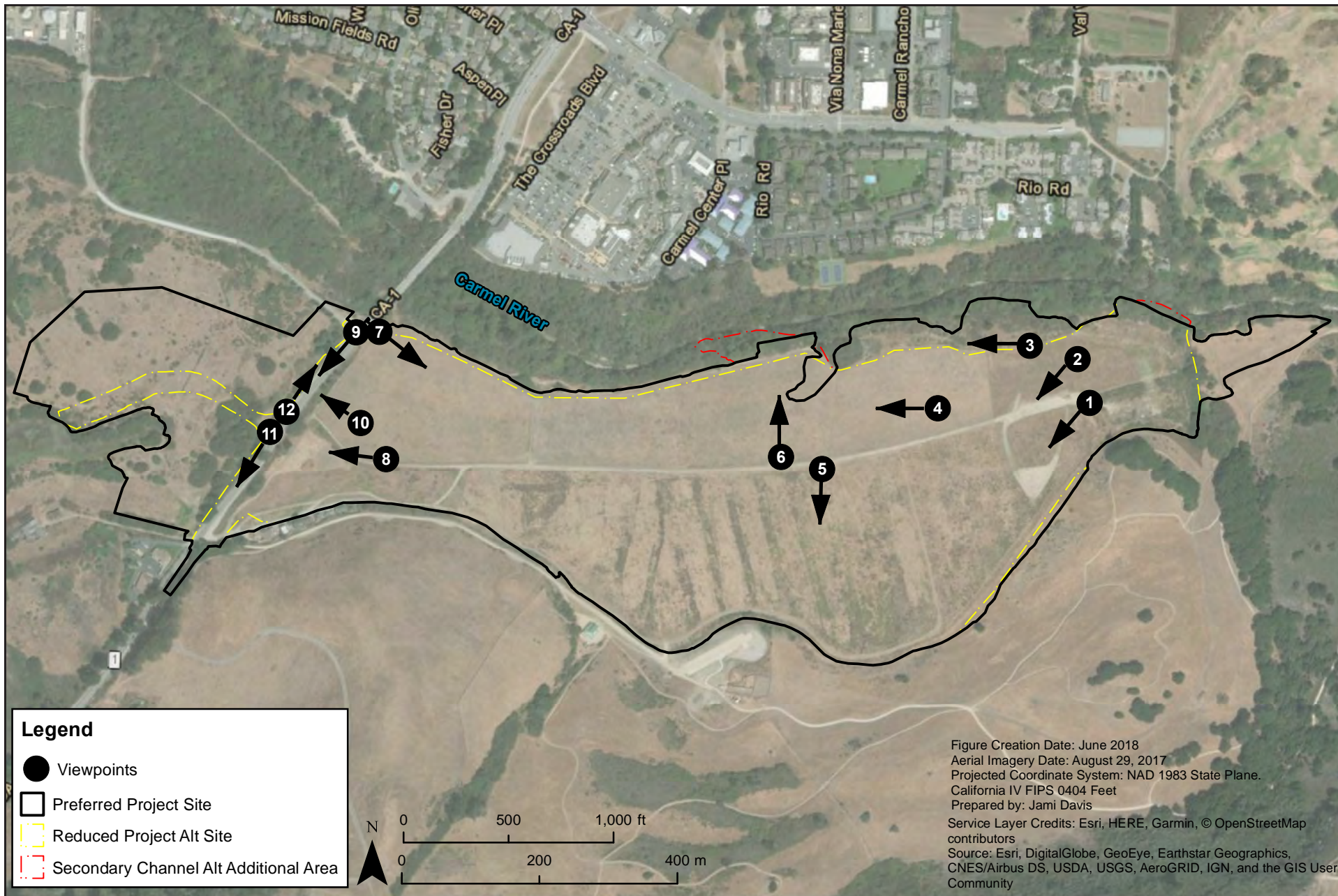
Environmental Consequences

Long-Term or Operational Impacts

The potential visual impact for the Preferred Project and the Secondary Channel Alternative would be the same, as the causeway design and impacted utilities would be the same under these alternatives. The potential visual impact for the Reduced Project Alternative would be somewhat lessened due to the reduced size of the proposed causeway and the decreased amount of grading for this alternative.

Viewer sensitivity throughout the Project is considered to be very high, based in part on the State and National Scenic Highway Designations and its location within the Coastal Zone. While the Proposed Project would improve the overall visual character of the site by restoring it as part of the Carmel River floodplain, it would also construct a new causeway structure in place of an existing section of SR 1.

Currently the land use adjacent and to the east of the SR 1 is agriculture. The Proposed Project would convert this to riparian habitat associated with the Carmel River riparian corridor and substantially revegetate the Carmel River floodplain. Additionally, as discussed in **Section 2.1.4 Utilities and Emergency Services**, utilities within the SR 1 right-of-way and any relocated overhead utilities east of SR 1 would be placed underground. The Project will improve and enhance the view from the highway. However, SR 1 is currently a two-lane conventional highway that has 12-foot travel lanes with four-foot to eight-foot shoulders. Once construction of the causeway is complete, SR 1 would remain a two-lane conventional highway with 12-foot travel



Viewpoint Map

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA

Figure
2.1.6-1



Photo 1. View looking south/southwest from the site towards Palo Corona Regional Park



Photo 2. View from "Blister" looking south toward Palo Corona Regional Park



Photo 3. View of "Blister" looking west towards SR 1



Photo 4. View of site looking west toward SR 1



Site Photos

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA

Figure
2.1.6-2



Photo 5. View of site looking south toward proposed agricultural preserve area



Photo 6. View of non-structural south bank levee & associated riparian habitat looking north



Photo 7. View of site looking east from SR 1



Photo 8. View of site looking west from east/west haul road



Site Photos

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA

Figure
2.1.6-3



Photo 9. View of SR 1 looking south towards proposed causeway location



Photo 10. View of SR 1 looking west from Project site towards proposed causeway location



Photo 11. View of SR 1 looking south in area of proposed causeway



Photo 12. View of SR 1 looking north in area of proposed causeway

Source: DD&A, February 2011



Site Photos

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA

Figure
2.1.6-4

lanes; however, the causeway incorporates eight-foot wide shoulders, transitioning to match existing four-foot wide shoulders at the southern Project limits. The causeway would also include a southbound left turn lane at the Palo Corona Regional Park entrance. Bridge rail will be Type 80 with architectural texture and color.

The causeway structure would be most noticeable to the highway traveler by the wider paved surface and the new bridge rail and guard rails. The wider highway shoulders would have a somewhat more engineered visual character than the current visual character and the proposed bridge rail and guard rails would cause a minor reduction of views from the highway, resulting in a moderate adverse effect.

This heightened sensitivity, combined with the high visual quality of the surroundings would result in a minor adverse visual impact as seen from SR 1. The potential visual impact for the Preferred Project and the Secondary Channel Alternative would be the same, as the causeway design and impacted utilities would be the same under these alternatives. The potential visual impact for the Reduced Project Alternative would be somewhat lessened due to the reduced size of the proposed causeway and the decreased amount of grading for this alternative.

No-Build Alternative

Under the No-Build Alternative, no grading would occur; however, BSLT would implement a modified restoration approach on APNs 243-071-006-000 and 243-071-007-000 to maintain existing riparian vegetation along the Carmel River and install native vegetation in lieu of agricultural uses. The restoration activities would improve the overall visual character of the site by restoring it as part of the Carmel River floodplain; however, it would be to a lesser extent than under the Build Alternatives. Agricultural uses continued on APN 243-071-005 would have no effect on the visual character of the site.

Short-Term or Construction Impacts

The Build Alternatives would result in adverse visual impacts due to loss of vegetated character along an Officially Designated State Scenic Highway and National Scenic Byway within the Coastal Zone. These adverse visual impacts would be due to ground disturbing activities and construction including the temporary installation of the temporary detour road and temporary staging on both sides of SR 1. Approximately 25 existing mature trees would also be removed from the highway roadside and embankment within the Project limits, resulting in an adverse visual impact as seen from SR 1.

The grading activities associated with the Floodplain Restoration Component would cause temporary adverse impacts to the visual character of the Project site.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of **Measures NC-1** through **NC-3** and the following measures would reduce adverse impacts to the existing visual character resulting from the operation of the Causeway Component to a less-than-significant level:

- VA-1** Bridge rail shall be Type 80 with architectural texture and color.
- VA-2** Bicycle and pedestrian rail shall be colored to compliment the Type 80 bridge rail.
- VA-3** All new and replaced guardrail and end treatments shall be colored to reduce reflectivity and blend with the natural setting. Coloring shall be applied to metal posts and beams.
- VA-4** A minimum of two trees will be planted for each tree removed from Caltrans right-of-way. Replacement trees will be planted within the Caltrans right-of-way to the greatest extent possible considering horticultural viability and safety requirements. These trees will be installed, maintained and monitored according to the methods and requirements for the Tier 1 compensatory mitigation planting detailed in the RMP prepared for the project and other measures required by Caltrans as part of the Encroachment Permit process. The trees will consist of native, locally occurring species that are compatible with the Tier 1 plantings. The location of the mitigation plantings within the Caltrans right-of-way will be determined as part of the PS&E stage of the Project and will maximize connectivity with adjacent Tier 1 riparian mitigation planting areas outside of the right-of-way.

2.1.7 Cultural Resources

Regulatory Setting

The term “cultural resources” as used in this document refers to all “built environment” resources (structures, bridges, railroads, water conveyance systems, etc.), places of traditional or cultural importance, and archaeological sites (both prehistoric and historic), regardless of significance. Under federal and state laws, cultural resources that meet certain criteria of significance are referred to by various terms, including “historic properties,” “historic sites,” “historic resources,” and “tribal cultural resources.” Laws and regulations dealing with cultural resources include:

National Historic Preservation Act

The NHPA, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP on Historic Preservation (36 CFR 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) between the ACHP, FHWA, the SHPO, and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA implements the ACHP’s regulations (36 CFR 800) streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The FHWA’s responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 USC 327).

Archaeological Resources Protection Act

The Archaeological Resources Protection Act (ARPA) applies when a project may involve archaeological resources located on federal or tribal land. ARPA requires that a permit be obtained before excavation of an archaeological resource on such land can take place. There are no federal or tribal lands within the Area of Potential Effect (APE). As such, ARPA is not expected to be directly applicable to the Project.

Section 4(f)

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the “use” of land from historic properties. See **Appendix A** for specific information about Section 4(f).

California Environmental Quality Act and Public Resources Code Section 5024

CEQA requires the consideration of cultural resources that are historical resources and tribal cultural resources, as well as “unique” archaeological resources. PRC Section 5024.1 established the California Register of Historical Resources and outlined the necessary criteria for a cultural

resource to be considered eligible for listing in the CRHR and, therefore, a historical resource. Historical resources are defined in PRC Section 5020.1(j).

PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet the National Register of Historic Places listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the SHPO before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register or are registered or eligible for registration as California Historical Landmarks. Procedures for compliance with PRC Section 5024 are outlined in a MOU between Caltrans and the SHPO, effective January 1, 2015. For most Federal-aid projects on the State Highway System, compliance with the Section 106 PA will satisfy the requirements of PRC Section 5024.

Assembly Bill 52

In September of 2014, the California Legislature passed Assembly Bill (AB) 52, which added provisions to the PRC concerning the evaluation of impacts on tribal cultural resources under CEQA, and consultation requirements with California Native American tribes. In particular, AB 52 now requires lead agencies to analyze a project's impacts on "tribal cultural resources," separately from archaeological resources (PRC Section 21074; 21083.09). The bill defines "tribal cultural resources" in a new section of the PRC, Section 21074. AB 52 also requires lead agencies to engage in additional consultation procedures with the respect to California Native American tribes (PRC Sections 21080.3.1, 21080.3.2, 21082.3). Finally, AB 52 required the Office of Planning and Research (OPR) to update Appendix G of the CEQA Guidelines by July 1, 2016, to provide sample questions regarding impacts to tribal cultural resources (PRC Section 21083.9). AB 52's provisions only apply to projects that have a notice of preparation filed on or after July 1, 2015.

Under AB 52, a project that may cause a substantial adverse change in the significance of a tribal cultural resource is defined as a project that may have a significant effect on the environment. "Tribal cultural resources" are defined as either (1) "sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Native American tribe" that are included in the state register of historical resources or a local register of historical resources, or that are determined to be eligible for inclusion in the state register; or (2) resources determined by the lead agency, in its discretion, to be significant based on the criteria for listing in the state register. Where a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document must discuss the impact and whether feasible alternatives or mitigation measures could avoid or substantially lessen the impact.

1982 Monterey County General Plan/Carmel Area Land Use Plan

The 1982 Monterey County General Plan and Carmel Area LUP provide policies for protection of cultural resources and places with proven historical significance. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with applicable cultural and historic resource policies.

Affected Environment

Literature Review and Surveys

The analysis contained in this section is based on results of reports prepared for this Proposed Project, including the following:

- *Archaeological Survey Report for the Carmel River Floodplain Restoration and Environmental Enhancement Project, Carmel, Monterey County, California* (Anthropological Studies Center 2015);
- *Historic Property Survey Report for the Carmel River Floodplain Restoration and Environmental Enhancement Project, Carmel, Monterey County, California* (Anthropological Studies Center 2015);
- *Carmel River Floodplain Restoration and Environmental Enhancement Historic Resource Evaluation Report* (Garavaglia Architecture, Inc. 2016); and
- *Potential Impacts to the State Parks Barn Complex Due to the Carmel River Floodplain Restoration and Environmental Enhancement Project* (Balance Hydrologics, Inc. 2016).

Due to the sensitivity of the Proposed Project area, these archeological survey reports will not be available for public distribution.

Cultural resources in the Area of Potential Effects (APE) were identified in the *Historic Property Survey Report* (HPSR) (2015), the *Historic Resource Evaluation Report* (HRER) (2016), and the *Archaeological Survey Report* (ASR) (2015).

Area of Potential Effects

The APE for the Project was established in consultation with Caltrans District 5 staff and encompasses the maximum limit of any physical disturbance that may result from construction and related activities. The APE was bounded to include all parcels with built environment elements whose settings may be indirectly affected by the Proposed Project.

Archeological Survey Report Survey Findings and Conclusions

The Anthropological Studies Center, Inc. prepared an ASR for the APE. An initial archeological survey was conducted in August 2015. Additional survey work was conducted In May 2016. The

work resulted in the identification of two historic-era resources. The sites are discussed individually below.

ASC-27-14-01, Fish Ranch Adobe

This resource is the remains of the Fish Ranch Adobe. The site had been previously identified during numerous surveys but never formally recorded. The site consists of a small rectangular stone foundation divided into two small rooms with a diffuse concentration of artifacts.

The site was excavated in 1968 by Donald Howard, an amateur archaeologist who documented his findings and published maps of the site. Howard identified the substantial stone foundation and artifacts related to its occupation at a depth of at least 22 inches. No artifacts were observed around the foundation during the current survey, likely due to their removal during excavation. A concentration of glass and ceramic fragments was observed along a large berm west of the adobe foundation. This appears to have been the location of a reservoir pond at the time of Howard's excavation, though it does not currently hold water. The pond's construction may have disturbed an artifact deposit at the location as the material is eroding out of the berm. Artifacts could not be precisely dated, but the collection appears to be consistent with a mid-to-late 19th and early 20th century occupation. Howard noted the presence of a black Monterey chert projectile point near the adobe. No other indigenous material was noted at the site.

Howard's excavation and subsequent research indicate that this was a small building; possibly location of the "Las Virgenes" adobe dating to the early 1830s. A handful of artifacts from the Mission period may indicate it was used earlier or materials from the nearby Carmel Mission were salvaged during construction. Howard's work led him to state that the adobe was likely a representation of a transitional cultural tradition during which Mexican influence was being replaced by American and that the extremely utilitarian foundations may represent the squatter population who moved in during this time. No formal analysis of the excavated material was prepared.

During the initial archeological survey in August 2015, the Fish Ranch adobe foundation was identified, and a sparse historic-era artifact concentration was found on the surface. In May 2016, the Anthropological Studies Center, Inc. conducted an auger testing program to determine the extent of any subsurface presence within the grading area. Sixteen auger units were placed within the site, with a focus on the grading area. No evidence of intact subsurface archaeological deposits was encountered.

ASC-14-27-02 Odello Farm

Four of the five buildings initially noted by a 1986 survey were observed during the survey. The garage was not observed and appears to be no longer extant. Artifacts observed at the site included colorless, green, olive, aqua, and flat glass fragments, ceramic fragments, and nails present throughout the site in small quantities. The 1986 survey noted the presence of a substantial artifact

concentration; however, this feature was not observed during the recent survey. This site was initially recorded prior to involvement of architectural historians on the Project. As a result of the architectural review for the HRER conducted by Garavaglia Architecture, Inc., elements of the site were incorporated as contributing elements to the Carmel River Floodplain Agricultural Landscape and Historic District, as discussed below.

Historic Resource Evaluation Report Findings and Conclusions

Garavaglia Architecture, Inc. prepared a HRER for the Project. The survey resulted in the identification of 13 buildings, landscape features, and other historic features which contribute to the Carmel River Floodplain Agricultural Landscape and Historic District. The features are discussed individually below.

Buildings and Structures

The buildings in the Carmel Flood Plain Agricultural Historic District are wood-framed, one to one-and-a-half stories, and served as residences and agricultural buildings for the owners and workers of the Gregg, Fish, and Odello farms. These buildings are simple vernacular structures, built for functionality and altered over the years to serve changing agricultural uses. Most of the buildings have gabled roofs clad with wood or asphalt shingles, some with shed-roofed additions that are sometimes clad with corrugated metal or plastic. All of the buildings have floors and entrances that are several feet above the ground, presumably to protect from periodic flooding that occurred in the area. The 13 buildings and structures identified as contributing to the historic district include the following:

- Fish Lower Front Barn (MR #7): a one-story wood frame building, topped with a two-level roof. Constructed ca. 1900-1920.
- Fish Ranch Corrals (MR #8): a series of interconnected pens used to retain cattle for transport onto trucks. Constructed ca. 1920s.
- Odello Barn East (MR #5): a one-and-a-half story tall wood-framed building used as a barn. Constructed ca. 1900-1920.
- Odello Barn West (MR #1): a large one-and-a-half story tall wood-framed building, with three parallel gabled roofs. Constructed ca. 1900-1920.
- Odello Blacksmith Shop (MR #2): one-story wood-framed building, constructed ca. 1900-1920.
- Odello Creamery (MR #3): a one-and-a-half story building, constructed ca. 1900-1920.
- Odello Farm Worker Housing (MR #6): five one-story, wood-framed houses constructed for agricultural workers. Four of the houses were constructed ca. 1900-1920, while one was reconstructed in 2008.
- Odello House (MR #4): one-story wood-framed building, constructed ca. 1900-1920.

Landscape Features

The rural character of the landscape of the Carmel Flood Plain Agricultural Historic District is regarded as a contributing characteristic to the district. This landscape is characterized by levees to the immediate south of the Carmel River, at the north end of the district boundaries to the east of SR 1; flat grasslands further south of the Carmel River that were historically used for cattle grazing and artichoke growing and today are a mixture of fallowed fields, restored wilderness to the west of SR 1 and grazing lands to the east of SR 1; and foothills along the southern end of the district boundaries overlooking the fields to the north. The land has been altered for agricultural purposes historically and continues to be altered today. The landscape features identified as contributing to the historic district include the following:

- Wells: a number of wells, both active and abandoned, are located within the APE.
- South Levee: the earthen barrier parallels the Carmel River to the northern extent of the APE, constructed ca. 1930s.
- Farmland: the cultivated land and now fallow fields surrounded by the APE had been utilized for farming and/or ranching purposes since 1892.
- Carmel River: this geological component is located at the northern extent of the APE.

Other Historic Features

The APE intersects with the Carmel-San Simeon Highway Historic District, which was determined eligible for listing in the National Register of Historic Places in 1996 (updated 2006). The Historic District, which extends approximately 75 miles along SR 1 in Monterey and San Luis Obispo Counties, includes 241 contributing resources, including seven concrete arch bridges and 234 stone masonry walls, fountains, and culvert headwalls. One of the contributing culvert headwalls falls within the APE for the Proposed Project. The culvert headwall, while a contributor to the Carmel to San Simeon Highway Historic District, is not a contributor to the Carmel River Floodplain Agricultural Landscape and Historic District.

Existing Risks to Cultural Resources

A number of historic buildings identified above that contribute to the Carmel River Floodplain Agricultural Landscape and Historic District are located within the State Parks property on the west side of SR 1. These buildings comprise the State Parks Barn Complex (Complex) and include the Barn, the Blacksmith Shop, the Creamery, and the Former Residence. A berm is present along the north edge of the Complex that was installed as part of the south arm construction; however, the berm does not fully enclose the area on the west and south sides, a low point in the berm is present near SR 1, and the berm does not meet FEMA's levee accreditation standards. A detailed analysis of the berm has not been performed; however, the following discussion assumes that the berm would not fail during the 100-year event.

In September 2016 and June 2018, Balance Hydrologics, Inc. prepared analyses of the existing flood conditions at the Complex (Balance Hydrologics 2016b and 2018a). The analysis concluded that all of the buildings that comprise the Complex are located within the 100-year floodplain and are currently at risk under existing conditions. Modeling of a 100-year flood under existing conditions determined that high flows overtopping SR 1 and the existing partial berm would result in flow-through flooding risk from the east, and water originating in the south arm of the Carmel Lagoon and coming around the southwest side of the partial berm into the Complex would result in backwater flooding risk to the Complex.

The County's floodplain ordinance requires the first-floor elevation of buildings to be one foot above the base flood elevation (BFE). In September 2016, Whitson Engineers assessed the first floor elevations for the Complex as well as the lowest adjacent grade. **Table 2.1.7-1** provides the results of this assessment as well as the existing conditions BFEs identified by Balance Hydrologics (2016b).

Table 2.1.7-1 Existing Conditions of State Parks Barn Complex

Building	Existing First Floor Elevation (ft)	Lowest Adjacent Grade (ft)	Existing 100-Year BFE (ft)
<i>Barn</i>	17.7 (concrete floor, southern bay)	17.1 (next to concrete floor) 14.3 (next to NE corner)	17.2
<i>Blacksmith Shop</i>	18.5	16.1	17.5
<i>Creamery</i>	16.7 (western addition, slab on grade) 17.3 (eastern addition, slab on grade) 17.5 (raised wood floor)	15.5	17.6
<i>Former Residence</i>	18.7	16.0	18.5

Environmental Consequences

The ASR identified three historic-era archaeological resources within the APE; the culvert headwall which is a contributing element to Carmel to San Simeon Highway Historic District and will be permanently removed as part of the Project, the Carmel River Floodplain Agricultural Landscape and Historic District which consists of 13 separate features within and adjacent to the Project, and the Fish Ranch adobe located adjacent and outside of the Project.

Section 106 consultation between the Service and the SHPO for the Project was completed on August 30, 2016. The SHPO concurred that the Carmel River Floodplain Agricultural Landscape and Historic District is an eligible district for listing on the National Register of Historic Places and that the Project would have no adverse effect on historic properties. Caltrans consulted separately with the SHPO regarding the culvert headwall to fulfill responsibilities under the PRC 5024 MOU between Caltrans and the SHPO for state-owned historic resources. Section 106 consultation between the Caltrans and the SHPO for the Project was completed on August 12, 2016 and the SHPO concurred that the Project would have no adverse effect on historic properties.

Subsequent analysis by Balance Hydrologics identified potential indirect, operational impacts consisting of an increase in flood risk to the Carmel River Floodplain Agricultural Landscape and

District as a result of the Project, as discussed below. Section 106 consultation was reinitiated in November 2016 based on this new information and was completed on March 2, 2017. The SHPO concurred that with the implementation of **Measure CUL-8**, the Project will result in a less than adverse effect to the historic properties.

Long-Term or Operational Impacts

Build Alternatives

Archeological Resources

The Fish Ranch adobe is located outside of the floodplain and there will be no long-term or operational impacts or effects resulting from the operation of the Project.

Historic Built-Environment Resources

The Project proposes removal of the culvert headwall, which is a contributing feature to the Carmel-San Simeon Highway Historic District. The removal of the headwall, one of 158 in the district, was found to be a minor loss of integrity to the historic district as a whole and would constitute a determination of no adverse effect on historic properties.

As identified above, Section 106 consultation between the Service and the SHPO for the Project concluded that that, indirect, operational impacts to the Carmel River Floodplain Agricultural Landscape and District could potentially result from an increase in flood elevations that may occur as a result of the installation of the causeway and associated grading to connect the floodplain with the south arm of the Carmel Lagoon.

In September of 2016 and June 2018, Balance Hydrologics, Inc. prepared analyses of impacts to the Complex that could result from the Build Alternatives (Balance Hydrologics 2016b and 2018a). The analyses concluded that under the Preferred Project and the Secondary Channel Alternative, overtopping of SR 1 would be eliminated; however, due to the larger volume of flow that will be routed under the causeway and out to the south arm of the Carmel Lagoon, the 100-year flood elevation will potentially increase by as much as 0.1 foot at the Complex due to backwater flow. As identified above, the backwater flow enters from the Carmel Lagoon behind the partial berm and is an existing flood risk to the Complex. This means that compared to existing conditions, the Complex would be subject to a maximum increase of 1.2 inches in surface water elevation during the 100-year flood event post-project under the Preferred Project and the Secondary Channel Alternative. **Table 2.1.7-2** compares the BFEs at the Complex buildings under existing conditions to the Preferred Project and Secondary Channel Alternative conditions (Balance Hydrologics 2016b).

Table 2.1.7-2 Conditions at State Parks Barn Complex Resulting from Preferred Project and Secondary Channel Alternative

Building	Existing 100-Year BFE (ft)	Post-Project 100-Year BFE (ft)
<i>Barn</i>	17.2	17.3
<i>Blacksmith Shop</i>	17.5	17.5
<i>Creamery</i>	17.6	17.6
<i>Former Residence</i>	18.5	18.3

Under the Reduced Project Alternative, the Complex is predicted to experience lower water surface elevations (0.4 foot less than existing conditions) associated with backwater flooding effects in the 100-year flood event. Overland flow at the Complex under this alternative is directly related to the reduced overtopping of SR 1 that would occur compared to existing conditions. In addition, the smaller flows allowed on the floodplain through the single notch result in lower flows through the Carmel Lagoon and result in a lower water surface elevation from backwatering at the Complex compared to the larger flows from additional notches that are part of the Preferred Project and Secondary Channel Alternative. This means that compared to existing conditions, the Complex would be subject to a maximum decrease of 4.8 inches in surface water elevation during the 100-year flood event post-project under the Reduced Project Alternative. A detailed analysis of the BFE at each of the Complex buildings under the Reduced Project Alternative conditions was not conducted.

As identified above, all of the buildings that comprise the Complex are located within the 100-year floodplain and are currently at risk under existing conditions. Therefore, the Project is not in land use conflict with the County's floodplain ordinance that requires the first-floor elevation of buildings to be one foot above the BFE. However, because these buildings are a part of a district that is eligible for listing on the National Register of Historic Places, the slight increase in the existing flood risk of the buildings resulting from the Preferred Project and Secondary Channel Alternative represents a substantial adverse effect on cultural resources. Under the Reduced Project Alternative, the flood risk to the Complex would be reduced compared to existing conditions. As such, the Reduced Project Alternative would avoid impacts to this resource.

Tribal Cultural Resources

The County conducted consultation with the Ohlone/Costanoan-Esselen Nation (OCEN) in accordance with AB-52 to discuss potential Project impacts to tribal cultural resources and feasible alternatives or mitigation measures to avoid or substantially lessen the impact. Consultation was initiated on December 8, 2015. The County provided OCEN with proposed mitigation in good faith and after reasonable effort on September 11, 2018 based on coordination and communication over the duration of the consultation and in accordance with California PRC Section 21080.3.2 (**Measures CUL-1 through CUL-8 and CUL-10** below). OCEN was contacted again by the County on September 21, 2018 soliciting response to the proposed mitigation within two weeks. A final contact was made on October 2 to remind the OCEN of the upcoming deadline for receipt of comments. OCEN provided no formal response to the proposed mitigation. As such,

consultation was closed on October 5, 2018. Please refer to **Section 3.3.18 Tribal Cultural Resources** for additional information.

No-Build Alternative

Under the No-Build Alternative, no causeway would be built, no grading would occur, and no levee sections would be removed. BSLT would implement a modified restoration approach on APNs 243-071-006-000 and 243-071-007-000 to maintain existing riparian vegetation along the Carmel River and install native vegetation in lieu of agricultural uses; however, this would not impact any of the cultural resources identified above.

Short-Term or Construction Impacts

The Fish Ranch adobe is located outside of, but adjacent to, the grading limits of the Project. Measures are included below to insure avoidance of adverse effects during construction.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of the following measures would avoid or reduce potential adverse effects to cultural resources to a less-than-significant level that may result from the construction of the Preferred Project or Secondary Channel Alternative:

- CUL-1** The final grading plan for activities shall be prepared in consultation with a qualified archaeologist and an OCEN monitor.
- CUL-2** Cultural resource sensitivity training will be provided for grading crews prior to the initiation of construction with the Project Archaeologist and OCEN monitor. During this training, the construction contractor, Project Archaeologist, and OCEN monitor will agree on a communication plan and initial steps to implement Mitigation CUL-4 if potentially significant cultural resources are encountered.
- CUL-3** A professional archaeologist shall be on call to quickly assess any potentially significant cultural materials, archaeological resources, or human remains that might be uncovered during project excavations. At least one OCEN monitor, and up to one OCEN monitor per excavation activity, shall be on site during excavation west of SR 1. Additionally, at OCEN's discretion, up to one OCEN monitor per excavation activity is optional east of SR 1. The Project Archeologist shall communicate and coordinate with the OCEN monitor(s) in regard to all data collection and the evaluation of all artifacts. Prior to the issuance of any grading permit for the Floodplain Restoration Component, the Project Applicants shall submit evidence to the County demonstrating that an on-call professional archaeologist and the OCEN monitor(s) have been retained. The Project Archeologist and the OCEN monitor(s) shall be provided contact, access, and schedule information sufficient to facilitate their monitoring efforts.

- CUL-4** If, at any time during Project construction, potentially significant cultural resources are encountered, work shall cease within 50 feet of the find until the Project Archaeologist and an OCEN monitor can evaluate the discovery. If the find is determined to be significant, steps shall be taken to protect the find from further damage or disruption. The Service's Regional Historic Preservation Officer (RHPO) and the County will be notified. Additionally, an appropriate mitigation plan shall be developed and implemented with the concurrence of the Lead Agencies and an OCEN representative.
- CUL-5** The Project Archaeological and OCEN monitors shall closely coordinate the recovery of any significant cultural materials that may be found in the excavated soil. If determined appropriate and necessary by the monitors, they shall selectively screen soil samples through 1/8" mesh to facilitate data recovery. All materials remaining in the screen and recovered artifacts of interest to OCEN shall be provided to the Chairperson of OCEN.
- CUL-6** In accordance with California PRC Sections 5097 and 7050.5, if, at any time, human remains are discovered, the Monterey County Coroner and Service's RHPO must be notified. If the Coroner determines that the remains are likely to be Native American, the Native American Heritage Commission will be notified and will appoint a Most Likely Descendent (MLD) to provide recommendations for the disposition of the remains and work will not resume until they have made a recommendation to the landowner or the person responsible for the excavation work, for means of treating and disposing of, with appropriate dignity, the human remains and any associated grave goods, as provided in California PRC 5097.98.
- CUL-7** A Final Technical Report detailing the results of all analyses shall be completed within six months following the completion of monitoring work. This report shall be submitted to the Lead Agencies, the Northwest Information Center, Sonoma State University, and the Chairperson of the OCEN.
- CUL-8** Installation of exclusionary fencing around the Fish Ranch Adobe shall be installed prior to the initiation of construction by the contractor under the supervision of the Project Archeologist. The purpose of the exclusionary fencing is to ensure construction activities avoid all impacts to this historic resource. Documentation of the installation of the fencing will be provided to the County prior to construction. Construction-phase monitoring will be conducted on weekly basis to ensure the exclusionary fencing is maintained during construction of the Project. The County will be notified immediately in the case that the fences are not being properly maintained.
- CUL-9** The Creamery and Blacksmith Shop will be raised and placed on concrete foundations prior to the levee plugs being removed (approximately three to five years following construction). It is anticipated that the buildings will be elevated between six to eight inches and then placed on concrete perimeter or pier foundations. Existing engineering

plans, which were originally prepared by State Parks, shall be updated prior to implementation of this measure to reflect any changed conditions or changes in building codes since the original preparation. The County intends to enter into a MOU with State Parks prior to the initiation of construction that outlines the details of this effort, including cost sharing. The MOU shall include the minimum experience requirements of the contractor(s) who bid for the lifting, cribbing, and moving of the structures and the foundation repair.

CUL-10 Prior to issuance of the grading permit for the project, BSLT, project co-applicant, shall enter into an agreement with the County that provides the following:

- Documented evidence that BSLT has offered a location on BSLT property to OCEN for reinternment of Native American human remains, should any be found at the during construction of the Project;
- BSLT statement of intent to provide post-project construction access at the Project site to OCEN members to collect native materials for cultural purposes, and a date-certain by which BSLT will provide documented evidence that BSLT has offered a mechanism to provide said access to OCEN; and
- BSLT statement of intent to work with OCEN to collaboratively develop interpretive information and materials about the history of the OCEN people at the Project site.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

Regulatory Setting

Executive Order (EO) 11988 Floodplain

Executive Order (EO) 11988 Floodplain Management directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The FHWA requirements for compliance are outlined in 23 CFR 650 Subpart A.

To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments;
- Risks of the action;
- Impacts on natural and beneficial floodplain values;
- Support of incompatible floodplain development; and
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the Project.

The base floodplain is defined as “the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the base floodplain.”

FEMA National Flood Insurance Program

The Flood Insurance and Mitigation Administration (FIMA), a component of the Federal Emergency Management Agency (FEMA), manages the National Flood Insurance Program (NFIP). NFIP consists of three components: flood insurance, floodplain management, and flood hazard mapping. Nearly 20,000 communities across the United States and its territories participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally-backed flood insurance available to homeowners, renters, and business owners in these communities. Community participation in the NFIP is voluntary. In addition to providing flood insurance and reducing flood damages through floodplain management regulations, the NFIP also identifies and maps the Nation's floodplains.

California Fish and Game Code

The California Fish and Game Code (Sections 1600-1607) authorizes the California Department of Fish and Wildlife (CDFW) to enter into streambed alteration agreements with applicants to develop mitigation measures for projects that would obstruct the flow or alter the bed, channel, or bank of a river or stream in which there are fish or wildlife resources, including intermittent and ephemeral streams.

1982 Monterey County General Plan/ Carmel Area Land Use Plan

The 1982 Monterey County General Plan and Carmel Area LUP provide policies regarding hydrology and drainage issues. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with relevant hydrology and drainage policies.

Monterey County Code Chapter 16.16

Chapter 16.16 of the Monterey County Code identifies rules and regulations to control development within the floodplain. Chapter 16.16 is intended to promote public health, safety, and general welfare, and to minimize public and private losses due to flood conditions. Chapter 16.16 consists of regulations to: 1) restrict and/or prohibit uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities; 2) require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; 3) control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters; 4) control filling, grading, dredging, and other development which may increase flood damage; and, 5) prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

Affected Environment

Literature Review and Surveys

The analysis contained in this section is based on results of several reports prepared for the Proposed Project, including the following:

- Floodplain Information, Carmel River, Monterey County (United States Army Corps of Engineers [USACE] 1967);
- *Carmel River: Reach 2 (Eastwood/Big Sur Land Trust Property) Conceptual Enhancement Plan* (PWA 2000);
- *Preliminary Hydraulic Analyses of Proposed Design Alternatives Along the Lower Carmel River* (Balance Hydrologics 2007b);
- *Design Alternatives Analysis for Floodplain Restoration at the Odello Property, Lower Carmel River Valley* (Balance Hydrologics 2007a)
- *Preliminary Geotechnical Investigation* (Kleinfelder 2008);
- *Scour Calculation Summary for the Carmel River Causeway* (Balance Hydrologics 2008a);
- *Hydraulic Modeling Summary of the Carmel River Causeway along Highway 1* (Balance Hydrologics 2008b);
- *Supplemental Analyses for Floodplain Restoration at the Odello Property, Lower Carmel River Valley* (Balance Hydrologics 2008c);

- *Projected Long-Term Bed Elevation at the Proposed Highway 1 Causeway Restoration, Carmel River, Monterey County, California* (Balance Hydrologics 2008d);
- *Large woody debris (drift) potential at the proposed Highway 1 causeway restoration, Carmel River, Monterey County, California* (Balance Hydrologics 2008e, updated May 1. 2015);
- *County Service Area 50 Final Lower Carmel River Stormwater Management and Flood Control Report* (Balance Hydrologics 2014);
- *Carmel River Floodplain Restoration and Environmental Enhancement Project Natural Environmental Study* (Denise Duffy & Associates, Inc. [DD&A] 2015a);
- *Carmel River Floodplain Restoration and Environmental Enhancement Project 35% Design Basis Report* (Balance Hydrologics 2015a)
- *Anticipated Changes in Downstream Base Flood Elevations Due to the Carmel River Floodplain Restoration and Environmental Enhancement Project* (Balance Hydrologics 2015b);
- *Baseline Groundwater Monitoring at the Mouth of the Carmel River for the Proposed Floodplain Restoration and Enhancement Project, Water Years 2012 through 2015, Monterey County California* (Balance Hydrologics 2015c);
- *Final Hydraulic Report – Floodplain Overflow Bridge Crossing* (Avila & Associates 2016);
- *Changes to 10- and 100- Year Water Surface Elevations in the vicinity of the CAWD Pipe Due to the Carmel River Floodplain Restoration Environmental Enhancement Project* (Balance Hydrologics 2016a);
- *Potential Impacts to the State Parks Barn Complex Due to the Carmel River Floodplain Restoration and Environmental Enhancement Project* (Balance Hydrologics 2016b);
- *Supplementary 2D Model Results for CRFREE Project Existing Conditions, Proposed Conditions, and a Reduced Conveyance Alternative* (Balance Hydrologics 2018a).

Regional Hydrology

The Proposed Project is located at the downstream end of the Carmel River, approximately one mile from its terminus in Carmel Bay. Carmel Bay is located within the Monterey Bay National Marine Sanctuary and is considered an Area of Special Biological Significance¹³ by the SWRCB. The Carmel River has a total length of approximately 35 miles and drains approximately 164,000 acres. The Carmel River represents a relatively large watershed, with a total watershed area of

¹³ California PRC Section 36700 f) "Areas of special biological significance" are a subset of state water quality protection areas, and require special protection as determined by the State Water Resources Control Board pursuant to the California Ocean Plan adopted and reviewed pursuant to Article 4 (commencing with Section 13160) of Chapter 3 of Division 7 of the Water Code and pursuant to the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (California Thermal Plan) adopted by the state board.

approximately 256 square miles. The Project site's location within the Carmel River Watershed and Carmel Bay sub-basin is depicted in **Figure 2.2.1-1**.

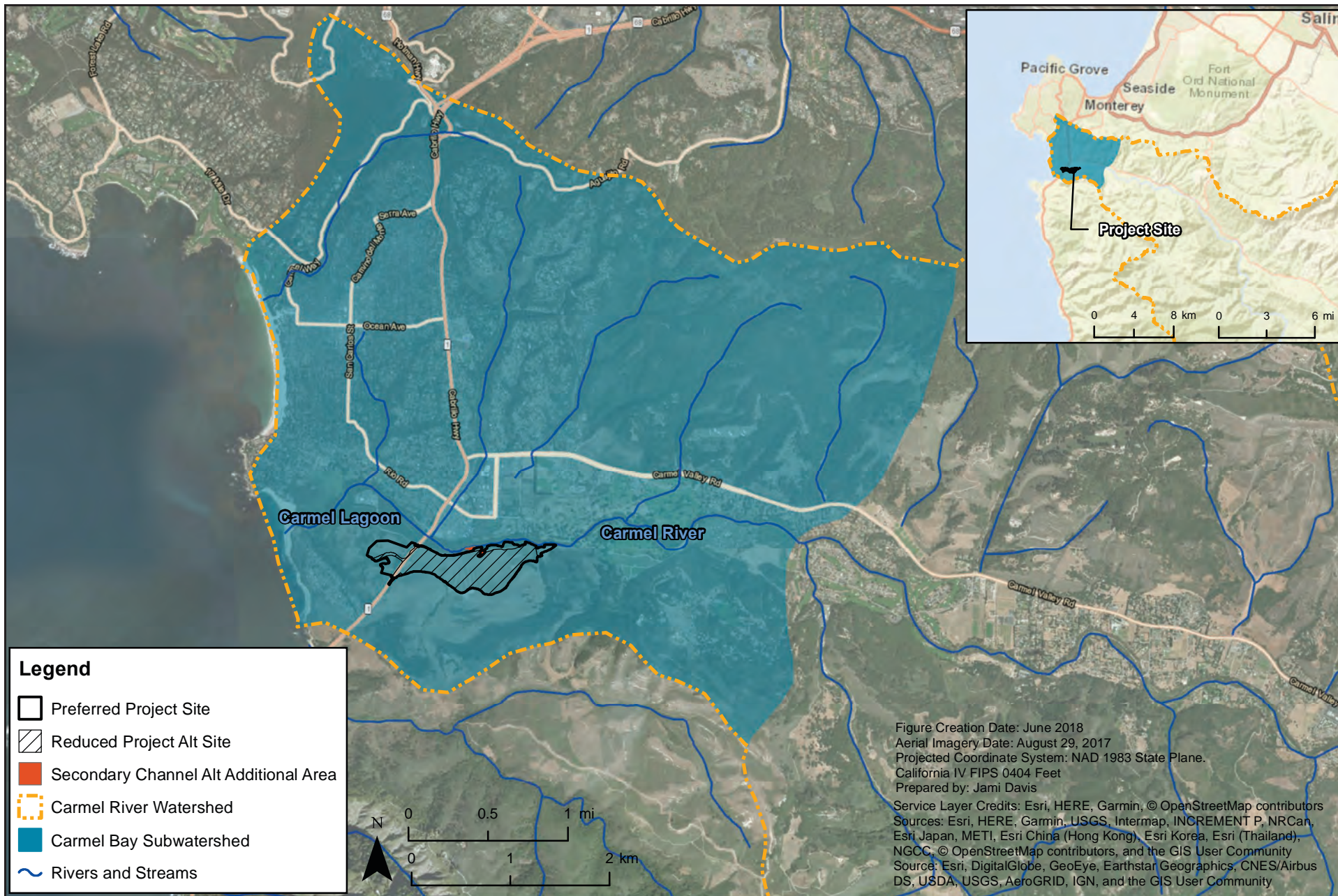
The Carmel River Watershed is located within the California Coast Ranges Geomorphic Province. The entire drainage area of the watershed is located on the western slopes of the Sierra de Salinas. The northwesterly flowing Carmel River originates approximately 35 miles upstream from Carmel Bay at an elevation of 3,500 feet above sea level. The major tributary to the Carmel River is Tularcitos Creek. Most of the river's watershed (approximately 65%) is upstream of the confluence with this tributary. Other larger tributaries include Garzas Creek, San Clemente Creek, Pine Creek, Danish Creek, Cachagua Creek, and the Miller Fork. The upper reaches of the Carmel River flow northwesterly, generally following the trend of the fault block structure of the Coast Ranges, to a confluence with Tularcitos Creek. The lower reach flows in a more westerly direction through Carmel Valley and into the Pacific Ocean at Carmel Bay. According to the MPWMD, average annual runoff (from 1962 to 2006) is 78,190 acre-feet. Stream flow in the Carmel River is directly attributed to rainfall; average annual precipitation is 18 to 20 inches. Accordingly, Carmel River flows are subject to large seasonal and annual variation in terms of total volume and peak discharge.

The Carmel River represents one of the primary sources of water supply for the Monterey Peninsula. Until 2015, Cal-Am owned and operated two dams at the headwaters of the Carmel River; the San Clemente Dam and the Los Padres Dam. Historically, these two dams worked together to regulate winter and summer flows to the lower reaches and retain winter runoff in order to provide surplus water to accommodate summer demand. Over time, the capacity of these dams was reduced due to sediment accumulation. In 2015 the San Clemente Dam was removed to alleviate seismic safety concerns, restore habitat, and improve anadromous fish access to the watershed. The Los Padres Dam continues to perform these functions at a significantly reduced capacity.

Local Hydrology

The Proposed Project is located in the southern Carmel River floodplain (south floodplain) within the FEMA 100-year flood boundary. The Project site does not typically experience dry season flows. Within the Project site there is an existing highway embankment, approximately five to eight feet high, which transverses the south floodplain. Culverts in the SR 1 embankment are likely sufficiently sized to accommodate runoff from the surrounding areas, but have an insignificant capacity compared to the flood flows in both existing and proposed conditions.

The Proposed Project site is located within the lowest 1.5 miles of the Carmel Bay Sub-Watershed of the Carmel River Watershed (**Figure 2.2.1-1**). The existing drainage pattern of the Carmel River has been substantially altered as a result of human activity. Historically, the Project site was a part of the Carmel River floodplain; however, the construction of earthen levees on the south bank in the 1930s effectively isolated the main channel from this portion of the floodplain. A



Watershed Map

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.2.1-1

portion of this levee system exists along the Northern edge of the Project site, altering the hydrologic function of the south floodplain, particularly during moderate and large storm events.

The levees have reduced the Project site's capacity to function as a natural floodplain. The existing conditions of the site have limited the ability of the site to provide flood relief to the developed areas located north of the Carmel River. The disassociation between the main channel and the south floodplain has limited the lateral dispersal of water during high flow events and has confined flows to the main channel, resulting in decreased flooding within the site and an increased flood risk to developed areas to the north and west. Minor flood control projects have been implemented since 1995 to allow minimal increased discharge into the south overbank area during large flood events; however, the existing levees still remain significant obstacles to the dispersal of floodwater into the south floodplain.

The Proposed Project site is located in an area that is subject to periodic flooding. In 1995, following significant flooding of the entire lower Carmel River flood plain, a "notch" was created in the levee at the upstream end of the Project area to allow water from the Carmel River to enter the south floodplain during flood events. Along with various other improvements in the north floodplain, the "notch" is believed to have been instrumental in preventing significant damage during the 1998 floods.

During a 100-year flood event it is estimated that, in its current state, only 7,140 cfs is entering the south floodplain of the total river discharge of 22,700 cfs (Balance Hydrologics 2015a). Once floodwaters enter the south floodplain via the "notch," they are conveyed through the south floodplain and must overtop the SR 1 existing embankment, as the culverts in the SR 1 embankment have a very limited capacity. The SR 1 embankment obstructs flow through the south floodplain and during large flood events creates a backwater situation that elevates upstream water surface elevations, which increase flooding depths within the entire floodplain, including the main river channel and the developed north floodplain.

There are no drinking water reservoirs or recharge facilities within the Project site. During a geotechnical investigation on August 31, 2008, groundwater was encountered approximately 10 feet below grade, at an estimated 19.2 feet above mean sea level (Kleinfelder 2015). Balance Hydrologics summarized groundwater levels and water quality data from monitoring wells located within the Project site and vicinity that was collected from 2012 through 2015 (Balance Hydrologics 2015c). Shallow groundwater at the Project site primarily flows towards the Carmel Lagoon but at times reverses, generally during the late dry season when Carmel Lagoon elevations rise in response to seawater in-wash over the beach berm. Wave wash-ins to the Carmel Lagoon were significant during the winter of water year 2014, a time when there were no river inflows. At the Odello East property, groundwater recharge from the Carmel River is locally important, indicated as a groundwater elevation response to changes in river stage, particularly following seasonal dry-back of the river. Meanwhile, there is indication of potential deep-water upflow; the

monitoring well within the State Parks property is a deep piezometer primarily showing an upward gradient relative to the Odello West shallow wells.

Existing Drainage Patterns

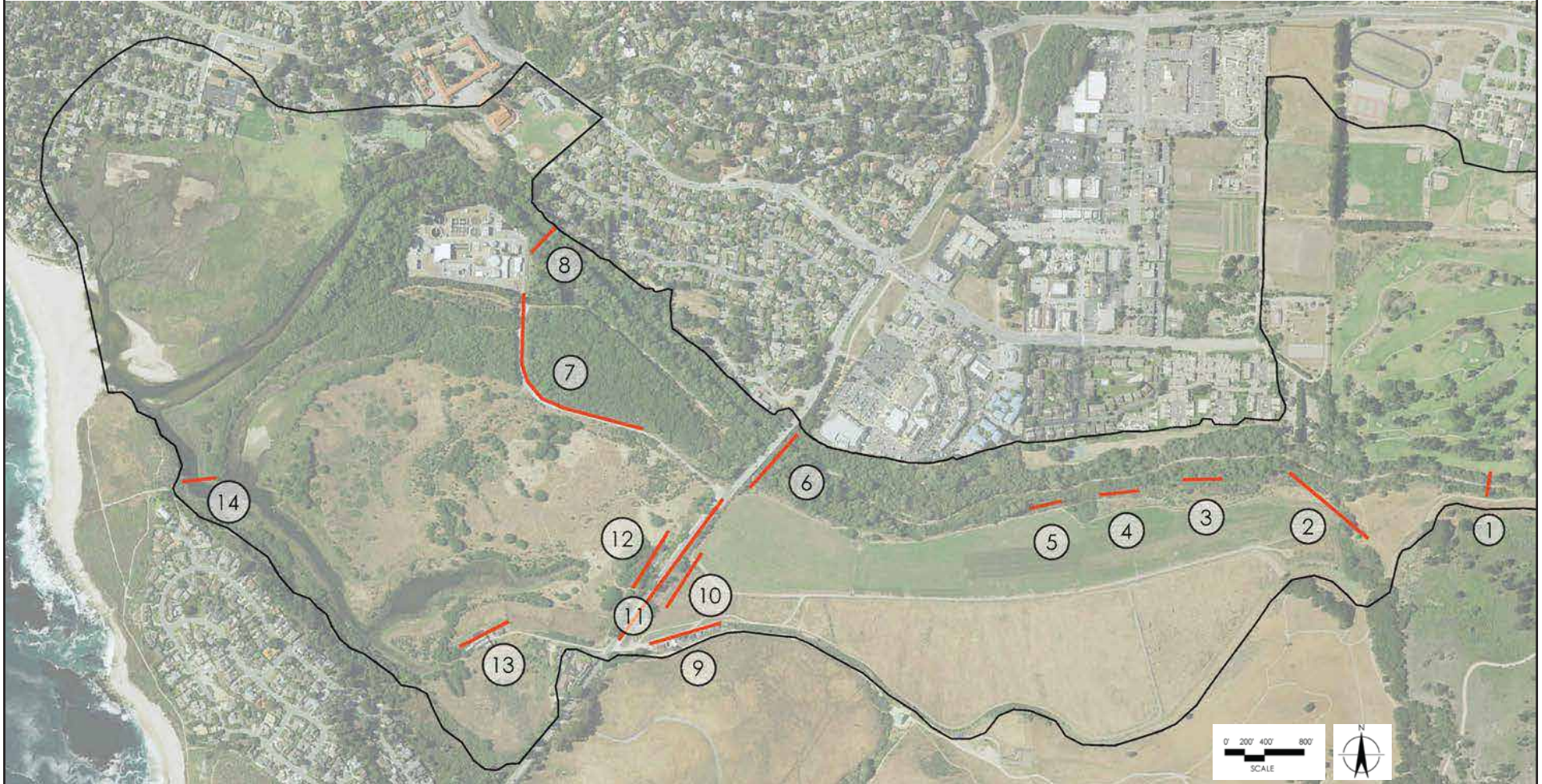
The existing drainage pattern of the Carmel River, particularly the lower portion of the river, has been described extensively by others. The existing drainage pattern of the Carmel River has been substantially altered as a result of human activity, primarily as a result of the construction of levees along both banks of the main channel. These levees were constructed in order to confine small and moderate flow events to the main channel and minimize flooding hazards to the north and south overbank areas. The levees have considerably restricted the ability of the main channel to interact with its adjacent floodplain, as the levees limit the lateral dispersal of floodwater into the floodplain. The Project site does not currently experience dry season flows.

Flooding

Major flood events along the Carmel River have been well-documented. Numerous incidents of flooding have been reported since at least 1911. Major flood events were reported in 1911, 1914, 1922, 1926, 1931, 1937, 1938, 1941, 1943, 1945, 1952, 1955, 1956, 1958, 1962, 1966, 1969, 1973, 1978, 1983, 1995, 1998, and 2017. Flood events in 1995 and 1998 produced two of the highest flows on record causing substantial property damage. The 1995 and 1998 floods correlate to approximately 30-year and 25-year events, respectively, based on the currently effective 100-year discharge estimate (Balance Hydrologics 2014). The 2017 flood correlates to an approximately 10-year event (Balance Hydrologics 2018a). Hydrologic modeling of a 10-year and 100-year flood events under existing conditions was conducted by Balance Hydrologics (2008b) (**Figures 2.2.1-2 through 2.2.1-4**).

The Proposed Project site is located in an area that is subject to periodic flooding; the site is located within the FEMA 100-year flood boundary, as shown on **Figure 2.2.1-5**. Although the Project site was historically a part of the Carmel River floodplain, the construction of on-site earthen levees in the 1930s effectively isolated the main channel from this portion of the floodplain. The Project site's capacity to function as a natural floodplain was substantially reduced due to these levees. As a result, existing site conditions have limited the ability of the site to provide flood relief to the developed areas located north of the Carmel River. The south bank levees, while reducing the frequency of on-site flooding, have increased flood hazards in the north floodplain by reducing the site's ability to accommodate the lateral dispersal of floodwater.

River flows in 1995 were among the highest recorded on the Carmel River in the past 60 years. The March 1995 flood event flooded many of the low-lying areas in the Carmel River Watershed. Numerous commercial and residential properties at the mouth of Carmel Valley were inundated and the SR 1 Bridge was destroyed as a result of the flooding. A number of flood control projects were implemented after the 1995 event in order to reduce future flood hazards in the Mission Fields area and lower Camel Valley. These improvements included raising the Val Verde Road tie-back



Note: The notches at cross sections 3, 4, and 5 exist only in the Preferred Project design conditions.

Source: Balance Hydrologics, Inc., June 2018

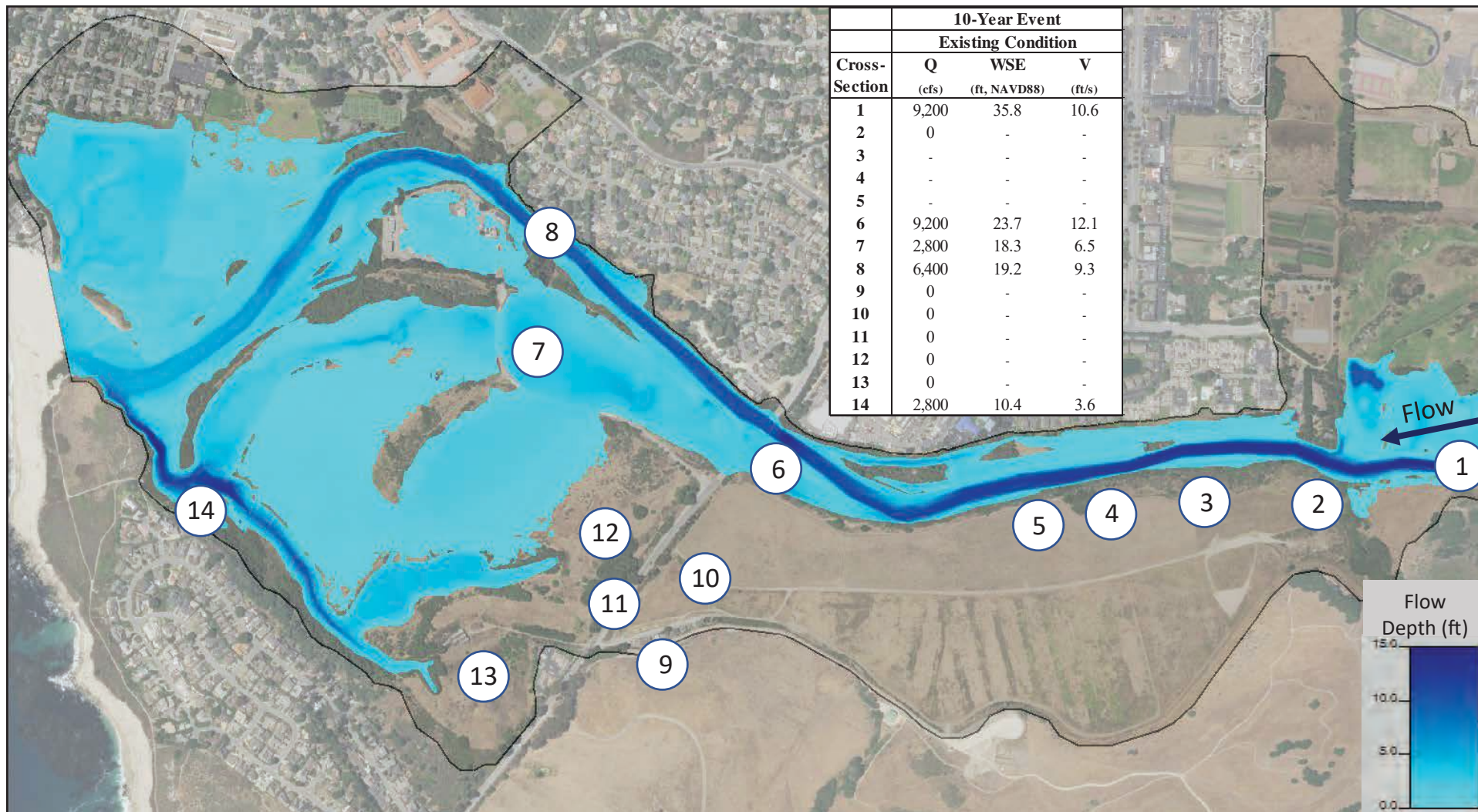


Cross-Section Locations for HEC-RAS 2D Modeling

October 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA

Figure
2.2.1-2



Notes: The notches at cross sections 3, 4, and 5 exist only in the proposed project design conditions.
 Backwatered locations may feature eddying velocities up to 1.5 ft/s.
 Q = 0 indicates that no flow occurs at these locations under the specified condition.
 Dashes indicate no 2d model results, either because of no flow or not applicable under the specified condition.
 Cross-section 11 reports information on flow over SR 1. Flow under the causeway, if present, is reported upstream at section 10 and downstream at section 12.

Source: Balance Hydrologics, Inc., June 2018

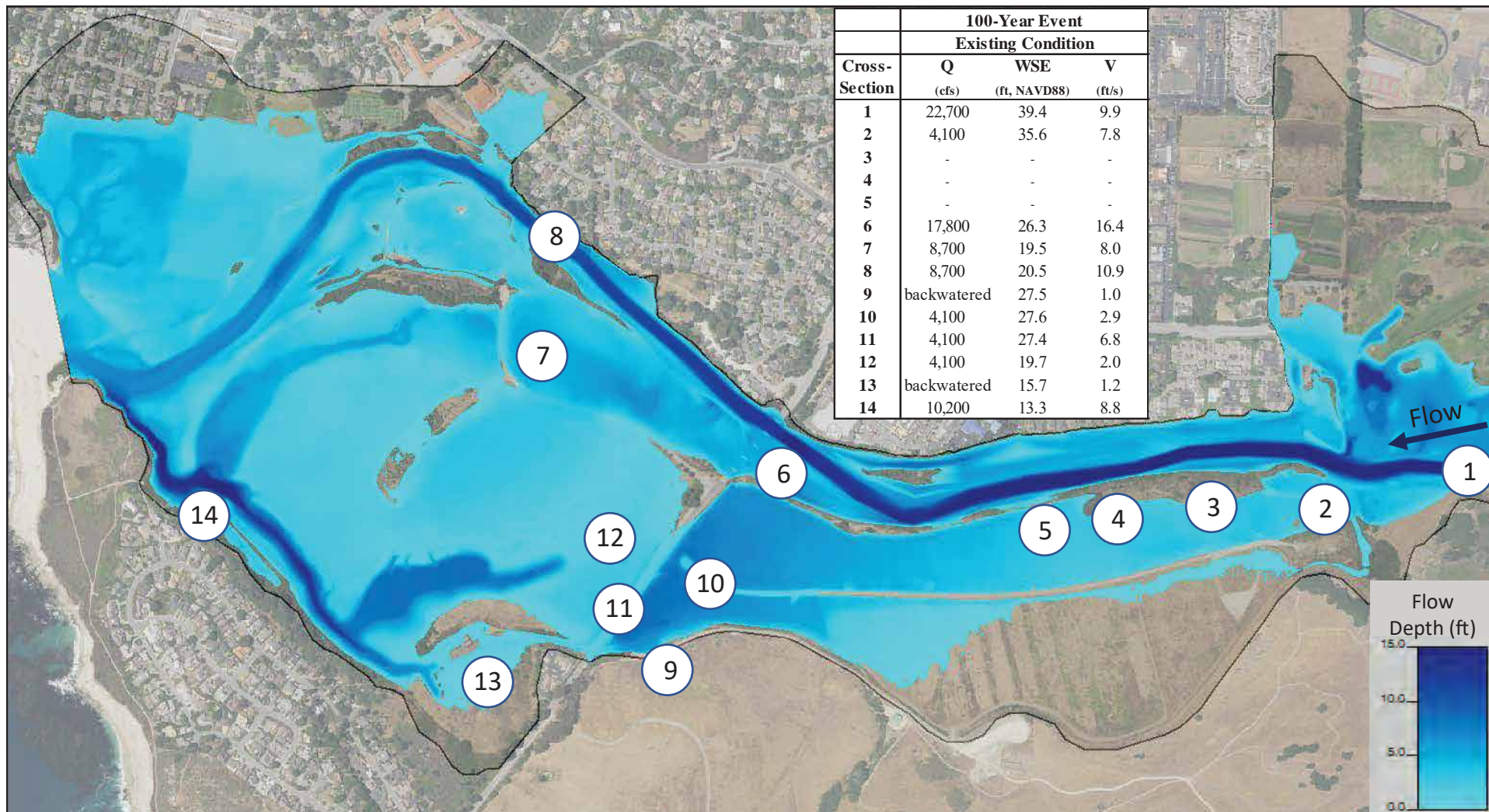


HEC-RAS 2D Modeling Results: 10-year Event Under Existing Conditions

October 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.2.1-3



Notes: The notches at cross sections 3, 4, and 5 exist only in the proposed project design conditions.
 Backwatered locations may feature eddying velocities up to 1.5 ft/s.
 $Q = 0$ indicates that no flow occurs at these locations under the specified condition.
 Dashes indicate no 2d model results, either because of no flow or not applicable under the specified condition.
 Cross-section 11 reports information on flow over SR 1. Flow under the causeway, if present, is reported upstream at section 10 and downstream at section 12.

Source: Balance Hydrologics, Inc., June 2018

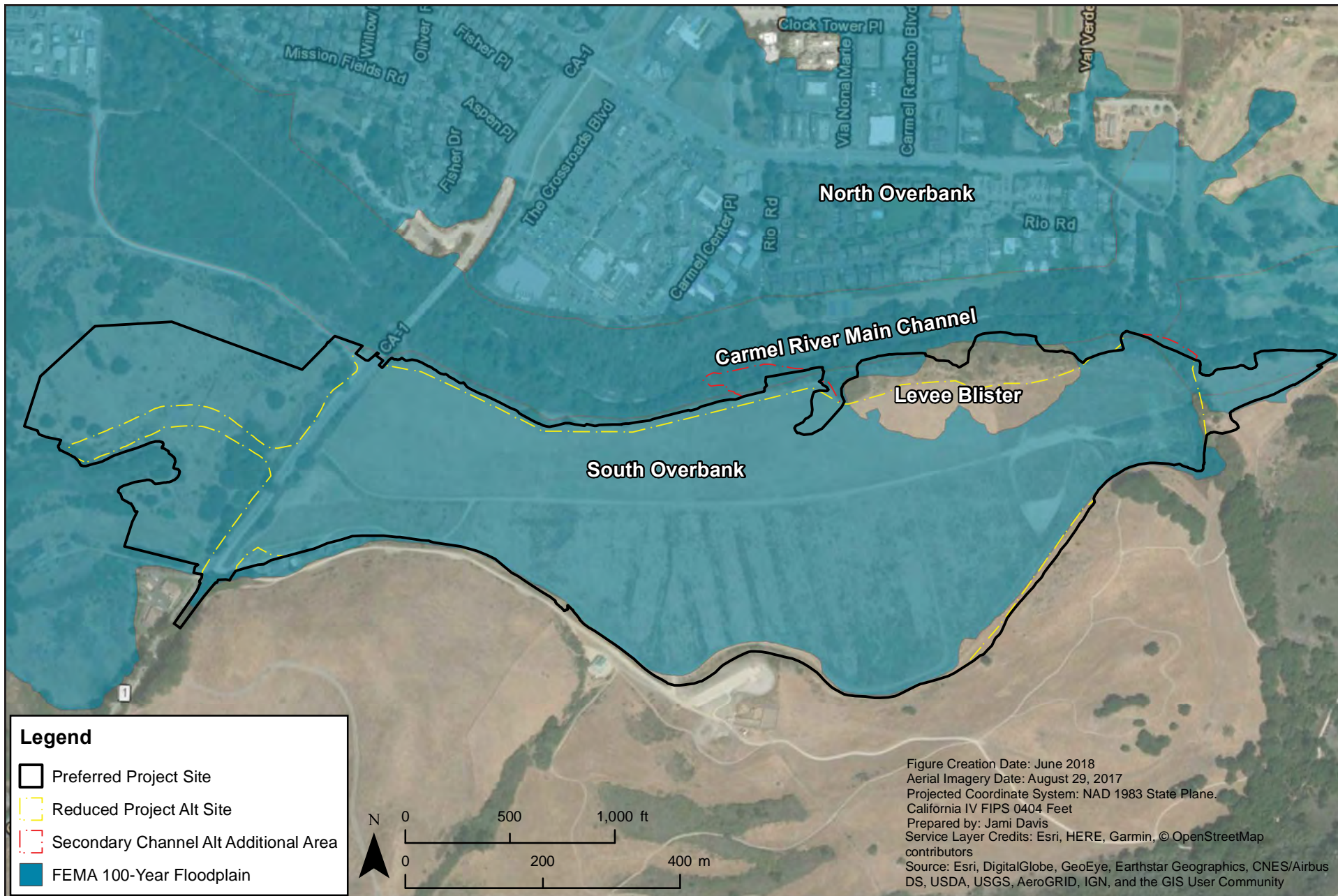


HEC-RAS 2D Modeling Results: 100-year Event Under Existing Conditions

October 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.2.1-4



FEMA 100-Year Floodplain Map

October 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.2.1-5

levee and removing portions of the existing south bank levee (known as the “notch” project). The flood control improvements and the SR 1 Bridge replacement substantially reduced the damage associated with the 1998 event, but SR 1 was again overtopped by floodwaters. In addition, following the 1995 and 1998 flood events, the need for levee removal on the west side of SR 1 was identified and implemented, along with Caltrans’ CRMB and State Parks’ CRLEP.

As discussed in **Section 2.1.7 Cultural Resources**, a number of historic buildings (referred to as the Complex) are located within the State Parks property on the west side of SR 1. A berm is present along the north edge of the Complex that was installed as part of the CRLEP south arm construction in 2004 to protect these cultural resources; however, the berm does not fully enclose the area on the west and south sides, a low point in the berm is present near SR 1, and the berm does not meet FEMA’s levee accreditation standards. Balance Hydrologics, Inc. prepared analyses of the existing flood conditions at the Complex (Balance Hydrologics 2016b and 2018a), which concluded that all of the buildings that comprise the Complex are located within the 100-year floodplain and are currently at risk under existing conditions (**Figures 2.2.1-3 and 2.2.1-4**). Modeling of a 100-year flood under existing conditions determined that high flows overtopping SR 1 and the existing partial berm would result in flow-through flooding risk from the east, and water originating in the south arm of the Carmel Lagoon and coming around the southwest side of the partial berm into the Complex would result in backwater flooding risk to the Complex (**Figure 2.2.1-4**). A detailed analysis of the berm has not been performed; however, the analysis contained within the EIR/EA assumes that the berm would not fail during the 100-year event.

CAWD also has downstream facilities in the Carmel Lagoon, most notably the existing aboveground, 24-inch diameter by 330-foot long treated wastewater outfall and a six-inch diameter by 330-foot long sewage force main that currently span the south arm of the Carmel Lagoon. The outfall pipeline takes the treated effluent from the CAWD treatment plant and transports it to a diffused discharge location in the Carmel Bay. The force main transports incoming raw sewage from all properties south of the treatment plant (Carmel Highlands, Point Lobos, and Carmel Meadows) to the CAWD treatment plant. The pipeline crossing facility was initially constructed in 1972 over an existing channel. At the time of design of the pipeline crossing, the published USACE flood maps identified that the pipeline crossing was in the 50-year and 100-year floodplain. In 1996, Caltrans and State Parks began restoration work to restore the Carmel Lagoon through conversion of the agricultural lands back to wetlands and riparian forest. In 2004, State Parks implemented the CRLEP to recreate the southern arm of the lagoon and the adjacent habitat (Johnson Marigot 2018). The pipeline crossings are currently within the FEMA 100-year base flow elevation (Balance Hydrologics, Inc. 2016a).

Additional structures currently within the 100-year base flow elevation within the Project vicinity include the CAWD treatment plant, located west of the Project site, and residences located immediately south of the Project site near SR 1 (referred to as the red houses).

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

One of the primary objectives associated with the Proposed Project is to increase the site's capacity to function as a floodplain and restore the site's hydrologic connectivity with the Carmel River and surrounding floodplain. The Proposed Project would result in a number of benefits by reducing flood hazards to the developed areas located north of the Carmel River, which have been subject to periodic flooding, and reducing existing flood hazards to SR 1. Currently the existing SR 1 embankment acts as barrier, which has resulted in increased flood elevations in the north floodplain and floodwater overtopping SR 1. These benefits would generally result from the enhanced/restored floodplain, which would increase the site's capacity to accommodate floodwaters, as well as restore the site's longitudinal connectivity with the Carmel River Lagoon and adjacent floodplain as a result of the causeway. The Proposed Project's restored natural floodplain system will also provide a superior protective buffer against increased frequency and intensity of storms and sea level changes resulting from climate change (see **Section 3.4 Climate Change** for additional information). These benefits would occur under all Build Alternatives; however, would be to a lesser degree under the Reduced Project Alternative due to the reduced amount of water entering the floodplain as compared to the Preferred Project and the Secondary Channel Alternative.

Overall, the Proposed Project, in its entirety, would improve floodplain hydrology by reducing the occurrence of flooding in the developed north overbank areas and improve groundwater recharge by spreading flows across the Project site. Flooding would increase within the undeveloped south floodplain consistent with the objectives of the Proposed Project; this is considered a beneficial effect of the Project. The Proposed Project does not constitute a significant floodplain encroachment as defined in 23 CFR Section 650.105 (Avila & Associates, 2016).

Detailed modeling and analysis of hydrologic effects have been prepared for the Preferred Project but not for the Reduced Project or Secondary Channel Alternatives. Therefore, the following provides a detailed analysis of potential effects resulting from the Preferred Project, and a brief discussion of effects resulting from the other alternatives and comparison to the Preferred Project, as necessary.

Preferred Project

Flooding

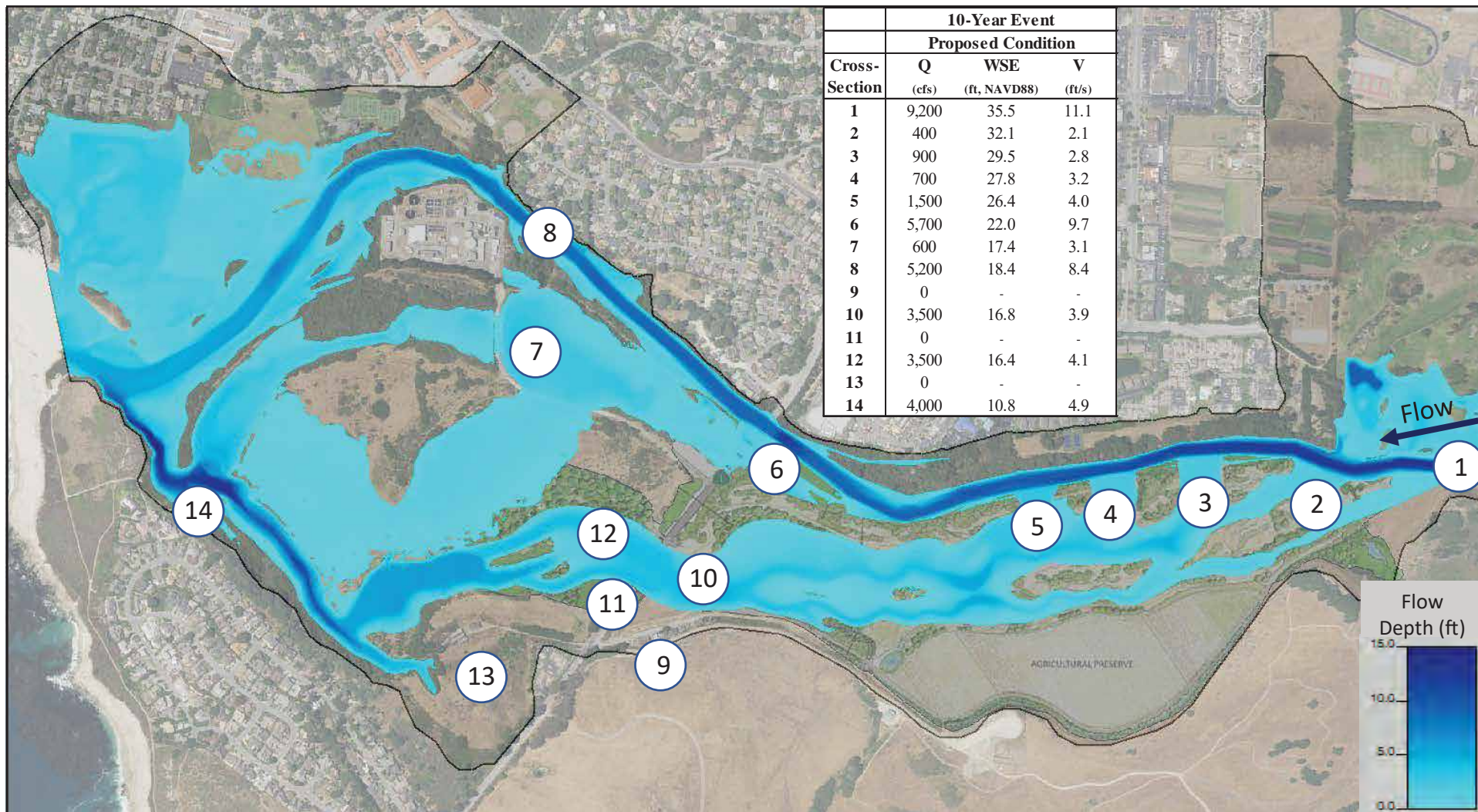
Pre- and post-project hydraulic modeling was completed in order to evaluate the Project's potential to reduce flood hazards. Balance Hydrologics completed proposed conditions models by revising the existing conditions model (**Figures 2.2.1-3 and 2.2.1-4**) to include the proposed floodplain restoration activities, removal of portions of the existing levees, and the proposed causeway under

5-year, 10-year, and 50-year and 100-year events (Balance Hydrologics 2008, 2014, 2015a, 2016a, 2016b, and 2018a). **Figures 2.2.1-6 and 2.2.1-7** provide the results of HEC-RAS 2D modeling for the 10-year and 100-year events under Preferred Project conditions (Balance Hydrologics 2018a). **Table 2.2.1-1** provides the change from existing conditions to Preferred Project conditions for the 10-year and 100-year events from the HEC-RAS 2D modeling, (Balance Hydrologics 2018a). **Figure 2.2.1-2** identifies the cross-section locations where depth, velocity, water surface elevation, and flow results are presented in the table.

Table 2.2.1-1 Model Results of Change from Existing Conditions to Preferred Project Conditions (+/-)

Cross-Section	Results Locations	10-Year Event			100-Year Event		
		<i>Q (cfs)</i>	<i>WSE (ft)</i>	<i>Vel (ft/s)</i>	<i>Q (cfs)</i>	<i>WSE (ft)</i>	<i>Vel (ft/s)</i>
1	Mainstem, upstream of Project	No change	-0.3	+0.5	No change	-0.6	+1.4
2	Existing "Notch"	+400	+1.6	+1.9	2400	-0.1	-2.1
3	New notch ¹	+900	+2.1	+2.2	+2800	+4.9	+3.4
4	New notch ¹	+700	+2.2	+2.4	+1300	+4.8	+3.2
5	New notch ¹	+1500	+2.9	+3.1	+2400	+5.3	+4.1
6	Mainstem at SR 1 bridge	-3500	-1.6	-2.4	-8100	-2.3	-4.0
7	CAWD access road	-2200	-0.9	-3.4	-5600	-1.0	-1.0
8	Mainstem at CAWD plant	-1200	-0.9	-0.9	-2100	-1.2	-1.5
9	Red houses	No change ²	No change ²	No change ²	Not Backwatered ²	-4.2 ²	-1.1 ²
10	Upstream of causeway	+3500	+3.8	+3.5	+8700	-7.5	+3.8
11	Overtopping SR 1	No change	No change	No change	-4300	--	--
12	Downstream of causeway	+3500	+3.8	+2.2	+8700	-0.3	+5.7
13	State Parks Barn Complex	No change	No change	No change	Backwatered	+0.1	-- ³
14	CAWD outfall and sewer force main pipeline crossing	+1200	+0.4	+1.3	+1100	+0.3	+0.7

¹ New notches do not exist in existing conditions.
² The red houses are above the 100-year FEMA BFE under the Preferred Project.
³ Backwatered locations may feature eddying velocities up to 1.5 ft/s.



Notes: The notches at cross sections 3, 4, and 5 exist only in the proposed project design conditions.
 Backwatered locations may feature eddying velocities up to 1.5 ft/s.
 Q = 0 indicates that no flow occurs at these locations under the specified condition.
 Dashes indicate no 2d model results, either because of no flow or not applicable under the specified condition.
 Cross-section 11 reports information on flow over SR 1. Flow under the causeway, if present, is reported upstream at section 10 and downstream at section 12.

Source: Balance Hydrologics, Inc., June 2018

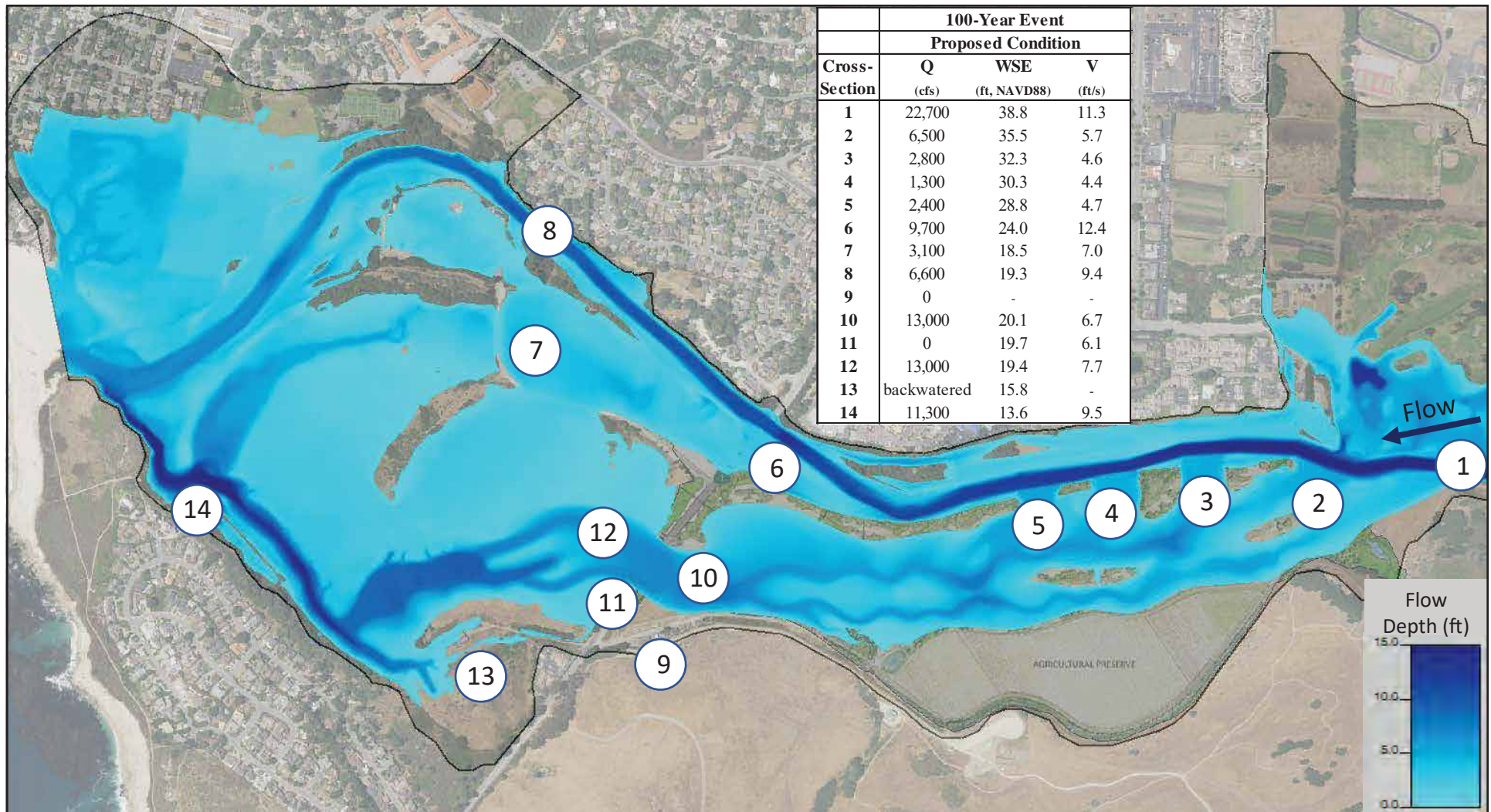


HEC-RAS 2D Modeling Results: 10-year Event Under Preferred Project

October 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.2.1-6



Notes: The notches at cross sections 3, 4, and 5 exist only in the proposed project design conditions.
 Backwatered locations may feature eddying velocities up to 1.5 ft/s.
 Q = 0 indicates that no flow occurs at these locations under the specified condition.
 Dashes indicate no 2d model results, either because of no flow or not applicable under the specified condition.
 Cross-section 11 reports information on flow over SR 1. Flow under the causeway, if present, is reported upstream at section 10 and downstream at section 12.

Source: Balance Hydrologics, Inc., June 2018



HEC-RAS 2D Modeling Results: 100-year Event Under Preferred Project

October 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.2.1-7

Hydraulic modeling indicates that the WSE changes would occur due to the replacement of the existing embankment with a causeway and removal of portions of the existing south bank levees. The causeway would eliminate the damming effects of the existing SR 1 embankment under the Preferred Project, thus improving the distribution of flow and the hydraulics.

Under Project conditions for the Preferred Project, upstream WSE and the WSEs in the developed north floodplain would be substantially lowered. In the south floodplain, upstream of the causeway, flood depths would be reduced by up to 7.5 feet for a 50 and 100-year event (Avila & Associates 2016, Balance Hydrologics 2018a). In the main river channel, flood elevations upstream of the SR 1 bridge would be reduced by up to 1.6 feet for the 10-year event and 2.3 feet for the 100-year event (Balance Hydrologics 2014 and 2018a). As a result, the elevation of flood flows in the developed north bank would be lowered during flood events, particularly from SR 1 upstream to Val Verde Drive (the areas were subject to extensive flooding in 1995 and 1998).

Moreover, reductions of this magnitude in flood elevations along the north bank would make it substantially more feasible to adjust top of bank elevations where needed (levees, floodwalls, etc.) to protect the north overbank areas from floods as large as the 100-year event, at least for those areas upstream of SR 1.

It is important to note that the changes in WSE that are predicted to occur as a result of the Project could invalidate the BFEs cited on the currently-effective FEMA Flood Insurance Rate Map Panel for the Project area, causing these maps to become out of date and requiring formal map revisions.

Removal of portions of the existing levees upstream of SR 1 could expose SR 1 to additional flooding hazards if levee removal occurs prior to causeway construction. The Project has been designed to provide for the completion of the Causeway Component prior to levee removal. As a result, no increased flooding hazards to SR 1 would occur. The proposed agricultural preserve would be elevated above the 100-year FEMA flood elevation thereby reducing flooding hazards on the agricultural preserve portion of the Project site. No adverse effects from on- or off-site flooding would be caused by the creation of an elevated agricultural preserve.

The Floodplain Restoration Component of the Project would not place any structure or housing within a 100-year flood hazard area, as no structures or housing would be constructed as part of this component. However, several structures (identified as the Complex in **Section 2.1.7 Cultural Resources**), the CAWD treatment plant, the CAWD outfall and sewer force main pipeline crossing, and the red houses are currently located within the FEMA 100-year flood hazard area in the southern floodplain. As shown in **Table 2.2.1-2** and **Figure 2.2.1-7**, construction of the Preferred Project would place the red houses above the 100-year FEMA BFE, which they currently are not. The Complex, CAWD outfall and sewer force main pipeline crossing, and CAWD treatment plant would however remain within the 100-year base flow elevation. As such, Balance Hydrologics prepared specific analyses to determine the potential for impacts to these structures as a result of the Project (Balance Hydrologics 2016a, 2016b, and 2018a).

Due to the larger volume of flow that will be routed under the causeway and out to the south arm of the Carmel Lagoon under the Preferred Project, the 100-year flood elevation will potentially increase by as much as 0.1 feet at the Complex due to backwater flow, despite eliminating the overtopping of SR 1 (Balance Hydrologics 2016b and 2018a) (**Figure 2.2.1-7**). As identified above, the backwater flow enters from the Carmel Lagoon behind a partial berm constructed as part of the CRLEP and is an existing flood risk to the Complex. This means that compared to existing conditions, the Complex would be subject to a maximum increase of 1.2 inches in surface water elevation during the 100-year flood event post-project under the Preferred Project. As identified above, all of the buildings that comprise the Complex are located within the 100-year floodplain and are currently at risk under existing conditions. Therefore, the Project is not in land use conflict with the County's floodplain ordinance that requires the first-floor elevation of buildings to be one foot above the BFE. However, because these buildings are a part of a district that is eligible for listing on the National Register of Historic Places, the slight increase in the existing flood risk of the buildings resulting from the Preferred Project represents a substantial adverse effect on cultural resources. Please refer to **Section 2.1.7 Cultural Resources** for more information regarding impacts to the Complex.

The CAWD treatment plant is situated along the border between the main channel of the Carmel River and the south overbank flow paths. Hydraulic modeling of predicted BFEs in the vicinity of the CAWD treatment plant show that the reductions in the portion of the flood flow conveyed in the main channel generally leads to decreases in BFEs, especially along the north and east perimeter of the treatment plant where the channel is more confined (**Figure 2.2.1-7**). The increased discharge in the south overbank is predicted to lead to modestly higher BFEs along the south perimeter, with a maximum increase of 0.2 feet under the Preferred Project. However, the residual flood risk to the treatment plant is from the main channel, as the south perimeter is protected by high ground well in excess of the post-project BFE values. Therefore, an overall reduction in the flood hazard at the CAWD treatment plant would occur as a result of the Proposed Project.

The CAWD outfall and sewer force main pipelines that cross the south arm of the Carmel River Lagoon are located within the south overbank reach in the currently-effective FEMA hydraulic model (Balance Hydrologics 2016a). Under the Preferred Project conditions, increases in flood flow velocities and debris flow forces have the potential to dislodge the wastewater conveyance pipelines or the supporting piles (Balance Hydrologics 2018a). CAWD has asserted that raw sewage discharge and secondary treated wastewater discharge could be released if the pipeline is damaged. The risk of damaging the pipeline could include biological and environmental damage associated with discharge of raw sewage and secondary treated wastewater into the Carmel Lagoon wetland habitats, as well as into the Carmel Bay.

Hydraulic modeling of the floodplain shows that flows at the CAWD outfall pipe are greater in the Preferred Project design, with higher water surface elevations and velocities expected with

increased flows through the floodplain and into the lagoon (Balance Hydrologics 2018a). Discharges, WSEs, and velocities at the CAWD outfall and sewer force main pipeline crossing are provided in **Table 2.2.1-1** and **Figures 2.2.1-6** and **2.2.1-7**. Under the Preferred Project during the 10-year event, the WSE is predicted to increase approximately 0.4 feet (or approximately 4.8 inches), from 10.4 feet to 10.8 feet, at the location of the pipe crossing compared to existing conditions. The velocity is predicted to increase approximately 1.3 feet per second (fps), from 3.6 fps to 4.9 fps. During the 100-year event the impacts are slightly less pronounced, in large part because the Carmel Lagoon is in a more backwatered condition in both pre- and post-project scenarios. As such, under the Preferred Project, the WSE is predicted to increase 0.3 feet (or approximately 3.6 inches) from 13.3 feet to 13.6 feet, while the velocity is predicted to increase 0.7 fps from 8.8 fps to 9.5 fps.

Considering the lagoon substrate material, it is anticipated that the threshold velocity for erosion and scour to be on the order of four fps (see Table 2-5 in USACE's Hydraulic Design of Flood Control Channels [USACE 1994]). Therefore, the 1.3 fps increase from 3.6 fps to 4.9 fps at the CAWD outfall and sewer force main pipeline crossing during the 10-year event increases the velocity beyond the threshold for erosion and scour (Balance Hydrologics, 2018a). This would represent a substantial adverse effect of the Preferred Project.

In December 2018, CAWD identified deficiencies in the cross beams and two of four existing piles supporting the outfall and sewer force main pipelines were found to be vulnerable to failure in a 100-year flood event (CAWD 2018). As a cautionary measure, in January 2019 CAWD initiated emergency repairs to forestall potential failure of the crossing structure. While CAWD needs to ensure the long-term reliability of their infrastructure and repair as necessary, taken together with the potential adverse effects of the Proposed Project, the preferred approach to protect the CAWD pipelines will likely require moving the pipelines underground, below the south arm of the Carmel Lagoon, or some other sufficient method to protect the pipelines from increased flow velocity and woody debris (hereafter referred to as the "CAWD Project"). CAWD has asserted that, without the Proposed Project, CAWD might choose a method other than undergrounding of the outfall and sewer force main pipelines or might choose a different timing to address the deficiencies. To mitigate potential adverse effects associated with the Preferred Project, the CAWD Project must be implemented prior to completion of the Preferred Project. As of the writing of this Draft EIR/EA, the County and CAWD (also potentially BSLT) intend to enter into an agreement regarding funding responsibilities of the CAWD Project.

In 2017, CAWD began the process to develop engineering design plans for the CAWD Project (CAWD 2017). An IS/MND for the outfall and sewer force main pipe improvement project was adopted by the CAWD Board at their June 2018 board meeting. CAWD has indicated that, based on concerns raised by NMFS, additional project design, analysis, and recirculation of the environmental review document is needed.

According to CAWD, preliminary cost estimates for the CAWD Project total \$4.6 million. If the pipelines are not protected prior to the completion of the Proposed Project, there is potential for damage to the pipelines due to velocity, scour, and transport of woody debris. This would represent a substantial adverse effect. Therefore, mitigations under the Preferred Project are proposed to require the Carmel River south bank levees and the temporary SR 1 detour road to remain intact until the CAWD Project is complete.

Carmel River Flow

The Project is designed such that the removal of portions of the south bank levee system will increase flows from the Carmel River onto the Project site, thus reducing the flows in the mainstem of the Carmel River. Flows onto the south overbank floodplain will differ between existing conditions and the Preferred Project. 2D model results indicate that during a 10-year flood, flows would increase from no overbank flows (0 cfs) to 3,500 cfs leaving the mainstem channel and flowing onto the reconnected floodplain (**Figures 2.2.1-3 and 2.2.1-6**). During a 100-year flood, flows would increase from 4,100 cfs in existing conditions with no levee notches, to levee notch openings that would allow 13,000 cfs to flow onto the reconnected floodplain (**Figures 2.2.1-4 and 2.2.1-7**). This reduction in flow in the leveed mainstem channel of the Carmel River during flood events will have the beneficial effect of reducing flows in a channel that is insufficiently-sized to transmit moderate to large events.

The levees would be cut to set the top of bank elevations approximately equivalent to, or just slightly below, that of the two to five-year flood event under the Preferred Project (Balance Hydrologics 2015a). As such, river flows in the Carmel River channel under normal conditions (i.e., below this level) would not be affected by the Project. No adverse effects to the Carmel River flow will result from the Project.

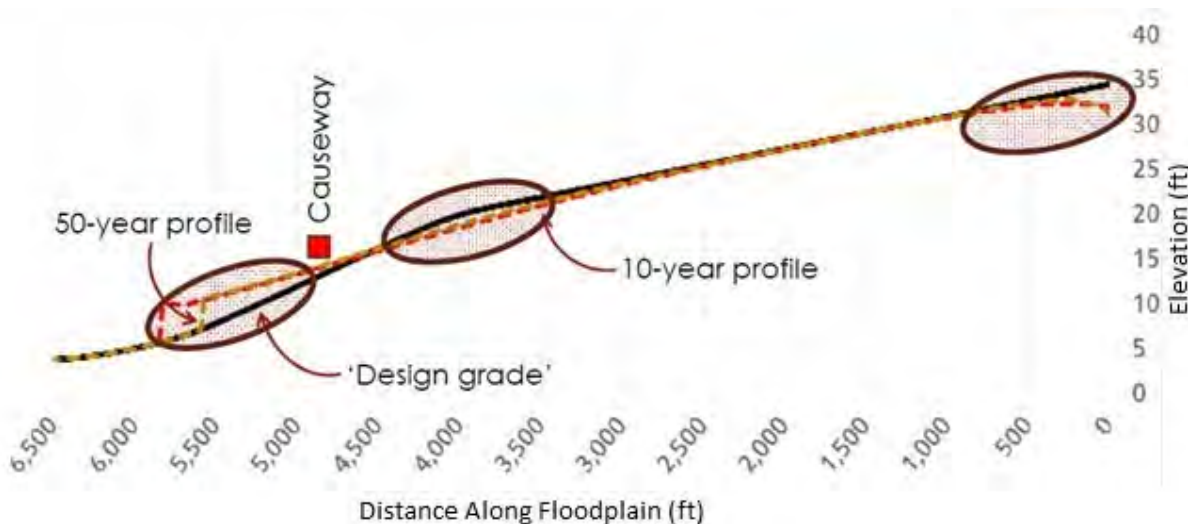
Erosion

Erosion and sedimentation on- and off-site occurs within floodplains as part of natural floodplain processes. By increasing the frequency of overflow from the main channel, a more dynamic and diverse floodplain geometry is expected to evolve through a cyclical process of erosion and deposition of the silts and sands that predominately comprise the valley floor (Balance Hydrologics 2015a). However, the natural deposit of sediment as a result of floodplain restoration activities in connection with the Proposed Project is not anticipated to be substantial.

Balance Hydrologics completed detailed geomorphic and channel evolution modeling of the restored floodplain environment under the Preferred Project. The modeling analysis had two primary goals. The first was to determine whether regime theory predicts a single or a multi-threaded channel system within the floodplain environment. The second was to examine the response of proposed floodplain and existing lagoon conditions to bedload supply scenarios for approximate 50-year time frames using the 10-year and 50-year return interval floods (Balance Hydrologics, 2015).

The model predicted that after multiple, moderately large events (i.e. the 10-year event) over a 50-year timespan, the upstream-most end of the floodplain would erode one to three feet, with additional degradation occurring at the change in floodplain slope located approximately 1,000 feet upstream of the causeway if armoring were not provided¹⁴ (Figure 2.2.1-8). Under the same conditions, the model also predicts aggradation below the causeway and downstream into the Carmel Lagoon. For a much larger flood (i.e. the 50-year event), the model predicts less aggradation as larger events have the capacity to flush the Carmel Lagoon of sediment. Therefore, although the Preferred Project may collectively increase sediment transport to the south arm of the lagoon by restoring hydrologic connectivity with the floodplain, the increased frequency of flood flows would result in periodic scouring of sediment deposits as part of natural floodplain processes.

Figure 2.2.1-8 Channel Evolution Modeling Used to Evaluate Post-Construction Potential Floodplain Topographic Adjustments for the Preferred Project



An increasingly well-established riparian floodplain should limit the amount of sediment generated directly from the floodplain. The Carmel River mainstem processes should remain consistent (under current conditions, flows overtop the channel banks during larger flood events) and these processes will continue to occur even with a portion of flood flows directed onto the floodplain. A reinvigorated floodplain flow regime, including sediment transport and deposition and large flushing events resulting from the Preferred Project, is expected to enhance the south arm of the lagoon. As such, the Preferred Project is designed to not incur a substantial adverse effect from sedimentation.

The proposed design of the restored floodplain under the Preferred Project also includes two distributary channels, one to the north and one to the south. Some separation between the distributary channels would be created by areas of high ground within the Project site and the

¹⁴ As identified in **Section 1.4 Project Alternatives**, fill will be added to the floodplain side of the levee in order to reinforce the existing structure by creating a wide levee top with gentle slopes down to the floodplain.

confluence of distributary channels would be upstream of the proposed causeway. The proposed design would also incorporate a multi-channel configuration where the Proposed Project connects with the south arm of the Carmel Lagoon and would avoid substantial adverse effects from erosion where the floodplain transitions to the lagoon (Balance Hydrologics 2015a). Willow plantings will be strategically placed between the distributary channels in order to provide a root network and bank stability. Along with a gentle slope conducive to sediment shedding, the design provides several sediment sequestration elements for redundancy. Each distributary channel has a dedicated sediment sequestration depression near the upstream end of its reach and two additional shared depressions (Balance Hydrologics 2015a).

Removal of the most upstream portions of the south bank levees will allow for sediment deposition to occur well upstream of the Carmel Lagoon, with a considerable spatial separation between the overflow points and the lagoon itself. Substantial change in flood flow patterns as a result of removal of the levee sections will be transitioned by retaining berms at the levee openings for the first few years following construction. This management strategy will assist floodplain vegetation establishment by limiting the volume and velocities of flows entering the floodplain during the first several flood seasons, unless a very large rain event occurs and removal of the berms is needed to increase flood capacity. Following construction, revegetation of the Tier I restoration areas would begin immediately and the Tier II restoration areas would be seeded with a native seed mix to reduce erosion during the passive restoration of native habitats within this area. The berms would be removed mechanically once vegetation is considered well established. Additionally, in order to stabilize channel geometry while vegetation takes hold and to minimize erosion upstream of the lagoon, the design proposes a two-foot layer of cobble bed fill material to line the bottom of the distributary channels from approximately the causeway to just upstream of the south arm of the Carmel Lagoon.

Scour

Bridge scouring is not anticipated to occur at the existing SR 1 Carmel River Bridge since the removal of existing levees would reduce overall flows in the main channel of the Carmel River during flood events (personal communication, Cathy Avila, January 28, 2011).¹⁵ However, the Causeway Component of the Proposed Project could result in additional erosion-related effects associated with bridge scour and sedimentation/siltation of the Carmel Lagoon. Three types of scouring can affect bridge structures: pier scour, contraction scour, and channel bed degradation. The United States Geologic Survey (USGS) defines pier scour as the process by which water, particularly floodwater, removes sediment from around bridge piers or abutments. Contraction scour occurs when the flow area of a stream at flood stage is reduced, either by a natural contraction

¹⁵ Removal of portions of the south bank levees is anticipated to reduce potential bridge scour hazards to the existing SR 1 Carmel River Bridge by reducing flows in the main channel of the River during flood events. The reduced flow volume is anticipated to reduce the potential for scouring.

of the stream channel or by a bridge. Degradational scour is a general and progressive (long-term) lowering of the channel bed due to erosion, over a relatively long channel length.

Avila & Associates (2016) completed general and local scour calculations following the recommended procedures contained within the FHWA's Hydraulic Engineering Circular No. 18, Evaluating Scour at Bridges (HEC-18) for the proposed causeway under the Preferred Project. The scour analysis was focused on the 100-year recurrence interval flood event. Avila & Associates identified that general scour would largely be limited to contraction scour due to the relatively uniform planform of the floodplain at the proposed placement of the causeway. Contraction scour is predicted to occur to a depth of approximately five feet for the Preferred Project. The contraction scour is due to a smaller channel width at the bridge (360 feet) compared to the channel width upstream (600 feet).

Pier scour calculations were also completed for the Preferred Project; these calculations accounted for scour caused by the causeway piers using the Colorado State University Equation as recommended in HEC-18. Local pier scour depths were estimated to be at 14 feet deep for the pier size proposed under the Preferred Project (**Table 2.2.1-2**). The pier scour calculations assumed that the piers are skewed to flow, and that no debris was caught on the piers. Sediment transportation modeling completed by Balance Hydrologics indicated that the channel is likely to aggrade; however, degradation of up to four feet was assumed as a "worst case scenario" to avoid underestimating the bridge scour. A copy of the scour analysis and supporting calculations is contained in Avila & Associates (2016), *Final Hydraulic Report*.

Table 2.2.1-2 Total Scour Depth for Preferred Project Causeway

4.5-ft Piers	
<i>Thalweg Elevation (ft)</i>	12.5 (9.8 NGVD-29)
<i>Pier Scour (ft)</i>	14
<i>Contraction Scour (ft)</i>	5
<i>Degradation (ft)</i>	2.5
<i>Total Scour (ft)</i>	21.5
<i>Scour Elevation (ft)</i>	-9 (-12 NGVD-29)

Large woody debris (drift) may also contribute to bridge scour. An assessment of drift hazard was completed by Balance Hydrologics that concluded that flow depths under the Preferred Project conditions would be of sufficient buoyancy depth to carry the drift downstream and it is possible for large woody debris to accrue at the causeway during flood events (Balance Hydrologics 2008e, updated May 1, 2015 and Balance Hydrologics 2018a). However, the analysis identified that although the lower Carmel River is not free of woody debris, production rates are not excessive, pieces are generally not very large, and large pieces and accumulations tend to get broken into smaller pieces or conglomerations downstream. The topographic design features of the floodplain included in the Preferred Project may hinder transport to a certain extent, and drift transport across the floodplain would not likely occur during a single event except in the largest of flood flows with sufficient depths and velocities. Further, concerns regarding a temporary increase in debris load

due to the removal of the San Clemente Dam upstream of the site were considered during Project design; levee plugs have been factored into the design to reduce the frequency of the floodplain being engaged during the early post-construction years, which will limit the flow depth while the overall floodplain vegetation plan is established. The causeway has been designed in accordance with the recommendations of a design-level hydraulic analysis to ensure that potential scour hazards are minimized, including the spacing between piers. Therefore, scour resulting from the Project will not have a substantial adverse effect.

While a separate scour analysis was not performed on the temporary levee plugs, the levee plugs will have the same compaction requirements as the grading of the levee openings themselves (please refer to Sheet G-7 of the 60% Restoration Plans: Balance Hydrologics, Inc., Whitson Engineers, and HTH 2016), and thus, there is little expectation that large flows would cause substantial erosion in these areas. Although there is the potential of a limited amount of overtopping berm scour, the placement of the berms reduces the potential for general floodplain erosion before the vegetation establishes.

Drainage Patterns

The levee removal has the potential to reduce the strength of the existing non-structural levees at the margins between the retained and removed sections. The strength of the levee margins would be at their lowest immediately following ground disturbing activities due to vegetation removal. This could result in increased flooding on-site and downstream, as well as increased potential avulsion risks, exposing people and/or structures on the south bank of the Carmel River to additional hazards. Un-stabilized portions would be subject to erosive forces; if this were to occur it would have the potential to increase downstream sedimentation in the main channel. The lateral redistribution of loose substrate could lead to increased local widening, an increase in width/depth ratios, and localized braiding and/or bar formation within the main channel. However, the potential for these effects have been significantly reduced through the implementation of Project design elements to strengthen the remnant levees (as described in the Project Description) and the Preferred Project would not result in substantial adverse effects (Balance Hydrologics 2008c and 2008d).

The Preferred Project does not entail work in the main Carmel River channel and no surface water diversions are proposed as part of this alternative. The Project would not directly result in adverse effects from changes in the site's existing drainage pattern as a result of altering the course of a stream or river. The site's existing drainage would, however, be altered in the course of Project construction in order to create the hydrologic characteristics necessary to restore the site's longitudinal connectivity with the Carmel Lagoon and adjacent floodplain, as well as reduce flooding hazards to SR 1. As described above, the proposed design of the restored floodplain under the Preferred Project would include a multi-channel configuration where the Proposed Project connects with the south arm of the Carmel Lagoon, which would avoid substantial adverse effects from erosion where the floodplain transitions to the lagoon (Balance Hydrologics 2015a).

The MFCAs will be mowed and maintained free of woody vegetation and planting will be limited to vegetation that will not impede flows during flood events in order to retain the flood conveyance capacity as designed. Maintenance of the MFCAs will be included in the long-term maintenance agreement between the County and the land owners and will delineate the parties' roles and responsibilities for long term and adaptive maintenance activities post-construction of the Project.

Agricultural ditches located at the toe of slope near the eastern end of the agricultural field would be included in an intermittent drainage corridor. The intermittent drainage corridor would receive storm runoff from the adjacent area and flow west, between the agricultural preserve and Palo Corona Regional Park. The intermittent drainage corridor would include a sinuous low flow channel and a series of three boulder step-pools. The intermittent drainage corridor would join the south distributary channel upstream of the final sediment sequestration area. Additionally, a gently sloping area would be created within the Project site, adjacent to the existing River Pond, over which sheet flow would be conveyed to the southern distributary channel within the restored floodplain (Balance Hydrologics 2015a). No adverse effects to site hydrology are anticipated as a result of the operation of the intermittent drainage corridor.

The agricultural preserve would be elevated above the 100-year floodplain. The agricultural preserve would be sloped such that runoff from the preserve would drain to a water quality pond. The water quality pond would allow the runoff to settle and percolate (Balance Hydrologics 2015a). No adverse effects to site hydrology are anticipated as a result of the operation of the agricultural preserve.

Groundwater

The Floodplain Restoration Component would represent a net benefit to groundwater supplies by reducing the extent of on-site agricultural activities and improving the site's hydrological function as part of the floodplain. This component would increase the site's groundwater recharge capacity by creating the hydrologic characteristics necessary to restore the site as part of the Carmel River floodplain; floodplains promote groundwater recharge by providing additional storage capacity and increasing infiltration. Groundwater would, however, continue to be utilized in connection with on-site agricultural activities within the agricultural preserve, as well as establishment of the Tier 2 restoration area. The continued use of a portion of the site for agricultural activities would not increase on-site water use. Operation of the proposed causeway would not result in an increase demand for water supply. No adverse effects to site groundwater are anticipated as a result of the operation the Preferred Project.

Reduced Project Alternative

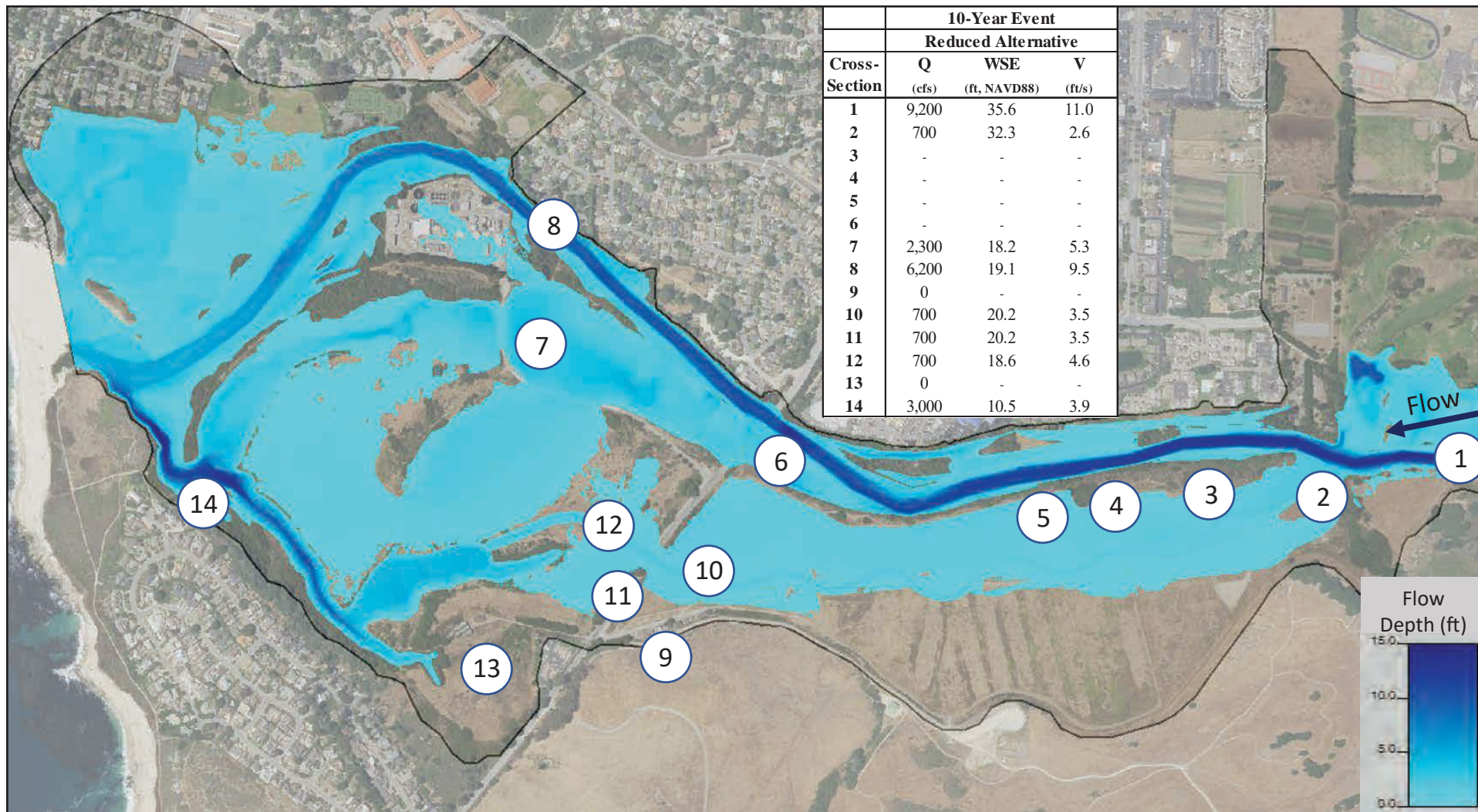
As identified in **Section 1.4 Project Alternatives**, the Reduced Project Alternative's causeway would be sized only to mitigate for the increase in flows on the floodplain resulting from the enlargement of the one existing notch rather than creating new multiple notches, such as is the design for the Preferred Project. The reduced causeway is a function of the reduced levee removal.

However, this design would not convey flood events as per standard Caltrans design requirements. Instead of passing the 100-year flood without freeboard, the causeway in the Reduced Project Alternative is designed only to mitigate the additional flow which the Project would allow to enter the south floodplain. The result is that the causeway would continue to overflow the SR 1 embankment during the 100-year flood event (i.e., the bridge would operate under pressure flow), though the overtopping would be to a lesser depth than in existing conditions. Because the Reduced Project Alternative would operate under pressure flow during the design flood, pressure flow scour would need to be estimated and accounted for in the bridge design. This design approach is not standard and is not anticipated to be preferred by Caltrans, but there is precedence for this approach as a mitigation measure, e.g., to minimize downstream flooding impacts to existing infrastructure. It would need to be demonstrated that the reduction in impacts outweigh the added risks, loss in utility, reduction in flood benefits, and reduction in restoration outcomes that this alternative would entail.

The conceptual design basis for the Reduced Project Alternative was to explore the possibility of a project that attains some of the overarching project goals while significantly reducing project impacts. Interpretation of modeling predictions by Balance Hydrologics (2018) show that in the Reduced Project Alternative, benefits do accrue when compared to existing conditions, but to a lesser extent than under the Preferred Project conditions except for two specific cases: the Complex and the CAWD outfall and sewer force main pipeline crossing. In all other areas within or downstream of the Odello floodplain, the Reduced Project Alternative provides fewer benefits than the Preferred Project. **Table 2.2.1-3** and **Figures 2.2.1-9** and **2.2.1-10** provide the results of HEC-RAS 2D modeling for the 10-year and 100-year events under the Reduced Project Alternative conditions (Balance Hydrologics 2018a). **Figure 2.2.1-3** identifies the cross-section locations where velocity, water surface elevation, and flow results are presented in the table.

State Parks Barn Complex

Under the Reduced Project Alternative, the Complex is predicted to experience lower water surface elevations (-0.4 feet) associated with backwatering effects in the 100-year flood event (**Table 2.2.1-3** and **Figure 2.2.1-10**). This condition is directly related to the reduction in flow onto the floodplain at the upstream extent of the Project, where one notch is engaged at high flows rather than multiple notches in the Preferred Project. Less flow onto the upper end of the floodplain manifests through the entire floodplain, the narrower causeway (which also backs up flows), and into the Carmel Lagoon as less total flood flow volume. The reduction in causeway length from Preferred Project conditions (1/2 the length), will likely result in some limited overtopping of SR 1 under the 100-year flood flow. Flows that overtop SR 1 would spill down the State Parks roadway as overland flow and connect with backwatered flows from the south arm of the Carmel Lagoon. The Reduced Project Alternative eliminates an otherwise minor adverse effects that would result from the Preferred Project.



Notes: The notches at cross sections 3, 4, and 5 exist only in the proposed project design conditions.
 Backwatered locations may feature eddying velocities up to 1.5 ft/s.
 Q = 0 indicates that no flow occurs at these locations under the specified condition.
 Dashes indicate no 2d model results, either because of no flow or not applicable under the specified condition.
 Cross-section 11 reports information on flow over SR 1. Flow under the causeway, if present, is reported upstream at section 10 and downstream at section 12.

Source: Balance Hydrologics, Inc., June 2018

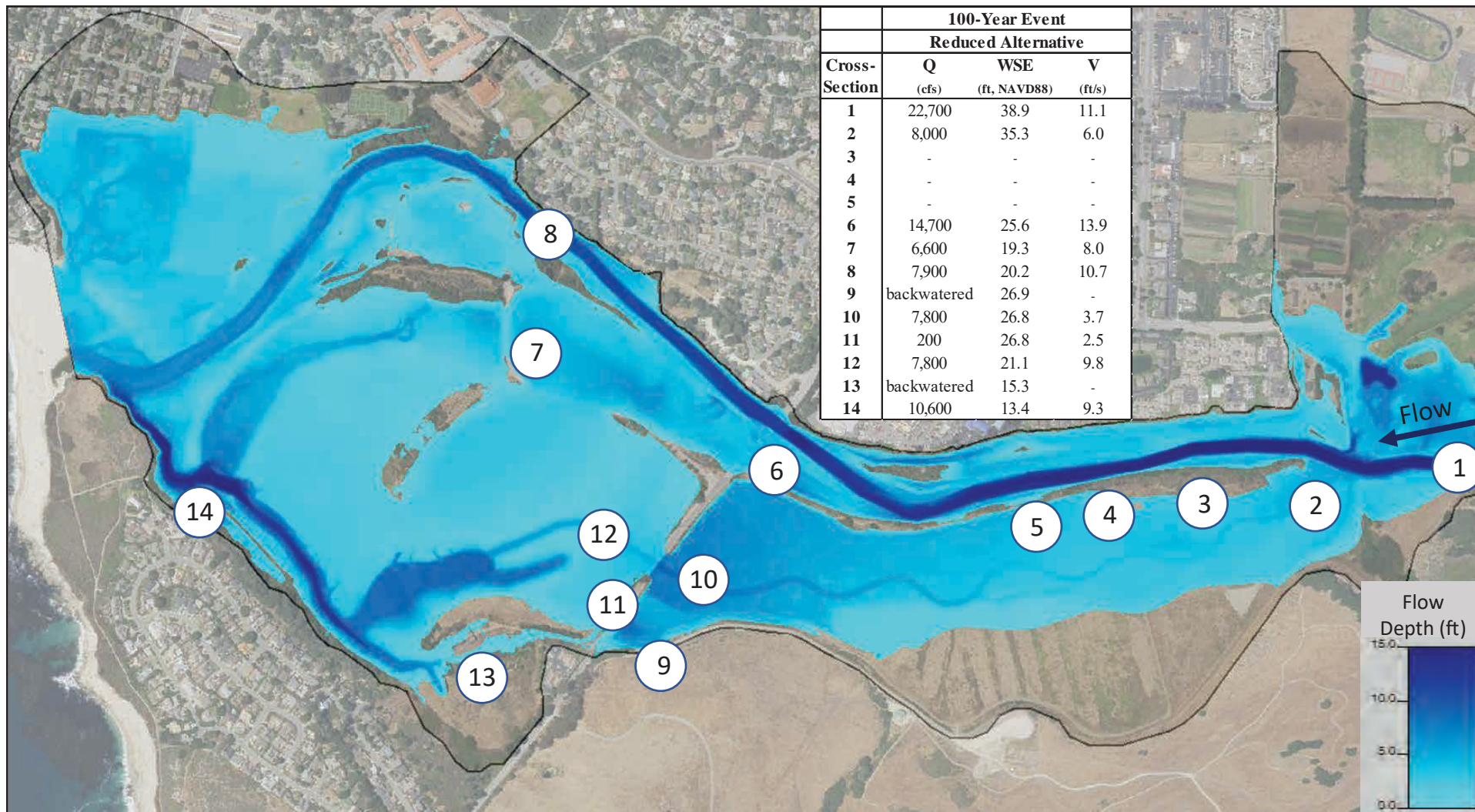


HEC-RAS 2D Modeling Results: 10-year Event Under the Reduced Project Alternative

October 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.2.1-9



Notes: The notches at cross sections 3, 4, and 5 exist only in the proposed project design conditions.
 Backwatered locations may feature eddying velocities up to 1.5 ft/s.
 Q = 0 indicates that no flow occurs at these locations under the specified condition.
 Dashes indicate no 2d model results, either because of no flow or not applicable under the specified condition.
 Cross-section 11 reports information on flow over SR 1. Flow under the causeway, if present, is reported upstream at section 10 and downstream at section 12.

Source: Balance Hydrologics, Inc., June 2018



HEC-RAS 2D Modeling Results: 100-year Event Under the Reduced Project Alternative

October 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.2.1-10

Table 2.2.1-3 Model Results of Change from Existing Conditions to Reduced Project Alternative Conditions (+/-)

Cross-Section	Results Locations	10-Year Event			100-Year Event		
		<i>Q</i> (cfs)	WSE (ft)	Vel (ft/s)	<i>Q</i> (cfs)	WSE (ft)	Vel (ft/s)
1	Mainstem, upstream of Project	No change	-0.1	+0.4	No change	-0.5	+1.2
2	Existing "Notch"	+700	+1.9	+2.2	+3900	-0.3	+1.8
3	New notch ¹	No change ¹	No change ¹	No change ¹	No change ¹	No change ¹	No change ¹
4	New notch ¹	No change ¹	No change ¹	No change ¹	No change ¹	No change ¹	No change ¹
5	New notch ¹	No change ¹	No change ¹	No change ¹	No change ¹	No change ¹	No change ¹
6	Mainstem at SR 1 bridge	-700	-0.1	-1.4	-3100	-0.7	-2.5
7	CAWD access road	-500	-0.1	-1.2	-2100	-0.2	No change
8	Mainstem at CAWD plant	-200	-0.1	+0.2	-800	-0.3	-0.2
9	Red houses	No change ²	No change ²	No change ²	No change	-0.6	+1.5
10	Upstream of causeway	+700	+1.9	+4.3	+3500	-0.8	+0.8
11	Overtopping SR 1	No change	No change	No change	-4100	-0.6	-4.3
12	Downstream of causeway	+700	+1.9	+4.3	+3500	+1.4	+7.8
13	State Parks Barn Complex	No change	No change	No change	Backwatered	-0.4	-- ³
14	CAWD outfall and sewer force main pipeline crossing	+200	+0.1	+0.3	+400	+0.1	+0.5

¹ New notches do not exist in existing conditions or under the Reduced Project Alternative.
² The red houses are above the 100-year FEMA BFE under the Preferred Project.
³ Backwatered locations may feature eddying velocities up to 1.5 ft/s.

CAWD Outfall and Sewer Force Main Pipeline Crossing

Flow, WSE, and velocities under the Reduced Project Alternative at the CAWD outfall and sewer force main pipelines crossing are predicted to be lower in the 10-year flood event and in the 100-year flood event (**Table 2.2.1-3; Figures 2.2.1-9 and 2.2.1-10**) compared to the Preferred Project (**Table 2.2.1-1; Figures 2.2.1-6 and 2.2.1-7**). In both cases, conditions are directly related to the differences between increases in flow onto the floodplain at the upstream extent of the Project, where multiple notches are engaged at high flows in the Preferred Project compared to the single existing notch or a single lower elevation notch in the Reduced Project Alternative. During the 100-year event, predicted values for flow (10,600 cfs), WSE (13.4 feet), and velocity (9.3 fps) are nominally smaller for the Reduced Project Alternative (**Figure 2.2.1-10**) than the Preferred Project flow (11,300 cfs), WSE (13.6 feet), and velocity (9.5 fps) (**Figure 2.2.1-7**). For both the Preferred Project and Reduced Project Alternative scenarios, WSEs of 13.4 and 13.6 feet, respectively, are high enough to inundate the CAWD outfall and sewer force main pipes, and velocities are fast enough to promote scour which would potentially represent significant adverse effects.

Reduced Benefits Under the Reduced Project Alternative

Limited connectivity in the Reduced Project Alternative from the upstream extent of the Project to the Carmel Lagoon at the downstream extent provides fewer benefits than under the Preferred Project. The Reduced Project Alternative would yield less floodplain inundation (less grading), less channel complexity (no logs with rootwads, no sediment sequestration elements, fewer notches and MFCAs), less channel and causeway capacity (smaller channel, narrower causeway), less floodplain restoration area (less grading), less topographic diversity (no islands, less restored vegetation) and less flood control for CSA 50.

The risk of channel erosion and scour increases for a number of interconnected reasons associated with a less stable geomorphic configuration of the floodplain channel in the Reduced Project Alternative. Limited floodplain grading would translate into a steeper slope at some point in the flowline as the channel descends to the Carmel Lagoon. In the Reduced Project Alternative, the slope of the floodplain increases as it approaches and passes under the causeway to the lagoon. The combination of a steeper slope and a narrower causeway promotes backwatering upstream of the causeway and then faster velocities downstream. As velocities increase, the risk of headcutting channel scour and erosion (from downstream to upstream) increases.

The risk of channel avulsion (change in the direction of the main Carmel River flow path from its current course onto the floodplain) increases with the limitation of one notch through which flows will enter the floodplain during flood events. As flows concentrate through the notch, scouring and erosive forces could widen or deepen the notch and consequently the channel, which could potentially lead to gouging of rills and crevasses throughout the channel extent to the lagoon. If any of these “worst-case” erosion/scour/avulsion scenarios were to occur, the risk of the Carmel River main channel avulsing onto the floodplain would increase substantially. The narrower causeway is limited to conveying flows of about 3500 cfs, so an avulsive shift of the channel onto the floodplain under a reduced alternative design would also create significant flooding problems at SR 1.

Reduced benefits in comparison to the Preferred Project include the potential for sediment transport into the Carmel Lagoon to increase with the elimination of sediment sequestration elements and with any increase in erosion. Less grading of the floodplain would yield a higher ground surface elevation, which would be further from the local groundwater source compared to the Preferred Project. Less available groundwater for riparian plantings could lead to less vigorous vegetation establishment. Floodplain and channel habitat complexity and enhancements would decrease with the elimination of streamwood log placements, islands, sediment sequestration elements, and fewer MFCAs.

Important flood control benefits would be reduced under the Reduced Project Alternative compared to the Preferred Project, though improved compared to the existing condition, as illustrated by comparison of the flood conveyance capacity of the existing one notch conditions

(4,100 cfs), the one deeper one notch in the Reduced Project Alternative (8,000 cfs), and multiple notches of the Preferred Project (13,000 cfs). The reduced conveyance between the Preferred Project and Reduced Project Alternative would translate into fewer flood control benefits for CSA 50.

Overall, the Reduced Project Alternative provides more floodplain engagement and more flood control than under existing conditions, but substantially fewer benefits and significantly increased risks compared to the Preferred Project.

Secondary Channel Alternative

Under the Secondary Channel Alternative, floodplain grading will be the same as described for the Preferred Project, except where the secondary channel is proposed (**Figure 1.4-7**). The Secondary Channel Alternative is predicated on activating an approximate 10-15-acre habitat zone directly adjacent to the mainstem channel through grading. A secondary channel to the south of the Carmel River would be placed between the mainstem and the Odello floodplain as would be practicable near the upper end of the Proposed Project extent. The concept would seek to mimic the historical attributes of a multi-threaded channel ecosystem, as was present to the north of the Carmel River prior to European settlement and subsequent development. The secondary channel area itself would be limited to a width similar to that of the mainstem, while length would be dictated by the position of the upstream and downstream openings and the design pattern. The remaining area would be riparian habitat and potentially other habitat type zones, depending on existing topography and the specific grading plan.

The upstream elevation of the secondary channel would be set slightly higher than that of the mainstem Carmel River thalweg elevation at the connection point, such that the off-mainstem channel would become progressively wetted from the upstream end as flows increase, even during fairly small runoff events. Inundation connectivity of the secondary channel length with the mainstem would be anticipated to provide steelhead and other habitat enhancement on a yearly basis potentially for multiple days at a time, based on design elevations and yearly runoff patterns. The downstream outlet elevation could be depressed below the mainstem thalweg elevation so that a modest area of the secondary channel could be accessible as a backwatered alcove at baseflows. These features would introduce new wetted area that would be beneficial to steelhead in a "transition zone" between the upstream mainstem channel and the downstream lagoon.

The two levees and notches associated with the Preferred Project that would be impacted by the secondary channel and associated habitat zone would be relocated to the south and west of the new secondary channel (**Figure 1.4-7**). Notches would be graded to set top of notch elevations approximately equivalent to engagement at the two- to five-year flood event under the Preferred Project (Balance Hydrologics 2015a). The top of bank elevations in the riparian habitat zones of the Secondary Channel Alternative would also be approximately equivalent to the two- to five-year flood event, except at the two locations (upstream and downstream) where the secondary

channel connects to the main river channel. River flows in the Carmel River channel under normal conditions would be affected, but only in a minor way by the Secondary Channel Alternative. Beneficial effects to the Carmel River would include newly connected secondary channel habitat, resting zones for steelhead and other aquatic organisms particularly during large flood events, potential foraging area during smaller runoff events where the area is wetted for a period of days, additional riparian zones for terrestrial organisms, and a minor increase in flood control for CSA 50 and CAWD facilities. No adverse effects to the Carmel River flow would be expected to result from the Secondary Channel Alternative. However, new hydrologic, geomorphic, and sediment transport analyses would be required in order to determine the locations, sizes, and elevations of the notches on the south side of the secondary channel, and evaluate overall geomorphic stability of the system.

No-Build Alternative

Under the No-Build Alternative, no causeway would be built, no grading would occur, and no levee sections would be removed. BSLT would implement a modified restoration approach on APNs 243-071-006 and 243-071-007-000 to maintain existing riparian vegetation along the Carmel River and install native vegetation, and agricultural uses would continue on APN 243-071-005. As such, the No-Build Alternative would have no effect on Carmel River flow, erosion, or drainage patterns. Additionally, the beneficial impacts of reducing flooding in the north floodplain and groundwater recharge would not occur. Habitat restoration would be done incrementally and, without the benefits of semi-frequent inundation and improved groundwater levels, would have a lower anticipated success rate. Groundwater would continue to be utilized in connection with continued on-site agricultural activities, as well as establishment the modified restoration area; however, this would not increase on-site water use.

Short-Term or Construction Impacts

Construction of the Floodplain Restoration Component would result in temporary erosion related effects associated with the alteration of the site's existing drainage pattern. Erosion related effects are discussed further in **Section 2.2.2 Water Quality and Storm Water Runoff**. The Causeway Component would not result in any adverse short-term or construction effects on the hydrology and floodplain.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of the following measures would avoid or reduce potential adverse effects to hydrology that may result from the construction and operation of the Project to a less-than-significant level:

- HF-1** In order to reduce potential adverse effects associated with bridge scouring, the final design of the causeway shall be completed in accordance with the recommendations of a detailed design-level hydraulic analysis. The hydraulic analysis shall contain a detailed evaluation of potential bridge scouring and shall be prepared in accordance with the

requirements of Caltrans. Prior to the issuance of any grading and/or building permit in connection with the causeway, a copy of this report shall be submitted to Caltrans and the County for review and approval.

- HF-2** In order to reduce potential adverse effects associated with possible impacts to the validity of the base flood elevations cited on the currently-effective FEMA Flood Insurance Rate Map Panel for the Project area, the Monterey County Water Resources Agency shall, on behalf of the Project Applicants, obtain a FEMA Conditional Letter of Map Revision (CLOMR) prior to construction of the Project to have FEMA review and determine the precise way in which the flood map would be revised. Following the completion of the Project, the Project Applicants shall obtain a FEMA Letter of Map Revision (LOMR) to officially update to the flood map to reflect the revision. The Project Applicants or designated representative shall submit evidence to the County demonstrating that the identified requests have been made.
- HF-3** The existing CAWD outfall and sewer force main pipelines must be protected through implementation of the CAWD Project prior to any change in existing floodplain conditions due to the Proposed Project. If the CAWD Project is not complete by the time construction of the Proposed Project begins, the following construction scheduling and design changes will be made to protect the CAWD outfall and sewer force main pipelines from any negative impacts from the Proposed Project compared to existing conditions:
1. The existing south bank river levee will remain intact until the CAWD Project is complete and CAWD has provided timely written notification to the County of completion.
 2. The temporary SR 1 detour road, which will be constructed to an elevation equal to the existing SR 1 embankment to function as a barrier to maintain flows equal to the existing condition during a flood event, shall remain intact until the CAWD Project is complete and CAWD has provided timely written notification to the County of completion.
- HF-4** In collaboration with CAWD, the County shall seek to obtain grant funding to fully fund the CAWD Project. The County shall support any and all efforts CAWD may undertake to obtain grant funding to complete the CAWD Project as part of and mitigation for the Proposed Project.

HF-5 The County shall not issue a Notice to Proceed for construction of the Proposed Project until the County has received written assurance from CAWD that CAWD has obtained all necessary funding and approvals to proceed with the CAWD Project, and that any necessary funding agreements are in place between the County and CAWD.

Bank stabilization measures are discussed in **Section 2.2.2 Water Quality and Storm Water Runoff**. **Measure CUL-9** in **Section 2.1.7 Cultural Resources** will reduce impacts to the Complex.

2.2.2 Water Quality and Storm Water Runoff

Regulatory Setting

Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the U.S. from any point source¹⁶ unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the CWA. The goal of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” Congress has amended the CWA several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. The Regional Water Quality Control Board (RWQCB) administers this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the USACE.

The USACE issues two types of 404 permits: General and Individual permits. There are two types of General permits: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of the USACE’s Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with EPA’s Section 404 (b)(1) Guidelines (Guidelines; EPA CFR 40 Part 230), and whether the permit approval is in the public interest. The Guidelines were developed by

¹⁶ A point source is any discrete conveyance such as a pipe or a man-made ditch.

the EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent¹⁷ standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause “significant degradation” to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Guidelines, must meet general requirements (see 33 CFR 320.4). A discussion wetlands and other waters is included **Section 2.3.2 Wetlands and Other Waters**.

Porter-Cologne Water Quality Control Act

California’s Porter-Cologne Water Quality Control Act (Porter-Cologne Act), enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., such as groundwater and surface waters that are not considered waters of the U.S. Additionally, it prohibits discharges of “waste” as defined, and this definition is broader than the CWA definition of “pollutant.” Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. The Water Quality Control Plan for the Central Coastal Basin (Central Coast RWQCB et al. 2017) is the applicable Basin Plan for the Project. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect these uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs).

¹⁷ The EPA defines “effluent” as “wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall.”

TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQB's are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

NPDES Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including MS4s. An MS4 is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water.” The SWRCB has identified Caltrans as an owner/operator of an MS4 under federal regulations. Caltrans’ MS4 permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltrans’ MS4 Permit (Order No. 2012-0011-DWQ) was adopted on September 19, 2012, became effective on July 1, 2013, and was amended by Order No. 2014-0006-EXEC (effective January 17, 2014), Order No. 2014-0077-DWQ (effective May 20, 2014) and Order No. 2015-0036-EXEC (confirmed and effective April 7, 2015). The permit has three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below);
2. Caltrans must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. Caltrans storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

Caltrans Permit Order No. 2012-0011-DWQ, effective July 1, 2013 states, under the Project Planning and Design section, that the new permit requirements only apply to new and redevelopment projects that have not completed the project initiation phase. As the Project’s PSR was signed on November 2, 2010, the Project is grandfathered under the new Caltrans NPDES

Permit (Order 2012-0011 DWQ). Therefore, the Proposed Project will be subject to the requirements contained within the Caltrans 1999 NPDES Permit Order No. 99-DWQ (99-DWQ). To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The Proposed Project will be programmed to follow the guidelines and procedures outlined in the 99-DWQ to address storm water runoff.

A portion of the Proposed Project, outside of the SR 1 right of way, is located within Monterey County's MS4 area (Monterey County Urban Area C). Less than 2,500 sq. ft. of impervious area will be created and/or replaced within the County's MS4 area, and therefore the Project elements within the County's MS4 area will not be subject to the Phase II Permit's Post Construction Requirements (Resolution No. R3-2013-0032, "Approving Post-Construction Stormwater Management Requirements for Development Projects in the Central Coast Region").

Construction General Permit

Construction General Permit (Order No. 2009-009-DWQ) was adopted on September 2, 2009, became effective on July 1, 2010, and was amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012). The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the Construction General Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants

are required to develop and implement an effective SWPPP. In accordance with the Caltrans's Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as WDRs under the Porter-Cologne Act that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

1982 Monterey County General Plan/ Carmel Area Land Use Plan

The 1982 Monterey County General Plan and Carmel Area LUP provide policies regarding water quality within the Carmel Area, including the Carmel Lagoon and Carmel River. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with relevant water quality policies.

Monterey County Code Chapter 16.08

Chapter 16.08 of the Monterey County Code identifies rules and regulations to control all grading, including excavations, fills and embankments, and establishes the procedures for the issuances of grading permits. Chapter 16.08 is intended to minimize erosion as a result of ground disturbing activities.

Affected Environment

Literature Review and Surveys

The analysis contained in this section is based on results of several reports prepared for this Proposed Project, including the following:

- Floodplain Information, Carmel River, Monterey County (USACE 1967);
- *Carmel River: Reach 2 (Eastwood/Big Sur Land Trust Property) Conceptual Enhancement Plan* (PWA 2000);
- *Preliminary Hydraulic Analyses of Proposed Design Alternatives along the Lower Carmel River* (Balance Hydrologics 2007a);

- *Design Alternatives Analysis for Floodplain Restoration at the Odello Property* (Balance Hydrologics 2007b);
- *Preliminary Geotechnical Investigation* (Kleinfelder 2008);
- *Hydraulic Modeling Summary of the Carmel River Causeway along Highway 1* (Balance Hydrologics 2008a);
- *Supplemental Analyses for Floodplain Restoration at the Odello Property, Lower Carmel River Valley* (Balance Hydrologics 2008c);
- *Carmel River Floodplain Restoration Project Wetland Delineation Analysis* (Nedeff and Hennessy 2009);
- *Coastal Wetland Delineation Carmel River Floodplain Restoration and Enhancement Project* (DD&A 2011c);
- *Carmel River Floodplain Restoration and Environmental Enhancement Project Draft Delineation of Jurisdictional Wetlands and Other Waters under Section 404 of the Clean Water Act and the California Coastal Act* (DD&A 2016a);
- *Preliminary Foundation Report* (Kleinfelder 2015);
- *Carmel River Floodplain Restoration and Environmental Enhancement Project Natural Environmental Study* (DD&A 2016b);
- *Draft Final Hydraulic Report – Floodplain Overflow Bridge Crossing* (Avila & Associates 2015);
- *Carmel River Floodplain Restoration and Environmental Enhancement Project 35% Design Basis Report* (Balance Hydrologics 2015a);
- *Baseline Groundwater Monitoring at the Mouth of the Carmel River for the Proposed Floodplain Restoration and Enhancement Project, Water Years 2012 through 2015, Monterey County California* (Balance Hydrologics 2015c); and
- *Carmel River Floodplain Restoration and Environmental Enhancement Project Water Quality Assessment Report* (DD&A 2016c).

Surface Water Quality Objectives/Standards and Beneficial Uses

Beneficial uses of the surface water from the Carmel River and Carmel Lagoon, as identified in the Water Quality Control Plan for the Central Coastal Basin (Central Coast RWQCB et al. 2016), include the following:

- Municipal and domestic supply (MUN);
- Agricultural supply (AGR);
- Industrial service supply (IND);

- Groundwater recharge (GWR);
- Freshwater replenishment (FRESH);
- Water contact recreation (REC1);
- Non-contact water recreation (REC2);
- Commercial and sport fishing (COMM);
- Warm fresh water habitat (WARM);
- Cold water habitat (COLD);
- Wildlife habitat (WILD);
- Preservation of biological habitats of special significance (BIOL);
- Rare, threatened, or endangered species (RARE);
- Migration of aquatic organisms (MIGR); and
- Spawning, reproduction, and/or early development (SPWN).

General water quality objectives exist for each of the beneficial uses identified. Surface water quality objectives have also been identified for the Carmel River (**Table 2.2.2-1**).

Table 2.2.2-1 Surface Water Quality Objectives for the Carmel River

Constituent	Objective ¹ (mg/L)
<i>Total Dissolved Solids (TDS)</i>	200
<i>Chloride (Cl)</i>	20
<i>Sulfate (SO₄)</i>	50
<i>Boron (B)</i>	0.2
<i>Sodium (Na)</i>	20
¹ These surface water quality objectives are annual mean values characterizing a large area of the water body and may not be directly related to the objective indicated	

Groundwater Quality Objectives/Standards and Beneficial Uses

Beneficial uses of the ground water from the Carmel River include the following: MUN, AGR, and IND (Central Coast RWQCB et al. 2016). No ground water quality objectives have been established for the Carmel River.

Existing Water Quality

Regional Water Quality

The Central Coast Watershed Studies Team (CCoWS) monitored water quality in the Carmel Lagoon between 2004 and 2007. Salinity, dissolved oxygen, and temperature in the lagoon vary seasonally and with depth. The topography and lack of mixing in the lagoon creates a layer of isolated salt water in the bottom of the south arm of the Carmel Lagoon. The lack of mixing can also result in anoxic conditions below the halocline. The depth at which the halocline occurs

fluctuates seasonally with changes in freshwater input. The Carmel River near the Carmel Lagoon typically ceases to flow during the summer months and a slow input of groundwater provides some freshwater in the lagoon (CCoWS 2007). The Carmel Lagoon does become well-mixed on occasion, when the lagoon has breached the sand bar and fresh water input is adequate. Large precipitation events and/or disturbance of sediment on the bottom of the lagoon can lead to increases in turbidity (CCoWS 2006a).

Balance Hydrologics summarized groundwater quality data from monitoring wells located within the Project site and vicinity that was collected from 2012 through 2015 (Balance Hydrologics 2015c). Results of the major-ion laboratory analyses of samples collected from the monitoring wells at the Odello West property as part of an earlier groundwater investigation by Balance Hydrologics are in line with a typical process of seawater intrusion and mixing, with the monitoring well closest to the lagoon having proportionally more sodium and chloride than wells further from the lagoon, and the monitoring well furthest from the lagoon having the least. A cluster of piezometers located adjacent to the Project site on State Parks property showed proportionally more sodium and chloride at the medium depth piezometer than the shallow and deeper piezometers. Findings similar to the major-ion data are shown in the depth profiles of specific conductance. These data generally suggest “fresh water” stratification at a depth from zero to five feet below sea level. The lowest specific conductance was generally found in the Odello East inactive well, which is closest to the Carmel River and furthest from the Carmel Lagoon.

Areas of Special Biological Significance (ASBS)

The Carmel River is a tributary to the Carmel Bay. Carmel Bay is identified as Area of Special Biological Significance (ASBS) #34 by the SWRCB (SWRCB 1979). Carmel Bay ASBS is located approximately one mile downstream of the Proposed Project site. The SWRCB adopted special protections for stormwater discharges to ASBS in 2012, and local agencies have developed ASBS compliance plans describing how the special protections are implemented for each ASBS.

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

The Build Alternatives would have substantial positive benefits as they are intended to improve the quality of water entering the Carmel Lagoon by providing additional groundwater storage and filtration for sediment and nutrients. This includes enhancing several beneficial uses, such as GWR, FRESH, WARM, COLD, WILD, BIOL, and RARE.

The Build Alternatives would not violate any water quality standards or waste discharge requirements. The Restoration Component would not increase impervious surface area on-site and is not anticipated to generate storm water runoff. The Causeway Component is not anticipated to

substantially increase impervious surface area or generate runoff that would exceed the capacity of existing or planned storm water drainage facilities.

Under the Preferred Project and Secondary Channel Alternative, increased volumes and velocities of flood flows to the south arm of the Carmel Lagoon would likely result in periodic scouring of sediment deposits as part of natural floodplain processes, which could improve water quality in the Carmel Lagoon by removing accumulated organic matter on the bottom (which can reduce dissolved oxygen levels or grow pathogens), maintaining design level depths important for steelhead habitat, and reducing winter salinity stratification (Balance Hydrologics 2015a). The amount and velocity of water entering the floodplain under the Reduced Project Alternative would not be sufficient to result in periodic scouring of sediment deposits and risk of channel erosion and scour potential increases for a number of interconnected reasons associated with a less stable geomorphic configuration of the floodplain channel in this alternative. Please refer to **Section 2.2.1 Hydrology and Floodplain** for additional information regarding erosion potential for the Project alternatives.

Sediment sequestration depressions (included in the Preferred Project and Secondary Channel Alternative only) and other geomorphic features will support groundwater recharge in the floodplain by retaining a portion of the floodwater and runoff from the local watershed areas. The Reduced Project Alternative does not include sediment sequestration depressions and would not contribute substantially to groundwater recharge.

The Proposed Project would enhance recharging of the nearby local aquifer in the lower watershed, which has been identified as a factor in preserving freshwater input to the Carmel Lagoon system during the summer months when surface flow in the Carmel River often ceases.

Under all Build Alternatives, the floodplain restoration design, in order to minimize sedimentation risk, will lower existing ground just upstream of the causeway. This design directly interacts with the grading of the south arm “lip” and provides a stable slope configuration on the floodplain.

Under the Preferred Project and Secondary Channel Alternative, a distributary channel network will extend from the floodplain, underneath the causeway, and into the Carmel Lagoon, providing a more natural pattern of floodplain connectivity (**Figures 1.4-1, 1.4-2, 1.4-5, and 1.4-7**). The range of elevations in the proposed channels and bars immediately adjacent to the upstream end of the south arm would allow the lagoon environment significant additional horizontal and vertical space to adjust to over time to outside drivers such as sea level rise (please refer to **Section 3.4 Climate Change** for a discussion of sea level rise as related to the Project). However, the limited floodplain grading under the Reduced Project Alternative would translate into a steeper slope at some point in the flowline as the channel descends to the Carmel Lagoon. In the Reduced Project Alternative, the slope of the floodplain increases as it approaches and passes under the causeway to the lagoon. The combination of a steeper slope and a narrower causeway resulting from the Reduced Project Alternative promotes backwatering upstream of the causeway and then faster

velocities downstream. As velocities increase, the risk of headcutting channel scour and erosion (from downstream to upstream) increases.

No-Build Alternative

Under the No-Build Alternative the causeway would not be built, and no levee removal or reconnection of the floodplain would occur; however, BSLT would implement a modified restoration approach on APNs 243-071-006-000 and 243-071-007-000 to maintain existing riparian vegetation along the Carmel River and install native vegetation in lieu of agricultural uses. This will result in some positive benefits to improve the quality of water entering the Carmel Lagoon by minimally enhancing beneficial uses, such as WILD, BIOL, and RARE; however, the benefit would be much less than under the Build Alternatives. The No-Build Alternative would not provide any improvements to groundwater recharge or sediment shedding. The south arm of the Carmel Lagoon would not benefit from periodic scouring and flushing of sediment. The No-Build Alternative would not violate any water quality standards or waste discharge requirements. The No-Build Alternative would not increase impervious surface area on-site and is not anticipated to generate storm water runoff.

Short-Term or Construction Impacts

Construction activities associated with the Build Alternatives may result in temporary adverse effects to water quality in connection with Project grading. Two preliminary risk level assessments were done for the Preferred Project (DD&A 2016c). Using the Construction General Permit mapping method, the Preferred Project has a risk level 3. A risk level 3 is undesirable in that, all risk level 3 projects with more than 30 acres of DSA are required to perform a pre- and post-construction Bioassessment of the receiving waterbody for the Project. A custom method risk level assessment was performed and showed the Preferred Project to be a risk level 2. The custom method uses the United States Department of Agriculture (USDA) NRCS Soil Survey mapping within the Project area and has a soil erodibility factor (K-factor) of 0.24. In the Plans, Specifications, and Estimates (PS&E) it is suggested that a custom method weighted LS be calculated, as the Project is relatively flat. Additional Data for the Preferred Project is provided in **Table 2.2.2-2**. Impacts for the remaining two Build Alternatives are expected to be similar or reduced.

Table 2.2.2-2. Additional Project Data for the Preferred Project

Constituent	Objective¹ (mg/L)
<i>Cut/Fill Slope Area</i>	8H:1V (with the exception of proposed rock slope protected slopes)
<i>Disturbed Surface Area</i>	133.5 acres
<i>Net Impervious Surface Change¹</i>	14,000 sq/ft new impervious surface
<i>Construction General Permit Risk Level</i>	2 (using a custom method)
¹ Replaced Impervious Surfaces (RIS) is not added to Net New Impervious (NNI) for Treatment Best Management Practices (TBMP) consideration purposes per NPDES Grandfathering clause for pre-July 1, 2013 approved Project Initiation Document (PID) projects	

The Build Alternatives are subject to the requirements of the NPDES Program, which includes the preparation of a SWPPP for construction activities disturbing one acre or more. Compliance with these requirements would ensure that construction activities associated with the Project would not have substantial adverse effect on soil erosion. Earth disturbing activities have the potential to result in temporary increases in erosion related effects, as disclosed in **Section 2.2.3 Geology, Soils, Seismicity, and Topography**. Additionally, Project-related construction activities would require the use of hazardous materials (e.g., fuel for construction equipment, oil, solvents, or paints), which could impact water quality if accidental spills or improper use occur, as disclosed in **Section 2.2.5 Hazardous Waste and Materials**. The construction of the causeway may also result in temporary increases in storm water runoff.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of the following measures would reduce potential adverse effects to water quality associated with the short-term construction of the Build Alternatives:

WAQ-1 In order to reduce downstream sedimentation, bank stabilization measures recommended by a licensed civil engineer shall be implemented immediately following levee removal as part of the Restoration Component. The remnant levees shall be monitored as part of on-going site monitoring to ensure that post-construction erosion is minimized. Adaptive management practices shall be implemented to the extent necessary in consultation with the Project Engineer. Prior to the issuance of any grading permit for levee removal, final grading plans shall include bank stabilization measures, subject to the review and approval of the County. The Project Applicants will be responsible for monitoring the implementation of the measures and shall, upon completion, provide the County certification from a licensed geotechnical engineer that all bank stabilization measures have been constructed in accordance with their recommendations and the approved plans.

WAQ-2 A SWPPP shall be prepared by a Qualified SWPPP Developer and implemented by the Project Contractor. The SWPPP shall identify the sources of pollutants that may affect the quality of stormwater and include the construction site BMPs. BMPs will included, but are not limited to, scheduling to minimize active Disturbed Soil Areas during rainy season and preserving existing vegetation to the maximum extent feasible. The Project Applicants will be responsible for coordinating the preparation of the SWPPP and obtaining coverage under the State Construction General Permit. The Qualified SWPPP Developer shall submit the SWPPP and Waste Discharger Identification Number to the County, for review and comments, prior to issuance of any related construction permits.

A Hazardous Materials Spill Response Plan would further ensure any temporary construction related impacts due to the accidental release of hazardous material would not substantially degrade water quality. Preparation of Hazardous Materials Spill Response Plan is identified as **Mitigation Measure HAZ-1** in **Section 2.2.5 Hazardous Water and Materials**.

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2.2.3 Geology, Soils, Seismicity, and Topography

Regulatory Setting

Historic Sites Act and California Environmental Quality Act

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects “outstanding examples of major geological features.” Topographic and geologic features are also protected under CEQA.

Caltrans Seismic Design Criteria

This section also discusses geology, soils, and seismic concerns as they relate to public safety and Project design, in this case, the Causeway Component. Earthquakes are prime considerations in the design and retrofit of structures. The Caltrans Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. Structures are designed using the Caltrans Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge’s category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Caltrans *Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria*.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6) is intended to reduce damage resulting from earthquakes. The Seismic Hazards Mapping Act addresses earthquake-related hazards, including strong groundshaking, liquefaction, and seismically induced landslides. The state is charged with identifying and mapping areas at risk of strong groundshaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones.

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within Seismic Hazard Zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans.

1982 Monterey County General Plan/Carmel Area Land Use Plan

The 1982 Monterey County General Plan and Carmel Area LUP provide policies for the protection of residents from geologic and soil hazards. Applicable policies are also intended to ensure that native vegetation cover is maintained to reduce potential risks of runoff, soil erosion, and other geological processes. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for more information regarding the Project’s consistency with relevant geology and soil policies.

Monterey County Code Chapter 16.08

Chapter 16.08 of the Monterey County Code identifies rules and regulations to control all grading, including excavations, fills and embankments, and establishes the procedures for the issuances of grading permits. Chapter 16.08 is intended to minimize erosion as a result of ground disturbing activities.

Affected Environment

This section describes the geologic and seismic setting for the Project and evaluates its potential to cause geologic impacts such as erosion during construction or to be subjected to geologic hazards such as earthquakes. The following analysis is based on the following resources: *Preliminary Geotechnical Investigation* by Kleinfelder (2008), *Preliminary Foundation Report* by Kleinfelder (2015), and DD&A's review of pertinent literature, including, but not limited to, documentation published by the California Department of Conservation, USGS, and USDA.

Regional Overview

Geologic structure in central California is primarily the result of tectonic events that have occurred during the past 30 million years. It is widely believed that the numerous faults in this area are related to movements along the boundary between the Pacific and North American tectonic plates. The relative motion between these two tectonic plates is taken up largely along the northwest-trending San Andreas Fault system, which defines the regional boundary between the two plates. Changes in sea level and tectonic uplift resulted in a complicated depositional environment that produced the complex geology of the Monterey Bay region. Faulting and folding have deformed and displaced the geologic units in the region, and the granitic basement and overlying Tertiary deposits have been juxtaposed along many of the northwest/southeast-trending faults. The Project site lies within the Coast Ranges Geomorphic Province, a discontinuous series of northwest-southeast trending mountain ranges, ridges, and intervening valleys characterized by complex folding and faulting.

Site Characteristics

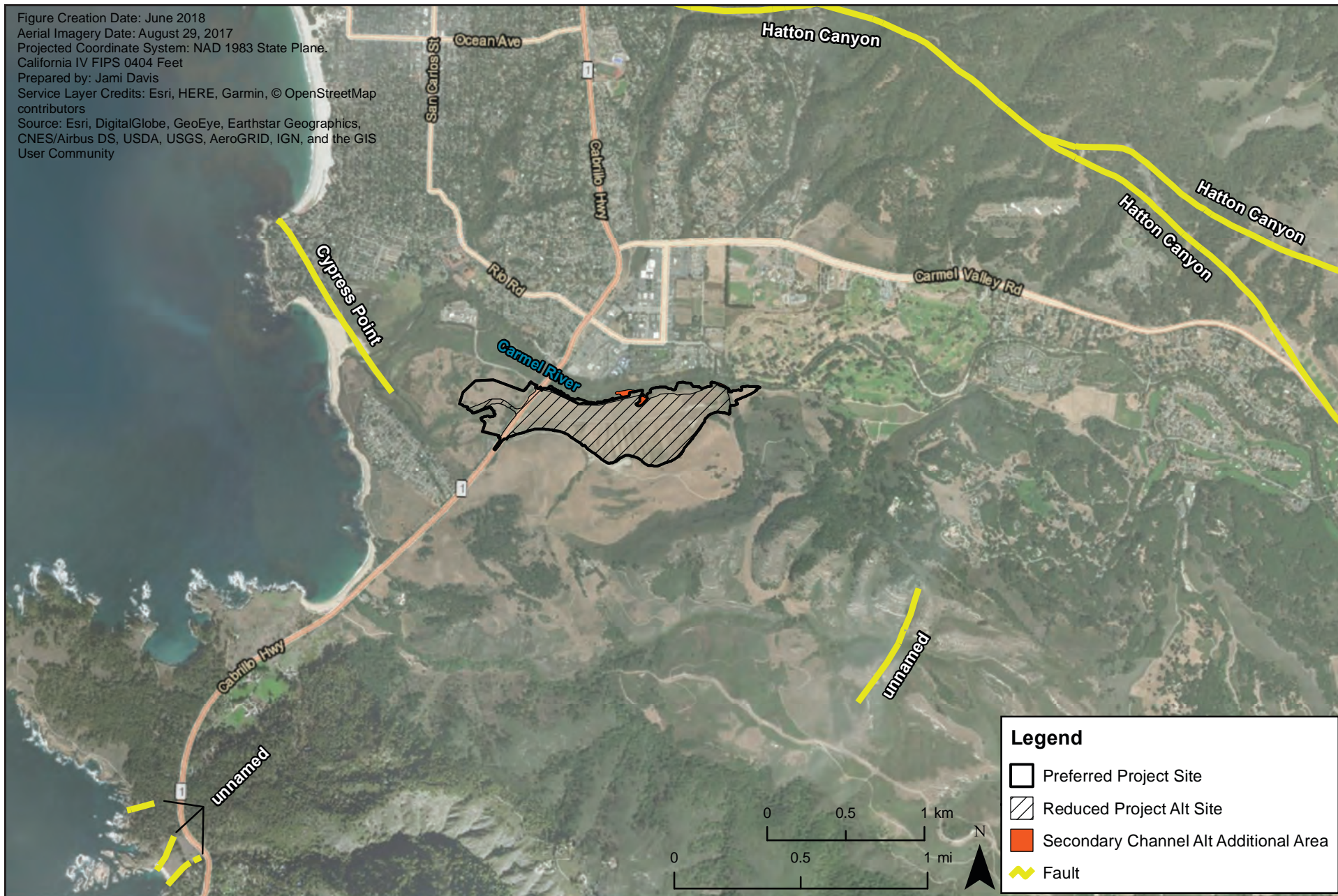
The Project site consists of older floodplain deposits associated with the Carmel River. These deposits were characterized by Kleinfelder (2008) as consisting of unconsolidated, heterogeneous, moderately sorted silt and sand with discontinuous and relatively thin lenses of clay and silty clay. Large amounts of gravel may also be present. The Project site also historically contained a large area of imported fill, approximately 130,000 cubic yards, commonly referred to as the "Blister." A portion of the Blister was relocated in 2005. In 2009 and 2010, roughly 105,000 cubic yards of the Blister was relocated to create a new access road that traverses the Odello East portion of the Project site. Levees on the south bank of the Carmel River extend for approximately 4,100 feet on-site. A portion of these levees would be removed in connection with the Proposed Project. Site topography is relatively flat.

The Project site is located in a seismically active region and a number of potentially active faults are located within proximity of the site. The Project site is not, however, located within an Alquist-Priolo Earthquake Fault Zone. No active faults are known to transect the Project site. The nearest known fault, the Cypress Point fault, is located approximately 0.6 mile to the west of the Project site; this fault is not considered active. The Tularcitos-Navy fault is located 3.7 miles northeast of the Project site; this fault is considered active. The major controlling fault in the Project vicinity is the San Gregorio-Palo Colorado fault; this fault is located 4.3 miles west of the Project site and is considered active. Other faults in the vicinity include the Hatton Canyon fault; this fault is considered potentially active. **Figure 2.2.3-1** identifies known faults within proximity of the Project site.

On-site soils are classified in the Monterey County Soil Survey (USDA 1978). Soil is generally defined as the unconsolidated mixture of mineral grains and organic material that covers the land surfaces of the earth. Soils can develop on unconsolidated sediments and weathered bedrock. Soils at the site vary based upon the topography of the site. Soils at the site consist of mostly disturbed soils. Sources of current and historic ground disturbance are due mostly to agricultural activities. As shown on **Figure 2.2.3-2**, the Monterey County Soil Survey indicates eight mapping units within the Project area. The mapping units are:

- **Pico Fine Sandy Loam (Pf).** This soil type is the dominant soil type on the Project site. The Pico series consists of well drained soils that formed on the floodplains in alluvium derived from sedimentary rock. Slopes are zero to two percent. Permeability is moderately rapid. The available water capacity is 7.5 to nine inches. Runoff is slow and the erosion hazard is considered slight. If unprotected, these soils, however, are subject to wind erosion.
- **Lockwood Shaly Loam (LeD), 9–15% slopes.** These soils are located along the southern boundary of the Project site, as well as the eastern site boundary on property owned by the MPRPD. The Lockwood series consists of well drained soils that formed in alluvium that was derived from siliceous shale. These soils are on alluvial fans and coastal terraces. Permeability is moderately slow. The available water capacity in these soils is six to eight inches. Runoff is medium and the erosion hazard is considered moderate. This is considered a strongly sloping soil that is located on alluvial fans and terraces.

Figure Creation Date: June 2018
 Aerial Imagery Date: August 29, 2017
 Projected Coordinate System: NAD 1983 State Plane,
 California IV FIPS 0404 Feet
 Prepared by: Jami Davis
 Service Layer Credits: Esri, HERE, Garmin, © OpenStreetMap
 contributors
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,
 CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS
 User Community

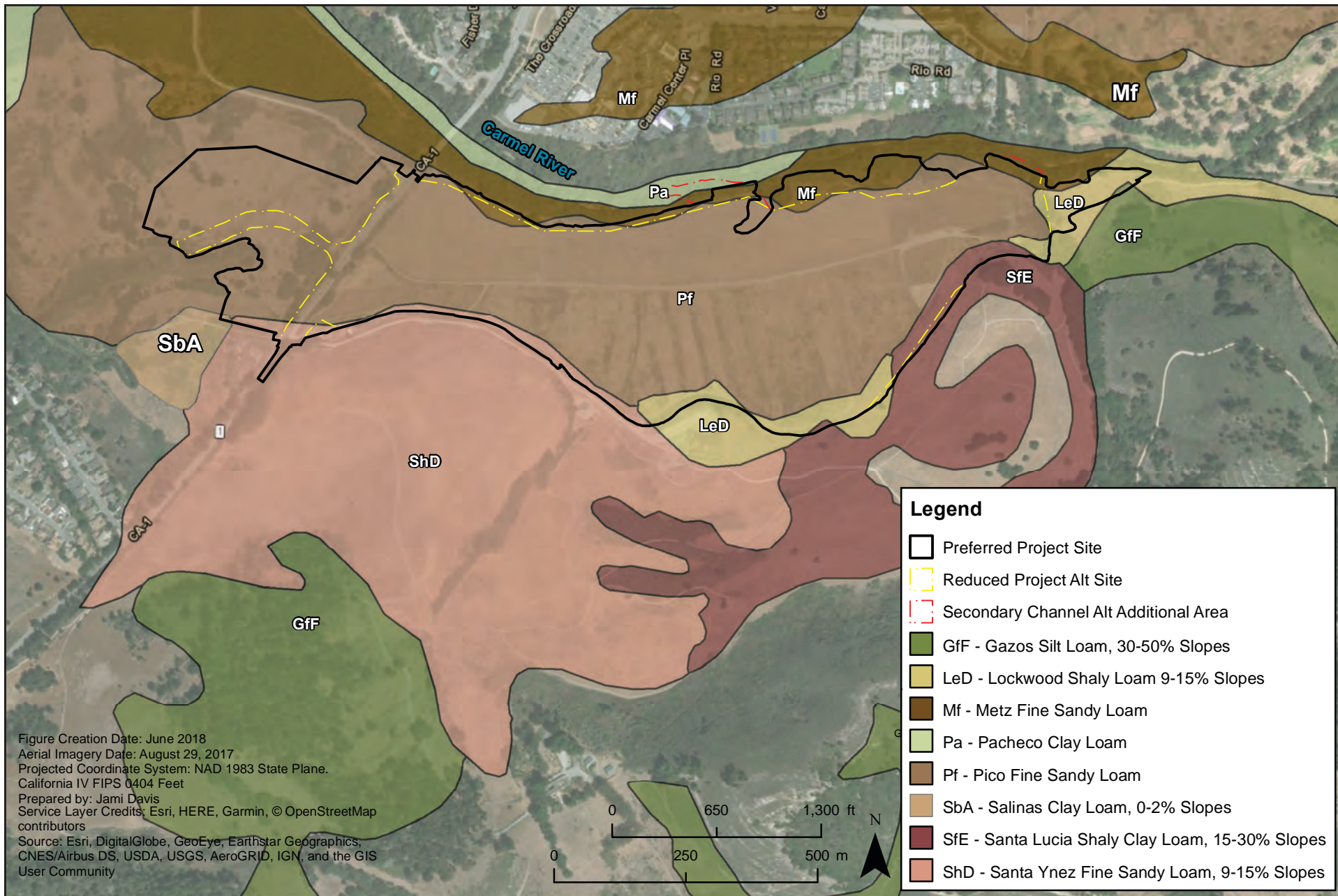


Fault Map

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.2.3-1



Soils Map

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.2.3-2

- **Metz Fine Sandy Loam (Mf).** These soils are located along the northern boundary of the Project site, along the Carmel River. The Metz series consists of somewhat excessively drained soils that formed in alluvium that was derived mostly from sedimentary rocks on floodplains. Permeability is moderate, but becomes rapid at a depth of more than 48 inches. The available water capacity is four to six inches. Runoff is slow and the potential erosion hazard is considered slight. If unprotected, these soils are, however, subject to wind erosion.
- **Gazos Silt Loam (GfF), 30-50% slopes.** These soils are located on the eastern boundary of the Project site on property owned by the MPRPD. The Gazos series consists of well drained soils on hills. These soils formed in material underlain by sandstone and shale. Permeability is moderate and the available water capacity is five to eight inches. Runoff is rapid and the erosion hazard is moderate to high. These soils are generally found on slopes of 15 to 50 percent.
- **Pacheco Clay Loam (Pa).** These soils are located along the north western boundary of the Project site, adjacent to the Carmel River. The Pacheco series consists of poorly drained soils that formed on floodplains in alluvium derived from sedimentary rock. Slopes are zero to two percent. Permeability is moderately slow and these soils water capacity is 10 to 12 inches. Runoff is very slow and erosion is not considered a problem.
- **Santa Lucia Shaly Clay Loam (SfE), 15-30% slopes.** A small band of this soil type is located along the southeastern boundary of the Project site. The Santa Lucia series consists of well drained soils on uplands. These soils formed in material underlain by hard shale of the Monterey Formation. Slopes are 28 to 75 percent. Permeability is moderate. The available water capacity is two to 5.5 inches. Runoff is medium and the erosion hazard is moderate.
- **Santa Ynez Fine Sandy Loam (ShD), 9-15% slopes.** Within the Project site, soils consisting of the Santa Ynez series are located along the southwestern boundary. These soils occupy a relatively small portion of the site. The Santa Ynez series consist of moderately well drained soils that formed on terraces in alluvium derived from sandstone and granitic rock. Slopes are two to 30 percent. Permeability is very slow. The available water capacity is three to five inches. Runoff is slow or medium; the erosion hazard is considered slight to moderate.
- **Salinas Clay Loam (SbA), 0-2% slopes.** A small area of this soil type is located in the south-west corner of the Project site. The Salinas series consists of well drained soils that formed in mixed alluvium from sedimentary and granitic rock. Slopes are zero to nine percent. Permeability is moderately slow. The available water capacity is 10 to 12 inches. Runoff is slow and the erosion hazard is considered slight.

There are a number of geological considerations affecting the Proposed Project, particularly in regard to the Causeway Component. These concerns include the presence of loose near-surface

soils, shallow groundwater, liquefaction potential, and lateral spreading, among others. **Figure 2.2.3-3** identifies liquefaction hazards and **Figure 2.2.3-4** identifies the potential for erosion hazards. The geological investigation identified specific recommendations to ensure that all potential geologic and seismic-related hazards are appropriately addressed as part of the Project design. The following section outlines potential seismic processes which may affect the Project site.

Events and Processes

Ground Shaking

Small to moderate earthquakes (magnitude less than 5.0 on the Richter Scale) are common in Monterey County. The most significant quakes affecting the County during the last century have included the 1906 San Francisco earthquake and the 1989 Loma Prieta earthquake. Research has shown that areas underlain by layers of unconsolidated, recent alluvium, and unconsolidated soil materials with high ground water have an increased risk of experiencing the damaging effects of ground shaking

Ground Rupture

Seismically induced ground rupture is defined as the physical displacement of surface deposits in response to an earthquake's seismic waves. Ground rupture is most likely to occur along active faults. The potential for ground rupture also exists along potentially active faults.

Ground Lurching

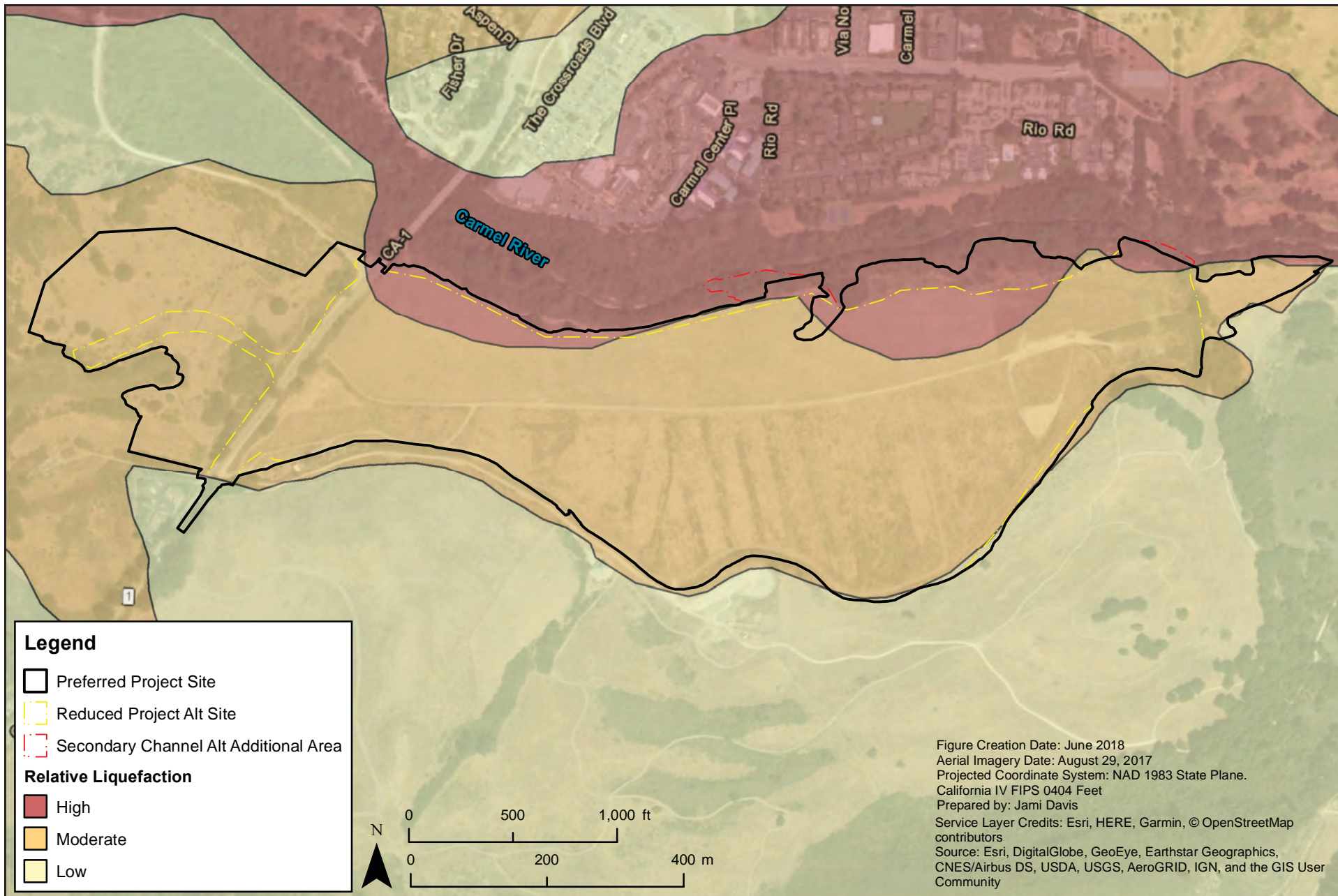
This phenomenon is characterized by irregular cracks, fissures, and fractures of lengths varying from a few inches to many feet. It is caused by the shaking, settling, and sliding of soil and can be accompanied by lateral spreading, which is horizontal movement of soil towards the open face of an embankment.

Erosion

Erosion is a natural process that occurs over time and can be caused by either wind or water moving over soils. Soil erosion can become a problem when human activities accelerate erosion rates. Non-point sources, including impervious surfaces, construction activities, and road construction, can all accelerate the rate that soils are removed from hillsides.

Landslides

The occurrence of landslides is influenced by a number of factors, including slope angle, soil moisture content, vegetative cover, and the physical nature of the underlying strata. Landslides can be triggered by one or more specific events, including development-related construction, seismic activity, soil saturation, and fires. The primary factor in determining landslide potential is an unstable slope condition.

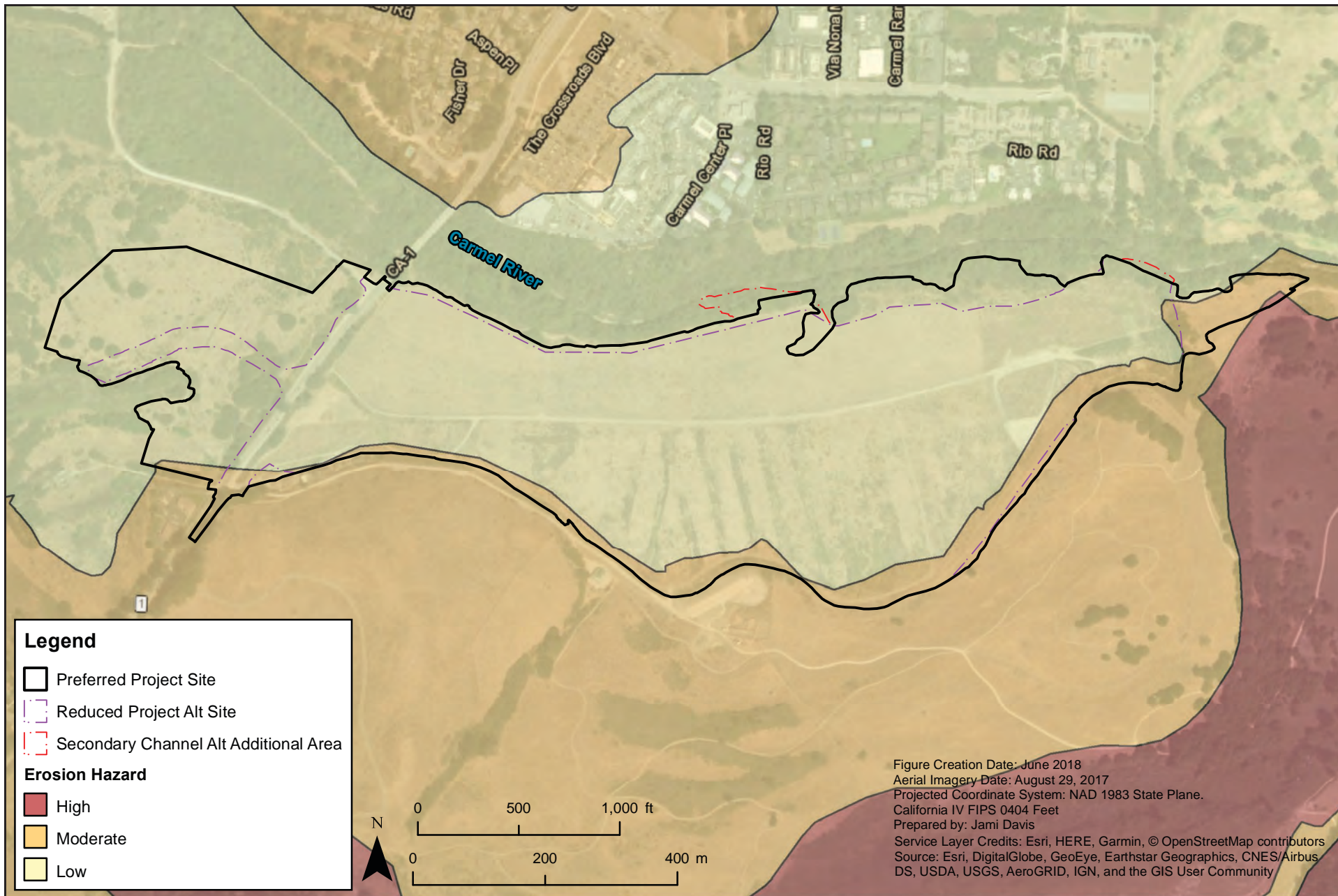


Liquifaction Map

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.2.3-3



Erosion Hazard Map

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.2.3-4

Lateral Spreading

Lateral spreading is a failure within weaker soil material that causes the soil mass to move towards a free face or down a gentle slope. Liquefaction, lateral spreading, and differential compaction tend to occur in loose, unconsolidated, non-cohesive soils with shallow groundwater.

Liquefaction

Liquefaction is the transformation of soil from a solid to a liquid state as a consequence of increased pore-water pressures, usually in response to strong ground shaking, such as those generated during a seismic event. Loose, granular soils are most susceptible to these effects while more stable, silty clay and clay materials are generally somewhat less affected.

Soil Expansion

Expansive soils shrink and swell as a result of moisture changes. This can cause heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations. Structures or improvements built atop expansive soils may be subject to damage from soil shrinkage and swelling, associated with wetting and drying. A soil with a higher plasticity index is generally more prone to shrinkage or swelling in response to seasonal rainfall.

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

The Proposed Project site is located in a seismically active region and is within proximity to several active and potentially active faults (**Figure 2.2.3-1**). Due to the site's proximity to known faults, the site has the potential for moderate to high seismic activity. A moderately sized earthquake on any of the faults depicted in **Figure 2.2.3-1** could expose persons and/or structures to potential seismic-related hazards. This could result in a substantial adverse effect.

The Proposed Project is not located within an Alquist-Priolo Earthquake Fault Zone. Therefore, this Project would not result in any structures being constructed within a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map. Additionally, no expansive soils were identified on the Project site. As a result, the Project would not create a substantial risk to life or property due to expansive soil conditions.

Potential liquefaction hazards on-site are identified in **Figure 2.2.3-3**. As part of the *Preliminary Geotechnical Investigation*, Kleinfelder (2008) identified that there is a moderate to high liquefaction potential in the Carmel River floodplain. However, no historical evidence of liquefaction was documented within two miles of the Project site. Nevertheless, the Proposed Project, in particular the Causeway Component, could be exposed to potential substantial adverse effects resulting from liquefaction hazards.

No hazards associated with landslides were identified and no landslides have been documented on-site. The relative flat terrain and absence of significant slopes preclude possible landslide hazards. Furthermore, as the Proposed Project does not entail the construction of septic tanks or a wastewater disposal system, the ability of the soil within the Proposed Project site to support septic tanks or wastewater disposal systems does not present a hazard.

The erosive potential of soils within the Project site ranges from low to moderate (**Figure 2.2.3-4**). In general, the majority of soils are classified as having a low erosion potential. If left unprotected, these soils, however, may be subject to wind erosion. In addition, water erosion and scouring may also occur. In order to stabilize channel geometry while vegetation takes hold and to minimize erosion upstream of the Carmel Lagoon, the design proposes a two-foot layer of cobble bed fill material to line the bottom of the distributary channels from approximately the Causeway to just upstream of the south arm of the Carmel Lagoon. The bed fill material will be made up of a combination of rounded river cobble and gravel consistent with the existing bed in the main river channel in the vicinity of SR 1. In addition to providing increased stability during the grow-in period of the restoration plantings, the bed material will further emulate the substrate that would be expected from relict channels on the floodplain. Scouring at stream crossings can compromise the integrity of the structure and is one of the leading causes of bridge failure; a detailed analysis of potential bridge scouring for the Causeway Component is contained in **Section 2.2.1 Hydrology and Floodplain**.

As no habitable structures and/or other infrastructure would be constructed as part of the Floodplain Restoration Component, this component would not result in substantial effects to life or property related to the exposure of the following hazards: the rupture of known faults, expansive soil, potential liquefaction-related hazards, or seismic hazards related to ground shaking. While potential liquefaction hazards, including lateral spreading, were identified on site, this component of the Project would not result or cause additional hazards on- or off-site.

Project grading associated with the creation of hydrologic characteristics to support floodplain restoration activities, as well as the creation of the agricultural preserve, would not result in the exposure of site occupants and/or existing structures to seismic hazards related to ground shaking. No structures would be constructed as part of the Floodplain Restoration Component.

Under the Preferred Project and Secondary Channel Alternative, removal of approximately 1,470 feet of the existing south bank levees as part of the Floodplain Restoration Component could, however, expose the remnant non-structural levees to potential seismic-related hazards related to ground shaking due to the weakened nature of remnant levee margins. Ground disturbing activities associated with the removal of portions of the existing earthen levees could weaken and/or otherwise degrade the integrity of the remaining earthen levees. As a result, the remaining levees could be susceptible to potential hazards during a strong seismic event if disturbed areas are not adequately re-planted and/or re-engineered to strengthen the remnant levee margins. However,

the remaining levee “islands” will be reinforced by adding fill to the floodplain side of the retained levee segments such that the flow leaving the main river channel is oriented towards the direction of flow on the floodplain. Additionally, the retained levee “islands” will preserve important areas of existing vegetation that will support colonization and expansion of riparian communities along the banks, which would ensure levee stability. These hazards would not cause a substantial adverse effect to site occupants or structures. The potential hazard would be reduced under the Reduced Project Alternative as compared to the other Build Alternatives as only the existing “Notch” would be expanded and the majority of the existing levees would remain in place.

The Proposed Project would not result in the loss of a known mineral resource that would be of value to the region and the residents of the state; or 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-Build Alternative

Under the No-Build Alternative, the causeway would not be constructed and levee removal would not occur. As such, the No-Build Alternative would not result in effects to life or property related to the exposure of the following hazards: the rupture of known faults, expansive soil, potential liquefaction-related hazards, or seismic hazards related to ground shaking. The No-Build Alternative would not result in the loss of a known mineral resource that would be of value to the region and the residents of the state; or 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.

Short-Term or Construction Impacts

Construction activities associated with the Project would result in temporary erosion related impacts associated with grading. The extent of potential erosion-related effects, however, is not anticipated to be substantial under the Preferred Project and Secondary Channel Alternative and would be even less substantial under the Reduced Project Alternative due to the reduced grading area. Soils within the Project site are primarily classified as having a low erosive potential. All ground disturbing activities would balance on site and would be subject to the requirements of Chapter 16.08 of the Monterey County Code; Section 16.08.340 stipulates specific erosion control requirements, including re-planting of disturbed areas, watering, and other physical erosion control methods. Following construction, revegetation of the Tier I restoration areas would begin immediately, and the Tier II restoration areas would be seeded with a native seed mix to avoid erosion during the passive restoration of native habitats within this area. In addition, all construction-related activities would be subject to the requirements of an Erosion Control Plan, which is a standard Monterey County requirement for projects involving grading and land clearing (see **Measure WAQ-1**).

The Floodplain Restoration Component will also be subject to the requirements of the NPDES Program, which includes the preparation of a SWPPP for construction activities disturbing one acre or more. Compliance with these requirements would ensure that construction activities associated with the Project would not have substantial adverse effect on soil erosion. Please refer to **Section 2.2.2 Water Quality and Storm Water Runoff** for more information.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of **Mitigation Measures WAQ-1, NC-1 through NC-4**, and the following measures would avoid or reduce potential adverse effects that may result from the construction and operation of the Project to a less-than-significant level:

- GEO-1** A design-level geotechnical report shall be prepared, by a licensed geotechnical engineer, to include analysis of site conditions and geologic hazards, conclusions, and project design recommendations. A copy of this report shall be submitted to Caltrans and the County for review and approval.
- GEO-2** The final design of the proposed causeway shall be completed in accordance with the recommendations of the design-level geotechnical report that addresses potential hazards associated with lateral spreading and liquefaction. A licensed geotechnical engineer shall review the final construction plans and certify their recommendations have been incorporated into the project design. A copy of the construction plans and certification letter shall be submitted to Caltrans and the County for review and approval.

Erosion control related BMPs are identified in **Section 2.2.2 Water Quality and Storm Water Runoff**. These BMPs would also be implemented to reduce potentially adverse effects associated with the Proposed Project.

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2.2.4 Paleontology

Regulatory Setting

National Environmental Policy Act

NEPA, as amended, recognizes the continuing responsibility of the Federal Government to "preserve important historic, cultural, and natural aspects of our national heritage..." (Sec. 101 [42 USC § 4321]) (#382).

Title 23

The Limitation of Federal Participation (23 USC 1.9(a)) requires that the use of federal-aid funds must be in conformity with federal and state law. In addition, Archeological and Paleontological Salvage (23 USC 305) authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 above and state law.

Paleontological Resources Preservation Act

The Paleontological Resources Preservation Act (PRPA; 16 USC 470aaa) prohibits the excavation, removal, or damage of any paleontological resources located on federal land under the jurisdiction of the Secretaries of the Interior or Agriculture, without first obtaining an appropriate permit. The statute establishes criminal and civil penalties for fossil theft and vandalism on federal lands.

California Environmental Quality Act

The procedures, types of activities, persons, and public agencies required to comply with CEQA are defined in the Guidelines for Implementation of CEQA (State CEQA Guidelines), as amended on March 18, 2010 and further amended January 4th, 2013. One of the questions listed in the CEQA Environmental Checklist is: "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" (State CEQA Guidelines Section 15064.5 and Appendix G, Section V, Part C).

State of California Public Resources Code

The State of California PRC Chapter 1.7, Sections 5097.5 and 30244, includes additional state level requirements for the assessment and management of paleontological resources. These statutes require reasonable mitigation of adverse impacts to paleontological resources resulting from development on state lands, define the removal of paleontological "sites" or "features" from state lands as a misdemeanor, and prohibit the removal of any paleontological "site" or "feature" from State land without permission of the jurisdictional agency. These protections apply only to State of California land, and thus apply only to portions of a project, if any, which occur on State land.

1982 Monterey County General Plan/Carmel Area Land Use Plan

The County of Monterey 1982 General Plan and Carmel Area LUP contain goals and policies regarding paleontological resources. It establishes the goal of encouraging the identification and evaluation of the County's Paleontological Resources in order to give consideration to these resources during the conceptual design phase of land-use planning or project development. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for more information regarding the Project's consistency with relevant policies.

Affected Environment

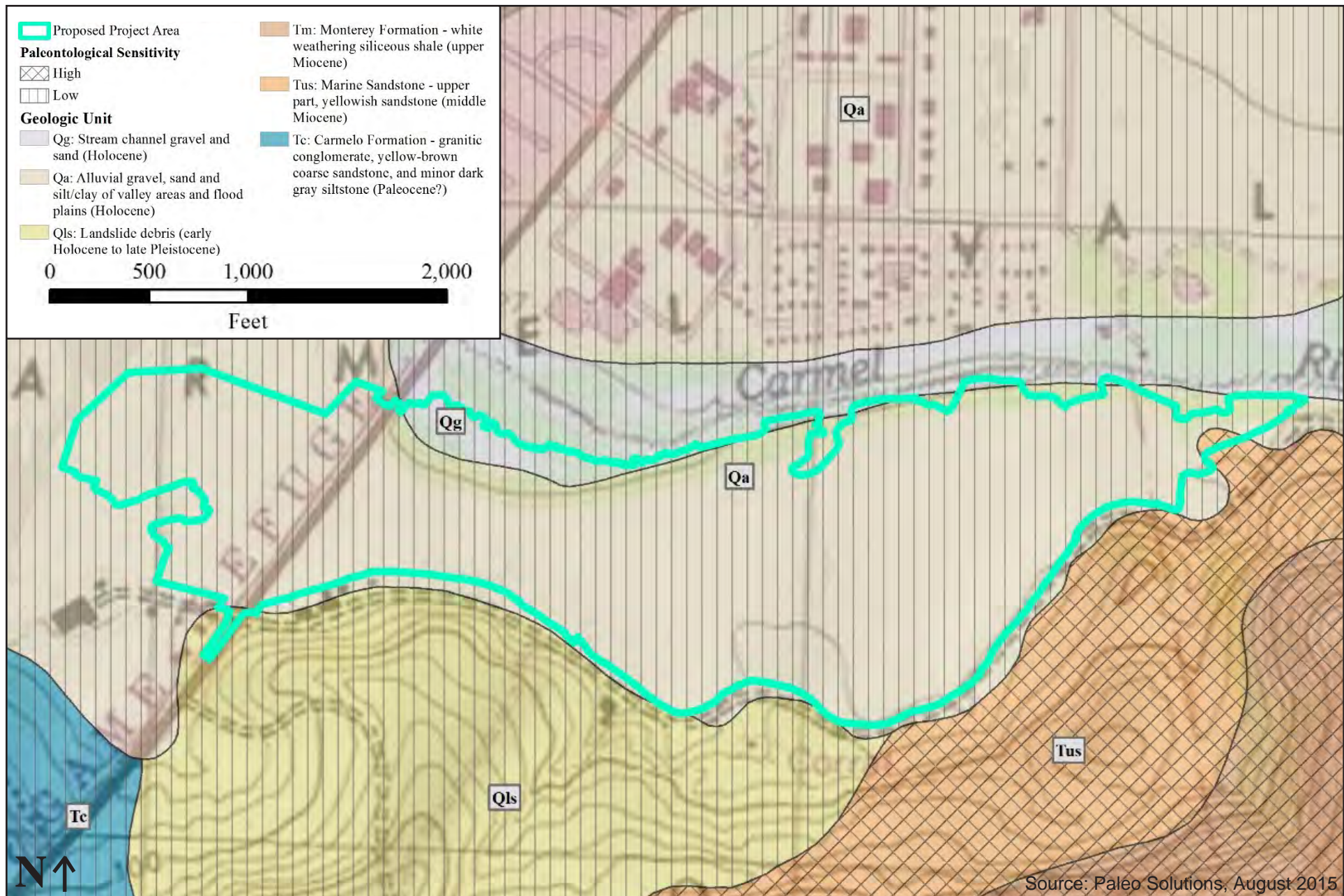
A *Paleontological Memorandum Report* was prepared for the Project by Paleo Solutions, Inc. (2015), which included a geologic map review, literature search, and an institutional records search. The geology underlying the Project site was reviewed, as well as any geologic units occurring within a one-mile radius. The literature reviewed included published and unpublished scientific papers and available online databases. A paleontological records search of the Project site and a one-mile radius buffer was conducted by Dr. Ken Finger at the University of California Museum of Paleontology (UCMP). Courtney Richards, M.S. reviewed the geology and available literature and co-authored the *Paleontological Memorandum Report* with Geraldine Aron, M.S.; Paul Nesbit, M.S. prepared the GIS maps.

Geologic Context

Geologic mapping by Dibblee and Minch (2007) indicates that the majority of the Project site is underlain by Quaternary alluvium (Qa). Minor amounts of Quaternary stream channel deposits (Qg), Quaternary landslide debris (Qls), and unnamed Miocene marine sandstone (Tus) are also mapped within the northern, southern, and eastern boundaries of the Project site, respectively. The distribution of the geologic units within the Project site is illustrated in **Figure 2.2.4-1**.

Quaternary Alluvium, Stream, and Landslide Deposits (Qa, Qg, Qls)

Qa includes surficial deposits that are Holocene in age (11,000 years old or less) and may overlie older units. They occur as fan or fluvial deposits in all canyons and drainages as well in the lowest lying inland areas. Deposits are composed of poorly consolidated alluvial gravel, sand, silts and clay that comprise valleys and floodplains and may be of variable color, though they are often tan to brown. Qg within the Project Study Area are composed of gravels and sands laid down by the Carmel River, which flows along the northern boundary of the site (Dibblee and Minch 2007). Qls are late Pleistocene to Holocene (<126,000 years old) landslide deposits. Based on the geologic mapping (Dibblee and Minch, 2007), these landslides appear to have originated primarily from outcrops of unnamed Miocene (23 to 5.3 million years old) marine sandstone and possibly, in part, from the Paleocene (66 to 56 million years old) Carmelo Formation.



Project Geology Map

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA

Figure
2.2.4-1

Unnamed Miocene Marine Sandstone (Tus)

This unnamed unit (Tus) consists of Miocene (23 to 5.3 million years old), shallow marine sandstone that is yellowish in color. The sandstone has previously been attributed to the Los Laureles Sandstone, a member of the Monterey Formation; the Temblor Formation; and the Vaqueros-Temblor Sandstone undifferentiated.

Carmelo Formation (Tc)

While not mapped at the surface of the Project site, the Carmelo Formation may be encountered at depth in the western portion of the site boundaries. This Paleocene (66 to 56 million years old) formation consists of a granitic conglomerate and yellow brown coarse-grained sandstone that was deposited in a shallow marine environment.

Paleontological Resources

Paleo Solutions, Inc. requested a paleontological search of records maintained by UCMP. UCMP responded on 29 July 2015 that they do not have any vertebrate fossil localities within or adjacent to the proposed site boundaries. Literature searches and online database reviews were also negative for fossils within the Project site. The closest locality (UCMP V5525) is approximately one mile east of the Project in the Miocene Monterey Formation (not mapped within the Project site), which yielded a tooth identified as great white shark (*Carcharodon*). Based on the age of the formation, it is likely that it belongs to the large, extinct species of shark called megalodon (*Carcharodon* or *Carcharocles megalodon*) (Paleo Solutions 2015).

Geologic units listed as Miocene marine sandstone have produced specimens of marine fish such as *Oligodiodon vetus*. Additionally, formations similar in age, lithology, and depositional environment, such as the Vaqueros Formation, have produced scientifically significant marine vertebrates and abundant invertebrates. Recovered vertebrate fossils include whales (Cetacea; *Cetotherium furlongi*) and the extinct, hippo-like mammal *Desmostylus*.

Fossils are generally unknown from the Qa and Qg, due to their young age. However, these young deposits are often underlain by older, paleontologically sensitive sediments at depth. Pleistocene (2.6 million to 11.7 thousand years old) older alluvial deposits in Monterey County have produced vertebrate material, including horse (*Equus* sp.), bison (*Bison latifrons*), and camel (*Camelops* sp.; Camelidae), as well as a variety of invertebrate and plant taxa. If bedrock belonging to the unnamed Miocene marine sandstone units are encountered subsurface, Miocene taxa such as the ones mentioned in the paragraph above may be discovered. Fossils are rare in the Carmelo Formation and generally consist of trace fossils and scarce invertebrates found in fine grained sandstone and mudstone layers. Therefore, if this unit is encountered subsurface, it is unlikely that scientifically significant fossils will be recovered due to the conglomeratic and coarse-grained nature of the Carmelo recorded by Dibble and Minch (2007) in the vicinity of the Project Study Area.

Environmental Consequences

Based on the results of the geologic map review and literature and museum records searches for the Project, the paleontological sensitivity of the geologic units within the Project site were ranked using the Caltrans' tripartite scale (Caltrans 2015) and a preliminary impact analysis was performed using available Project plans.

Criteria

Caltrans' paleontological sensitivity scale comprises three rankings: High Potential, Low Potential, and No Potential. The criteria for each ranking, as stated in Caltrans SER Chapter 8 (Caltrans 2015), are as follows:

High Potential

This category includes rock units which, based on previous studies, contain or are likely to contain significant vertebrate, significant invertebrate, or significant plant fossils. These units include, but are not limited to, sedimentary formations that contain significant nonrenewable paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. These units may also include some volcanic and low-grade metamorphic rock units. Fossiliferous deposits with very limited geographic extent or an uncommon origin (e.g., tar pits and caves) are given special consideration and ranked as highly sensitive. High sensitivity includes the potential for containing: 1) abundant vertebrate fossils; 2) a few significant fossils (large or small vertebrate, invertebrate, or plant fossils) that may provide new and significant taxonomic, phylogenetic, ecologic, and/or stratigraphic data; 3) areas that may contain datable organic remains older than Recent, including *Neotoma* sp. middens; or 4) areas that may contain unique new vertebrate deposits, traces, and/or trackways. Areas with a high potential for containing significant paleontological resources require monitoring and mitigation.

Low Potential

This category includes sedimentary rock units that: 1) are potentially fossiliferous, but have not yielded significant fossils in the past; 2) have not yet yielded fossils, but possess a potential for containing fossil remains; or 3) contain common and/or widespread invertebrate fossils if the taxonomy, phylogeny, and ecology of the species contained in the rock are well understood. Sedimentary rocks expected to contain vertebrate fossils are not placed in this category because vertebrates are generally rare and found in more localized stratum. Rock units designated as low potential generally do not require monitoring and mitigation. However, as excavation for construction gets underway it is possible that new and unanticipated paleontological resources might be encountered. If this occurs, a Construction Change Order (CCO) must be prepared in order to have a qualified Principal Paleontologist evaluate the resource. If the resource is determined to be significant, monitoring and mitigation is required.

No Potential

Rock units of intrusive igneous origin, most extrusive igneous rocks, and moderately to highly metamorphosed rocks are classified as having no potential for containing significant paleontological resources. For projects encountering only these types of rock units, paleontological resources can generally be eliminated as a concern when the Preliminary Environmental Analysis Report (PEAR) is prepared and no further action taken.

Sensitivity Analysis

Fossils have been recorded from formations of similar age, lithology, and depositional environment as the Tus (Dibblee and Minch 2007). It is therefore assigned a high paleontological sensitivity.

Fossils are generally unknown from Qa and Qg deposits due to their young age. Reworked paleontological material from older deposits may be present, but would not meet significance criteria as the material would lack critical contextual information. Similarly, fossils from the Qls deposits would also have been removed from their original location of deposition and would not be considered significant. Therefore, the Qa, Qg, and Qls deposits all have low paleontological potential at the surface. However, they may overlie older, high sensitivity deposits at depth, such as Pleistocene older alluvium and Tus; both of which have produced scientifically significant vertebrate fossils in Monterey County. The Carmelo Formation, if encountered subsurface, has a low potential to produce significant fossils due to the lack of vertebrate fossils, rarity of invertebrate fossils and trace fossils, and anticipated conglomeratic and coarse grained lithology.

Preliminary Impact Analysis

Build Alternatives

Ground disturbance in geologic units and geographic areas known to contain scientifically significant fossils may produce adverse impacts to nonrenewable paleontological resources (State CEQA Guidelines, 14 CCR Sections 15064.5[3] and 15023; State CEQA Guidelines Appendix G, Section V, Part C).

Direct impacts to paleontological resources concern the physical destruction of fossils, usually by human-caused ground disturbance. Indirect impacts to paleontological resources typically concern the loss of resources to theft and vandalism resulting from increased public access to paleontologically sensitive areas. Cumulative impacts to paleontological resources concern the incremental loss of these nonrenewable resources to society as a whole.

There are no documented paleontological localities within the boundaries of, nor adjacent to the Project site. The Qa, Qg, and Qls deposits mapped at the surface have low sensitivity for paleontological resource. However, these Quaternary sediments have unknown potential for producing significant paleontological resources at depths.

The small area mapped as Tus in the easternmost portion of the Project site has high potential for paleontological resources both at the surface and at depth. The Reduced Project Alternative does not include any grading within this area, and therefore, would have no impact to this resource. Under the Preferred Project and Secondary Channel Alternative, substantial adverse effects would result if paleontological resources were present and disturbed during grading associated with the Restoration Component of the Project. As a result, a combined Paleontological Identification Report (PIR) and Paleontological Evaluation Report (PER) have been prepared for the Project (Paleo Solutions, Inc., 2016). Recommendations within the report are presented as mitigation below to reduce impacts to a less than substantial level. Impacts would be reduced or avoided for Build Alternative 2.

No-Build Alternative

Ground disturbance associated with the activities planned under the No-Build Alternative would not be at sufficient depths to potentially impact paleontological resources.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of the following measures would avoid or reduce potential adverse effects to paleontological resources that may result from the construction of the Preferred Project and Secondary Channel Alternative to a less-than-significant level:

PAL-1 Prior to issuance of a grading permit, the Project Applicants shall retain a qualified paleontologist to monitor ground disturbing construction activities. Paleontological monitoring shall include field inspections of cut slopes, trenches, spoils piles, and all graded surfaces for freshly exposed fossil remains, in accordance with Project safety requirements. Excavations near the southern boundary of the Project site that are greater than five feet in depth shall be periodically spot checked. The spot checks shall occur on a daily basis for at least the first three days to allow for the paleontological monitor to fully assess the onsite conditions and impacted sediments. Full time monitoring shall be implemented during excavations in to native Pleistocene sediments and Miocene marine sandstone (Tus), if encountered. If it is determined that paleontologically sensitive sediments are not being impacted, this can be reduced to weekly checks. Additionally, monitoring and spot checking efforts may be reduced, at the discretion of the qualified paleontologist in consultation with the County, Service, and Caltrans, if it is determined that only previously disturbed and Holocene-aged alluvial sediments are being impacted, or if sediments are deemed to be nonconductive to fossil preservation.

If a fossil is discovered by a monitor in a construction excavation, the monitor shall immediately notify the equipment operator and/or site project manager to stop work, and then mark the area surrounding the site with flagging until the discovery can be fully explored and evaluated. The paleontological monitor shall immediately notify the Principal Paleontologist, site project manager, and Resident Engineer. Construction

activities in the immediate vicinity of the site shall stop until authorization for work to continue is provided by the qualified paleontologist. If a concentration of fossils is found, the area will be flagged and the site project manager, Resident Engineer, and Principal Paleontologist, will be notified to determine necessary action. Any action shall be communicated to the contractor and responsible agencies. Construction activities can continue outside of an appropriate buffer to the discovery site based on the size of the fossil and in consultation with the site project manager and/or Resident Engineer. All scientifically important fossils shall be salvaged and fully documented within a detailed stratigraphic framework as construction conditions and safety considerations permit. Significance criteria and salvage procedures are discussed in the Paleontological Identification Report/Paleontological Evaluation Report prepared for the Project.

A paleontological monitoring report shall be prepared and delivered to the County, Service, Caltrans, and the University of California Museum of Paleontology at Berkeley (or other appropriate fossil repository) within 30 days of the completion of field work, or as negotiated on consultation. The report shall include dates of field work, results of monitoring, fossil analyses, significance evaluation, conclusions, locality forms, and an itemized list of specimens.

- PAL-2** Prior to earthmoving activities, a qualified paleontologist shall provide a worker training program to inform construction personnel of the possibility for fossil discoveries (including the location of the areas of high potential) and shall instruct personnel to immediately inform their supervisor if any bones or other potential fossils are unearthed at the Project site and a paleontological monitor is not present. In such a case, workers shall immediately cease all activity within a 20-foot radius of the discovery site until a qualified professional paleontologist shall be mobilized to the Project site to examine and evaluate the find. If necessary, appropriate salvage measures will be developed in consultation with the responsible agencies and in conformance with Caltrans guidelines and best practices in mitigation paleontology. Work may not resume in the discovery area until it has been authorized by a qualified paleontologist.

2.2.5 Hazardous Waste and Materials

Hazardous materials, as defined by the California Code of Regulations, are substances with certain physical properties that could pose a substantial present or future hazard to human health or the environment when improperly handled, disposed, or otherwise managed. A hazardous waste is any hazardous material that is discarded, abandoned, or slated to be recycled. Hazardous materials and waste can result in public health hazards if improperly handled, released into the soil or groundwater, or through airborne releases in vapors, fumes, or dust. Soil and groundwater having concentrations of hazardous constituents higher than specific regulatory levels must be handled and disposed of as hazardous waste when excavated or pumped from an aquifer.

Regulatory Setting

Hazardous materials, including hazardous substances and wastes, are regulated by many state and federal laws. Statutes govern the generation, treatment, storage, and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Resource Conservation and Recovery Act of 1976 (RCRA). The purpose of CERCLA, often referred to as “Superfund,” is to identify and clean up abandoned contaminated sites so that public health and welfare are not compromised. The RCRA provides for “cradle to grave” regulation of hazardous waste generated by operating entities. Other federal laws include:

- Community Environmental Response Facilitation Act of 1992 (CERFA)
- CWA
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, EO 12088, *Federal Compliance with Pollution Control Standards*, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

California regulates hazardous materials, waste, and substances under the authority of the California Health and Safety Code and is also authorized by the federal government to implement

RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Act restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and cleanup contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during Project construction.

1982 Monterey County General Plan/ Carmel Area Land Use Plan

The 1982 Monterey County General Plan and Carmel Area LUP provide policies regarding handling of hazardous materials and prevention of contamination to natural areas. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with relevant hazardous materials policies.

Affected Environment

The majority of the Project site has historically been used for agricultural production. Environmental Investigation Services, Inc. completed an Initial Site Assessment (ISA) of the SR 1 Caltrans easement, which extends approximately 130 feet each way on the east and west sides of SR 1 (Environmental Investigation Services, Inc. 2015). The ISA identified that hazardous materials (i.e. pesticides, fertilizers, diesel fuel, etc.) that may have historically been used on-site in connection with past agricultural activities represent a historical recognized environmental concern (Environmental Investigation Services, Inc. 2015).

According to Monterey County records, SR 1 was constructed in 1934 (Environmental Investigation Services, Inc. 2015). The ISA identified that the potential for aerial-deposited lead impacts in soil, resulting from the historical automobile use on SR 1, represents a historical recognized environmental concern (Environmental Investigation Services, Inc. 2015). Aerial-deposited lead does not travel far and remains in the top few feet of soil adjacent to the highways. Lead-containing material is a California hazardous waste if it contains over 1,000 milligrams/kilogram (mg/kg) total lead and/or five milligrams/liter (mg/l) soluble lead using the California Waste Extraction Test. Soil containing aerial-deposited lead is considered hazardous if it contains over 80 mg/kg total lead or 5 mg/l soluble lead by Caltrans, in agreement with the California Department of Toxic Substances Control (DTSC) (DTSC 2016).

An evaluation for the presence or potential presence of underground storage tanks, aboveground storage tanks, naturally occurring asbestos, radon, and hazardous waste storage and disposal was included in the ISA. None of these items were identified within the Caltrans easement or other

areas of the Project site. The ISA included a database search within 0.5 mile of the Project site to identify any documented environmental concern sites. The results of this database search identified three locations of documented “Leaking Underground Storage Tank” (LUST), one location of documented “Spills, Leaks, Investigations, and Cleanup” (SLIC), and one voluntary cleanup site where elevated soil concentrations of toxaphene (an insecticide used on cattle) had been detected. Based on the distance from the Project site, regulatory closure status of all sites, and direction of local groundwater flow, the ISA identified that these sites are not likely to represent a significant environmental concern for the Project (Environmental Investigation Services, Inc. 2015).

Due to the potential for contaminant presence in the shallow soil within the SR 1 Caltrans easement, as identified in the ISA, a Preliminary Site Investigation (PSI) was completed by Environmental Investigation Services, Inc. (Environmental Investigation Services, Inc. 2016). Results of the PSI are as follows:

- Concentrations of arsenic ranging from 1.1 to 4.2 mg/kg detected in 17 of the 22 soil samples are within the threshold of background arsenic concentrations and interpreted as naturally present in this region (typically observed in the range of approximately 0.6 mg/kg to 11 mg/kg).
- Concentrations of p,p-DDE and p,p-DDT detected in two of 14 soil samples were beneath the associated EPA California Human Health Screening Levels (CHHSLs) and RWQCB Environmental Screening Levels (ESLs) for residential use. No other pesticides were detected in the 14 soil samples evaluated.
- Lead was detected at concentrations ranging from 1.5 to 76 mg/kg in the eight soil samples evaluated. All lead detections were beneath applicable residential RWQCB ESLs and EPA CHHSLs and Caltrans thresholds. The four soil samples containing the highest concentrations of lead, ranging from 63 to 76 mg/kg, and were subsequently analyzed for lead using Soluble Threshold Limit Concentration (STLC) and Toxic Characteristic Leachate Procedure (TCLP) methods. None of the STLC or TCLP lead detections exceeded the hazardous waste limits for soluble lead (5.0 mg/L) for the state of California or Caltrans. However, these four soil samples had lead concentrations exceeding the Monterey County Action Level (50 ppm).
- Analysis of three soil samples revealed low concentrations of metals including barium, cadmium, chromium, cobalt, copper, molybdenum, nickel, selenium, vanadium, and zinc, none of which exceeded applicable EPA CHHSLs or RWQCB ESLs for residential use. The metal detections are interpreted within the naturally geologic background of metal concentrations of the region.

There are no existing or proposed daycare/preschools, or educational facilities within 0.25 miles of the Project site; therefore, the Project would not result in adverse effects to any schools from

hazardous emissions or the handling of hazardous materials. In addition, the Proposed Project is not located within an airport plan area or within two miles of a public or private airport. Therefore, the Project would not result in a safety hazard for people residing or working in proximity to an airport. The Proposed Project is not located on a site which is included on a list of hazardous materials compiled pursuant to Government Code Section 65962.5.

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

The Proposed Project would not involve the on-going storage of hazardous materials. Agricultural activities located within the agricultural preserve may entail the use of pesticides and fertilizers as part of routine agricultural operations that may be considered hazardous materials. Additionally, on-going weed management activities associated with the Floodplain Restoration Component may include chemical treatments. If an accident during these activities were to result in the release of hazardous materials into the environment, there is a potential for a substantial impact to occur given the proximity of the site to the Carmel River and Carmel Lagoon.

No-Build Alternative

Under the No-Build Alternative, BSLT would implement a modified restoration approach on APNs 243-071-006-000 and 243-071-007-000 to maintain existing riparian vegetation along the Carmel River and install native vegetation in lieu of agricultural uses. The agricultural preserve would not be raised out of the 100-year floodplain; however, agricultural uses would continue on portions of APN 243-071-005. The No-Build Alternative would not involve the on-going storage of hazardous materials. Agricultural activities may entail the use of pesticides and fertilizers as part of routine agricultural operations, consistent with current use, that may be considered hazardous materials. Additionally, on-going weed management activities associated with the modified restoration activities may include chemical treatments. If an accident during these activities were to result in the release of hazardous materials into the environment, there is a potential for a substantial impact to occur given the proximity of the site to the Carmel River.

Short-Term or Construction Impacts

Construction activities associated with both the Floodplain Restoration and Causeway Components would require the use of hazardous materials (e.g., fuel for construction equipment, oil, solvents, or paints). If an accident during construction were to result in the release of hazardous materials into the environment, there is a potential for a substantial impact to occur given the proximity of the site to Carmel River and Carmel Lagoon. However, use of hazardous materials in connection with Project construction would be temporary in nature and subject to existing regulatory requirements pertaining to the use and disposal of such materials.

Deposited lead from the leaded gasoline era is present adjacent to SR 1; however, the concentration does not exceed the hazardous waste thresholds identified above for California or Caltrans. Four soil samples had lead concentrations exceeding the Monterey County Action Level; however, the County Environmental Health Board has identified that they will accept the thresholds established for California and this exceedance does not result in a significant impact (pers. comm. Sandra Tauriac, Hazardous Materials Management Services Supervisor, September 12, 2016). Highway striping and wood treated with a chemical preservative associated with rails are considered hazardous waste and will need to be identified and disposed of properly. Improper disposal of any identified hazardous waste would result in a substantial adverse effect.

Avoidance, Minimization, and/or Mitigation Measures

Any potential use of hazardous materials in connection with future agricultural production within the agricultural preserve or weed management within the Floodplain Restoration Component or modified restoration activities under the No-Build Alternative would be required to comply with all applicable federal, state, and local requirements pertaining to the use of pesticides and other hazardous materials. As identified in the RMP, chemical treatments would include herbicides registered for the use in California near aquatic environment and would be applied by a qualified applicator under the direction of a pest control advisor.

The implementation of standard BMPs, a Project-specific SWPPP, and other erosion control measures during construction, as required pursuant to Monterey County Code Chapter 16.08, will help prevent the risk of accidental release of hazardous materials into the environment.

Additionally, implementation of the following measures would avoid or reduce the potential for adverse impacts related to hazardous materials:

- HAZ-1** Paint striping or thermoplastic paint shall be removed in accordance with Caltrans standard special provisions. A Lead Compliance Plan would be required for conducting the paint removal activities, and it should describe proper handling methods of the paint material and shall provide information regarding limiting exposure to lead chromate containing paint materials. The material will be disposed at a solid waste landfill facility permitted to accept such wastes.
- HAZ-2** Any treated wood shall be properly stored and disposed of at a solid waste landfill facility permitted to accept such wastes.

HAZ-3 Cleaning and refueling of equipment and vehicles during construction shall occur only within designated staging areas. No maintenance, cleaning, or fueling of equipment shall occur within riparian areas and, at a minimum, all equipment and vehicles will be checked and maintained by the Project Contractor on a daily basis to ensure proper operation and avoid potential leaks or spills. During construction, all construction-related spills of hazardous materials within or adjacent to the construction site will be cleaned up immediately. Spill prevention and clean-up materials shall be onsite at all times during construction. Construction materials/debris will also be stored within the designated staging areas. No debris, soil, silt, sand, oil, petroleum products, cement, concrete, or washings thereof shall be allowed to enter into, or be placed where they may be washed by rainfall or runoff, into riparian habitats or adjacent wetland habitats. All construction-related spills of hazardous materials within or adjacent to the construction site shall be reported to the Project Biologist and construction biological monitor immediately. The Project Biologist and construction biological monitor shall include any spill-related issues and resolutions in the daily log.

2.2.6 Air Quality

Regulatory Setting

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act (CCAA) is its companion state law. These laws, and related regulations by the EPA and California Air Resources Board (CARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS).

NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO); nitrogen dioxide (NO₂); ozone (O₃); particulate matter (PM), which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM₁₀) and particles of 2.5 micrometers and smaller (PM_{2.5}); and sulfur dioxide (SO₂). **Table 2.2.6-1** identifies the characteristics, health effects and typical sources of the six key federal air pollutants. In addition, national and state standards exist for lead (Pb) and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H₂S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under NEPA. In addition to this environmental analysis, a parallel “Conformity” requirement under the FCAA also applies.

Conformity

The conformity requirement is based on FCAA Section 176(c), which prohibits the USDOT and other federal agencies from funding, authorizing, or approving plans, programs or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. “Transportation Conformity” applies to highway and transit projects and takes place on two levels: the regional—or, planning and programming—level and the project level. The Proposed Project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and “maintenance” (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. EPA regulations at 40 CFR 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional Conformity

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for CO, NO₂, O₃, PM₁₀, and PM_{2.5}, and in some areas (although not in California) SO₂. California has attainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO₂, and also has a nonattainment area for Pb; however, Pb is not currently required by the FCAA to be covered in transportation conformity analysis.

Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP) and 4 years (for the FTIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), FHWA, and Federal Transit Administration (FTA), make determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and “open-to-traffic” schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Project Level Conformity

Conformity analysis at the project-level includes verification that the project is included in the regional conformity analysis and a “hot-spot” analysis if an area is “nonattainment” or “maintenance” for CO and/or PM₁₀ or PM_{2.5}. A region is “nonattainment” if one or more of the monitoring stations in the region measure a violation of the relevant standard and the EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially re-designated to attainment by the EPA and are then called “maintenance” areas.

“Hot-spot” analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a hot-spot analysis. In general, projects must not cause the “hot-spot” related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

Federal

The EPA is the federal agency charged with administering the FCAA and other air quality-related legislation. The North Central Coast Air Basin (NCCAB) is classified as in attainment for all

federal air quality standards since the revocation of the federal 1-hour ozone standard in June of 2005. The most recent Federal Plan prepared by the Monterey Bay Air Resources District (MBARD)¹⁸ to maintain the federal 8-hour ozone standard is the 2007 Federal Maintenance Plan for Maintaining the National Ozone Standard in the Monterey Bay Region (March 2007). This plan was prepared pursuant to the FCAA because the NCCAB had an approved Maintenance Plan for the 1-hour ozone standard that has since been revoked, and the basin is in attainment of the 8-hour ozone standard.

In addition to major pollutants, the United States regulates Hazardous Air Pollutants. One mean by which the EPA addresses Hazardous Air Pollutant exposure is through the National Emission Standards for Hazardous Air Pollutants¹⁹ which include source-specific regulations that limit allowable emissions of such pollutants.

State

CARB coordinates and oversees both state and federal air pollution control programs in California. As part of this responsibility, CARB monitors existing air quality, establishes state air quality standards, and limits allowable emissions from vehicular sources. Regulatory authority within established air basins is provided by local air pollution control agencies, which control stationary-source and most categories of area-source emissions and develop regional air quality plans. The Project is located within the jurisdiction of the MBARD.

California has established its own set of ambient air quality standards (the California Ambient Air Quality Standards [CAAQS]) for the seven pollutants with federal standards. In addition, California has standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. The standards for the criteria pollutants are presented in **Table 2.2.6-2**. These standards are designed to protect public health and welfare. The “primary” standards have been established to protect the public health. The “secondary” standards are intended to protect the nation’s welfare and account for air pollutant effects on soils, water, visibility, materials, vegetation, and other aspects of general welfare.

¹⁸ The Monterey Bay Unified Air Pollution Control District (MBUAPCD) changed its name to MBARD in 2016.

¹⁹ The National Emission Standards for Hazardous Air Pollutants are promulgated under Title 40 of the Code of Federal Regulations, Parts 61 & 63.

Table 2.2.6-1 Overview of Key Air Pollutants

	Characteristics	Health Effects	Major Sources
<i>Ozone (O₃)</i>	A highly reactive photochemical pollutant created by the action of sunshine on ozone precursors (primarily reactive hydrocarbons and oxides of nitrogen). Often called photochemical smog. Highest concentrations of ozone are found downwind of urban areas.	Respiratory function impairment.	Sources of ozone precursors (nitrogen oxides and reactive hydrocarbons) are combustion sources, such as factories and automobiles and evaporation of solvents and fuels.
<i>Carbon Monoxide (CO)</i>	Carbon monoxide is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels. CO concentrations are highest in the winter, when radiation inversions over large areas can limit vertical dispersion.	Impairment of oxygen transport in the bloodstream. Aggravation of cardiovascular disease. Fatigue, headache, confusion, dizziness. Can be fatal in the case of very high concentrations.	Automobile exhaust, combustion of fuels, combustion of wood in woodstoves and fireplaces.
<i>Nitrogen Dioxide (NO₂)</i>	Nitrogen dioxide is a reddish-brown gas that discolors the air, which formed during combustion. Nitrogen dioxide levels in California have decreased in recent years due to improved automobile emissions. Ambient standards are typically not exceeded in North Central Coast Air Basin.	Increased risk of acute and chronic respiratory disease.	Automobile and diesel truck exhaust, industrial processes, and fossil-fuel powered plants. Also formed via atmospheric reactions.
<i>Sulfur Dioxide (SO₂)</i>	Sulfur dioxide is a colorless gas with a pungent, irritating odor. Ambient standards for sulfur dioxide are rarely exceeded in the North Central Coast Air Basin.	Aggravation of chronic obstruction lung disease. Increased risk of acute and chronic respiratory disease.	Diesel vehicle exhaust, oil-powered power plants, industrial processes.
<i>PM₁₀ & PM_{2.5}</i>	Solid and liquid particles of dust, soot, aerosols and other matter that are small enough to remain suspended in the air for a long period of time. PM ₁₀ is particulate matter with diameter less than 10 microns. PM _{2.5} is particulate matter with diameter less than 2.5 microns. PM _{2.5} has been found to be more harmful to humans.	Aggravation of chronic disease and heart/lung disease symptoms.	Combustion, automobiles, field burning, factories, and unpaved roads. Also, formed secondarily by photochemical processes of combustion emissions. PM _{2.5} is primarily a secondary pollutant.

Table 2.2.6-2 Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standard ^{1,3}	Federal Standard ²	
			Primary ^{3,4}	Secondary ^{3,5}
Ozone (O ₃) ⁶	1-Hour	0.09 ppm (180 µg/m ³)	--	--
	8-Hour	0.070 ppm (137 µg/m ³)	0.070 ppm (147 µg/m ³)	0.075 ppm (147 µg/m ³)
Carbon Monoxide (CO)	1-Hour	20 ppm (23mg/m ³)	35.0 ppm (40mg/m ³)	--
	8-Hour	9.0 ppm (10mg/m ³)	9.0 ppm (10mg/m ³)	--
Nitrogen Dioxide (NO ₂) ⁸	1-Hour	0.18 ppm (339 µg/m ³)	100 ppb (188 µg/m ³)	--
	Annual ^f	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)	0.053 ppm (100 µg/m ³)
Sulfur Dioxide (SO ₂) ⁹	1-Hour	0.25 ppm (655 µg/m ³)	75 ppb (196 µg/m ³)	--
	3-Hour	--	--	0.5 ppm (1,300 µg/m ³)
	24-Hour	0.04 ppm (105 µg/m ³)	0.14 ppm (for certain areas) ⁹	--
	Annual ^f	--	0.030 ppm (for certain areas) ⁹	--
PM ₁₀ ⁶	24-Hour	50 µg/m ³	150 µg/m ³	150 µg/m ³
	Annual ^f	20 µg/m ³	--	--
PM _{2.5} ⁷	24-Hour	--	35 µg/m ³	35 µg/m ³
	Annual ^f	12 µg/m ³	12 µg/m ³	15 µg/m ³
Lead ^{10,11}	Calendar quarter	--	1.5 µg/m ³ (for certain areas)	1.5 µg/m ³ (for certain areas)
	30-Day	1.5 µg/m ³	--	--
	3-Month ^h	--	0.15 µg/m ³	0.15 µg/m ³
Sulfate	24-Hour	25 µg/m ³	--	--
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m ³)	--	--
Vinyl Chloride ¹⁰	24-Hour	0.010 ppm (26 µg/m ³)	--	--
Visibility Reducing Particles ¹²	8-hours (10 am - 6 pm)	See footnote 11	--	--

ppm = Parts per Million by volume (or micromoles of pollutant per mole of gas)

µg/m³ = Micrograms per Cubic Meter

- 1) California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM₁₀, PM_{2.5}, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- 2) National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the EPA for further clarification and current national policies.

- 3) Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- 4) National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- 5) National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- 6) On October 1, 2015, the national 8-hour primary and secondary standards were lowered from 0.075 to 0.070 ppm.
- 7) On December 14, 2012, the national annual PM_{2.5} primary standard was lowered from 15 µg/m³ to 12.0 µg/m³. The existing national 24-hour PM_{2.5} standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM₁₀ standards (primary and secondary) of 150 µg/m³ were also retained. The form of the annual primary and secondary standards is the annual mean, averaged over three years.
- 8) To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
- 9) On June 2, 2010, a new 1-hour SO₂ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
- 10) The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- 11) The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
- 12) In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: CARB. 2016. *Ambient Air Quality Standards*. May 4. <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>.

The state also regulates Toxic Air Contaminants separately from those pollutants with California Ambient Air Quality Standards primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act institutes a formal procedure for designating substances as toxic air contaminants. The procedure includes research, public participation, and scientific peer review before CARB designates a substance as a toxic air contaminant. CARB adopts an Airborne Toxics Control Measure for sources that emit designated toxic air contaminants. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below the threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology to minimize emissions. For source categories under the regulatory jurisdiction of the individual air districts (as previously described), those air districts adopt and enforce the control measure locally.

Within California, the Office of Environmental Health Hazard Assessment works with CARB to address health risk issues associated with toxic air contaminants. The Office of Environmental Health Hazard Assessment establishes Reference Exposure Levels as indicators of potential adverse health effects. A Reference Exposure Level is a concentration level of a toxic air contaminant at or below which no adverse health effects are anticipated. The Office of Environmental Health Hazard Assessment has published health Risk Assessment Guidelines for the Air Toxics Hotspots program. Within California, those guidelines are commonly referenced in the adoption of general health risk policies, assessment guidelines, and thresholds at the regional level.

In August 1998, CARB listed “Particulate Matter Emissions from Diesel-Fueled Vehicles” as a toxic air contaminant. In 2000, CARB developed a Risk Reduction Plan to address this source of toxic air contaminants and is currently in the process of implementing this Plan. The Risk Reduction Plan estimated cancer risk levels from diesel particulate matter emissions associated with various source categories, including freeways, stationary engines, distribution (trucking) centers, truck stops, and locations with concentrations of school bus idling. The Risk Reduction Plan contains the following three components:

- New regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce diesel particulate matter emissions by 90 percent overall from 2000 levels;
- New retrofit requirements for existing on-road, off-road, and stationary diesel-fueled engines and vehicles were determined to be technically feasible and cost-effective; and
- New Phase 2 diesel fuel regulations to reduce the sulfur content levels of diesel fuel to no more than 15 ppm to provide the quality of diesel fuel needed by the advanced diesel particulate matter emission controls.

According to the Risk Reduction Plan, “the projected emission benefits associated with the full implementation of this plan, including proposed federal measures, are reductions in diesel

particulate matter emissions and associated cancer risks [relative to a year 2000 baseline] of 75 percent by 2010 and 85 percent by 2020.” Since adoption of the Risk Reduction Plan, CARB has conducted regulatory activities to implement all three plan components. Examples include the “Diesel Particulate Matter Control Measure for On-road Heavy-duty Diesel-fueled Residential and Commercial Solid Waste Collection Vehicles” and Airborne Toxic Control Measures for stationary compression ignition engines; portable engines rated at 50 horsepower and greater; in-use diesel-fueled transport refrigeration units and their generator sets, and facilities where transport refrigeration units operate; and diesel-fueled commercial motor vehicle idling.

In 2005, CARB published the Air Quality and Land Use Handbook: A Community Health Perspective (referred to hereafter as “Air Quality and Land Use Handbook”). This document includes various siting recommendations for proposed sensitive land uses relative to localized air pollution sources. Some of its recommendations are based on exposure to toxic air contaminants in general and diesel particulate matter in particular. The Air Quality and Land Use Handbook recommends avoiding the siting of “new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.” This recommendation is based largely on the contribution of diesel particulate matter to the overall air pollution impact from such transportation sources.

In July 2007, CARB approved a new regulation to reduce emissions from existing off-road diesel vehicles in California in construction, mining, and other industries. The regulation requires vehicle fleets to either meet a set of fleet average targets for NO_x and particulate matter or to turn over and apply exhaust retrofits to a certain percent of the fleets’ horsepower (hp) per year. The first compliance date for large fleets is 2010, and the first compliance date for small fleets is 2015. A number of regulatory amendments are under consideration by CARB; these amendments are designed to provide additional regulatory relief to affected fleets while still achieving California’s clean air commitments.

Monterey Bay Air Resources District (MBARD)

The MBARD regulates air quality in the NCCAB and is responsible for attainment planning related to criteria air pollutants, district rule development, and enforcement. It also reviews air quality analyses prepared for CEQA assessments and has published the CEQA Air Quality Guidelines document for use in evaluation of air quality impacts. At the local level, the MBARD is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws. Air quality is also managed through land use and development planning practices. The MBARD has adopted emission thresholds to determine the level of significance of a project’s emissions. The MBARD adopted an Air Quality Management Plan (AQMP) in 1991 with subsequent updates every three years to address attainment of the state air quality standards; this plan was most recently updated in 2017.

Projects directly related to population growth (i.e., residential projects) have been forecast in the AQMP using population forecasts adopted by AMBAG. In general, population-related projects that are consistent with these forecasts are consistent with the AQMP since emissions for projects have been accounted for in the AQMP and mitigated on a regional level through implementation of control measures identified in the Plan.

Ozone. In accordance with the CCAA, the MBARD developed the 2017 AQMP (MBARD 2017). Previous version of the AQMP proposed adoption of control measures for the following sources: solvent cleaning operations, spray booths (misc. coatings and cleaning solvents), degreasing operations, adhesives and sealants, natural gas-fired fan-type central furnaces, and residential water heaters. However, based on information collected since the previous versions of the AQMP, the reduction of reactive organic gas (ROG) and NO_x emissions the 2017 AQMP focuses on offering incentives to reduce emissions from transportation sources, marine vessels, agricultural irrigation pumps, and off-road vehicles. MBARD has committed to further evaluating these and other control measures over the upcoming three-year period and will implement the most beneficial measures if the progress toward attaining the 8-hour ozone standard fails. The 2017 AQMP acknowledges that, even with implementation of its recommendations, “some areas of the Basin may still not achieve the standard.” It attributes ongoing violations of the one-hour state ozone standard, in part, to “variable meteorological conditions occurring from year to year, transport of air pollution from the San Francisco Bay Area, and locally generated emissions.”

Carbon Monoxide

MBARD monitoring stations have not recorded violations of the federal or state CO standard. In connection with proposed land development projects, the MBARD addresses potential CO exposure issues primarily through guidance on how and under what conditions local ambient CO “hot-spot” analysis should be performed in the context of air quality assessments for documents prepared pursuant to the CEQA.

Particulate Matter

MBARD planning related to attainment of the state’s PM₁₀ standard is addressed in the 2005 Report on the Attainment of the California Particulate Matter Standards in the Monterey Bay Region (Senate Bill 656 Implementation Plan, dated December 1, 2005). This plan describes the greater vulnerability of coastal locations within the NCCAB to PM₁₀ standard violations, due largely to the contribution from sea salt. It focuses primarily on controlling particles in fugitive dust and smoke related to combustion, but also addresses NO_x and reactive organic gases related particulate matter formation. Consistent with the requirements of Senate Bill 656, and with the difficulty in estimating future ambient concentrations of particulate matter substantially influenced by fugitive dust sources (even disregarding unusual burn events), this plan concentrates on identification of and implementation scheduling for available particulate matter emission control measures.

Public Nuisances

MBARD regulates the creation of air pollutant emissions that would cause public nuisances while operating within the District under Rule 402. This rule states: "No person shall discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance, or annoyance to any considerable number of people or to the public; or which endanger the comfort, repose, health or safety of any such person or the public; or which cause, or have a natural tendency to cause, injury or damage to business or property." (HSC Section 41700)

Toxic Air Contaminants

MBARD Rule 1000 (Permit Guidelines and Requirements for Sources Emitting Toxic Air Contaminants) addresses exposure issues for toxic air contaminants in general. It applies to stationary sources for which the state has not adopted an Air Toxics Control Measure. Diesel engine particulate matter is considered a Toxic Air Contaminant according to CARB. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Diesel engine particulate matter is a human carcinogen. Mobile sources—including trucks, buses, automobiles, trains, ships, construction equipment, and farm equipment—are the largest sources of diesel emissions.

1982 Monterey County General Plan

The 1982 Monterey County General Plan contains numerous goals, objectives, and policies related to improving and maintaining current air quality standards. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for more information concerning the Project's consistency with applicable goals, objectives, and policies related to air quality.

Affected Environment

Potential air quality affects and greenhouse gas (GHG) emissions associated with Project construction were quantified for the Project. The primary sources of information used in connection with the following analysis include: 1) MBARD, CEQA Air Quality Guidelines (2008b), and 2) MBARD AQMP (2017). In addition, DD&A also contacted the MBARD on January 19, 2011 to solicit initial comments/concerns related to the scope of the Project. The analysis below is, in large part, an updated analysis from a previous CEQA document prepared for the Project and adopted by the Monterey County Water Resources Agency in 2010. It was determined via coordination and communication with Caltrans to be sufficient and satisfies the format and content requirements for this document.

The Project is located within the NCCAB, one of 14 statewide basins designated by the CARB. This basin includes Monterey, Santa Cruz, and San Benito Counties. The MBARD is responsible for local control and monitoring of criteria air pollutants throughout the NCCAB. Although the NCCAB is in attainment of all federal air quality standards, it is designated as nonattainment with respect to the more stringent state PM₁₀ standard and the state eight-hour ozone standard. Plans to

attain these standards already accommodate the future growth projections available at the time these plans were prepared. Any development project capable of generating air pollutant emissions exceeding regionally-established criteria is considered significant for purposes of CEQA, whether or not such emissions have been accounted for in regional air planning. Furthermore, any project that would directly cause or substantially contribute to a localized violation of an air quality standard would generate substantial air pollution impacts. The same is true for a project that generates a substantial increase in health risks from toxic air contaminants or introduces future occupants to a site exposed to substantial health risks associated with such contaminants.

Climate and Topography

Climatological conditions, an area's topography, and the quantity and type of pollutants released commonly determine ambient air quality. The Project is located in the NCCAB, which covers an area of 5,159 square miles along the central California coast. The northwest sector of the NCCAB is dominated by the Santa Cruz Mountains. The Diablo Range marks the northeastern boundary. The Santa Clara Valley extends into the northeastern tip of the basin. Further south, the Santa Clara Valley becomes the San Benito Valley, which runs northwest-southeast, with the Gabilan Range as its western boundary. To the west of the Gabilan Range is the Salinas Valley, which extends from Salinas at the northwest end to south of King City. The coastal Santa Lucia Range defines the western side of the valley.

Climate, or the average weather condition, affects air quality in several ways. Wind patterns can remove or add air pollutants emitted by stationary or mobile sources. Inversion, a condition where warm air traps cooler air underneath it, can hold pollutants near the ground by limiting upward mixing (dilution). Communities with cold climates may burn wood or other fuels for residential heating, whereas areas with hot climates may have higher emissions or some pollutants from automobiles. Topography also plays a part, as valleys often trap emissions by limiting lateral dispersal.

A semi-permanent high pressure cell in the eastern Pacific, the Pacific High, is the basic controlling factor in the climate of the NCCAB. In the summer, the high pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. Air descends in the Pacific High, forming a stable temperature inversion of hot air over a cool coastal layer of air. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. The warmer air aloft acts as a lid to inhibit vertical air movement. The generally northwest-southeast orientation of mountainous ridges tends to restrict and channel the summer onshore air currents. Surface heating in the interior portion of the Salinas and San Benito Valleys creates a weak low pressure that intensifies the onshore air flow during the afternoon and evening.

In the fall, the surface winds become weak, and the marine layer grows shallow, dissipating altogether on some days. The air flow is occasionally reversed in a weak offshore movement, and the relatively stationary air mass is held in place by the Pacific High pressure cell, which allows

pollutants to build up over a period of a few days. It is most often during this season that the north or east winds develop to transport pollutants from either the San Francisco Bay Area or the Central Valley into the NCCAB.

During the winter, the Pacific High migrates southward and has less influence on the NCCAB. Air frequently flows in a southeasterly direction out of the Salinas and San Benito Valleys, especially during night and morning hours. The general absence of deep, persistent inversions and the occasional storm systems usually result in good air quality for the basin as a whole in winter and early spring.

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

This Proposed Project would not create, cause and/or otherwise induce population growth or new substantial infrastructure and would not cause any long-term adverse air quality affects. The Proposed Project would not conflict with and/or otherwise obstruct the implementation of MBARD's 2017 AQMP, nor would it violate any other air quality standard. The Proposed Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. The Proposed Project would not generate substantial emissions once in operation. The Proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable NAAQS or CAAQS (including releasing emissions which exceed quantitative thresholds for ozone precursors). Operation of the Proposed Project would not result in exposure of sensitive receptors to substantial pollutant concentrations. Operation of the Proposed Project would not create objectionable odors that would affect a substantial number of people. The Proposed Project would not result in any long-term impacts to air quality.

The Proposed Project would not generate any substantial GHG emissions during operation, and therefore would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (**Section 3.4 Climate Change**). Habitat restoration would provide additional carbon sequestration benefits.

Conformity

"Transportation Conformity" applies to highway and transit projects and takes place on two levels: the regional—or, planning and programming—level and the project level. The Proposed Project must conform at both levels to be approved. The Project is located in an attainment/unclassified area for all current NAAQS. Therefore, regional conformity requirements do not apply, and additional "hot-spot" analysis and emission reduction measures are not required.

No-Build Alternative

The No-Build Alternative would not result in any long-term impacts to air quality. The No-Build Alternative would not generate any GHG emissions during operation, and therefore would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The No-Build Alternative may also act as a carbon sink by restoring a portion of the site as part of the floodplain; however, this benefit would be less than compared to the Build Alternatives.

Short-Term or Construction Impacts

The MBARD 2008 CEQA Air Quality Guidelines (see Table 5-1, pg. 5-14) contains standards of significance for evaluating potential air quality effects of projects subject to the requirements of CEQA. According to MBARD, a project would violate an air quality standard and/or contribute to an existing or project violation if it would:

- Emit 137 lbs/day or more of volatile organic compounds (VOC) or NO_x;
- Directly emit 550 lbs/day of CO;
- Generate Traffic that significantly affects levels of service;
- Directly emit 82 lb/day or more of PM₁₀ on site during operation of construction;
- Generate traffic on unpaved roads of 82 lb/day or more of PM₁₀; or
- Directly emit 150 lb/day or more of SO_x.

MBARD has identified that construction projects using typical construction equipment, such as dump trucks, scrapers, bulldozers, compactors and front-end loaders, that temporarily emit precursors of ozone (i.e., VOC or NO_x) are accommodated in the emission inventories of State- and federally-required air plans, and therefore, the calculation of the temporary emissions of these ozone precursors is not necessary. Accordingly, the following analysis is specific to the Proposed Project's potential air quality effects associated with increased emissions of inhalable particulates.

According to MBARD, minimal grading activities generate approximately 10 pounds per acre per day of PM₁₀ on average, while excavation and earthmoving activities generate about 38 lbs/day/acre of PM₁₀. The MBARD's CEQA Air Quality Guidelines indicates that 8.1 acres can be graded per day with minimal earthmoving or 2.2 acres per day of earthmoving and excavation can be conducted without exceeding the District PM₁₀ threshold of 82 lbs/day. For the purposes of this analysis, a project that that directly generates 82 lbs/day or more of PM₁₀ would have a potentially significant adverse effect.

Construction activities (e.g., excavation, grading, on-site vehicles) associated with the Project would result in short-term increases in fugitive dust and PM₁₀. According to MBARD, 64% of fugitive dust is PM₁₀. The primary sources of construction-related dust include grading,

excavation, road construction, and travel on unpaved surfaces. Other sources (e.g., exhaust from heavy-duty diesel-powered equipment) can also contribute to PM₁₀ levels at and around the Causeway Component construction site due to construction equipment. CO and O₃ precursors would also be emitted from construction vehicle exhaust; however, as identified above, construction equipment that temporarily emit precursors of ozone are accommodated in the emission inventories of State- and federally-required air plans, and therefore, the calculation of the temporary emissions of these ozone precursors is not necessary.

The Build Alternatives may generate PM₁₀ emissions that would exceed applicable MBARD thresholds of significance in the absence of mitigation. In addition, the Project may result in temporary increases in PM₁₀ associated with Project construction. As a result, sensitive receptors adjacent to the Project site may be exposed to increased PM₁₀ emissions.

Implementation of the mitigation measure provided below would ensure that temporary construction-related PM₁₀ emissions resulting from the Project would be below the applicable 82 lb/day PM₁₀ threshold.

The Project would not create any adverse air quality affects aside from temporary construction-related emissions. The Project would not conflict with and/or otherwise obstruct the implementation of MBARD's 2008 AQMP or 2016 update.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of the following measures would avoid or reduce potential adverse effects to air quality that may result from the construction of the Project to a less-than-significant level:

AQ-1 The Project Contractor shall comply with Caltrans' Standard Specifications in Section 14(2010).

- Section 14-9.01 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
- Section 14-9.02 is directed at controlling dust.

AQ-2 In order to reduce potential adverse air quality effects associated with Project construction, BMPs to reduce PM₁₀ emissions shall be implemented by the Project Contractor to the extent practicable throughout the duration of Project construction. Standard BMPs may include, but are not limited to:

- Apply water to the site and equipment as frequently as necessary to control fugitive dust emissions. No dust palliative materials other than water are to be used within the floodplain.

- Spread soil binder on any unpaved roads used for construction purposes and all Project construction parking areas, when practical.
- Wash off trucks as necessary to control fugitive dust emissions.
- Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
- Locate equipment and material storage sites as far away from residences and recreational areas as practical. Keep construction areas clean and orderly.
- Use track-out reduction measures such as gravel pads at Project access points to minimize dust and mud deposits on roads affected by construction traffic.
- Cover all transported loads of soils and wet materials prior to transport to minimize emission of dust (particulate matter) during transportation.
- To decrease particulate matter, promptly and regularly remove dust and mud that is deposited on paved, public roads due to construction activity and traffic.
- Route and schedule construction traffic to avoid peak travel times as much as possible, to reduce congestion and related air quality impacts caused by idling vehicles along local roads.
- Locate construction equipment and truck staging and maintenance areas to the extent feasible and nominally downwind of schools, active recreation areas, and other areas of high population density.
- Cover inactive storage piles.
- Post a publicly visible sign which specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the MBARD shall be visible to ensure compliance with Rule 402 (Nuisance).

Climate Change

The effects of climate change are analyzed in **Section 3.4 Climate Change**. The EPA, the Service, and FHWA have not issued explicit guidance or methods to conduct project-level GHG analysis. FHWA emphasizes concepts of resilience and sustainability in highway planning, project development, design, operations, and maintenance. Because there have been more requirements set forth in California legislation and executive orders on climate change, the issue is addressed in the CEQA chapter of this document.

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2.2.7 Noise and Vibration

Regulatory Setting

NEPA and CEQA provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless those measures are not feasible. The rest of this section will focus on the NEPA/23 Code of Federal Regulations Part 772 (23 CFR 772) noise analysis; please see **Chapter 3** of this document for further information on noise analysis under CEQA.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA (and Caltrans, as assigned) involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). **Table 2.2.7-1** lists the noise abatement criteria for use in the NEPA 23 CFR 772 analysis.

According to Caltrans' *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, May 2011*, a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications.

Table 2.2.7-1. Noise Abatement Criteria

Activity Category	NAC, Hourly A-Weighted Noise Level, $L_{eq}(h)$	Description of activity category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B¹	67 (Exterior)	Residential.
C¹	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No NAC—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.
G	No NAC—reporting only	Undeveloped lands that are not permitted.
¹ Includes undeveloped lands permitted for this activity category.		

Caltrans' *Traffic Noise Analysis Protocol* (2011) sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction for all impacted receptors in the future noise levels must be achieved for an abatement to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. Additionally, a noise reduction of at least 7 dBA must be achieved at one or more benefited receptors for an abatement measure to be considered reasonable. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include residents' acceptance and the cost per benefited residence.

1982 Monterey County General Plan

The 1982 Monterey County General Plan provides policies regarding noise levels during new development projects. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with relevant noise policies.

County of Monterey Code of Ordinances

The County of Monterey Noise Control Ordinance is included in Chapter 10.60 of the County's Code of Ordinances. The County's noise ordinance establishes a maximum noise-level standard of 85 dB at 50 feet for non-transportation noise sources. The County's noise ordinance also includes nighttime noise limitations for non-transportation noise sources. During the nighttime hours between 10:00 p.m. and 7:00 a.m., noise levels shall not exceed 45 dBA L_{eq} or 65 dBA

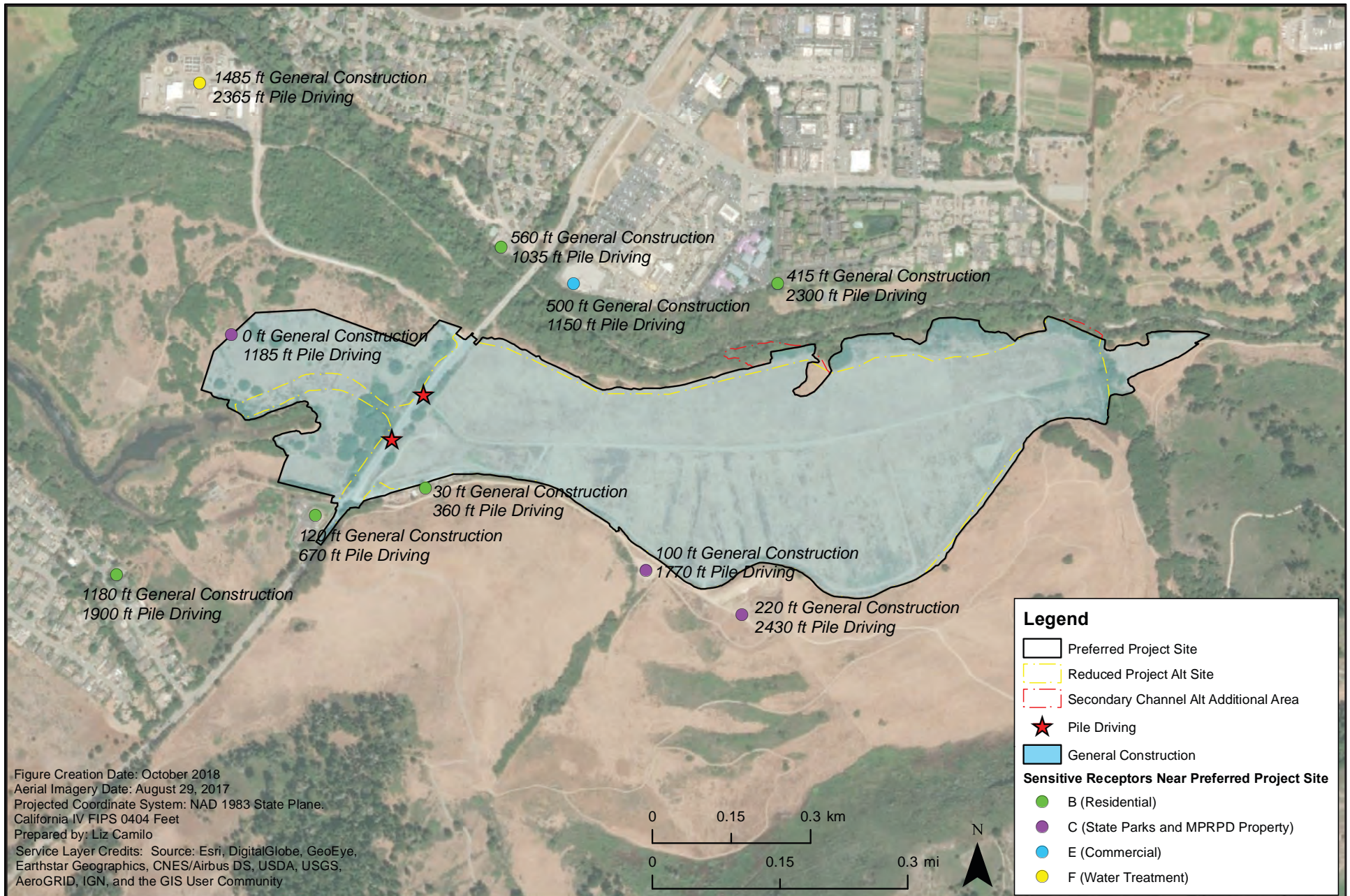
L_{max}, measured at the property line of the noise source. Noise generated by some activities, including but not limited to, devices associated with religious services, emergency vehicles, commercial agricultural operations, and outdoor gatherings, are exempt. The ordinance applies in coastal and non-coastal unincorporated areas of the County.

Affected Environment

The Project site is generally surrounded by open space to the south, west, and east. Noise sensitive receptors are located approximately 400 to 600 feet to the north, 100 feet to the south and 50 feet to the southeast of the Project boundary (**Figure 2.2.7-1**). The noise sensitive receptors to the north of the Project consist of commercial development associated with the shopping mall and residential. All of the receptors to the north are greater than 415 feet from the boundary of the Project. A recreational use structure (located at the Palo Corona Regional Park) is located approximately 100 feet to the south of the Project site. A small number of residences are within approximately 50 to 120 feet south of the Project boundary.

A significant factor in the ambient noise conditions currently generated within the Proposed Project site includes the noise associated with SR 1, which bisects the site and is directly adjacent to the residences located immediately south of the Proposed Project site. In addition, the Project site is zoned agricultural, which also generates ambient noise.

As a result of the Project being located within a rural area surrounded by open space, there are few sensitive receptors close enough to have the potential to be adversely affected. However, the residences directly south of the Project site are close enough to be of concern. The majority of the construction will consist of typical construction activities and generate moderate levels of noise. However, all of the Build Alternatives include the construction of a causeway along SR 1, requiring pile driving. Pile driving results in particularly high noise levels. However, the residences that are of the most concern are located far enough away from the pile driving to avoid being adversely affected (see discussion of Short-Term or Construction Impacts below).



Sensitive Noise Receptors Near Preferred Project Site

October 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA

Figure
2.2.7-1

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

The operation of the Proposed Project would not result in a permanent increase in ambient noise levels as it will not include any increases in traffic or creation of new permanent noise sources. The Proposed Project would not result in any long-term or operational noise impacts.

No-Build Alternative

The No-Build Alternative would not result in a permanent increase in ambient noise levels as it will not include any increases in traffic or creation of new permanent noise sources. The No-Build Alternative would not result in any long-term or operational noise impacts.

Short-Term or Construction Impacts

Noise impacts from construction of the Proposed Project are evaluated in the context of the noise generated by construction equipment, the location and sensitivity of nearby receptors, and the timing and duration of noise-generating activities. Construction generated noise levels drop off at a rate of about 6 dBA per doubling of distance between the source and receptor. Shielding provided by topographic barriers or structures can provide an additional 5 to 10 dBA noise reduction at distant receivers. Noise impacts from all Build Alternatives would be relatively the same, except that under the Reduced Project Alternative, the reduced size of the causeway (and thus reduced number of piles) would result in a shorter duration for the pile driving, the loudest construction activity.

Ambient and future noise levels are estimated quantitatively utilizing referenced information provided by the state and federal government specifically for this purpose. References used in this impact analysis include **Table 2.2.7-2**, which lists the noise levels of common activities to enable readers to estimate ambient noise levels, and **Tables 2.2.7-3** and **2.2.7-4**, which list the noise levels of common construction activities and equipment to enable readers to estimate noise levels during construction and compare the predicted construction noise levels with the estimated ambient noise levels.

Table 2.2.7-2 Noise Levels of Common Activities

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 300m (1000 ft)	110	Rock Band
Gas Lawn Mower at 1 m (3 ft)	100	
Diesel Truck at 15 m (50 ft), at 80 km (50 mph)	90	Food Blender at 1 m (3 ft)
Noisy Urban Area, Daytime	80	Garbage Disposal at 1 m (3 ft)
Gas Lawn Mower, 30 m (100 ft)	70	Vacuum Cleaner at 3 m (10 ft)
Commercial Area		Normal Speech at 1 m (3 ft)
Heavy Traffic at 90 m (300 ft)	60	Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	30	Library
Quiet Rural Nighttime	20	Bedroom at Night, Concert Hall (Background)
	10	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source; Caltrans February 2018 EIR/EA Annotated outline.

Table 2.2.7-3 Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level (dBA) 50 ft from Source	Typical Noise Level (dBA) 100 ft from Source¹	Typical Noise Level (dBA) 200 ft from Source¹	Typical Noise Level (dBA) 400 ft from Source¹
<i>Air Compressor</i>	81	75	69	63
<i>Backhoe</i>	80	74	68	62
<i>Ballast Equalizer</i>	82	76	70	64
<i>Ballast Tamper</i>	83	77	71	65
<i>Compactor</i>	82	76	70	64
<i>Concrete Mixer</i>	85	79	73	67
<i>Concrete Pump</i>	82	76	70	64
<i>Concrete Vibrator</i>	76	70	64	58
<i>Dozer</i>	85	79	73	67
<i>Generator</i>	81	75	69	63
<i>Grader</i>	85	79	73	67
<i>Impact Wrench</i>	85	79	73	67
<i>Jack Hammer</i>	88	82	76	70
<i>Loader</i>	85	79	73	67
<i>Paver</i>	89	83	77	71
<i>Pile-driver (Impact)</i>	101	95	89	83
<i>Pile-driver (Sonic)</i>	96	90	84	78
<i>Pneumatic Tool</i>	85	79	73	67
<i>Pump</i>	76	70	64	58
<i>Rail Saw</i>	90	84	78	72
<i>Roller</i>	74	68	62	56
Source: USDOT, <i>Transit Noise and Vibration Impact Assessment</i> , 2006				
1. Construction generated noise levels drop off at a rate of about 6 dBA per doubling of distance between the source and receptor.				

Table 2.2.7-4 Typical Noise Level Range for Public Works Roads & Highways, Sewers, and Trenches at 50 Feet from Construction Sites (dBA, L_{eq})

Activity	All Pertinent Equipment Present at Site	Minimum Required Equipment Present at Site
<i>Ground Clearing</i>	84	84
<i>Excavation</i>	88	78
<i>Foundations</i>	88	88
<i>Erection</i>	79	78
<i>Finishing</i>	84	84
Source: EPA, Legal Compilation on Noise, Vol. 1, p. 2-104, 1973.		

Ambient noise conditions within the Project site are dominated by presence of SR 1 and the agricultural use of the site. **Table 2.2.7-2** identifies common outdoor noise levels, such as diesel trucks (90 dBA at 50 feet), that are periodically generated at SR 1, which bisects the Project site.

Table 2.2.7-2 identifies construction equipment noise emission levels for heavy equipment such as a dozer (85 dBA at 50 feet) and loader (85 dBA at 50 feet) that would be consistent with periodically generated current agricultural uses at the Project site. Using the references cited, the ambient noise generated at the Project site can reach approximately 85 to 90 dBA at 50 feet. However, these noise levels would occur only periodically, when a desal truck is present on this section of SR 1 or when farm equipment are active on the site. In the absence of these noise sources, ambient noise levels are estimated to be between 65 and 75 dBA at 50 feet.

Construction activities generate considerable amounts of noise, especially during the grading phase and the construction of project infrastructure when heavy equipment is used. As seen in **Table 2.2.7-3**, noise levels could be as high as 101 dBA at 50 feet from the source generated during pile driving as part of the causeway construction. However, the nearest receptor is approximately 360 feet from the pile driving. As construction generated noise levels drop off at a rate of about 6 dBA per doubling of distance between the source and receptor, noise levels resulting from pile driving would be approximately 85 dBA at the nearest sensitive receptor.

Noise levels associated with other construction activities such as asphalt removal, site preparation, grading, foundation construction can be predicted to range from 84 dBA to 88 dBA at 50 feet from the source, according to **Table 2.2.7-4**. While the vast majority of the construction will occur during the day, paving of a limited section of SR 1, where the temporary detour road and SR 1 overlap, will occur at night; four times over the course of the two-year construction duration, each occurrence lasting from one to three nights. The noise levels identified in **Table 2.2.7-3** for paving at 100 feet, the approximate distance of the closest sensitive receptor to the location of the night time paving, is 83 dBA. Using the references cited, the predicted range of noise generated during construction of the project is approximately 83 to 88 dBA at 50 feet.

While there are periodically elevated ambient noise levels including desal trucks and farm equipment which produce noise levels similar to the predicted construction noise levels, the predicted temporary noise levels generated from the Project may at times be substantially increased (defined as a 12 dBA or more increase) from estimated ambient conditions at the nearest sensitive receptor based on the reference sources cited above. In addition, both the ambient and predicted noise levels are above the NAC for the use categories. The mitigation below, including the implementation of a Construction Noise Mitigation Plan (CNMP), would reduce these potentially substantial adverse effects.

Avoidance, Minimization, and/or Noise Abatement Measures

Implementation of the following measures would reduce potential temporary adverse effects associated with the Proposed Project to a less-than-significant level:

NSE-1 Prior to initiation of construction, a CNMP shall be prepared consistent with the County of Monterey Noise Control Ordinance (Chapter 10.60 of the County's Code of Ordinances). The CNMP shall identify all areas where major noise-generating construction activities would result in noise levels at nearby land uses that would exceed instantaneously levels of 85 dBA for the daytime and 65 dBA Lmax, for the night, measured at the property line of the noise source. The CNMP shall be reviewed and approved by County planning staff and Caltrans prior to initiation of construction. The CNMP shall be implemented by all relevant contractors at the site, and noise shall be monitored during demolition, grading, pile driving, and other noise-generating activities. Reporting of implementation shall be provided to the County for review. The CNMP shall include, at a minimum, the following components:

- Identification of noise-reduction measures to be implemented with a noise-reduction goal sufficient to achieve the County's instantaneous noise standards. Noise-reduction measures may include, but are not limited to, the use of quieter equipment, equipment enclosures/surrounds, construction of temporary noise barriers, and/or installation of equipment noise control.
- A construction noise complaint and response program. Notification and response procedures/measures to be implemented in response to noise-related complaints shall be identified. The name(s) of designated noise-control representative(s) and daytime contact information shall be included.
- A construction noise monitoring program sufficient to provide verification that resultant noise levels associated with noise-generating construction activities would not exceed the County's daytime and nighttime intermittent noise standards.
- Quiet models of air compressors and other stationary noise sources where technology exists shall be utilized.
- All internal combustion engine-driven equipment shall be equipped with mufflers that are in good condition and appropriate for the equipment.
- All stationary noise-generating equipment, such as air compressors and portable power generators, shall be located to maximize distances to residences/noise sensitive uses.
- Staging areas and construction material shall be located to maximize distances to residences or noise-sensitive land uses.

- Noise from construction workers' radios shall be controlled to a point that they are not audible at existing residences bordering the Project site.
- All unnecessary idling of internal combustion engines shall be prohibited.

NSE-2 Advance written notification shall be provided to property owners and building occupants that are located adjacent to construction areas. Notification shall be provided a minimum of five days prior to initiation of project construction. The notification shall identify the name and phone number of the construction representative to be contacted regarding construction-related complaints, as well as, the County of Monterey Planning Department contact information. Additional information regarding anticipated hours and dates of construction and recommended measures to minimize noise-related impacts (e.g., closure of building windows) shall also be included in the notification.

NSE-3 Noise-generating construction activities shall be limited during the nighttime hours between 10:00 p.m. and 7:00 a.m., consistent with Monterey County noise ordinance, Monday through Saturday. Noise-generating construction activities shall be prohibited on Sundays and State-recognized holidays.

2.2.8 Energy

Regulatory Setting

National Environmental Policy Act

NEPA (42 USC Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts.

California Environmental Quality Act

CEQA Guidelines, Appendix F, Energy Conservation, state that EIRs are required to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy.

1982 Monterey County General Plan

The 1982 Monterey County General Plan provides policies regarding energy use during new development projects. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with relevant energy policies.

Affected Environment

Nearly all the electric energy used in Monterey County is procured from carbon free and renewable energy sources (i.e., solar, wind, and hydro). PG&E operates a grid distribution system that transmits electricity with a vast network of transmission and distribution lines throughout the service area to approximately 140,000 residential and non-residential user accounts. Most of the electricity that PG&E distributes throughout Monterey County is provided by Monterey Bay Community Power (MBCP), a publicly controlled Community Choice Energy agency. As of July 2018, roughly 97% of Monterey County's overall energy load is serviced by MBCP. According to the California Energy Commission, total energy consumption in California in 2016 was approximately $285,701 \times 10^6$ kilowatt hours. Monterey County's overall annual energy consumption in 2016 was approximately $2,586 \times 10^6$ kilowatt hours, which represents less than 1% of total electricity consumption in California.

No direct energy demands are associated with the Proposed Project and the Proposed Project would only result in indirect energy consumption. Indirect energy consumption includes: 1) energy consumed by construction vehicles and energy used for construction materials, such as asphalt, steel, concrete, pipes and manufactured or processed materials, such as lumber and metal; and 2) energy consumption related to Proposed Project land uses (i.e., vehicular traffic).

The construction of the Proposed Project would result in indirect energy consumption due to construction equipment and materials. The primary energy demand during construction would be associated with the use of gasoline and diesel-powered mobile construction equipment and use of automobiles to transport workers and materials to and from the construction site. Electricity would also be used for construction lighting, field services, and electrically driven construction devices

such as air compressors, pumps and other equipment. The construction of the Causeway Component would also result in indirect energy consumption in connection with the production of building materials.

The operation of the Proposed Project would result in indirect energy consumption as a result of maintenance traffic (i.e., operational traffic), as well as energy use in connection with the use of maintenance equipment. Additionally, vehicle use on the causeway would result in indirect energy consumption; however, as identified in **Section 2.1.5 Traffic and Transportation/Pedestrian and Bicycle Facilities**, the Proposed Project would not increase the traffic volume or capacity compared to the existing facilities.

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

The Build Alternatives do not have any electrical components that would result in the increase in energy use. In addition, the Proposed Project would not increase the traffic volume or capacity compared to the existing facilities or cause individuals to use their vehicles; vehicle use is a function of personal choice.

The operation of the Build Alternatives would result in indirect energy consumption as a result of maintenance traffic and the use of maintenance equipment. However, the maintenance activities would not result in the consumption of energy such that existing supplies would be substantially constrained nor would it result in the unnecessary, wasteful, or inefficient use of energy resources.

No-Build Alternative

The No-Build Alternative does not have any electrical components that would result in the increase in energy use. In addition, the No-Build Alternative would not increase the traffic volume or capacity compared to the existing facilities or cause individuals to use their vehicles; vehicle use is a function of personal choice.

The operation of the Project under the No-Build Alternative may result in indirect energy consumption as a result of maintenance traffic and the use of maintenance equipment. However, the maintenance activities would not result in the consumption of energy such that existing supplies would be substantially constrained nor would it result in the unnecessary, wasteful, or inefficient use of energy resources

Short-Term or Construction Impacts

The energy consumption for construction would not result in long-term depletion of non-renewable energy resources and would not permanently increase reliance on energy resources that are not renewable. Construction activities would not significantly constrain local or regional

Energy

energy supplies, require additional capacity, or substantially affect peak and base periods of electrical demand.

Avoidance, Minimization, and/or Noise Abatement Measures

No avoidance, minimization or mitigation measures are planned.

Energy

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2.3 Biological Environment

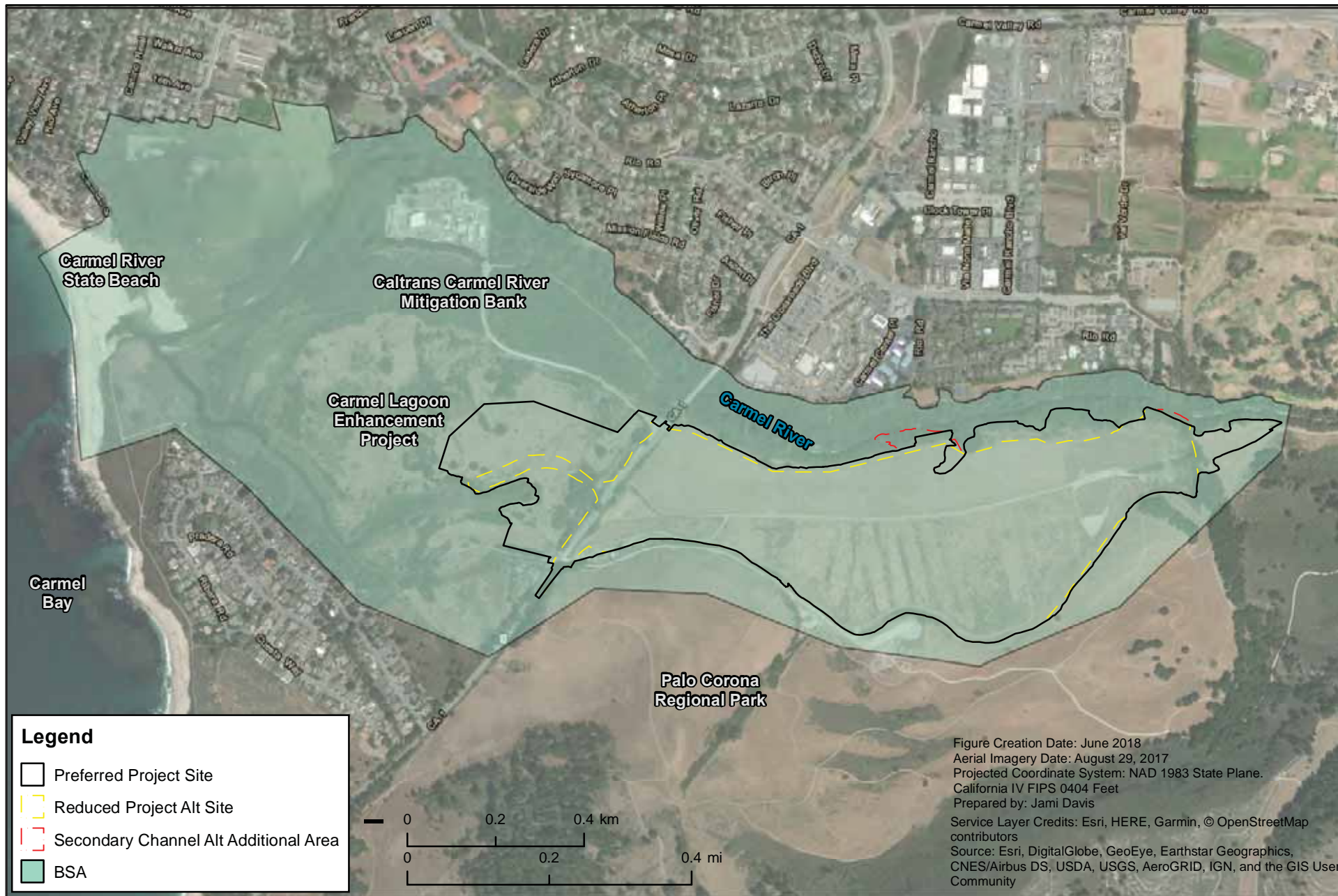
The Project site was historically part of the Carmel River floodplain and provided hydrologic connection with the adjacent floodplain, located west of SR 1 before SR 1 was constructed. The vast majority of the Project site has been farmed for at least 85 years and was likely farmed or grazed for a significant period prior to that. Significant alterations to the historic condition of the site include the hydrologic separation of the Carmel River from its floodplain at this location; the construction of SR 1 in the late 1930s, separating the Project site from the westernmost portion of the Carmel River floodplain and Carmel Lagoon; numerous grading actions associated with farming activities; and placement of fill associated with historic dumping.

Non-engineered levees were constructed on the south bank of the Carmel River in order to reduce the frequency of on-site flooding into the farm fields. These factors diminished the site's hydrologic function as part of the Carmel River floodplain. In addition, the reduced frequency of on-site flooding and the conversion to agricultural uses compromised the site's ecological function. Typical habitat types associated with this flooding regime (i.e. riparian and wetland habitat) were significantly impacted and the conversion to agricultural uses resulted in the loss of on-site habitat. The resulting habitat is highly degraded, presenting significant restoration and enhancement opportunities.

Study Area

The Biological Study Area (BSA) is located at the mouth of the Carmel Valley and includes several open space areas, including an active agricultural area (the Project site), the Carmel River State Beach (which includes the Carmel Lagoon), a portion of Palo Corona Regional Park, and a portion of the Carmel River (**Figure 2.3-1**). Also included within the BSA are small developed areas, including the CAWD water pollution control plant, which is located near the mouth of the Carmel River; a portion of SR 1; a parking lot, bathroom, and barn complex within Carmel River State Beach; a barn and parking lot on MPRPD property, a small row of houses (the "red houses") east of SR 1, and a small group of houses west of SR 1.

A portion of the BSA is open space used for recreation, ranching, and conservation. The portion of Palo Corona Regional Park within the BSA consists of gently rolling hills to steep slopes dominated by areas of annual and native grasslands, coastal scrub, oak woodland, and riparian forest habitats. The Carmel River State Beach is a relatively flat area that includes the north and south arms of the Carmel Lagoon, which are dominated by semi-permanent and seasonal emergent marsh, and also includes open water areas; areas of non-native annual grassland, disturbed herbaceous vegetation, and coastal scrub where historic farming once occurred; the beach area, which includes open sand and coastal dune scrub; and riparian areas associated with the edges of the Carmel Lagoon and the Carmel River. The stretch of the Carmel River that borders the Project site to the north is also dominated by riparian vegetation.



Biological Study Area (BSA)

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.3-1

While the following section provides an analysis of impacts to biological resources that will result from the Proposed Project, it is important to note that the Proposed Project will result in significant positive impacts as the restoration effort matures and the floodplain begins to function from a hydrologic perspective. Reconnecting the floodplain to the Carmel River system will create and maintain a mosaic of habitats that will foster primary productivity, aid in the reproductive cycle of fish, provide nesting and foraging habitat for birds, regenerate riparian vegetation, and provide increased breeding and upland habitat for a number of special-status wildlife species. Additionally, the Proposed Project has been designed to reduce or avoid impacts to sensitive biological resources. Design elements of the Project that will reduce impacts from habitat removal, sedimentation, and erosion include:

- Preservation of levee sections that supports dense riparian forest.
- Vegetative restoration implementation.
- Cobble lining in portions of the channels near the Carmel Lagoon to stabilize channel geometry.
- Retaining small berms at the levee notch(es) to limit volume and velocity of flows during the first several flood seasons.
- Varied topography to create a vegetation mosaic that will provide soil stability where larger rooted trees and shrubs occur, reduce channel blockage and scour where herbaceous vegetation occurs, and create various types of habitat for a diversity of wildlife species.

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2.3.1 Natural Communities

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

Regulatory Setting

Sensitive habitats include riparian corridors, habitats for legally protected species, areas of high biological diversity, areas supporting rare or special-status wildlife habitat, and unusual or regionally restricted habitat types. Habitat types considered sensitive include those listed on the California National Diversity Database (CNDDDB)'s working list of high priority and rare natural communities (i.e., those habitats that are rare or endangered within the borders of California) (CDFW 2010), those that are occupied by species listed under the federal Endangered Species Act (ESA) or are critical habitat in accordance with ESA, and those that are defined as Environmentally Sensitive Habitat Area (ESHA) under the CCA.

Specific habitats may also be identified as sensitive in city or county general plans or ordinances. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with relevant policies pertaining to natural communities from the 1982 Monterey County General Plan and Carmel Area LUP. Sensitive habitats are regulated under federal regulations (such as the CWA and EO 11990 – Protection of Wetlands), state regulations (such as CEQA and the CDFW's Streambed Alteration Program), or local ordinances or policies (such as city or county tree ordinances and general plan policies). In addition to these regulated sensitive habitats, coastal scrub vegetation within the Project site is being treated as a sensitive habitat within this EIR/EA as it is an important natural community in the context of this Project. Habitat areas that have been designated as critical habitat under ESA are discussed below in **Section 2.3.5 Threatened and Endangered Species**. Wetlands and Other Waters are also discussed below in **Section 2.3.2**.

Affected Environment

Literature Review and Surveys

Potential effects on natural communities associated with Project construction were assessed based on an evaluation of historic and current conditions in the context of the Project Build Alternatives components. The primary sources of information used in conjunction with the following analysis include:

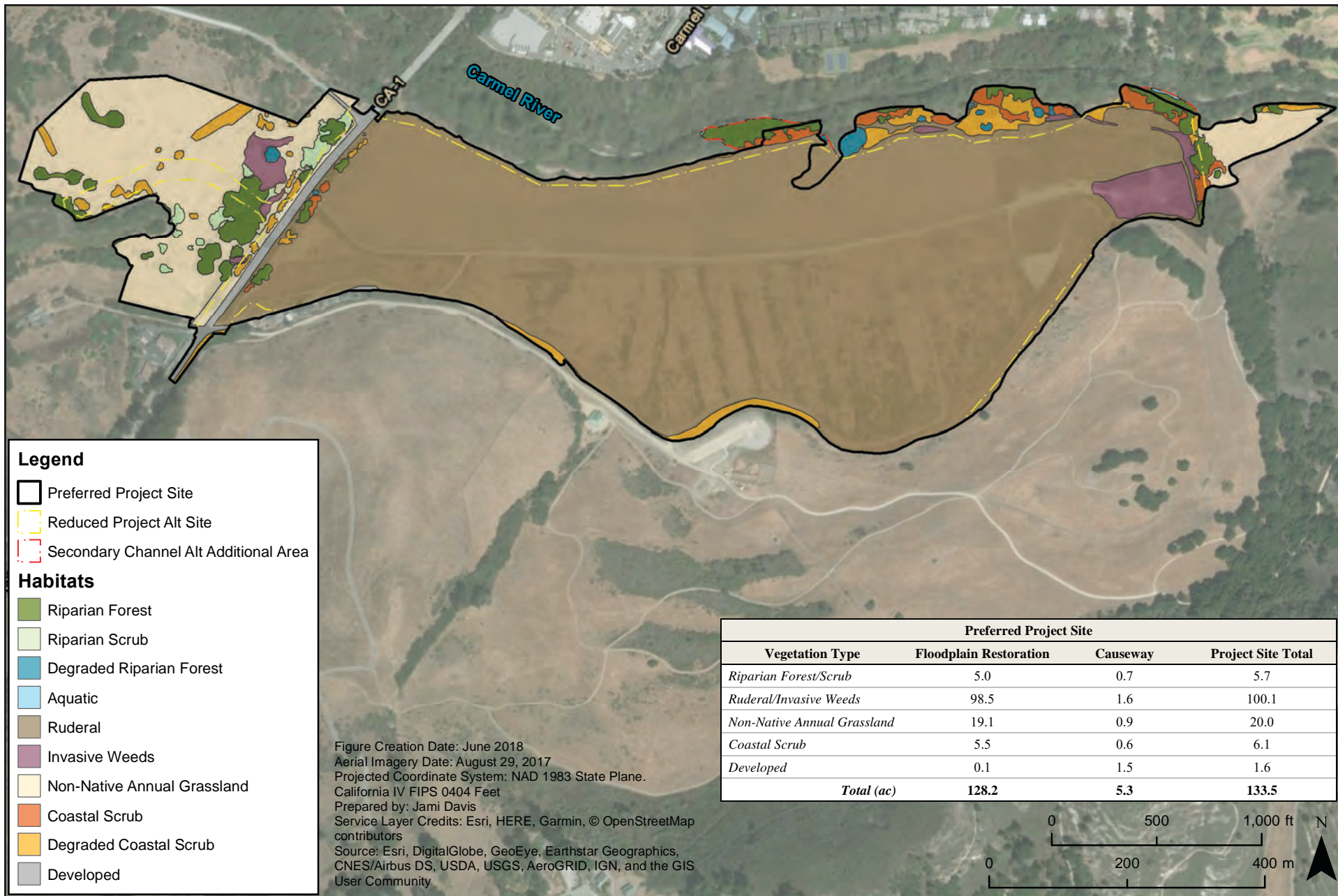
- Wetland Habitat Types of the Carmel Lagoon (CCoWS 2006b);
- *Carmel River Floodplain Restoration and Environmental Enhancement Project Draft Natural Environmental Study* (DD&A 2016b);

- *Carmel River State Beach Lagoon Restoration Project Draft Initial Study Mitigated Negative Declaration* (State Parks 2002a);
- *Carmel River State Beach Lagoon Restoration Project Final Initial Study Mitigated Negative Declaration* (State Parks 2002b);
- *Riparian Habitat Restoration, Carmel River Lagoon, Wildlife Conservation Board Grand Number – WC-3048SC, Final [monitoring] Report* (State Parks 2007);
- *Carmel River Lagoon Enhancement Project [monitoring] Report* (State Parks 2008a);
- *Draft Initial Study/Mitigated Negative Declaration, Carmel River Beach Lagoon Water Level Management Project* (State Parks 2008b);
- *Final Initial Study/Mitigated Negative Declaration, Carmel River Beach Lagoon Water Level Management Project* (State Parks 2008c); and
- *Carmel River Lagoon Enhancement Project Report* (State Parks 2009).

Reconnaissance-level biological surveys were conducted to review and confirm previous surveys and characterize habitats present within the Project site and BSA to be used as baseline conditions for the Project. The Project site was surveyed following the applicable guidelines outlined in: Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2009) and California Native Plant Society (CNPS) Botanical Survey Guidelines (CNPS 2001). Data were recorded on the physiognomy of the vegetation and on dominant and characteristic species, as well as basic ecological factors, including topography, slope, aspect, soil type, hydrologic regime, and evident disturbance. Additional vegetation mapping was conducted by HTH to determine the quality of vegetation present within the Project site. The vegetation mapping conducted by DD&A and HTH were merged to create a final vegetation map, as displayed in this document.

Natural Communities Affected

Within the Preferred Project site, four vegetation types are present: riparian forest/scrub, ruderal/invasive weeds, non-native annual grassland, and coastal scrub (**Figure 2.3.1-1**). Additionally, a portion of the Project site is developed. The Secondary Channel Alternative would also include a very small area of aquatic habitat (0.04 ac) associated with the grading of the secondary channel down to the elevation of the Carmel River bed. A brief description of each of these vegetation types can be found below along with a statement of the presence or potential presence of special-status species within each vegetation type and if it is a sensitive habitat. A generalized nomenclature for vegetation types is used within this document for ease of reference; however, each vegetation type description also lists the Manual of California Vegetation (Sawyer et.al. 2009) vegetation type(s) in order to provide a crosswalk to the Natural Communities List (CDFW 2010). **Table 2.3.1-1** provides the acreages of these vegetation types within each Project component for the Preferred Project.



Vegetation Map

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA

Figure
2.3.1-1

Table 2.3.1-1. Acreage of Vegetation Types within the Preferred Project.

Vegetation Type	Floodplain Restoration	Causeway	Project Site Total
<i>Riparian Forest/Scrub</i>	5.0	0.7	5.8
<i>Ruderal/Invasive Weeds</i>	98.5	1.6	100.0
<i>Non-Native Annual Grassland</i>	19.1	0.9	20.0
<i>Coastal Scrub</i>	5.5	0.6	6.1
<i>Developed</i>	0.1	1.5	1.7
Total	128.2	5.3	133.6

Riparian Forest/Scrub

A *Manual of California Vegetation* classification: Arroyo willow thickets (*Salix lasiolepis* Shrubland Alliance)

Riparian habitats are those plant communities supporting woody vegetation found along rivers, creeks, streams, and canyon bottom drainages. They can range from a dense thicket of shrubs to a closed canopy of large mature trees.

Riparian vegetation is found along the northern border of the Project site, where the Project overlaps with the Carmel River riparian corridor, and on the west side of SR 1, within areas under active restoration as part of the CRLEP. The riparian vegetation in these areas is contiguous with additional riparian vegetation in other areas of the BSA. Riparian vegetation dominates the banks of the Carmel River and large limbs and some individual trees can be found on top of, and on the south side of the existing levee. Riparian vegetation is also present surrounding the Carmel Lagoon at Carmel River State Beach and the River Pond on Palo Corona Regional Park.

The Project site supports two types of riparian habitat: riparian forest and riparian scrub (**Figure 2.3.1-1**). Riparian forest areas are dominated by Arroyo willow (*Salix lasiolepis*), cottonwood (*Populus balsamiferous*) and, slightly less dominant, western red dogwood (*Cornus serica*). Riparian scrub areas are dominated by California blackberry (*Rubus ursinus*), box elder (*Acer negundo* var. *californica*), hoary nettle (*Urtica dioica*), and mugwort (*Artemisia douglasiana*). The species within the riparian scrub areas are also present within the riparian forest but are less dominant understory species. Additionally, portions of the riparian forest are degraded due to historic and on-going agricultural activities. The riparian forest in these degraded areas is less densely vegetated and has an understory of non-native invasive weed species, such as poison hemlock (*Conium maculatum*), and annual grasses.

Ruderal/Invasive Weeds

A *Manual of California Vegetation* classifications: Oats Grassland (*Avena barbata*, *fatua* Semi-Natural Herbaceous Stands), Annual Brome Grasslands (*Bromus diandrus*, *hordeaceus-Brachypodium distachyon* Semi-Natural Herbaceous Stands), Poison Hemlock or Fennel Patches

(*Conium maculatum* – *Foeniculum vulgare* Semi-Natural Herbaceous Stands) and Upland mustards (*Brassica nigra* and Other Mustards Semi-Natural Herbaceous Stands)

Ruderal areas are those areas which have been developed or have been subject to historic and ongoing disturbance by human activities (e.g., existing roads or agricultural areas) and are devoid of vegetation or dominated by non-native and/or invasive weed species. Within the Project site this habitat includes dirt roads, fill from levee and highway construction, and former and active agricultural fields (**Figure 2.3.1-1**). These areas are dominated by non-native species, such as, slender oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), perennial ryegrass (*Festuca perenne*), and field mustard (*Brassica rapa*). Bristly ox-tongue (*Helminthotheca echinoides*) and poison hemlock are also present but are less dominant. A portion of this area was also seeded with white clover (*Trifolium repens*), red clover (*T. pretense*), as indicated by the farmer, and five unknown grass species. Additional invasive weeds, such as fennel (*Foeniculum vulgare*) and wild radish (*Raphanus sativus*), are dominant in some areas (**Figure 2.3.1-1**).

Non-Native Annual Grassland

A Manual of California Vegetation classifications: Wild Oats Grassland (*Avena barbata*, *fatua* Semi-Natural Herbaceous Stands) and Annual Brome Grasslands (*Bromus diandrus*, *hordeaceus-Brachypodium distachyon* Semi-Natural Herbaceous Stands)

Non-native annual grassland is present in areas west of SR 1 that have been historically used for agriculture and were graded in 2004 as part of the CRLEP, and on the eastern portion of the Project site on property owned by the MPRPD (**Figure 2.3.1-1**). Dominant grass species within this vegetation type include slender oat, ripgut brome, soft chess (*B. hordeaceus*), and rattail fescue (*Vulpia myuros*).

Coastal Scrub

A Manual of California Vegetation classification: Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance)

Coastal scrub is present along the southern border of the Project site, in transition areas between riparian habitat and ruderal areas, and in the upland areas surrounding the south arm of the Carmel Lagoon that were planted as part of the restoration by State Parks for the CRLEP. Coyote brush (*Baccharis pilularis*) is the dominant species within this habitat type; however, the canopy is not very dense and annual grass, such as slender oat, ripgut brome, and soft chess are dominant in the understory of many areas. Additionally, portions of the coastal scrub are degraded due to historic and on-going agricultural activities (**Figure 2.3.1-1**). The coastal scrub in these degraded areas is sparsely vegetated and some areas are being invaded by invasive weed species and annual grasses.

Developed

A Manual of California Vegetation classification: None

Developed areas within the Project site include SR 1 and the small group of structures present on the southern boundary of the Project site, east of SR 1 (**Figure 2.3.1-1**). These areas are mostly devoid of vegetation; however, some trees and vegetation are present surrounding the structures.

Habitat Connectivity

The Project site currently provides limited connectivity between the surrounding public lands. Although much of the Project site is open space used for agriculture, limited cover from shrubs and trees is present to provide protection to wildlife moving through the site. Additionally, SR 1 creates a partial barrier to wildlife movement to and from the Carmel Lagoon. Berms along the Carmel River, SR 1, and ongoing ranching activities currently preclude connectivity through the historic floodplain between the riparian habitat and wetlands of the Carmel River and Carmel Lagoon.

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

The Proposed Project would improve and expand the natural communities within the site by restoring it as part of the Carmel River floodplain. The site would be re-planted with native species and natural recruitment would be actively managed to the extent necessary to support native recolonization. Although all of the Build Alternatives will remove riparian habitat as a result of construction, these impacts will be temporary as all the Build Alternatives includes implementation of the RMP to revegetate the Project site with these habitats and are discussed below under Short Term Construction Impacts.

Ongoing maintenance activities which include mowing and removal of vegetation, as described in **Section 1.4 Project Alternatives**, may result in temporary, but ongoing disturbance of natural communities. The area of annual disturbance resulting from maintenance activities is approximately 15 acres for the Reduced Project Alternative, while the other two Build Alternatives include approximately 36 acres of annual maintenance. These impacts are considered negligible in the context of the increased habitat values created by the project.

No-Build Alternatives

Under the No-Build Alternative, no grading would occur; however, BSLT would implement a modified restoration approach on APNs 243-071-006-000 and 243-071-007-000 to maintain existing riparian vegetation along the Carmel River and install native vegetation in lieu of agricultural uses. This would expand the native vegetation communities within the Project site. No native habitat would be removed under the No-Build Alternative.

Short-Term or Construction Impacts

Vegetation removal and grading activities associated with the Preferred Project will impact approximately 4.1 acres of riparian vegetation. **Table 2.3.1-2** shows the acreage of impacts within each Project component. The Reduced Project Alternative would impact only 1.2 acres of riparian habitat. Conversely, the Secondary Channel Alternative would impact an additional 0.9 acres (5.0 acres total) associated with the grading of the secondary channel.

Table 2.3.1-2. Acreage of Riparian Vegetation Impacts within the Preferred Project

Type	Floodplain Restoration	Causeway	Total
<i>Riparian Forest</i>	2.8 ac	0.3 ac	3.1 ac
<i>Degraded Riparian Forest</i>	0.5 ac	0 ac	0.5 ac
<i>Riparian Scrub</i>	0.4 ac	0.1 ac	0.5 ac
Total	3.7 ac	0.4 ac	4.1 ac

Impacts to riparian habitat outside of the grading limits or immediately adjacent to the Project site within the BSA may occur if activities are conducted outside of the established Project boundary or if construction activities result in erosion and sedimentation to adjacent habitats.

Avoidance, Minimization, and/or Mitigation Measures

In addition, implementation of **Measure HAZ-3** in **Section 2.2.5 Hazardous Waste and Materials** and the following measures would avoid or reduce potential adverse effects to the natural communities that may result from the construction and maintenance of the Project. Please note that these measures would apply to any Build Alternative chosen construction; with the acreage adjusted accordingly.

Riparian Measures

- NC-1** Disturbance or removal of vegetation shall not exceed the minimum necessary to complete Project implementation.
- NC-2** Prior to issuance of a grading permit, the Project Applicants shall retain a qualified Project Biologist to monitor all ground disturbing construction activities (i.e., vegetation removal, grading, excavation, or similar activities) to ensure measures to protect sensitive habitats are implemented. After ground disturbing and vegetation removal activities are complete, or earlier if determined appropriate by the Project Biologist, the Project Biologist will designate a construction monitor to oversee on-site compliance with all avoidance and minimization measures. The Project Biologist shall ensure that this construction monitor receives the sufficient training in the location of the sensitive habitats within and adjacent to the Project site and the protective measures afforded to them. The Project Biologist shall ensure the construction monitor is satisfactorily implementing all appropriate mitigation protocols by conducting site visits approximately weekly or when necessary as dictated by the Project activities, proximity to sensitive resources, or other reasons at the discretion of the Project Biologist. Both

the Project Biologist and the construction monitor shall have the authority to stop and/or redirect Project activities to ensure protection of resources and compliance with all environmental permits and conditions of the Project. The Project Biologist and the construction monitor shall complete a daily log summarizing activities and environmental compliance throughout the duration of the Project that shall be provided to the County upon completion of the construction.

NC-3 Prior to construction initiation, protective fencing shall be placed so as to keep construction vehicles and personnel from impacting riparian vegetation and other sensitive habitats adjacent to the Project site outside of grading limits. Trees or vegetation not required for removal, but directly adjacent to construction activities, shall be provided appropriate protection from impacts of construction activity. This includes fencing off shrubby vegetation and protective wood barriers for trees. Protective fencing for trees shall be far enough from trunk to adequately protect roots and large branches (typically installed at the drip line). Orange cyclone fencing or other materials that can entrap wildlife shall not be used. Protective fencing shall be installed under the supervision of the Project Biologist. The Project Biologist and/or construction monitor shall monitor the fencing to ensure that the protective fencing remains intact and that all construction work is maintained within the limits of construction. Installation and monitoring of the fencing shall be documented in the daily log.

NC-4 To mitigate for impacts to riparian habitat resulting from vegetation removal and grading, the RMP prepared for the Project includes replanting willow and cottonwood riparian forest within the Project site at a 3:1 ratio for the area of riparian forest disturbed and at a 2:1 ratio for the area of degraded riparian forest and riparian scrub disturbed (11.3 acres replanted). All compensatory mitigation will be installed during Tier 1 of the restoration, as described in the Project Description. **Table 2.3.1-3** shows the mitigation ratios and acreage of riparian restoration presented in the RMP.

Table 2.3.1-3. Riparian Vegetation Mitigation

Type	Habitat Quality	Impact Acreage	Mitigation Ratio	Mitigation Acreage
<i>Riparian Forest</i>	High	3.1	3:1	9.3
<i>Degraded Riparian Forest</i>	Medium	0.5	2:1	1.0
<i>Riparian Scrub</i>	Medium	0.5	2:1	1.0
Total	--	4.1	--	11.3

2.3.2 Wetlands and Other Waters

Regulatory Setting

Wetlands and Other Waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the CWA (33 USC 1344), is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas and Other Waters that may be used in interstate or foreign commerce.

The lateral limits of jurisdiction over non-tidal water bodies extend to the OHW mark, in the absence of adjacent wetlands. When adjacent wetlands are present, CWA jurisdiction extends beyond the OHW mark to the limits of the adjacent wetlands. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to meet the definition of a wetland and be considered as a jurisdictional wetland under the CWA.

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

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General permits: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

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

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

At the state level, wetlands and waters are regulated primarily by the SWRCB, RWQCB, and CDFW. In certain circumstances, the CCC may also be involved. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with relevant policies pertaining to wetlands and other waters from the 1982 Monterey County General Plan and Carmel Area LUP. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that a project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

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

Affected Environment

Literature Review and Surveys

A wetland delineation was prepared for the Proposed Project in accordance with the requirements set forth in The Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual (Wetland Training Institute 1995) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008) and published CCC guidance. Prior to conducting the wetland delineation, available reference materials were reviewed, including the Web Soil Survey for Monterey County (USDA 1978), the list of Hydric Soils of the United States (USDA-NRCS 2014), the Soil Survey Geographic Database (USDA-NRCS 2003), the National Wetlands Inventory Wetland Mapper (Service 2014), and aerial photographs of the site.

In addition, multiple existing reports were evaluated in the preparation of the wetland delineation report²⁰:

- *Carmel River Floodplain Restoration Project Wetland Delineation Analysis* (Nedeff and Hennessy 2009);
- *Coastal Wetland Delineation Carmel River Floodplain Restoration and Enhancement Project* (DD&A 2011c);
- *Carmel Lagoon Ecosystem Protective Barrier, Scenic Road Protection Structure, and Interim Sandbar Management Plan Project Delineation of Jurisdictional Wetlands and Other Waters Under Section 404 of the Clean Water Act and the California Coastal Act* (DD&A 2015b); and
- *Carmel River Floodplain Restoration and Environmental Enhancement Project Draft Delineation of Jurisdictional Wetlands and Other Waters under Section 404 of the Clean Water Act and the California Coastal Act* (DD&A 2016a; **Appendix F**).

For the delineation DD&A utilized multiple data sources including data previously collected for this Project, data collected for adjacent and overlapping projects, and data collected specific to the updated delineation (as identified above). All data collected previously and not specific to the delineation was field checked to ensure site conditions had not changed. The delineation was conducted within an area somewhat larger than the Project site in order to identify wetlands and Other Waters adjacent to the Project site (henceforth referred to as the wetland evaluation area). The data collected during the field surveys were recorded on Wetland Determination Data Forms for the Arid West Region. Data collected at each sampling point was analyzed to determine if wetlands were present.

Evidence of a minimum of one positive wetland indicator from each parameter (vegetation, soils, hydrology) was necessary in order to make a positive determination of wetlands potentially under the jurisdiction of the USACE and evidence of a minimum of one positive wetland indicator from any parameter was necessary in order to make a positive determination of wetlands potentially under the jurisdiction of the CCC. The mapping of coastal wetlands beyond those identified as federal is based on the distribution of wetland plant species, which in most cases consisted of riparian species such as Arroyo willow and California blackberry. The mapping of potential Other Waters of the U.S. is based on the presence of an OHW mark associated with the un-vegetated bed of the Carmel River, un-vegetated portions of the Carmel Lagoon, and an agricultural ditch on the south boundary of the Project site. Additionally, all wetlands and Other Waters potentially under the jurisdiction of the USACE and CCC may be considered waters of the state and regulated by the RWQCB. RWQCB may take jurisdiction of additional waters of the state at their discretion.

²⁰ Existing data previously collected within the evaluation area was field checked and used for this report.

Wetlands and Other Waters Affected

Approximately 1.5 acres of federal wetlands and 2.2 acres of Other Waters of the U.S. potentially under the jurisdiction of the USACE, and 25.3 acres of coastal wetlands, potentially under the jurisdiction of the CCC, were identified within the wetland evaluation area (**Figure 2.3.2-1**).²¹ These areas may also be considered waters of the state and regulated by the RWQCB.

Approximately 0.008 acre of wetlands and 0.06 acre of Other Waters that meet the federal definitions were identified within a ditch that runs along the southern boundary of the Project site. This area is within the boundaries of all of the Build Alternatives. The ditch conveys very limited seasonal flow from culverts draining upslope areas to the floodplain from the adjacent Parklands. A Preliminary Jurisdictional Determination was prepared by the USACE that identified the ditch as jurisdictional (USACE 2016). An approved Jurisdictional Determination was received from the USACE on September 2, 2016. An additional 0.04 acre of Other Waters is within the additional area that would be graded to the Carmel River channel for the Secondary Channel Alternative.

Approximately 5.8 acres of potential coastal wetlands were identified within the Preferred Project. An additional 1.56 acres of potential coastal wetland were identified within the additional area that would be graded under the Secondary Channel Alternative. Under the Reduced Project Alternative, the area of potential coastal wetlands is reduced to 1.2 acres.

Environmental Consequences

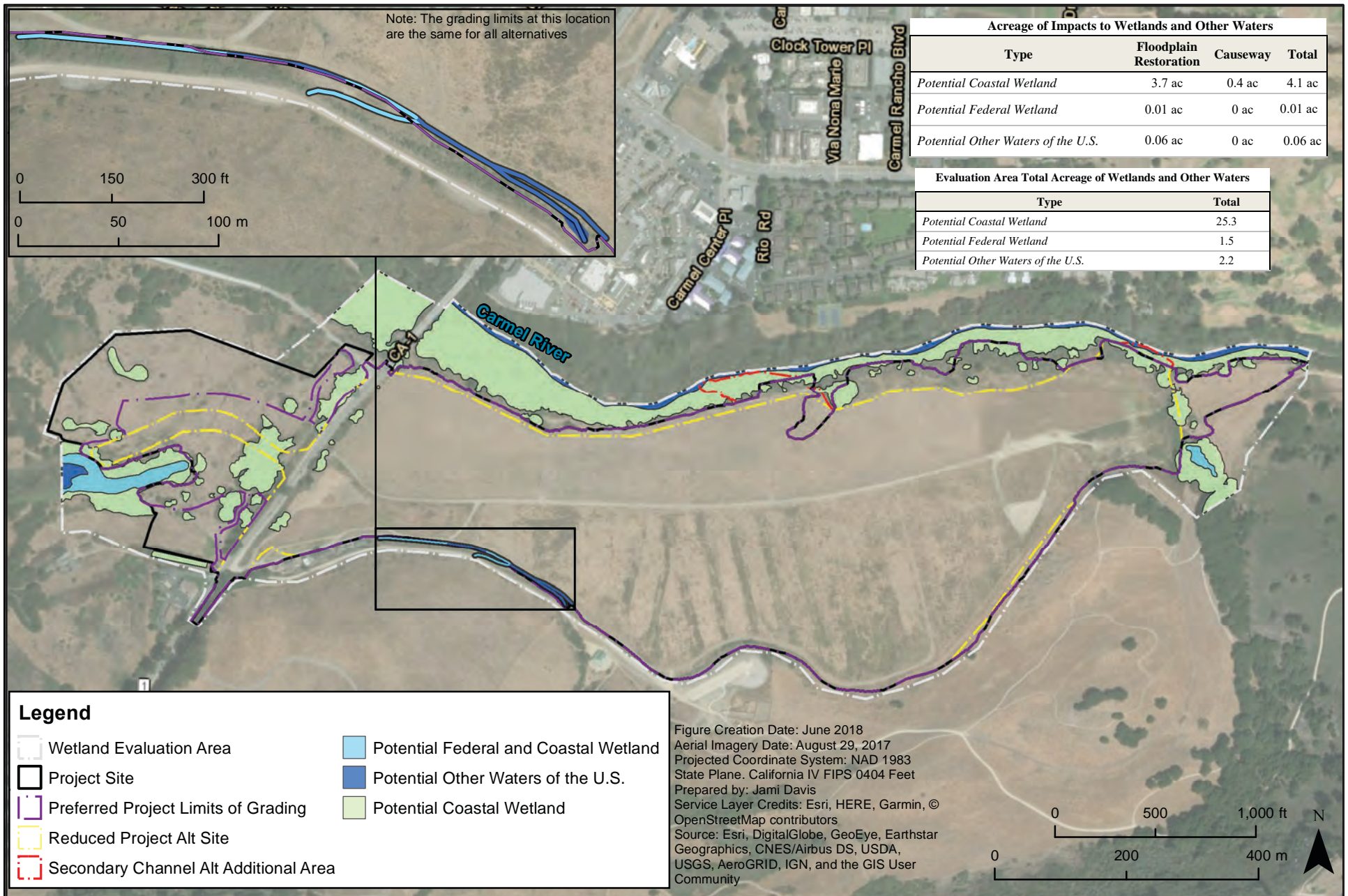
Long-Term or Operational Impacts

Build Alternatives

All the Build Alternatives will result in an expansion of wetland habitat throughout the site.

Ongoing maintenance activities which include mowing and removal of vegetation, as described in **Section 1.4 Project Alternatives**, may also result in temporary disturbance of wetland habitat. The area of annual disturbance resulting from maintenance activities is approximately 15 acres for the Reduced Project Alternative, while the other two Build Alternatives include approximately 36 acres of annual maintenance. However, the vast majority of the maintenance area will be grassland and will not contain wetland habitat. These impacts are considered negligible in the context of the increased habitat values created by the Project.

²¹ It is important to note that all federal wetlands satisfy the definition of coastal wetlands. As a result, the acreages calculated for coastal wetlands overlap with the federal wetlands and are therefore not added together for a total acreage. For example; if a two-acre coastal wetland polygon also contains a one-acre of federal wetland, the total acreage wetlands mapped is only two acres. The coastal and the federal totals are not added because they overlap.



Potential Wetlands and Other Waters

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA

Figure
2.3.2-1

No-Build Alternative

Under the No-Build Alternative, no grading would occur; however, BSLT would implement a modified restoration approach on APNs 243-071-006-000 and 243-071-007-000 to maintain existing riparian vegetation along the Carmel River and install native vegetation in lieu of agricultural uses. This would likely expand the coastal wetland communities within the Project site, although success is expected to be reduced compared to the Build Alternatives. No potentially jurisdictional wetlands or other waters would be removed under the No-Build Alternative.

Short-Term or Construction Impacts

The Preferred Project and Reduced Project Alternative would result in temporary impacts to approximately 0.01 acre of wetlands and 0.06 acre of Other Waters that meet the federal definitions as a result of grading. An additional 0.04 acre of Other Waters (0.1 acres total) would be temporarily impacted as a result of the Secondary Channel Alternative.

The Preferred Project would result in the temporary impact of approximately 4.1 acres of coastal wetlands as a result of grading. The Reduced Project Alternative would impact only 1.3 acres of coastal wetland. An additional 0.9 acres of coastal wetland (5.0 acres total) would be temporarily impacted under the Secondary Channel Alternative. **Table 2.3.2-1** shows the acreage of temporary impacts within each Project component.

Table 2.3.2-1. Acreage of Impacts to Wetlands and Other Waters

Type	Preferred Project		Reduced Project Alternative		Secondary Channel Alternative	
	<i>Floodplain Restoration</i>	<i>Causeway</i>	<i>Floodplain Restoration</i>	<i>Causeway</i>	<i>Floodplain Restoration</i>	<i>Causeway</i>
<i>Potential Coastal Wetland</i>	3.7 ac	0.4 ac	0.4 ac	0.9 ac	5.0 ac	0.4 ac
<i>Federal Wetland</i>	0.01 ac	0 ac	0.01 ac	0 ac	0.01 ac	0 ac
<i>Other Waters of the U.S.</i>	0.06 ac	0 ac	0.06 ac	0 ac	0.1 ac	0 ac

Additionally, potential federal and coastal wetlands and Other Waters of the U.S. are present outside of the grading limits and immediately adjacent to the Project site within the BSA. Indirect impacts to these sensitive habitats may include sedimentation and reduced water quality as a result of erosion from disturbed portions of the Project site during construction or if the site is left unvegetated. Flood flows could also impair the Carmel Lagoon should flows over the restored floodplain carry excessive amounts of sediment, or if significant velocities are achieved that can re-mobilize sediment from the floodplain and redistribute it to the lagoon. Impacts to federal and coastal wetlands, and Other Waters of the U.S. and state outside of the grading limits and immediately adjacent to the Project site within the BSA may also occur if activities are conducted outside of the established Project site boundary.

Avoidance, Minimization, and/or Mitigation Measures

The implementation of the Project will result in an expansion of the distribution of natural floodplain habitats, including both coastal and federally jurisdictional wetlands, within the Project site and substantially improve wetland function and value. No permanent net loss of federal or coastal wetlands will result from the Project.

Additionally, implementation of **Measures HAZ-3** and **NC-1** through **NC-4** will avoid, minimize, and mitigate for temporary impacts to federal and coastal wetlands and Other Waters of the U.S.

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2.3.3 Plant Species

Regulatory Setting

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

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

The regulatory requirements for FESA can be found at 16 USC Section 1531, et seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Caltrans projects are also subject to the California Native Plant Protection Act (CNPPA), found at California Fish and Game Code, Section 1900-1913, and CEQA, California PRC, Sections 2100-21177. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project’s consistency with relevant policies pertaining to special-status plant species from the 1982 Monterey County General Plan and Carmel Area LUP.

Affected Environment

Literature Review and Surveys

The following literature and data sources were reviewed to determine which special-status plant species have the potential to occur within the Project site:

- Current agency status information from the Service and CDFW for plant species listed or candidates for listing as threatened or endangered under ESA or CESA, (Service 2018; CDFW 2018a);
- CNDDDB occurrence reports from the Monterey quadrangle and the surrounding quadrangles (Marina, Mt. Carmel, Seaside, and Soberanes Point) (CDFW 2018b);
- *Carmel River Floodplain Restoration and Environmental Enhancement Project Draft Natural Environmental Study* (DD&A 2016b);
- *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2018);

Plant Species

- *Carmel River State Beach Lagoon Restoration Project Draft Initial Study Mitigated Negative Declaration* (State Parks 2002a);
- *Carmel River State Beach Lagoon Restoration Project Final Initial Study Mitigated Negative Declaration* (State Parks 2002b);
- *Riparian Habitat Restoration, Carmel River Lagoon, Wildlife Conservation Board Grand Number – WC-3048SC, Final [monitoring] Report* (State Parks 2007);
- *Carmel River Lagoon Enhancement Project [monitoring] Report* (State Parks 2008a);
- *Draft Initial Study/Mitigated Negative Declaration, Carmel River Beach Lagoon Water Level Management Project* (State Parks 2008b);
- *Final Initial Study/Mitigated Negative Declaration, Carmel River Beach Lagoon Water Level Management Project* (State Parks 2008c); and
- *Carmel River Lagoon Enhancement Project Report* (State Parks 2009).

The Project site was surveyed for botanical resources following the applicable guidelines outlined in:

- Guidelines for Conducting and Reporting Botanical Inventories for Federally listed, Proposed and Candidate Plants (Service 2000);
- Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2009);
- CNPS Botanical Survey Guidelines (CNPS 2001); and
- Recommendations for conducting botanical surveys during drought years (Deborah Hillyard, Senior Environmental Scientist, CDFW, personal communication, email: March 11, 2014).

Focused surveys for special-status plant species were conducted by DD&A Environmental Scientists in April and May 2015, and April and June 2018. Prior to conducting focused botanical surveys, an analysis of special-status plant species known to occur within the vicinity was conducted to determine the potential for their presence within the Project site based on presence of suitable habitats, soils, elevation range, and currently known geographic range. An effort was also made to identify local reference populations for species determined to have the potential to occur within the Project site, in order to determine the appropriate survey timing (i.e. peak bloom) for these species. A list of all plant species observed during focused surveys is provided in the Natural Environmental Study (NES) prepared for the Project (DD&A 2016b). Scientific nomenclature for plant species identified within this document follows The Jepson Manual: Vascular Plants of California, Edition 2 (Baldwin et al. 2012).

Special-Status Plant Species Affected

Special-status plants known to occur or with the potential to occur within the Project vicinity, along with their legal status, habitat requirements, and potential to be impacted by the Project, are included in Table 3-2 of the NES. The CNDDDB reports occurrences of several special-status plant species within a portion of the Project site, including sandmat manzanita (*Arctostaphylos pumila*), Eastwood's goldenbush (*Ericameria fasciculata*), Santa Lucia bush mallow (*Malacothamnus palmeri* var. *palmeri*), Jolon clarkia (*Clarkia jolonensis*), marsh microseris (*Microseris paludosa*), and Kellogg's horkelia (*Horkelia cuneata* ssp. *sericea*). However, these species were mapped in general locations based on historic observations from the late 1800's and early 1900's, and several are noted within habitat types that do not occur on the Project site. As such, it is unlikely that these plant species were observed within the Project site historically. Additionally, none of these species were observed within the Project site during focused surveys conducted in 2015 and 2018.

Two CNPS California Rare Plant Rank (CRPR) 1B plant species were observed within the Project site during focused surveys in 2015 and 2018: Monterey pine (*Pinus radiata*) and Monterey cypress (*Hesperocyparis macrocarpa*). Monterey pine and cypress trees are present within both the Floodplain Restoration and Causeway Components of the Project site (**Figure 2.3.3-1**). Although they may be present within the historic range of these species, most individuals are located within the fill slope of SR 1 and are not contiguous with any Monterey pine or Monterey cypress habitat. One large Monterey pine tree appears to be the seed source for all of the other Monterey pine trees within the Project site, including the one individual not located within the SR 1 fill slope. Similarly, two or three of the large Monterey cypress trees appear to be the seed source for all of the smaller Monterey cypress trees. The genetic origin of these individuals is unknown and they are likely from planted stock or volunteers from planted stock. No other special-status plant species are known or expected to occur in the Project boundaries or vicinity based on focused surveys conducted in 2015 and 2018 and the Project-specific reasons presented in the NES.

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

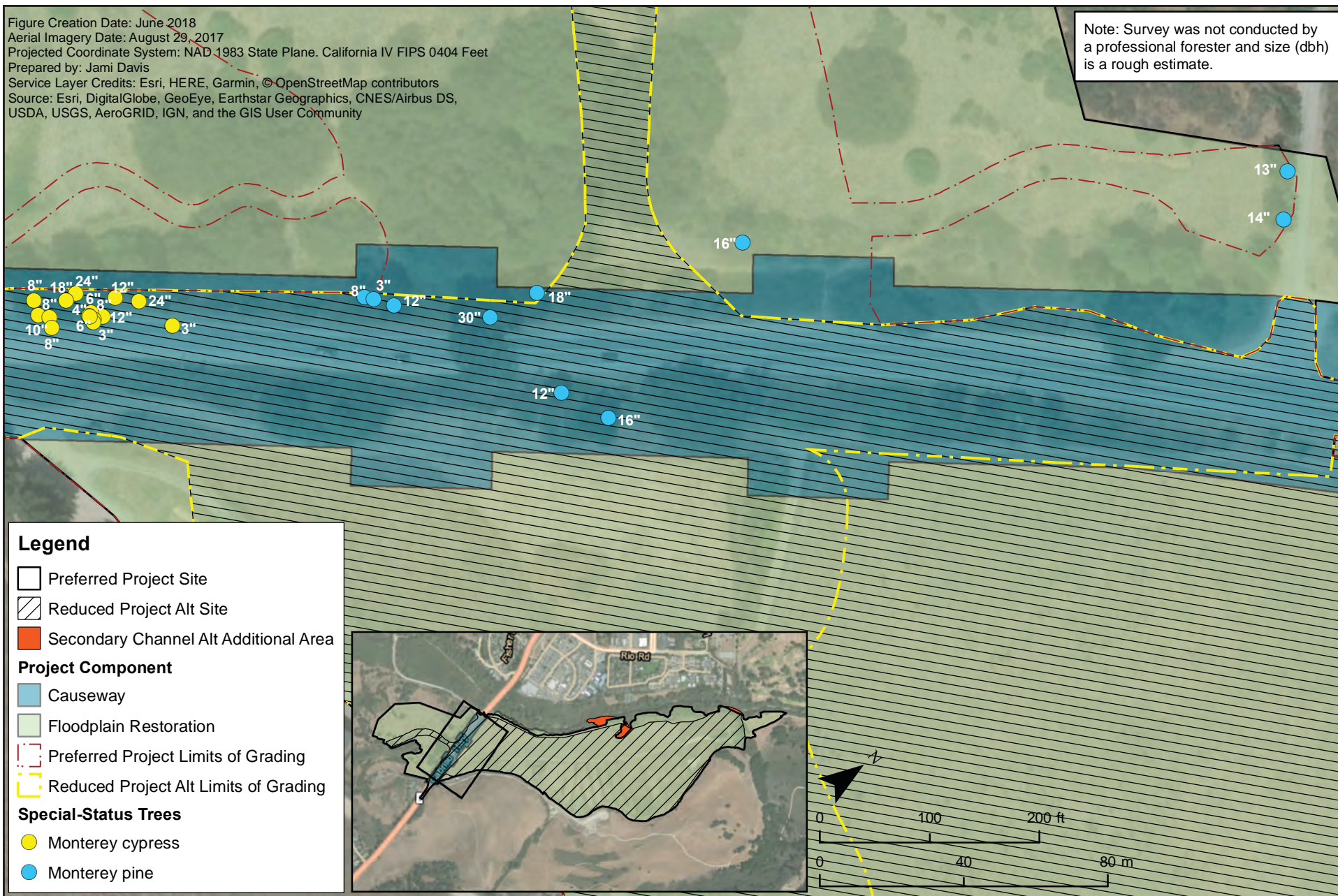
Ongoing maintenance activities which include mowing and removal of vegetation, as described in **Section 1.4 Project Alternatives**, may result in temporary but ongoing disturbance. However, the only special-status plants that are known from the site are Monterey Pine and Cypress. Any impacts resulting from maintenance to special-status plants that may colonize the site as a result of habitat improvements brought about by the project are negligible.

No-Build Alternative

The No-Build Alternative will not result in any impacts to protected plant species.

Figure Creation Date: June 2018
 Aerial Imagery Date: August 29, 2017
 Projected Coordinate System: NAD 1983 State Plane, California IV FIPS 0404 Feet
 Prepared by: Jami Davis
 Service Layer Credits: Esri, HERE, Garmin, © OpenStreetMap contributors
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS,
 USDA, USGS, AeroGRID, IGN, and the GIS User Community

Note: Survey was not conducted by a professional forester and size (dbh) is a rough estimate.



Monterey Pine and Monterey Cypress Trees within the Project Site

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.3.3-1

Short-Term or Construction Impacts

Construction activities from the Build Alternatives will result in the removal of 10 Monterey pine and 15 Monterey cypress trees (**Figure 2.3.3-1**). All trees are located within the Causeway Component, with the exception of one Monterey pine tree, which is located within the Restoration Component.

Avoidance, Minimization, and/or Mitigation Measures

The presence of Monterey pine and Monterey cypress individuals within the Project site is not consistent with the goals and objectives of the Project, which is to return the site to a more naturally functioning floodplain. The existence of these individuals is reliant on an artificial feature within the floodplain (the SR 1 embankment). In addition, these individuals are not contiguous with any natural occurring Monterey pine or Monterey cypress habitat and are very likely of genetically compromised horticultural origin. Impacts to these trees are considered negligible in the context of the available regional resource. As such, impacts to these individuals are not substantial and no avoidance, minimization, or mitigation efforts will be implemented for Project impacts to these individuals.

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2.3.4 Animal Species

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The Service, NMFS and CDFW are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under ESA and CESA. Species listed or proposed for listing as threatened or endangered are discussed in **Section 2.3.5 Threatened and Endangered Species**. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, Service birds of conservation concern, and Service and NMFS candidate species.

Federal laws and regulations relevant to wildlife include NEPA and the Fish and Wildlife Coordination Act. State laws and regulations relevant to wildlife include CEQA, Sections 4150 and 4152 of the California Fish and Game Code, and the Coastal Act.

City or county general plans and ordinances may also provide policies specific to special-status wildlife species. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with relevant policies pertaining to special-status wildlife species from the 1982 Monterey County General Plan and Carmel Area LUP.

Affected Environment

Literature Review and Surveys

The following literature and data sources were reviewed to determine which special-status wildlife species have the potential to occur within the Project site:

- Current agency status information from the Service and CDFW for animal species listed or candidates for listing as threatened or endangered under ESA or CESA, (Service 2018; CDFW 2018a);
- CNDDDB occurrence reports from the Monterey quadrangle and the surrounding quadrangles (Marina, Mt. Carmel, Seaside, and Soberanes Point) (CDFW 2018b);
- *Carmel River Floodplain Restoration and Environmental Enhancement Project Draft Natural Environmental Study* (DD&A 2016);
- *Birds of Conservation Concern 2008*. (Service 2008);
- *Carmel River State Beach Lagoon Restoration Project Draft Initial Study Mitigated Negative Declaration* (State Parks 2002a);
- *Carmel River State Beach Lagoon Restoration Project Final Initial Study Mitigated Negative Declaration* (State Parks 2002b);

- *Riparian Habitat Restoration, Carmel River Lagoon, Wildlife Conservation Board Grand Number – WC-3048SC, Final [monitoring] Report* (State Parks 2007);
- *Carmel River Lagoon Enhancement Project [monitoring] Report* (State Parks 2008a);
- *Draft Initial Study/Mitigated Negative Declaration, Carmel River Beach Lagoon Water Level Management Project* (State Parks 2008b);
- *Final Initial Study/Mitigated Negative Declaration, Carmel River Beach Lagoon Water Level Management Project* (State Parks 2008c); and
- *Carmel River Lagoon Enhancement Project Report* (State Parks 2009).
- Monterey Birds (Roberson 2002);
- *Final Report for Amphibian Management at Palo Corona Regional Park* (Hemingway and D'Amore 2008);
- Native amphibian aquatic data collected at Palo Corona Regional Park for the MPRPD (DD&A 2011b);
- CDFW reports on special-status wildlife (Remsen 1978; Williams 1986; Jennings and Hayes 1994; Thelander 1994);
- California Wildlife Habitat Relationships Program species-habitat models (CDFW 2008; Zeiner et al. 1988 and 1990); and
- Western Reptiles and Amphibians (Stebbins 1985).

Reconnaissance-level biological surveys were conducted by DD&A Environmental Scientists in January 2011 and September 2014 to review and confirm previous surveys, identify any special-status wildlife species or suitable habitat for these species, and characterize habitats present within the Project site and BSA to be used as baseline conditions for the Project.

Special-Status Wildlife Species Affected

Special-status wildlife species known to occur or with the potential to occur within the Project vicinity, along with their legal status, habitat requirements, and potential to be impacted by the Project, are included in Table 3-1 of the NES (DD&A 2016b). The CNDDB (CDFW 2018b) reports occurrences of two special-status wildlife species within a portion of the Project site: California legless lizard (*Anniella pulchra*) and monarch butterfly (*Danaus plexippus*). These occurrences are non-specific and only identify that these species were observed within the Monterey quadrangle. Suitable habitat for California legless lizard is present within the Project site, and as such, this species is discussed below. However, the Project site does not provide suitable habitat for monarch butterfly. Therefore, this species is unlikely to occur within the Project site and is not discussed further.

Although the CNDDDB (CDFW 2018b) does not report any occurrences within the Project site, suitable habitat is present for the following special-status wildlife species: sensitive bat species, Monterey dusky-footed woodrat, western pond turtle, Coast Range newt, raptors, and other sensitive avian species. No other special-status wildlife species are known or expected to occur in the Project site based on the Project-specific reasons presented in the Table 3-1 of the NES (DD&A 2016b). **Table 2.3.4-1** below identifies the species that are known or have the potential to occur within each Project component. Justifications for the potential to occur are identified below in an expanded discussion for each of these species.

Table 2.3.4-1. Potential for Special-Status Wildlife within each Project Component

Common Name	Scientific Name	Status		Potential to Occur	
		Federal	State	Floodplain Restoration	Causeway
Special-Status Bat Species					
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>		CSC ²²	Low	Low
Hoary bat	<i>Lasiurus cinereus</i>		CNDDDB	Low	Low
Monterey dusky-footed woodrat	<i>Neotoma macrotis luciana</i>		CSC	Present	Moderate
Nesting and Special-Status Raptors					
Cooper's hawk	<i>Accipiter cooperii</i>		CNDDDB	Moderate	Low
Sharp-shinned hawk	<i>Accipiter striatus</i>		CNDDDB	Moderate	Low
Ferruginous hawk	<i>Buteo regalis</i>	BCC	CNDDDB	Moderate	Moderate
Northern harrier	<i>Circus cyaneus</i>		CSC	Moderate	Low
White-tailed kite	<i>Elanus leucurus</i>		CFP	High	High
Merlin	<i>Falco columbarius</i>		CNDDDB	Moderate	Moderate
American peregrine falcon	<i>Falco peregrinis anatum</i>	BCC	CFP	Moderate	Moderate
Osprey	<i>Pandion haliaetus</i>		CNDDDB	Moderate	Low
Riparian Avian Species					
Oak titmouse	<i>Baeolophus inornatus</i>	BCC		Moderate	Moderate
Lawrence's goldfinch	<i>Carduelis lawrencei</i>	BCC		Low	Moderate
Yellow-breasted chat	<i>Icteria virens</i>		CSC	Low	Low
Yellow warbler	<i>Setophaga petechial ssp. brewsteri</i>	BCC	CSC	Moderate	Moderate

²² CFP: California Fully Protected; CSC: California Species of Special Concern; CNDDDB: species on the CDFW's "Special Animals" list; BCC: Service Bird of Conservation Concern; UR: Species that have been petitioned for listing under the ESA and for which a 90 day and/or 12 Month finding has not been published in the Federal Register, as well as species being reviewed through the candidate process but the CNOR has not yet been signed.

Table 2.3.4-1. Potential for Special-Status Wildlife within each Project Component

Common Name	Scientific Name	Status		Potential to Occur	
		Federal	State	Floodplain Restoration	Causeway
Special-Status Ground-Dwelling Avian Species					
California horned lark	Eremophila alpestris actia		CNDDDB	Moderate	Moderate
Western burrowing owl	Athene cunicularia	BCC	CSC	Moderate	Moderate
Other Special-Status Avian Species					
Short-eared owl	Asio flammeus	BCC	CSC	Low	Low
Olive-sided flycatcher	Contopus cooperi	BCC		Low	Low
Marbled godwit	Limosa fedoa	BCC		Moderate	Unlikely
Long-billed curlew	Numenius americanus	BCC		Low	Unlikely
Whimbrel	Numenius phaeopus	BCC		Moderate	Unlikely
Fox sparrow	Passerella iliaca	BCC		Moderate	Moderate
Yellow-billed Magpie	Pica nuttalli	BCC		Low	Low
Nuttall’s woodpecker	Picoides nuttallii	BCC		Moderate	Moderate
California legless lizard	Anniella pulchra		CSC	Present	Low
Western pond turtle	Emys marmorata	UR	CSC	High	Low
Coast Range newt	Taricha torosa		CSC	Low	Low

The following provides a brief overview of the known occurrences of these species within the vicinity and the potential for each species to occur within the Project site. A detailed discussion of the life histories for these species can be found in the NES (DD&A 2016b).

Special-Status Bat Species

Special-status bat species with the potential to occur in the vicinity and the Project site include the Townsend's big-eared bat, a CDFW species of special concern and the hoary bat, a species included on the CDFW's CNDDDB "Special Animals" list. The CNDDDB reports two occurrences of hoary bat within the five quadrangles reviewed, the nearest of which is approximately one mile from the Project site, and one occurrence of Townsend's big-eared bat, located approximately three miles from the Project site (CDFW 2018b). Suitable foraging and day and night roost habitat for hoary bat is present within the Project site; however, this species does not form maternity colonies and is not known to breed in California. Suitable foraging and night roost habitat for Townsend's big-eared bat is present within the Project site; however, suitable habitat for day, colonial, or maternal roots is not available.

Monterey Dusky-footed Woodrat

The Monterey dusky-footed woodrat is a CDFW species of special concern. The CNDDDB does not report any occurrences of Monterey dusky-footed woodrat within the five quadrangles

reviewed (CDFW 2018b); however, this species is known to occur throughout Monterey County. Appropriate habitat for the Monterey dusky-footed is present within the riparian habitat of the Project. In addition, woodrat nests were identified within the riparian habitat during field surveys, and, therefore, presence of this species is assumed.

Raptors

Raptors and their nests (including hawks, eagles, falcons, kestrels, and owls) are protected under Fish and Game Code. Additionally, several of these species are identified on the Service's list of Birds of Conservation Concern (BCC list), which includes migratory and non-migratory bird species that represent the Service's highest conservation priorities. While the life histories of these species vary, overlapping nesting similarities (approximately from mid-March to August 1) allows their concurrent discussion. Various common raptor species, such as red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*B. lineatus*), great horned owl (*Bubo virginianus*), barn owl (*Tyto alba*), rough-legged hawk (*B. lagopus*), American kestrel (*Falco sparverius*), and turkey vulture (*Cathartes aura*) have a potential to nest within any of the large trees present within the Project site and BSA, which includes dense willows and individual Monterey cypress, Monterey pine, and coast live oak (*Quercus agrifolia*) trees.

White-tailed kite is known to breed within the BSA and this species was observed foraging over the non-native annual grassland by DD&A biologists during surveys in June 2014. The sharp-shinned hawk historically bred within the BSA and suitable nesting and foraging habitat for this species is present. Suitable breeding habitat is also present for Cooper's hawk. Other special-status raptor species that are known to occur within the BSA but do not breed there include: ferruginous hawk, northern harrier, merlin, American peregrine falcon, and osprey. Raptor species may occur within both the Floodplain Restoration and Causeway Components of the Project.

Riparian Avian Species

Suitable habitat is present within the Project site for four special-status riparian avian species: oak titmouse (Service bird of conservation concern), Lawrence's goldfinch (Service bird of conservation concern), yellow-breasted chat (CDFW species of special concern) and yellow warbler (CDFW species of special concern, and Service bird of conservation concern). Yellow warblers and Lawrence's goldfinches have been observed breeding within the Carmel Lagoon and/or along the Carmel River (Roberson 2002 and State Parks 2002b). The yellow-breasted chat has been observed as a rare fall migrant at the Carmel Lagoon (Roberson 2002). Suitable breeding habitat for the yellow-breasted chat is present within and adjacent to the Project site; however, breeding has not been documented within the area (Roberson 2002 and State Parks 2002b). The Project site is also located adjacent to the known breeding range of the oak titmouse (Roberson 2002).

Special-Status Ground-Dwelling Avian Species

Special-status ground-dwelling avian species with the potential to occur in the vicinity the Project site include the California horned lark, a species included on the CDFW's CNDDDB "Special Animals" list and the western burrowing owl, a CDFW species of special concern as well as a BCC list species. The CNDDDB reports two occurrences of California horned lark within the five quadrangles reviewed, the nearest of which is approximately 12 miles from the Project site (CDFW 2018b). The CNDDDB reports four occurrences of western burrowing owl within the five quadrangles reviewed, the nearest of which is located approximately four miles from the Project site (CDFW 2018b). This species was observed at the Carmel Lagoon in 2001 (State Parks 2002b) and Roberson (2002) reports that this species occurs during the winter on the south side of the Carmel River mouth; breeding has not been documented within the area. Suitable foraging and nesting habitat for these species is present within the non-native annual grassland in both the Floodplain Restoration and Causeway Components of the Project site.

Other Special-Status Avian Species

Other special-status avian species that have the potential to occur within the Project site include short-eared owl (*Asio flammeus*), olive-sided flycatcher (*Contopus cooperi*), marbled godwit (*Limosa fedoa*), long-billed curlew (*Numenius americanus*), whimbrel (*Numenius phaeopus*), fox sparrow (*Passerella iliaca*), yellow-billed magpie (*Pica nuttalli*), and Nuttall's woodpecker (*Picoides nuttallii*). These species are included on Service's BCC list. Suitable foraging, breeding, and/or wintering habitat for these species may be present within both the Floodplain Restoration and Causeway Components of the Project site.

Coast Range Newt

The Coast Range newt, a subspecies of the California newt (*Taricha torosa*), is a CDFW species of special concern within all portions of their range south of the Salinas River in Monterey County. The CNDDDB reports two occurrences of this species within the five quadrangles evaluated (CDFW 2018b) located within ponds located on Palo Corona Regional Park and the adjacent Santa Lucia Preserve and the surrounding upland areas. The nearest known occurrence is located approximately 1.5 miles from the Project site at the Salamander Pond on Palo Corona Regional Park. Potential breeding habitat may be present within the Carmel River and River Pond adjacent to the Project site; however, Coast Range newt breeding has not been documented within these aquatic resources (Hemingway and D'Amore, 2008; DD&A, 2011b). Suitable upland habitat for this species is present within the riparian, coastal scrub, and non-native annual grassland habitats within both the Floodplain Restoration and Causeway Components the Project site.

California Legless Lizard

The CNDDDB reports 41 occurrences of California legless lizard within the five quadrangles reviewed (CDFW 2018b). The CNDDDB does not present specific location data for these occurrences; however, non-specific occurrences are documented in three of the five quadrangles

reviewed, including the Monterey quadrangle. In addition, this species has been observed at the CRMB, a portion of which is present in the northwest corner of the Project site (State Parks 2002a). Suitable habitat for this species is present within the riparian, coastal scrub, and non-native annual grassland habitats in both the Floodplain Restoration and Causeway Components of the Project site where suitable soils and cover exist.

Western Pond Turtle

The western pond turtle is a CDFW species of special concern and is currently under review by the Service. The CNDDDB reports seven occurrences of western pond turtle within the five quadrangles reviewed, the nearest of which is located within the south arm of the Carmel Lagoon (CDFW 2018b). This species was also observed at this location in 2001 (State Parks 2002a). Upland habitat for this species is present within riparian portions of the both the Floodplain Restoration and Causeway Components of the Project site. Additionally, the areas surrounding the south arm of the Carmel Lagoon may also provide suitable upland habitat for this species. Suitable aquatic habitat for western pond turtle is present adjacent to the Project site within the Carmel River, Carmel Lagoon, and River Pond.

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

The Build Alternatives would provide increased habitat and significantly improved habitat values for protected animal species over time by restoring the site as part of the Carmel River floodplain. The Proposed Project would improve wildlife passage by increasing connectivity through the historic floodplain, under the causeway, between the habitat east and west of SR 1. Additionally, the Proposed Project would result in an increase in vegetation on the floodplain, which would provide protection for wildlife moving through the site.

However, ongoing maintenance activities which include mowing and removal of vegetation, as described in **Section 1.4 Project Alternatives**, may result in direct mortality or destruction or disturbance of nests for raptors, riparian avian species, special-status ground-dwelling avian species, and other special-status species identified below under Short-Term Impacts. The area of annual disturbance resulting from maintenance activities is approximately 15 acres for the Reduced Project Alternative, while the other two Build Alternatives include approximately 36 acres of annual maintenance.

Western Pond Turtle

Additionally, as described in **Section 2.2.1 Hydrology and Floodplain**, the risk of channel erosion and scour potential, and ultimately channel avulsion, increases for a number of interconnected reasons associated with a less stable geomorphic configuration of the floodplain channel in the Reduced Project Alternative. As such, the Reduced Project Alternative may ultimately result in

significant and unavoidable impacts to western pond turtle habitat by changing the Carmel River flow and/or increasing sedimentation of the Carmel Lagoon. These impacts may also result in long-term impacts to individual western pond turtles by reducing water quality in the Carmel Lagoon.

No-Build Alternative

Under the No-Build Alternative the causeway would not be built, and no levee removal or reconnection of the floodplain would occur; however, BSLT would implement a modified restoration approach on APNs 243-071-006-000 and 243-071-007-000 to maintain existing riparian vegetation along the Carmel River and install native vegetation in lieu of agricultural uses. This will result in some improved habitat value for protected animal species; however, the benefit would be much less than under the Build Alternatives. Further, the No-Build Alternative would not improve wildlife passage between the east and west sides of SR 1 as there would be no connectivity under a causeway.

Short-Term or Construction Impacts

Special-Status Bat Species

Construction activities within the Project site may result in temporary disturbance or mortality of individual special-status bat species, particularly during tree removal and the limited planned night work. Colonial or maternal roost habitat is not available for Townsend's big-eared bat and hoary bats are not known to breed in California; therefore, the Proposed Project would not impact special-status bat breeding.

Monterey Dusky-Footed Woodrat

Impacts to the Monterey dusky-footed woodrat may include direct mortality of individuals and temporary disturbance of habitat as a result of the vegetation removal for the Floodplain Restoration and Causeway Components of the Project.

Nesting and Special-Status Raptors, Riparian Avian Species, Special-Status Ground-Dwelling Avian Species, and Other Special-Status Avian Species

If construction occurs during the nesting season, there is the potential to impact nesting and special-status raptors (including white-tailed kite, sharp-shinned hawk, and Cooper's hawk), riparian avian species (including oak titmouse, Lawrence's goldfinch, yellow-breasted chat, and yellow warbler), special-status ground-dwelling avian species (including California horned lark and western burrowing owl), and other special-status avian species (short-eared owl, olive-sided flycatcher, marbled godwit, long-billed curlew, whimbrel, fox sparrow, yellow-billed magpie, and Nuttall's woodpecker). Construction activities such as vegetation removal or site grading during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment within the Project site and adjacent areas of the BSA.

Coast Range Newt

Individual Coast Range newts may be impacted during the construction phase of the Project as a result of ground disturbing activities. Additionally, the Project will temporarily remove upland habitat for this species.

California Legless Lizard

Individual California legless lizards and their habitat may be impacted during the construction phase of the Project as a result of ground disturbing activities.

Western Pond Turtle

Western pond turtles and their nests may be impacted during the construction phase of the Project as a result of ground disturbing activities.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of the following measures would avoid or reduce potential adverse effects to special-status animal species that may result from the construction and operation of the Project:

Special-Status Wildlife Measures

- AS-1** Prior to construction activities the Project Biologist shall conduct an Employee Education Program for the construction crew. The Project Biologist shall meet with the construction crew at the Project site at the onset of construction to educate the construction crew on the following: a) a review of the Project boundaries including staging areas and access routes; b) the special-status species that may be present, their habitat, and proper identification; c) the specific minimization and avoidance measures that will be incorporated into the construction effort, d) the general provisions and protections afforded by the Service and CDFW; and e) the proper procedures if a special-status animal is encountered within the construction area. Each employee that receives the training shall sign a sign-in sheet provided by the Project Biologist that shall be included in the daily log.
- AS-2** The Project Biologist shall monitor ground disturbing construction activities (i.e., vegetation removal, grading, excavation, or similar activities) to protect any special-status species encountered. The Project Biologist shall remain available to come to the site if a special-status species is identified until all ground disturbing activities are completed. Any handling and relocation protocols of special-status wildlife species shall be conducted by a qualified biologist with an appropriate scientific collection permit. After ground disturbing and vegetation removal activities are complete, or earlier if determined appropriate by the Project Biologist, the qualified biologist will designate a construction biological monitor to oversee on-site compliance with all avoidance and minimization measures. The Project Biologist shall ensure that this construction

biological monitor receives the sufficient training in the identification of special-status species. The Project Biologist shall ensure the construction biological monitor is satisfactorily implementing all appropriate mitigation protocols by conducting site visits approximately weekly or when necessary as dictated by the Project activities, proximity to sensitive resources, or other reasons at the discretion of the Project Biologist. Both the Project Biologist and the construction biological monitor shall have the authority to stop and/or redirect Project activities to ensure protection of resources and compliance with all environmental permits and conditions of the Project. The Project Biologist and the construction biological monitor shall include in the daily log any special-status wildlife species observed and relocated.

- AS-3** All trash that may attract predators shall be properly contained, removed from the construction site, and disposed of regularly by the Project Contractor. Following construction, all trash and construction debris shall be removed from work areas. The Project Biologist and construction biological monitor shall monitor the Project site to ensure trash removal is implemented and shall include any trash-related issues and resolutions in the daily log.

Monterey Dusky-footed Woodrat Measures

- AS-4** The Project Applicants shall retain a qualified biologist to conduct pre-construction surveys in suitable Monterey dusky-footed woodrat habitat proposed for construction, ground disturbance, or staging within three days prior to construction and maintenance activities for woodrat nests within the Project area and in a buffer zone 25 feet out from the limit of disturbance. All woodrat nests will be flagged for avoidance of direct construction impacts, where feasible. Nests that cannot be avoided will be manually deconstructed prior to land clearing activities to allow animals to escape harm. If a litter of young is found or suspected, nest material will be replaced, and the nest shall be left alone for 2-3 weeks before a re-check to verify that young are capable of independent survival before proceeding with nest dismantling. For the construction phase only, the qualified biologist shall prepare a pre-construction survey report that documents the survey dates and results that shall be provided to the County prior to construction. If nest monitoring is necessary during construction, the qualified biologist shall prepare a construction monitoring report that documents the monitoring dates, activities, and results.

Nesting and Special-Status Raptors, Riparian Avian Species, Special-Status Ground-Dwelling Avian Species, and Other Special-Status Avian Species Measures

- AS-5** To avoid impacts to nesting birds, vegetation proposed for removal for construction and maintenance will be removed prior to the nesting season (February 15 through September 1). If this is not possible, pre-construction surveys shall be conducted for nesting raptors, riparian avian species, or other special-status avian species in all areas that may provide suitable nesting habitat that exist in or within 300 feet of the Project boundary by a qualified biologist within 15 days prior to the commencement of construction activities. If nesting birds are identified during pre-construction surveys, an appropriate buffer will be imposed within which no construction activities or disturbance will take place (generally 300 feet in all directions). A qualified biologist shall be on-site during work re-initiation in the vicinity of the nest offset to ensure that the buffer is adequate and that the nest is not stressed and/or abandoned. No work may proceed in the vicinity of an active nest until such time as all young are fledged, or until after September 1 (when young are assumed fledged). For the construction phase only, the qualified biologist shall prepare a pre-construction survey report that documents the survey dates and results that shall be provided to the County prior to construction. If nest monitoring is necessary during construction, the qualified biologist shall prepare a construction monitoring report that documents the monitoring dates, activities, and results.

Coast Range Newt, California Legless Lizard, and Western Pond Turtle Measures

- AS-6** A qualified biologist shall conduct pre-construction and maintenance surveys for coast range newts, California legless lizards, and western pond turtles and their nests within three days prior to the commencement of activities. If an individual is found in any areas prior to or during these surveys, a qualified biologist shall relocate the individual from the site to a suitable location. If a western pond turtle nest is found during the survey, it will be monitored and avoided until the eggs hatch. For the construction phase only, the qualified biologist shall prepare a pre-construction survey report that documents the survey dates and results that shall be provided to the County prior to construction. If western pond turtle nest monitoring is necessary during construction, the qualified biologist shall prepare a construction monitoring report that documents the monitoring dates, activities, and results.

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2.3.5 Threatened and Endangered Species

Regulatory Setting

Endangered Species Act

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

California Endangered Species Act

California has enacted a similar law at the state level, CESA. California Fish and Game Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. CDFW is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by the CDFW. For species listed under both the FESA and CESA requiring a BO under Section 7 of the ESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas. Essential Fish Habitat (EFH) is designated for fisheries managed under the MSA. The MSA and its implementation is regulated by the NMFS.

Marine Mammal Protection Act

Provisions of the Marine Mammal Protection Act (MMPA) of 1972 (16 USC 1371 *et seq.*) were enacted to protect species that were, are, or may be, in danger of extinction or depletion as a result of human activities. The MMPA placed a moratorium on the taking and importation of marine mammals and marine mammal products within waters under the jurisdiction of the U.S., including territories of the U.S. For the provisions of this act, the term “take” is defined as “to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal.” The MMPA is administered by NMFS, the Service, U.S. Coast Guard, and the CDFW.

Affected Environment

Literature Review and Surveys

The following literature and data sources were reviewed to determine which special-status wildlife species have the potential to occur within the Project site:

- Current agency status information from the Service and CDFW for plant and animal species listed or candidates for listing as threatened or endangered under ESA or CESA, (Service 2018; CDFW 2018a);
- CNDDDB occurrence reports from the Monterey quadrangle and the surrounding quadrangles (Marina, Mt. Carmel, Seaside, and Soberanes Point) (CDFW 2018b);
- *Carmel River Floodplain Restoration and Environmental Enhancement Project Draft Natural Environmental Study* (DD&A 2016b);
- *Carmel River State Beach Lagoon Restoration Project Draft Initial Study Mitigated Negative Declaration* (State Parks 2002a);
- *Carmel River State Beach Lagoon Restoration Project Final Initial Study Mitigated Negative Declaration* (State Parks 2002b);
- *Riparian Habitat Restoration, Carmel River Lagoon, Wildlife Conservation Board Grand Number – WC-3048SC, Final [monitoring] Report* (State Parks 2007);
- *Carmel River Lagoon Enhancement Project [monitoring] Report* (State Parks 2008a);
- *Draft Initial Study/Mitigated Negative Declaration, Carmel River Beach Lagoon Water Level Management Project* (State Parks 2008b);
- *Final Initial Study/Mitigated Negative Declaration, Carmel River Beach Lagoon Water Level Management Project* (State Parks 2008c);
- *Carmel River Lagoon Enhancement Project Report* (State Parks 2009);
- *Habitat Characteristics of California Red-Legged Frogs (Rana aurora draytonii) Ecological Differences Between Eggs, Tadpoles, and Adults in a Coastal Brackish and Freshwater System* (Reis 1999);

- Monterey Birds (Roberson 2002);
- *Final Report for Amphibian Management at Palo Corona Regional Park* (Hemingway and D'Amore 2008);
- Native amphibian aquatic data collected at Palo Corona Regional Park for the MPRPD (DD&A 2011b);
- CDFW reports on special-status wildlife (Remsen 1978; Williams 1986; Jennings and Hayes 1994; Thelander 1994);
- California Wildlife Habitat Relationships Program species-habitat models (CDFW 2008; Zeiner et al. 1988 and 1990);
- Western Reptiles and Amphibians (Stebbins 1985); and
- *Carmel River Floodplain Restoration and Environmental Enhancement Project Draft Biological Assessment* (DD&A 2016d).

Reconnaissance-level biological surveys were conducted by DD&A in January 2011 and September 2014 to review and confirm previous surveys, identify any federal or state listed or proposed wildlife species or suitable habitat for these species, and characterize habitats present within the Project site and BSA to be used as baseline conditions for the Project. No focused surveys for federal or state listed, or proposed wildlife species were conducted as a part of this survey effort.

Federal and State Listed Wildlife Species Affected

Federal and State listed, or proposed wildlife species known to occur or with the potential to occur within the Project vicinity, along with their legal status, habitat requirements, and potential to be impacted by the Project, are included in Table 3-1 of the NES (DD&A 2016b). The CNDDDB reports occurrences of two federally listed wildlife species within a portion of the Project site: CRLF and S-CCC steelhead. Additional federally listed species that were considered within the BA, but determined not to be affected by the Project, include the California tiger salamander (*Ambystoma californiense*) and the Smith's blue butterfly (*Euphilotes enoptes smithi*) (DD&A 2016d).

Tricolored blackbird (*Agelaius tricolor*), a candidate species for listing under CESA, has been observed in the vicinity of the Carmel Lagoon (PWA 2000) and has the potential to occur within and adjacent to the Project site. Additionally, EFH is present within the BSA; however, no EFH is present within the Project site. Critical habitat for both CRLF and S-CCC steelhead is present within the Project site and BSA. No species protected under the MMPA are known or have the potential to occur within the Project site.

The following provides a brief overview of the known occurrences of these species within the vicinity and the potential for each species to occur within the Project site. A detailed discussion of the life histories for these species can be found in the NES (DD&A 2016b).

California Red-Legged Frog

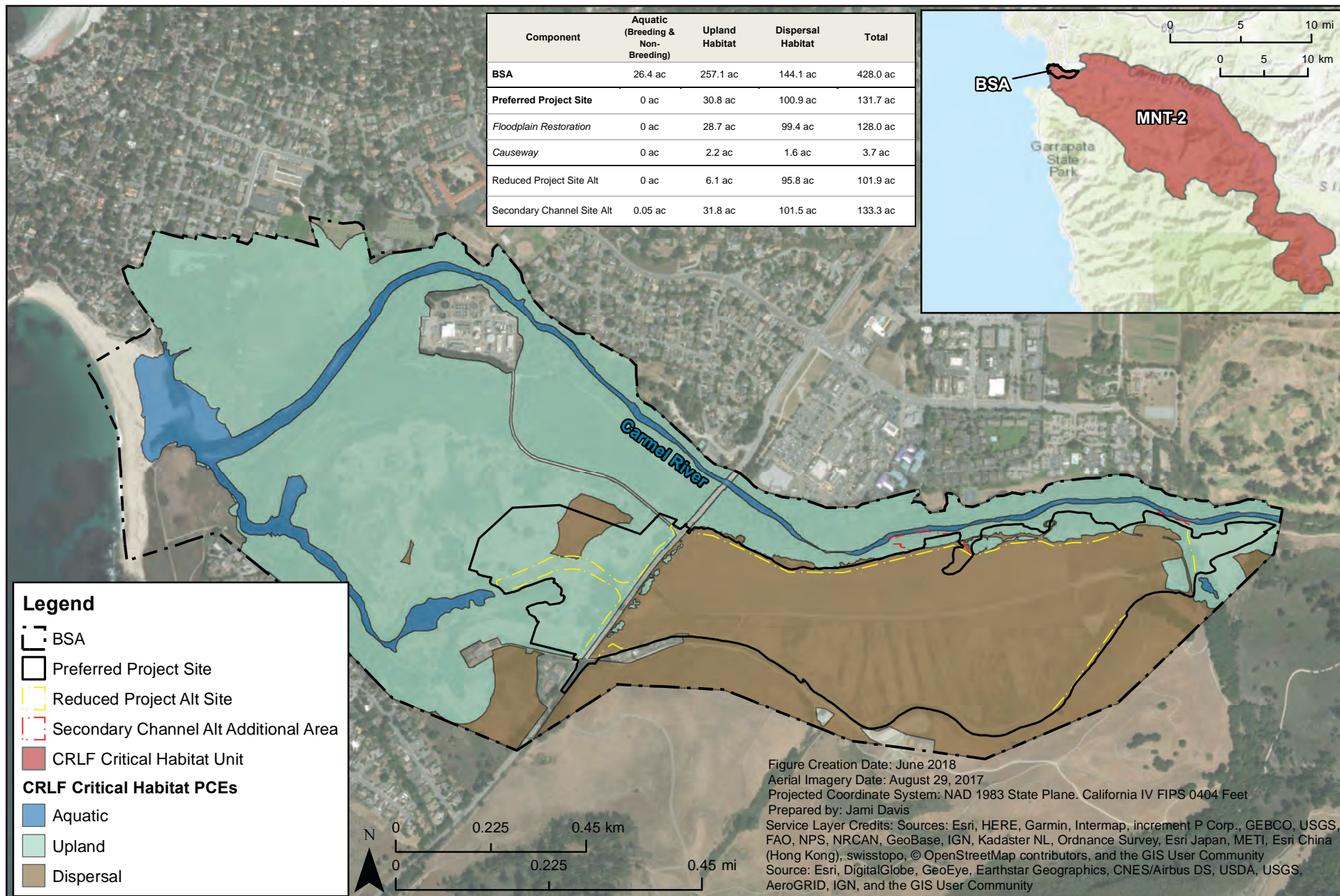
The CRLF was listed as a federally Threatened species on June 24, 1996 (61 Federal Register (FR) 25813-25833) and is also a CDFW species of special concern. The CNDDDB identifies 39 CRLF occurrences within the five quadrangles reviewed, including occurrences within the Carmel River and Carmel Lagoon (CDFW 2018b). Appropriate upland habitat for adult CRLF is present within the riparian habitat on the Project site and CRLF may disperse through the undeveloped areas of the Project site. In addition, there are known records of CRLF larvae adjacent the Project site within the River Pond, located on Palo Corona Regional Park (Hemingway and D'Amore 2008; DD&A 2011b), and the Carmel Lagoon. Suitable breeding habitat may also be present within the Carmel River. As such, CRLF are assumed present within the Project site. The Project site is located within CRLF critical habitat mapping unit MNT-2. Approximately 428.0 acres of CRLF critical habitat are present within the BSA (**Figure 2.3.5-1**).

South-Central California Coast Steelhead

The steelhead is currently designated as federally Threatened in all naturally spawned populations (and their progeny) in streams from the Pajaro River (inclusive) located in Santa Cruz County, California, to (but not including) the Santa Maria River (71 FR 833-862) in San Luis Obispo County. The CNDDDB reports two occurrences of S-CCC steelhead within the five quadrangles reviewed, located within the Carmel and Salinas Rivers (CDFW 2018b). Steelhead are also known within the Carmel Lagoon. The Carmel River and Carmel Lagoon are designated critical habitat for S-CCC steelhead. Per the definition of the lateral extent of critical habitat for steelhead, the OHW mark within the Carmel River and extreme high water within the Carmel Lagoon is the extent of the critical habitat. The maximum water surface elevation recorded for the Carmel Lagoon was at 15.4 feet in 2008 (USACE 2013). As such, approximately 159.4 acres of S-CCC steelhead critical habitat are present within the BSA (**Figure 2.3.5-2**).

Tricolored Blackbird

The tricolored blackbird is a candidate for listing under CESA, a CDFW species of special concern, and a Service bird of conservation concern. This species breeds near fresh water, preferably in emergent wetlands with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, and tall herbs, which also serve as their preferred nesting habitat. Nests are built of mud and plant materials over or near fresh water, especially in emergent wetlands. This species is highly colonial, and the minimum nesting colony size is about 50 pairs (Grinnell and Miller 1944). Drinking water is probably required, at least when seeds and grains are the major foods. Tricolored blackbirds are common locally throughout the Central Valley and in coastal districts from Sonoma County south. These birds are summer residents in northeastern California, occurring regularly

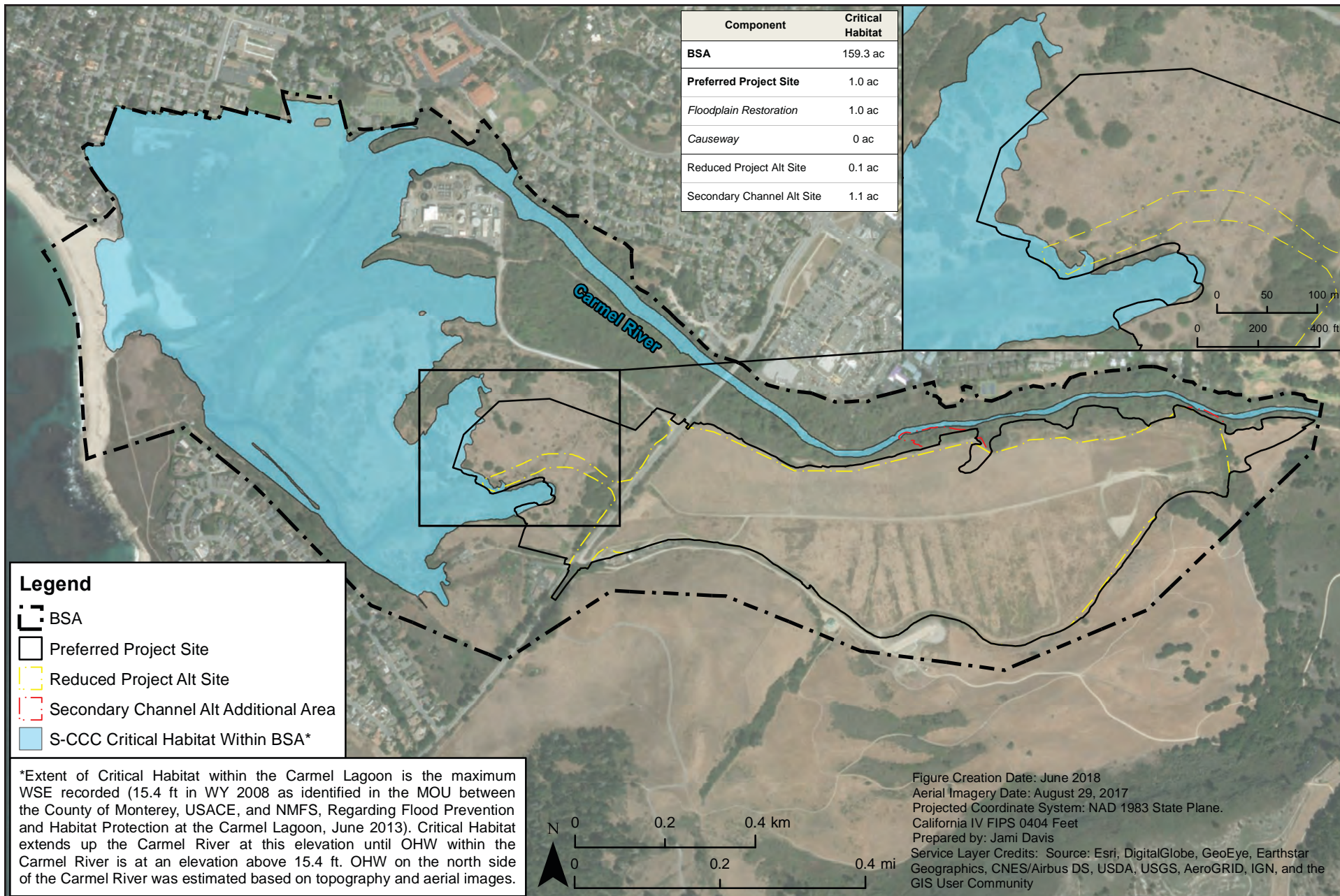


CRLF Critical Habitat Within BSA and Project Site

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
EIR/EA

Figure
2.3.5-1



S-CCC Steelhead Critical Habitat Within BSA and Project Site

June 2018

Carmel River Floodplain Restoration and Environmental Enhancement Project
 EIR/EA

Figure
 2.3.5-2

only at Tule Lake, but found as far south as Honey Lake in some years. In winter, this species becomes more widespread along the central coast and San Francisco Bay area (Grinnell and Miller, 1944). The CNDDDB identifies eight occurrences of tricolored blackbird within the five quadrangles reviewed, the nearest of which is located approximately seven miles from the Project site (CDFW 2018b). Tricolored blackbirds have been observed in the vicinity of the Carmel Lagoon (PWA 2000); however, breeding has not been documented within the area (Roberson 2002). Suitable nesting and foraging habitat for tricolored blackbirds is present within both the Floodplain Restoration and Causeway Components of the Project site and the BSA.

Essential Fish Habitat

Eighty-three groundfish species (e.g., flatfish, rockfish, and sharks) are included in the Pacific Groundfish Fisheries Management Plan (FMP). EFH for Pacific Coast Groundfish includes seamounts and all waters and substrate within areas with a depth less than or equal to 11,483 ft shoreward to the mean higher high water (MHHW) level or the upriver extent of saltwater intrusion (defined as upstream and landward to where ocean-derived salts measure less than 0.5 parts per thousand (ppt) during the period of average annual low flow).

The Coastal Pelagic Species Fishery includes four finfish and one invertebrate. The geographic extent of this EFH includes all marine and estuarine waters from the shoreline to the limits of the United States Exclusive Economic Zone (EEZ); within the water column, it is limited to the water column between the thermoclines where temperatures range from 10°C to 26°C.

Estuaries are protected nearshore areas, such as bays, sounds, inlets, and river mouths that are influenced by the ocean and freshwater. Because of tidal cycles and freshwater runoff, salinity varies within estuaries and results in great diversity, offering freshwater, brackish, and marine habitats within close proximity (Haertel and Osterberg 1967). Estuaries tend to be shallow, protected, nutrient-rich, and are biologically productive, providing important habitat for marine organisms, including groundfish. The inland extent of the estuary Habitat of Particular Concern (HAPC) is defined as MHHW, or the upriver extent of saltwater intrusion, defined as upstream and landward to where ocean-derived salts measure less than 0.5 ppt during the period of average annual low flow. The seaward extent is an imaginary line closing the mouth of a river, bay, or sound; and to the seaward limit of wetland emergent, shrubs, or trees occurring beyond the lines closing rivers, bays, or sounds.

The Carmel Lagoon, which extends from the Carmel River's mouth upstream to the extent of saltwater intrusion, is included in the Pacific Groundfish EFH (50 CFR § 660.395). The Carmel Lagoon may provide potential habitat for species of groundfish included in the FMP. Some species are estuary dependent, such as the starry flounder (*Platichthys stellatus*), and it is possible that other groundfish may use the Carmel Lagoon as nursery habitat. The adjacent Carmel Lagoon may provide limited potential habitat for species included in the Coastal Pelagic Species FMP. However, because the lagoon is closed to the ocean annually, the function and value of the habitat

to these species is likely limited. The Carmel Lagoon is within an area designated as a coastal estuary HAPC and is likely to provide habitat for multiple species of fish for which EFH has been designated. However, although these areas are present within the BSA, no EFH is present within the Project site.

Environmental Consequences

Table 2.3.5-1 ESA Effect Findings

Common Name	Scientific Name	Status	Effect Finding	Effect Finding for Critical Habitat
<i>Birds</i>				
Tricolored Blackbird	<i>Agelaius tricolor</i>	SC	May Affect, Not Likely to Adversely Affect	N/A
<i>Amphibians and Reptiles</i>				
California Red-Legged Frog	<i>Rana draytonii</i>	FT	May Adversely Affect	May Affect, Not Likely to Adversely Modify
<i>Fish</i>				
South-Central California Coast Steelhead	<i>Oncorhynchus mykiss irideus</i>	FT	May Adversely Affect	May Affect, Not Likely to Adversely Modify

Long-Term or Operational Impacts

Build Alternatives

The Build Alternatives would provide increased habitat and significantly improved habitat values for threatened and endangered animal species over time by restoring the site as part of the Carmel River floodplain. The Build Alternatives would improve wildlife passage by increasing connectivity through the historic floodplain, under the causeway, and between the habitat east and west of SR 1. Additionally, the Build Alternatives would result in an increase in vegetation on the floodplain, which would provide protection for wildlife moving through the site, although the Reduced Project Alternative would result in less benefit than the other two alternatives in that less habitat improvements would result. However, the Build Alternatives may result in long-term or operational impacts in addition to the benefits to threatened and endangered species, as described below.

California Red-Legged Frog

Ongoing maintenance activities which include mowing and removal of vegetation, as described in **Section 1.4 Project Alternatives**, may result in direct mortality or temporary disturbance of CRLF habitat. The area of annual disturbance resulting from maintenance activities is approximately 15 acres for the Reduced Project Alternative, while the other two Build Alternatives include approximately 36 acres of annual maintenance.

Additionally, as described in **Section 2.2.1 Hydrology and Floodplain**, the risk of channel erosion and scour potential, and ultimately channel avulsion, increases for a number of interconnected reasons associated with a less stable geomorphic configuration of the floodplain channel in the Reduced Project Alternative. As such, the Reduced Project Alternative may ultimately result in significant and unavoidable impacts to CRLF critical habitat by changing the Carmel River flow and/or increasing sedimentation of the Carmel Lagoon. These impacts may also result in long-term impacts to individual CRLF by reducing water quality in the Carmel Lagoon.

S-CCC Steelhead

The Preferred Project would not affect flow in the Carmel River under normal conditions. As such, it would have no impact on the ability for the Carmel River to sustain its function for S-CCC steelhead. Fish stranding is an important issue to consider for all of the Build Alternatives. During flooding, stranding of fish on the floodplain is not expected to be an issue as the potential for fish stranding was explicitly considered during the design phase of the Project and a number of important design features were incorporated to reduce the potential.

The following design elements will avoid or reduce S-CCC steelhead stranding:

- Configuration of geomorphic features on the restored floodplain was chosen specifically to avoid stranding potential. The proposed final topography includes a floodplain design that slopes toward distributary channels, which are intended to provide a high degree of longitudinal flow connectivity and maximization of flow depth during the receding limb of any flood event that engages the floodplain surface. Depressional features are connected via the channel system and are designed with defined flow inlets and outlets that are intended to provide passage options at all stages of a flood hydrograph. Thus, peak flows engaging the floodplain may allow for some degree of utilization of the floodplain habitat itself. Strong, mature adult steelhead will leave the floodplain prior to juveniles in their pursuit of spawning habitat. As flood flows decrease, out-migration through the south overbank levee openings will deliver juveniles into the portion of Carmel Lagoon where deeper habitat is available and the fish may prepare for out-migration to the marine environment (Alley 2014).
- Variation in floodplain topography produced from sand-splay complex formation may also create refugia for fish during flooding, which may be enhanced if connection is established between the lagoon and submerged floodplain, affording aquatic species in the Carmel Lagoon the opportunity to take shelter at multiple and varied locations (Balance Hydrologics 2015a).
- Only 30% of the existing levees on south side of the river will be removed and the removal will occur in three different sections. The shortest individual levee segment to be removed is 250 feet, while the longest is 375 feet. As such, the intact riparian vegetation on the

north levee and the remaining 70% of the south levee will provide sufficient shading, and individual S-CCC steelhead are unlikely to be affected (Balance Hydrologics 2015a).

Indirect impacts to individual S-CCC steelhead may include mortality due to sedimentation and reduced water quality as a result of erosion from disturbed portions of the Project site during construction or if the site is left unvegetated. Flood flows could also impair the S-CCC steelhead critical habitat within the BSA outside of the Project site should flows over the restored floodplain carry excessive amounts of sediment.

As described in **Section 2.2.1 Hydrology and Floodplain**, the risk of channel erosion and scour potential, and ultimately channel avulsion, increases for a number of interconnected reasons associated with a less stable geomorphic configuration of the floodplain channel in the Reduced Project Alternative. As such, the Reduced Project Alternative may ultimately result in an increased potential for significant adverse effects to S-CCC steelhead individuals and critical habitat by changing the Carmel River flow and/or increasing sedimentation of the Carmel Lagoon, compared to the other two alternatives.

The Secondary Channel Alternative would have only very minor impacts to the flow in the Carmel River under normal conditions, as described in **Section 2.2.1 Hydrology and Floodplain**. However, the minor reduction in flow would be offset by the secondary channel, which would provide new habitat for S-CCC steelhead. The other two alternatives would not create new SCC habitat described below.

The concept would seek to mimic the historical attributes of a multi-threaded channel ecosystem, as was present to the north of the Carmel River prior to European settlement and subsequent development. The upstream elevation of the secondary channel would be set slightly higher than that of the mainstem Carmel River thalweg elevation at the connection point, such that the off-mainstem channel would become progressively wetted from the upstream end as flows increase, even during fairly small runoff events. Inundation connectivity of the secondary channel length with the mainstem would be anticipated to provide steelhead and other habitat enhancement on a yearly basis potentially for multiple days at a time, based on design elevations and yearly runoff patterns. The downstream outlet elevation could be depressed below the mainstem thalweg elevation so that a modest area of the secondary channel could be accessible as a backwatered alcove at baseflows. These features would introduce new wetted area that would be beneficial to steelhead in a "transition zone" between the upstream mainstem channel and the downstream lagoon.

Tricolored Blackbird

The Proposed Project would provide increased habitat and significantly improved habitat values over time by restoring the site as part of the Carmel River floodplain. However, ongoing maintenance activities which include mowing and removal of vegetation, as described in **Section**

1.4 Project Alternatives, may result in direct mortality or destruction or disturbance of nests for tricolored blackbirds. The area of annual disturbance resulting from maintenance activities is approximately 15 acres for the Reduced Project Alternative, while the other two Build Alternatives include approximately 36 acres of annual maintenance.

Essential Fish Habitat

The current extent of EFH for groundfish in the BSA is delineated by the level of saltwater intrusion up the Carmel River. The Preferred Project and Reduced Project Alternative would not affect flow in the Carmel River under normal conditions and would only reduce flows within the channel during 5-year or greater flood events, which is not expected to substantially change the extent of saltwater intrusion up the Carmel River. The Preferred Project would have no impact on the ability for the Carmel River or Carmel Lagoon to sustain their function as EFH.

The Secondary Channel Alternative would have only very minor impacts to the flow in the Carmel River under normal conditions, as described in **Section 2.2.1 Hydrology and Floodplain**. However, the risk of channel erosion and scour potential, and ultimately channel avulsion, increases for a number of interconnected reasons associated with a less stable geomorphic configuration of the floodplain channel in the Reduced Project Alternative. As such, the Reduced Project Alternative may ultimately result in an increased potential for significant adverse effects to EFH by changing the Carmel River flow and/or increasing sedimentation of the Carmel Lagoon, compared to the other two alternatives.

No-Build Alternative

Under the No-Build Alternative the causeway would not be built, and no levee removal or reconnection of the floodplain would occur; however, BSLT would implement a modified restoration approach on APNs 243-071-006-000 and 243-071-007-000 to maintain existing riparian vegetation along the Carmel River and install native vegetation in lieu of agricultural uses. This will result in some improved habitat value for threatened and endangered animal species; however, the benefit would be much less than under the Build Alternatives. Further, the No-Build Alternative would not improve wildlife passage between the west and east sides of SR 1 as there would be no connectivity under a causeway.

Short-Term or Construction Impacts

California Red-Legged Frog

Direct impacts to CRLF may include mortality of individuals associated with construction activities, such as vegetation removal or site grading. Impacts to CRLF would be considered “take” under the ESA. Intra-Service consultation was initiated in October 2016.

The Preferred Project would impact 129.4 acres of CRLF critical habitat as a result of vegetation removal and grading activities within the Floodplain Restoration Component, including

approximately 30.8 acres of upland habitat, and 100.9 acres of dispersal habitat, as defined by Service (71 FR 19244-19292). Under the Secondary Channel Alternative, an additional 4.5 acre of upland habitat and 0.04 acre of aquatic habitat would be impacted as a result of grading the secondary channel. Additionally, the Preferred Project and Secondary Channel Alternative would impact 2.1 acres of CRLF critical habitat as a result of vegetation removal and grading activities within the Causeway Component, including approximately 1.1 acres of CRLF upland critical habitat and 1.0 acre of CRLF dispersal critical habitat. Impacts under the Reduced Project Alternative would be reduced to 1.4 acres of CRLF upland habitat.

Indirect impacts to individual CRLF and CRLF critical habitat may include reduced water quality as a result of erosion from disturbed portions of the Project site during construction or if the site is left unvegetated. Flood flows could also impair the Carmel Lagoon should flows over the restored floodplain carry excessive amounts of sediment, or if significant velocities are achieved that can re-mobilize sediment from the floodplain and redistribute it to the lagoon. The Reduced Project Alternative has an increased risk of these habitats compared to the other two Build Alternatives because it is less geomorphically stable and may be more prone to avulsion (movement of the mainstem of the river into the floodplain) and the resulting erosion.

Separate from the restoration component, impacts to critical habitat within and resulting from the causeway component include the expansion of the SR 1 embankment footprint adjacent to the Causeway. This will result in the loss of CRLF critical habitat, however, this loss will be balanced by an expansion of the Critical Habitat under the open portion of the Causeway. The impacts to CRLF critical habitat within the causeway component resulting from the Reduced Project Alternative would be less, but would also result in a reduced benefit, as less new critical habitat would be created as a result of a smaller Causeway. The impacts to CRLF critical habitat within the causeway component resulting from the Secondary Channel Alternative would be slightly higher; however, the Secondary Channel Alternative is designed to provide additional aquatic habitat for CRLF and the approximately two acres at the bottom of the constructed secondary channel would change from upland and dispersal critical habitat to aquatic critical habitat. This is considered a beneficial impact.

Impacts to CRLF critical habitat outside of the grading limits and immediately adjacent to the Project site within the BSA may also occur if activities are conducted outside of the established Project site boundary.

S-CCC Steelhead

The Preferred Project would directly impact approximately 1.0 acre of S-CCC steelhead critical habitat within the Floodplain Restoration Component near the south arm of the Carmel Lagoon. This area would be reduced to 0.1 acre under the Reduced Project Alternative. Under the Secondary Channel Alternative, an additional 0.1 acre would be impacted within the Carmel River channel. No S-CCC steelhead critical habitat is present within the Causeway Component of the

Project. Impacts to S-CCC steelhead critical habitat within the BSA may also occur if activities are conducted outside of the established Project site boundary.

It is unlikely impacts to S-CCC steelhead individuals will occur during construction activities. No work would occur within the main channel of the Carmel River or within inundated portions of the Carmel Lagoon under the Preferred Project or Reduced Project Alternative. However, under the Secondary Channel Alternative, the grading for the secondary channel would excavate down to the approximate same elevation as the existing Carmel River channel bed. This may impact individual S-CCC steelhead if they are present within the channel at the time of construction.

Pile driving activities would be conducted approximately 460 meters from the open water of the Carmel Lagoon and approximately 300 meters from the Carmel River channel. The Fisheries Hydroacoustic Working Group have developed the Hydroacoustic Biological Assessment Guidance for use when preparing an analysis, posted September 25, 2017. This is the currently accepted guidance for use in Caltrans projects.

As detailed in the guidance the current interim thresholds for onset of injury from impact pile driving for fish are as follows:

- 206 dB_{peak} –the onset of injury is expected in fishes exposed to peak SPLs at or above 206 dB.
- 187 dB cumulative SEL for fish > 2 grams –fish > 2 grams will experience the onset of injury after a cSEL at or above 187 dB over the accumulation period.
- 183 dB cumulative SEL for fish < 2 grams – fish smaller than 2 grams will experience the onset of injury after a cSEL at or above 183 dB over the accumulation period.

The NMFS calculator can be used to estimate the cumulative SEL, which is calculated as:

- $cSEL = \text{highest single strike SEL} + 10 * \log (\# \text{ strikes}).$

The acoustic impact area for fish greater than or equal to two grams was calculated at 13 meters and the acoustic impact area for fish less than two grams was calculated at 13 meters, based on an estimated 7,000 pile strikes per day (pers. Comm. Shawn Cullers Cornerstone Structural Engineering Group, November 18, 2016) (**Appendix H**). This initial analysis indicates that the S-CCC steelhead are unlikely to be adversely affected by pile driving.

Indirect temporary impacts to individual S-CCC steelhead may include mortality due to sedimentation and reduced water quality as a result of erosion from disturbed portions of the Project site during construction. As mentioned above, the Reduced Project Alternative has an increased risk of significant erosion compared to the other two Build Alternatives because it is less geomorphically stable and may be more prone to erosion.

Removal of portions of the levees may result in a temporary reduction of shade within the Carmel River channel and indirect impacts to S-CCC steelhead critical habitat. The Reduced Project Alternative would result in significantly less riparian vegetation removal on the levee compared with the other two Build Alternatives.

Formal consultation with NMFS was concluded and a BO was issued on July 27, 2018. An Erratum Letter was provided on October 22, 2018 that provides clarifications and editorial corrections to the BO.

Tricolored Blackbird

If construction occurs during the nesting season, there is the potential to impact nesting tricolored blackbirds, if present. Construction activities such as vegetation removal or site grading during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment within the Project site and adjacent areas of the BSA.

Essential Fish Habitat.

Impacts to EFH immediately adjacent to the Project site within the BSA may occur if activities are conducted outside of the established Project boundary or if construction activities result in erosion and sedimentation to adjacent habitats. Additionally, flood flows could impair the EFH should flows over the restored floodplain carry excessive amounts of sediment to the Carmel Lagoon.

Avoidance, Minimization, and/or Mitigation Measures

The 60% Design Basis Report (Balance Hydrologics, 2015a) also identifies design elements to avoid and reduce impacts as a result of sedimentation and reduction in water quality. Please refer to the discussion of these design elements above in **Sections 1.4 Project Alternatives, 2.2.1 Hydrology and Floodplain, 2.2.2 Water Quality and Stormwater Runoff, and 2.3.2 Wetlands and Other Waters.**

Implementation of measures **HAZ-3, NC-1 through NC-4, AS-1 through AS-3, AS-5, and AS-6** and the following measures would reduce and avoid substantial impacts to threatened and endangered species, critical habitat, and EFH that may result from the Proposed Project:

California Red-Legged Frog Measures

- TE-1** Prior to issuance of a grading permit, the Project Applicants shall retain a Service-Approved Biologist. The Service-Approved Biologist shall survey appropriate areas of the construction site daily before the onset of work activities for the presence of CRLF. The Service-Approved Biologist shall remain available to come to the site if a CRLF is identified until all ground disturbing activities are completed. If any life stage of the CRLF is found and these individuals are likely to be killed or injured by work activities, the Service-Approved Biologist shall be contacted and work shall stop in that area until the CRLF is relocated. The Service-Approved Biologist shall relocate the CRLF the shortest distance possible to an area that contains suitable habitat and will not be affected by construction activities. The Service-Approved Biologist shall maintain detailed records of any individuals that are moved (e.g., size, coloration, any distinguishing features, photographs) to assist him or her in determining whether translocated animals are returning to the original point of capture. Only Service-Approved Biologists shall participate in activities associated with the capture, handling, and monitoring of CRLF. The Service-Approved Biologist shall prepare a pre-construction survey report that documents the survey dates and results that shall be provided to the County prior to construction. The Service-Approved Biologist shall also prepare a construction monitoring report that documents the monitoring dates, activities, and results following construction completion.
- TE-2** After ground disturbing and vegetation removal activities are complete, or earlier if determined appropriate by the Service-Approved Biologist in coordination with the Service, the Service-Approved Biologist will designate a construction biological monitor to oversee on-site compliance with all avoidance and minimization measures. The Service-Approved Biologist shall ensure that the construction biological monitor receives the sufficient training in the identification of CRLF. The construction biological monitor and the Service-Approved Biologist are authorized to stop work if the avoidance and/or minimization measures are not being followed. If work is stopped, the Service shall be notified. The Service-Approved Biologist and the construction biological monitor shall complete a daily log summarizing activities and environmental compliance throughout the duration of the Project.
- TE-3** To prevent inadvertent entrapment of CRLF during the Project construction, all excavated, steep-walled holes or trenches more than two feet deep will be covered by the Project Contractor at the close of each working day with plywood or similar materials. Before such holes or trenches are filled, they will be thoroughly inspected by the Service-Approved Biologist or construction biological monitor for trapped animals.

- TE-4** Prior to the initiation of maintenance activities which include mowing and removal of vegetation, as described in **Section 1.4 Project Alternatives**, the Project Applicants shall retain a Service-Approved Biologist. The Service-Approved Biologist shall survey appropriate areas before the onset of work activities for the presence of CRLF. If any life stage of the CRLF is found the Service-Approved Biologist shall relocate the CRLF the shortest distance possible to an area that contains suitable habitat and will not be affected by maintenance activities. The Service-Approved Biologist shall maintain detailed records of any individuals that are moved (e.g., size, coloration, any distinguishing features, photographs) to assist him or her in determining whether translocated animals are returning to the original point of capture. Only Service-Approved Biologists shall participate in activities associated with the capture, handling, and monitoring of CRLF. The Service-Approved Biologist shall also prepare a maintenance monitoring report that documents the monitoring dates, activities, and results following construction completion.

S-CCC Steelhead and Essential Fish Habitat Measures

- TE-5** All applicable measures outlined in the attached CDFW Avoidance and Minimization Measures (**Appendix I**) shall be implemented.

2.3.6 Invasive Species

Regulatory Setting

Executive Order 13112

On February 3, 1999, President William J. Clinton signed EO 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” FHWA guidance issued August 10, 1999 directs the use of the State’s invasive species list maintained by the California Invasive Species Council (Cal-IPC 2015) to define the invasive species that must be considered as part of the NEPA analysis for a proposed project.

Affected Environment

A total of 36 invasive plant species, as identified by the Cal-IPC Inventory (Cal-IPC 2015), were observed within the Project site. Six species with an invasiveness rating of high were observed within the Project site: ice plant (*Carpobrotus edulis*), jubata grass (*Cortaderia jubata*), cape ivy (*Delairea odorata*), fennel, French broom, and Himalayan blackberry (*Rubus discolor*). Notable invasive weed patches of most of these species occur within the Project site; only Himalayan blackberry and jubata grass were found rarely within the Project site. Sixteen species with an invasiveness rating of moderate and 14 species with an invasiveness rating of limited were also observed within the Project site. Most of the moderate to limited invasiveness species were common throughout the Project site, particularly the annual grass and thistle species, poison hemlock, and wild radish.

Occurrences of the highly invasive American bullfrog and striped bass are known from the Carmel Lagoon (Carmel River Watershed Conservancy 2014; State Parks 2009; D.W. Alley 2014). These invasive species prey on and compete for resources with the native aquatic species, including the federally-listed CRLF and S-CCC steelhead. In addition, invasive New Zealand mudsnails (*Potamopyrus antipodarum*) have recently been found in the Carmel River, including the area near the SR 1 bridge crossing (CDFW 2017). New Zealand mudsnails can displace and outcompete native species and are linked to reduced populations of aquatic insects, including mayflies, stoneflies, caddisflies, chironomids, and other insect groups on which fish populations (including the S-CCC steelhead) depend (CDFW 2017).

Environmental Consequences

Long-Term or Operational Impacts

Build Alternatives

Animals

The potential for the introduction or spread of known or potential invasive animal species within the Project site is related to the presence and type of aquatic habitat. The Build Alternatives all include the construction of an agricultural water quality pond. In addition, the Preferred Project and Secondary Channel Alternatives include sedimentation sequestration elements. The sequestration elements are not designed to pond or promote standing water into the dry season, and in most cases would only be wet during and right after a flood event.

Bullfrog

Bullfrogs require permanent water to breed. If permanent water is established within the water quality pond, the Project may result in the expansion of bullfrog population within the vicinity, which may result in a decline in native amphibian species, including the federally-listed CRLF. Bullfrogs do not typically breed in flowing water. The Secondary Channel Alternative will result in expanded aquatic habitat compared to the other two alternatives. However, the secondary channel would have substantial flows during large river flow events and would be dry in the summer months. Bullfrog would not likely be supported in this habitat.

Striped Bass and New Zealand Mudsnail

Striped Bass and New Zealand mudsnails require permanent water. However, these species are not known to subsist in ponds. Both of these species may inhabit the channel habitat created by the Secondary Channel Alternative while it is engaged with the Carmel River and wet. However, these species are already known from the Carmel River and the use of this habitat will not appreciably increase their numbers, distribution, or effect on native species.

Plants

The RMP prepared for the Project includes an intensive weed control strategy to reduce the spread or introduction of invasive species within the Project site. As such, implementation of the Floodplain Restoration Component of the Project will have the beneficial impact on reducing invasive plant populations within the Project site.

No-Build Alternative

Under the No-Build Alternative the causeway would not be built, and no levee removal or reconnection of the floodplain would occur; however, BSLT would implement a modified restoration approach on APNs 243-071-006-000 and 243-071-007-000 to maintain existing riparian vegetation along the Carmel River and install native vegetation in lieu of agricultural uses.

The restoration would include invasive weed control; however, due to the reduced area of restoration, the benefits would not be as great as under the Build Alternatives.

Short-Term or Construction Impacts

Project construction activities, such as vegetation removal and grading, has the potential to spread or introduce invasive plant species within the Project site and surrounding areas. Invasive plant species may be brought in or out of the site by mud or other debris on construction equipment if not cleaned properly. Additionally, because it proposes work below the OHWM within the channel of the Carmel River, the Secondary Channel Alternative has the potential to spread the invasive New Zealand mudsnail if mud or other debris containing the species is transported away from the Project site to other aquatic resources.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of the following measure would avoid and reduce potential adverse effects related the introduction and spread of invasive species during construction of the Project:

- IS-1** Construction equipment shall be cleaned of mud or other debris that may contain invasive plants and/or seeds and inspected to reduce the potential of spreading noxious weeds, before mobilizing to arrive at the construction site and before leaving the construction site.
- IS-2** The agricultural water quality pond shall not provide permanent standing water sufficient to allow American bullfrog to successfully breed. The Project Applicants shall be responsible for monitoring the water level on an annual basis. If it is determined that the pond is likely to maintain permanent water, it will be modified to ensure that it is dry for 72 hours in the month of September.

Implementation of the following measure would avoid and reduce potential adverse effects related the introduction and spread of invasive species during construction of the Secondary Channel Alternative only:

- IS-3** Construction equipment used within the Carmel River channel shall be cleaned of mud or other debris that may contain New Zealand mudsnail and inspected to reduce the potential of spreading this invasive aquatic species before leaving the construction site. Cleaning shall be conducted by pressure washing and use of brushes or other tools to remove stuck-on material.

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2.4 Cumulative Impacts

Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this Proposed Project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the Project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the Project, such as changes in community character, traffic patterns, housing availability, and employment.

CEQA Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under NEPA can be found in 40 CFR, Section 1508.7 of the Council on Environmental Quality (CEQ) Regulations.

Affected Environment

Resource Study Areas for each resource was evaluated. The Resource Study Areas are all located within the Lower Carmel River Watershed. **Table 2.4-1** identifies completed, on-going, and proposed projects within the overall Resource Study Area.

Environmental Consequences

Based on the analysis provided in this EIR/EA, the Preferred Project and Secondary Channel Alternative may have an overall net beneficial cumulative impact on hydrology, water quality, and the biological environment. Impacts to all other resources are not considered cumulatively considerable for these build alternatives as they are short-term, construction-related impacts that would be fully mitigated to a less-than-significant level through the incorporated of mitigation measures identified in this EIR/EA.

Cumulative Impacts

Table 2.4-1 Completed, On-Going, and Proposed Projects in the Resource Study Areas

Completed Projects	
<i>Project</i>	<i>Description</i>
<i>CRLEP</i>	Restoration of the south arm of the Carmel Lagoon
<i>CRMB</i>	43-acre riparian habitat restoration along the south bank of the Carmel River
<i>CAWD Wastewater Treatment Plant Access Road</i>	Relocated road designed to function as an overflow weir during 10-year or greater floods, allowing flood waters from the Carmel River to pass through culverts under the road or over “at grade” sections to the floodplain surrounding the south arm of the Carmel Lagoon
<i>Aquifer Storage and Recovery</i>	Diverting excess winter flows from the Carmel River through CalAm facilities and injecting water into the Seaside Groundwater Basin for later extraction to reduce the amount of unauthorized pumping from the Carmel River during summer and fall
<i>Carmel River Notch</i>	Removal of a small section of the south levee to alleviate flooding on the north bank of the Carmel River
<i>Palo Corona Parking Lot</i>	Construction of a parking lot for recreationists at Palo Corona Regional Park
<i>Eastwood Water Rights Petition and Split License</i>	Split Water Right License into two, maintaining existing and authorizing new points of diversion, places of use, and purposes of use for one license (85 acre feet per year [af/yr]), and dedicating a portion of water under the original license to instream uses (46 af/yr)
<i>Rancho Cañada Forbearance</i>	The Trust for Public Land (TPL) and CalAm executed an interim water use forbearance for three years. 300 af/yr water will not be pumped from the Carmel River system during this time period as a result of ceasing irrigation of the former 36-hole Rancho Cañada golf course
<i>San Clemente Dam Removal and Carmel River Reroute</i>	Removal of the San Clemente Dam and re-route of a segment of the Carmel River to alleviate seismic safety concerns, restore habitat, and improve anadromous fish access to the watershed
Ongoing and Proposed Projects	
<i>Project</i>	<i>Description</i>
<i>CSA-50</i>	Flood control improvements to reduce the risk of flood in CSA-50
<i>Carmel Lagoon EPB, SRPS, and ISMP Project</i>	Construction of a protective barrier and armoring of bluffs adjacent to Scenic Road to provide a long-term solution to the annual mechanical breaching and improve natural habitat conditions in the Carmel Lagoon
<i>Monterey Peninsula Water Supply Project</i>	Construction of a desalination facility and associated improvements to CalAm’s distribution system intended to provide additional supply to help reduce CalAm’s pumping from the Carmel River
<i>Pure Water Monterey Groundwater Replenishment Project</i>	Advanced treated water would be injected into the Seaside Groundwater Basin for later extraction to help reduce CalAm’s pumping from the Carmel River
<i>Rancho Cañada Village Specific Plan</i>	Replacement of a portion of an existing golf course with residential units and a restored riparian open-space corridor
<i>Palo Corona Regional Park General Development Plan</i>	Open Space land uses in the Palo Corona Regional Park will be managed under this plan. Includes a portion of the former Rancho Cañada golf course
<i>SR 1 Climbing Lane Project</i>	Widening of northbound SR 1 from Rio Road to Carmel Valley Road to provide a truck climbing lane that will connect to the existing climbing lane north of Carmel Valley Road
<i>Carmel Area State Parks General Plan</i>	Open Space land uses in State Park areas in the Carmel Area will be managed under this plan
<i>CAWD Capital Improvements Program</i>	Wastewater Treatment Plant facility upgrades
<i>CAWD Calle la Cruz Pipeline Replacement Project</i>	Replacement of the CAWD outfall and sewer force main pipes that cross the south arm of the Carmel Lagoon

The Project, in conjunction with most of the projects identified in **Table 2.4-1**, would restore hydrologic connectivity with the upper and lower reaches of the Carmel River, improve surface water flow by reducing the amounts of CalAm's diversions from the Carmel River subterranean flow, and improve existing sensitive habitat and habitat for special-status species (including federally-threatened fish and frogs). The Proposed Project is one component of a larger conceptual restoration for the lower Carmel River and Lagoon (PWA et al. 1999). The first phase of the larger restoration, known as CRLEP, was completed in 2004 by State Parks on their property, and included restoration of the south arm of the Carmel Lagoon. The Proposed Project will be physically and hydrologically connected to the south arm and will, to a large extent, complete the lower Carmel River and Lagoon restoration effort that was envisioned almost two decades prior. State Parks, MPRPD, and the County have worked collaboratively to bring these projects forward to improve habitat conditions, flood attenuation, and public access within and along the Carmel River, Lagoon, and historic floodplain.

Conversely, based on the analysis provided in this EIR/EA, the Reduced Project Alternative may have significant unavoidable impacts on hydrology, water quality, and the biological environment, as a result of a less stable geomorphic configuration of the floodplain channel. Therefore, the cumulative impacts of the Reduced Project Alternative on hydrology, water quality, and the biological environment would also be significant and unavoidable.

Avoidance, Minimization, and/or Mitigation Measures

The Project will not result in any negative cumulative impacts. Therefore, no avoidance, minimization, and/or mitigation measures are required.

Cumulative Impacts

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Chapter 3 California Environmental Quality Act (CEQA) Evaluation

3.1 Determining Significance under CEQA

The Proposed Project is subject to federal, as well as Monterey County and state environmental review requirements. Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. One of the primary differences between NEPA and CEQA is the way significance is determined. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require the CEQA lead agency to identify each “significant effect on the environment” resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of “mandatory findings of significance,” which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This Chapter is specific to CEQA and makes a determination of significance for each environmental checklist item (Appendix G of the CEQA Guidelines). Please see **Chapter 2 National Environmental Policy Act (NEPA) Evaluation** for a description of the affected environment common to both CEQA and NEPA and determinations of significance under NEPA.

3.2 Significant Irreversible Environmental Changes

CEQA Guidelines Section 15126(c) requires that an EIR include a discussion of significant, irreversible environmental changes that would result from the implementation of a project. Irreversible environmental changes are identified as those involving a large commitment of nonrenewable resources or irreversible damage resulting from environmental accidents. Public Resources Code Sec. 21100.1 provides further guidance identifying when the evaluation of potential irreversible environmental changes must be included in an EIR. An EIR must evaluate the significant irreversible impacts associated with the following types of projects:

- The adoption, amendment, or enactment of a plan, policy, or ordinance of a public agency.
- The adoption by local agency formation commission of a resolution making a determination.
- A project which will be subject to the requirement for preparing an EIS pursuant to the requirements of NEPA.

The environmental changes from the Proposed Project would occur as a result of Project construction rather than operations. The only minor irreversible changes associated with the Project include the use of nonrenewable resources during construction, including building materials such as concrete and petroleum products.

3.3 CEQA Environmental Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the Proposed Project. In many cases, background studies performed in connection with the projects will indicate that there are no impacts to a particular resource. A NO IMPACT answer in the last column reflects this determination. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the Project, and standardized measures that are applied to many projects such as BMPs and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the Project and have been considered prior to any significance determinations documented below; see **Chapter 1** and **Chapter 2** for a detailed discussion of these features. The annotations to this checklist are summaries of information contained in **Chapter 2 National Environmental Policy Act (NEPA) Evaluation** in order to provide the reader with the rationale for significance determinations; for a more detailed discussion of the nature and extent of impacts, please see **Chapter 2**. This checklist incorporates by reference the information contained in **Chapter 1** and **Chapter 2**.

3.3.1 Aesthetics

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Aesthetics***a-c) Less than Significant with Mitigation Incorporated***

The potential visual impact for the Preferred Project and the Secondary Channel Alternative would be the same, as the causeway design and impacted utilities would be the same under these alternatives. The potential visual impact for the Reduced Project Alternative would be somewhat lessened due to the reduced size of the proposed causeway and the decreased amount of grading for this alternative.

As discussed in **Section 2.1.6 Visual/Aesthetics**, viewer sensitivity throughout the Project is considered to be very high, based in part on the State and National Scenic Highway Designations and its location within the Coastal Zone. The Proposed Project would improve the overall visual character of the site by restoring it as part of the Carmel River floodplain, however, it would also construct a new causeway structure in place of an existing section of SR 1. Once construction of the causeway is complete, SR 1 would remain a two-lane conventional highway with 12-foot travel lanes; however, the causeway incorporates eight-foot wide shoulders, transitioning to match existing four-foot wide shoulders at the southern Project limits. The causeway would also include a southbound left turn lane at the Palo Corona Regional Park entrance. The wider highway shoulders would have a somewhat more engineered visual character than the current visual character and the proposed bridge rail and guard rails would cause a minor reduction of views from the highway.

As discussed in **Section 2.1.4 Utilities and Emergency Services**, utilities within the SR 1 right-of-way and any relocated overhead utilities east of SR 1 would be placed underground. This is a less-than-significant impact. However, approximately 25 mature trees would also be removed from the highway roadside within the Project limits, resulting in potentially significant visual

impact as seen from SR 1. The Project would also result in visual impacts due to ground disturbing activities and construction, including the installation of the temporary detour road, temporary staging on both sides of SR 1, and grading activities associated with the Floodplain Restoration Component.

*These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of **Measures NC-1** through **NC-3** and the following Mitigation Measures.*

- VA-1** Bridge rail shall be Type 80 with architectural texture and color.
- VA-2** Bicycle and pedestrian rail shall be colored to compliment the Type 80 bridge rail.
- VA-3** All new and replaced guardrail and end treatments shall be colored to reduce reflectivity and blend with the natural setting. Coloring shall be applied to metal posts and beams.
- VA-4** A minimum of two trees will be planted for each tree removed from Caltrans right-of-way. Replacement trees will be planted within the Caltrans right-of-way to the greatest extent possible considering horticultural viability and safety requirements. These trees will be installed, maintained and monitored according to the methods and requirements for the Tier 1 compensatory mitigation planting detailed in the RMP prepared for the project and other measures required by Caltrans as part of the Encroachment Permit process. The trees will consist of native, locally occurring species that are compatible with the Tier 1 plantings. The location of the mitigation plantings within the Caltrans right-of-way will be determined as part of the PS&E stage of the Project and will maximize connectivity with adjacent Tier 1 riparian mitigation planting areas outside of the right-of-way.

d) No Impact

The Proposed Project would not include new lighting elements in an area in which there is currently no lighting.

3.3.2 Agriculture and Forest Resources

<p>In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by CARB.</p>				
Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CEQA Significance Determinations for Agriculture and Forest Resources

a, e) Less than Significant Impact

The Preferred Project and Secondary Channel Alternative would have similar potential impacts. Impacts from the Reduced Project Alternative would be slightly less.

As discussed in **Section 2.1.3 Farmland**, the Proposed Project will result in a conversion of Prime and Grazing Farmland, as designated by the FMMP, to native floodplain vegetation types, such as riparian habitat and other open space (Other Lands). **Table 2.1.3-1 in Section 2.1.3 Farmland** identifies that acreage of impacts to FMMP farmland that would result from the Build Alternatives. These areas would change to Other Lands. However, consistent with existing agricultural

easements on the Project site, approximately 23.4 acres of Grazing Land would remain and would be elevated out of the floodplain and put in permanent conservation as an agricultural preserve under all Build Alternatives. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with applicable state, regional, and local plans, programs, and agricultural policies.

The conversion of farmland in the context of the remaining preserve and the Project's consistency with local agricultural land use policy is a less-than-significant impact and no mitigation is required.

b) No Impact

There are no parcels under a Williamson Act contract within the Project site.

c, d) No Impact

There are no forest or timberlands within the Project site.

3.3.3 Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.				
Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CEQA Significance Determinations for Air Quality

a-c) No Impact

As discussed in **Section 2.2.6 Air Quality**, the Proposed Project would not conflict with and/or otherwise obstruct the implementation of MBARD's 2017 AQMP. The Proposed Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. The Proposed Project would not generate any emissions once in operation. The Proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable NAAQS or CAAQS (including releasing emissions which exceed quantitative thresholds for ozone precursors).

d) Less than Significant with Mitigation Incorporated

All of the Build Alternatives would have a similar potential for impacts.

As discussed in **Section 2.2.6 Air Quality**, operation of the Proposed Project would not result in exposure of sensitive receptors to substantial pollutant concentrations. However, construction activities (e.g., excavation, grading, on-site vehicles) associated with the Project would result in short-term increases in fugitive dust and PM₁₀. The Proposed Project may generate PM₁₀ emissions that would exceed applicable MBARD thresholds of significance (82 lb/day or more of PM₁₀) in the absence of mitigation. Implementation of the mitigation measure provided below

would ensure that temporary construction-related PM₁₀ emissions resulting from the Project would be below the applicable 82 lb/day PM₁₀ threshold.

These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of the following Mitigation Measures.

AQ-1 The Project Contractor shall comply with Caltrans' Standard Specifications in Section 14(2010).

- Section 14-9.01 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
- Section 14-9.02 is directed at controlling dust.

AQ-2 In order to reduce potential adverse air quality effects associated with Project construction, BMPs to reduce PM₁₀ emissions shall be implemented by the Project Contractor to the extent practicable throughout the duration of Project construction. Standard BMPs may include, but are not limited to:

- Apply water to the site and equipment as frequently as necessary to control fugitive dust emissions. No dust palliative materials other than water are to be used within the floodplain.
- Spread soil binder on any unpaved roads used for construction purposes and all Project construction parking areas, when practical.
- Wash off trucks as necessary to control fugitive dust emissions.
- Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
- Locate equipment and material storage sites as far away from residences and recreational areas as practical. Keep construction areas clean and orderly.
- Use track-out reduction measures such as gravel pads at Project access points to minimize dust and mud deposits on roads affected by construction traffic.
- Cover all transported loads of soils and wet materials prior to transport to minimize emission of dust (particulate matter) during transportation.
- To decrease particulate matter, promptly and regularly remove dust and mud that is deposited on paved, public roads due to construction activity and traffic.

- Route and schedule construction traffic to avoid peak travel times as much as possible, to reduce congestion and related air quality impacts caused by idling vehicles along local roads.
- Locate construction equipment and truck staging and maintenance areas to the extent feasible and nominally downwind of schools, active recreation areas, and other areas of high population density.
- Cover inactive storage piles.
- Post a publicly visible sign which specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the MBARD shall be visible to ensure compliance with Rule 402 (Nuisance).

e) Less than Significant Impact

All of the Build Alternatives would have a similar potential for impacts.

Temporary construction activities could generate fugitive dust from the operation of construction equipment. The Project will comply with Caltrans standardized procedures for minimizing air pollutants during construction. Operation of the Proposed Project would not create objectionable odors that would affect a substantial number of people.

This is a less-than-significant impact and no mitigation is required.

3.3.4 Biological Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	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 the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Biological Resources***a) Less than Significant with Mitigation Incorporated***

All of the Build Alternatives would have a similar potential for impacts, except where specified.

As discussed in **Section 2.3.4 Animal Species** and **Section 2.3.5 Threatened and Endangered Species**, the Proposed Project would provide increased habitat and significantly improved habitat values for protected animal species over time by restoring the site as part of the Carmel River floodplain. Approximately 100 acres of the Project site will be put under a permanent conservation easement that will preclude agricultural practices into perpetuity, which would result in beneficial

impacts to common and special-status wildlife species by reducing the amount of allowable agricultural use and expanding the native habitats. The Proposed Project would improve wildlife passage by increasing connectivity through the historic floodplain, under the causeway, and between the habitat east and west of SR 1. Additionally, the Proposed Project would result in an increase in vegetation on the floodplain, which would provide protection for wildlife moving through the site. However, the Proposed Project may still result in impacts to special-status animal and plant species, as described below.

Threatened and Endangered Species (Section 2.3.5)

California Red-Legged Frog

Direct impacts to CRLF may include mortality of individuals associated with construction activities, such as vegetation removal or site grading. Ongoing maintenance activities which include mowing and removal of vegetation, as described in **Section 1.4 Project Alternatives**, may also result in direct mortality and temporary disturbance of habitat. The area of annual disturbance resulting from maintenance activities is approximately 15 acres for the Reduced Project Alternative, while the other two Build Alternatives include approximately 36 acres of annual maintenance.

Vegetation removal and grading activities within the Project site during construction may impact CRLF critical habitat; however, these impacts would be temporary as the site will be revegetated as described in the RMP. Additionally, the expansion of the SR 1 embankment footprint adjacent to the causeway may result in the loss of CRLF critical habitat, however, this loss will be balanced by an expansion of the critical habitat under the open portion of the causeway. The impacts to CRLF critical habitat resulting from the Reduced Project Alternative would be less, but would also result in a reduced benefit, as less new Critical Habitat would be created as a result of a smaller causeway. The impacts to CRLF critical habitat resulting from the Secondary Channel Alternative would be slightly higher; however, the Secondary Channel Alternative is designed to provide additional aquatic habitat for CRLF and the approximately two acres at the bottom of the constructed secondary channel would change from upland and dispersal critical habitat to aquatic critical habitat. This is considered a beneficial impact. The acreage of CRLF critical habitat impacted for each Build Alternative is provided in **Section 2.3.5 Threatened and Endangered Species**.

Permanent impacts to CRLF critical habitat are very minor because, as identified above, the overall Project would provide increased habitat and significantly improved habitat values for CRLF over time by restoring the site as part of the Carmel River floodplain. Following construction, it is likely that a large portion of the area that is currently identified as dispersal habitat will support features characteristic of upland habitat as a result of the restoration. Trails, access roads, and the agricultural preserve area would retain the characteristics of dispersal habitat.

Indirect impacts to individual CRLF and CRLF critical habitat may include reduced water quality as a result of erosion from disturbed portions of the Project site during construction or if the site is left unvegetated. Flood flows could also impair the Carmel Lagoon should flows over the restored floodplain carry excessive amounts of sediment to the lagoon. The Preferred Project and Secondary Channel Alternative have been designed to avoid or reduce these impacts and mitigation has been included to further reduce impacts, as discussed in **Section 2.3.5 Threatened and Endangered Species**. However, under the Reduced Project Alternative, the risk of channel erosion and scour, and ultimately channel avulsion, increases for a number of interconnected reasons associated with a less stable geomorphic configuration of the floodplain channel. As such, the Reduced Project Alternative may ultimately result in significant impacts to CRLF critical habitat by changing the Carmel River flow and/or increasing sedimentation of the Carmel Lagoon. These impacts may also result in long-term impacts to individual CRLF by reducing water quality in the Carmel Lagoon.

Impacts to CRLF critical habitat outside of the grading limits and immediately adjacent to the Project site within the BSA may also occur if activities are conducted outside of the established Project site boundary

Impacts to CRLF would be considered “take” under the ESA. Formal intra-service consultation was initiated in October 2016.

*These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of **Mitigation Measures HAZ-3, NC-1 through NC-4, AS-1 to AS-3** and the following Mitigation Measures for the Preferred Project and Secondary Channel Alternative.*

These Mitigation Measures would also apply to the Reduced Project Alternative; however, due to the issues related to the less stable geomorphic configuration of the floodplain channel, the Reduced Project Alternative would result in significant and unavoidable impacts to CRLF.

TE-1 Prior to issuance of a grading permit, the Project Applicants shall retain a Service-Approved Biologist. The Service-Approved Biologist shall survey appropriate areas of the construction site daily before the onset of work activities for the presence of CRLF. The Service-Approved Biologist shall remain available to come to the site if a CRLF is identified until all ground disturbing activities are completed. If any life stage of the CRLF is found and these individuals are likely to be killed or injured by work activities, the Service-Approved Biologist shall be contacted and work shall stop in that area until the CRLF is relocated. The Service-Approved Biologist shall relocate the CRLF the shortest distance possible to an area that contains suitable habitat and will not be affected by construction activities. The Service-Approved Biologist shall maintain detailed records of any individuals that are moved (e.g., size, coloration, any distinguishing features, photographs) to assist him or her in determining whether translocated animals are returning to the original point of capture. Only Service-Approved Biologists shall

participate in activities associated with the capture, handling, and monitoring of CRLF. The Service-Approved Biologist shall prepare a pre-construction survey report that documents the survey dates and results that shall be provided to the County prior to construction. The Service-Approved Biologist shall also prepare a construction monitoring report that documents the monitoring dates, activities, and results following construction completion.

- TE-2** After ground disturbing and vegetation removal activities are complete, or earlier if determined appropriate by the Service-Approved Biologist in coordination with the Service, the Service-Approved Biologist will designate a construction biological monitor to oversee on-site compliance with all avoidance and minimization measures. The Service-Approved Biologist shall ensure that the construction biological monitor receives the sufficient training in the identification of CRLF. The construction biological monitor and the Service-Approved Biologist are authorized to stop work if the avoidance and/or minimization measures are not being followed. If work is stopped, the Service shall be notified. The Service-Approved Biologist and the construction biological monitor shall complete a daily log summarizing activities and environmental compliance throughout the duration of the Project.
- TE-3** To prevent inadvertent entrapment of CRLF during the Project construction, all excavated, steep-walled holes or trenches more than two feet deep will be covered by the Project Contractor at the close of each working day with plywood or similar materials. Before such holes or trenches are filled, they will be thoroughly inspected by the Service-Approved Biologist or construction biological monitor for trapped animals.
- TE-4** Prior to the initiation of maintenance activities which include mowing and removal of vegetation, as described in **Section 1.4 Project Alternatives**, the Project Applicants shall retain a Service-Approved Biologist. The Service-Approved Biologist shall survey appropriate areas before the onset of work activities for the presence of CRLF. If any life stage of the CRLF is found the Service-Approved Biologist shall relocate the CRLF the shortest distance possible to an area that contains suitable habitat and will not be affected by maintenance activities. The Service-Approved Biologist shall maintain detailed records of any individuals that are moved (e.g., size, coloration, any distinguishing features, photographs) to assist him or her in determining whether translocated animals are returning to the original point of capture. Only Service-Approved Biologists shall participate in activities associated with the capture, handling, and monitoring of CRLF. The Service-Approved Biologist shall also prepare a maintenance monitoring report that documents the monitoring dates, activities, and results following construction completion.

S-CCC Steelhead

No work will occur within the main channel of the Carmel River or within inundated portions of the Carmel Lagoon under the Preferred Project. The Preferred Project will not affect flow in the Carmel River under normal conditions and will only reduce flows during two to five-year or greater flood events. As such, the Preferred Project will have no impact on the ability for the Carmel River to sustain its function for S-CCC steelhead. The Secondary Channel Alternative would have only very minor impacts to the flow in the Carmel River under normal conditions, as described in **Section 2.2.1 Hydrology and Floodplain**. However, the minor reduction in flow would be offset by the secondary channel, which would provide new habitat for S-CCC steelhead. This is considered a beneficial impact of the Project. Under the Reduced Project Alternative, however, the risk of channel erosion and scour potential, and ultimately channel avulsion, increases for a number of interconnected reasons associated with a less stable geomorphic configuration of the floodplain channel. As such, the Reduced Project Alternative may ultimately result in significant impacts to S-CCC steelhead critical habitat by changing the Carmel River flow and/or increasing sedimentation of the Carmel Lagoon. These impacts may also result in long-term impacts to individual S-CCC steelhead by reducing water quality in the Carmel Lagoon.

Stranding of fish on the floodplain is not expected to be an issue as the potential for fish stranding was explicitly considered during the design phase of the Project and the Preferred Project and Secondary Channel Alternative include several design elements to avoid stranding, as discussed in **Section 2.3.5 Threatened and Endangered Species**. Many of these design elements are not included in the Reduced Project Alternative and, therefore, the potential for stranding of S-CCC steelhead on the floodplain may be increased under this alternative.

It is unlikely impacts to S-CCC steelhead individuals would occur during construction activities. No work would occur within the main channel of the Carmel River or within inundated portions of the Carmel Lagoon under the Preferred Project or Reduced Project Alternative. However, under the Secondary Channel Alternative, the grading for the secondary channel would excavate down to the approximate same elevation as the existing Carmel River channel bed. This may impact individual S-CCC steelhead if they are present within the channel at the time of construction.

Indirect impacts to individual S-CCC steelhead and steelhead critical habitat may include mortality due to reduced water quality as a result of erosion from disturbed portions of the Project site during construction or if the site is left unvegetated. Flood flows could also impair the Carmel Lagoon should flows over the restored floodplain carry excessive amounts of sediment to the lagoon. Additionally, removal of portions of the levees may result in a reduction of shade within the Carmel River channel and indirect impacts to S-CCC steelhead critical habitat.

The Preferred Project may temporarily impact approximately 1.0 acre of S-CCC steelhead critical habitat during construction of the Project. This area would be reduced to 0.1 acre under the Reduced Project Alternative. Under the Secondary Channel Alternative, an additional 0.1 acre

would be impacted within the Carmel River channel. Direct impacts to S-CCC steelhead critical habitat may also occur if activities are conducted outside of the established Project site boundary.

Impacts to S-CCC steelhead would be considered “take” under the ESA. Formal consultation with NMFS was concluded and a BO was issued on July 27, 2018. An Erratum Letter was provided on October 22, 2018 that provides clarifications and editorial corrections to the BO.

*These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of **Mitigation Measures HAZ-3 NC-1 through NC-4 and AS-1 to AS-3** and the following Mitigation Measures for the Preferred Project and Secondary Channel Alternative.*

Additional mitigation would be necessary for the Secondary Channel Project Alternative, such as monitoring, dewatering, and fish capture and relocation, to avoid or reduce impacts to less-than-significant for individual S-CCC steelhead and habitat during excavation within the Carmel River channel.

These Mitigation Measures would also apply to the Reduced Project Alternative; however, due to the issues related to the less stable geomorphic configuration of the floodplain channel, the Reduced Project Alternative may result in significant unavoidable impacts to S-CCC steelhead.

TE-5 All applicable measures outlined in the attached CDFW Avoidance and Minimization Measures (**Appendix I**) shall be implemented.

Tricolored Blackbird

If construction or maintenance occurs during the nesting season, there is the potential to impact nesting tricolored blackbirds, if present. Construction activities such as vegetation removal or site grading during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment within the Project site and adjacent areas of the BSA. Additionally, ongoing maintenance activities, as described in **Section 1.4 Project Alternatives** may result in direct mortality or destruction or disturbance of nests for tricolored blackbirds.

*These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of **Mitigation Measures NC-1 through NC-4, AS-1 through AS-3, and AS-5.***

Essential Fish Habitat

The Preferred Project and Reduced Project Alternative would not affect flow in the Carmel River under normal conditions and will only reduce flows within the channel during 5-year or greater flood events, which is not expected to substantially change the extent of saltwater intrusion up the Carmel River (current extent of EFH for groundfish in the BSA). The Secondary Channel Alternative would have only very minor effects on the flow in the Carmel River in that flow entering the channel and not engaging the floodplain would be directed back out into the Carmel River. As such, the Preferred Project and Secondary Channel Alternative would have no impact

on the ability for the Carmel River or Carmel Lagoon to sustain their function as EFH. Under the Reduced Project Alternative, however, the risk of channel erosion and scour potential, and ultimately channel avulsion, increases for a number of interconnected reasons associated with a less stable geomorphic configuration of the floodplain channel. As such, the Reduced Project Alternative may ultimately result in significant impacts to EFH by changing the Carmel River flow and/or increasing sedimentation of the Carmel Lagoon.

Impacts to EFH immediately adjacent to the Project site within the BSA may occur if activities are conducted outside of the established Project boundary or if construction activities result in erosion and sedimentation to adjacent habitats. Additionally, flood flows could impair the EFH should flows over the restored floodplain carry excessive amounts of sediment to the Carmel Lagoon.

*These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of **Mitigation Measures HAZ-3, TE-5, and NC-1** through **NC-4** for the Preferred Project and Secondary Channel Alternative.*

These Mitigation Measures would also apply to the Reduced Project Alternative; however, due to the issues related to the less stable geomorphic configuration of the floodplain channel, the Reduced Project Alternative may result in significant unavoidable impacts to EFH.

Animal Species (Section 2.3.4)

Special-Status Bat Species

Suitable foraging and day and/or night roost habitat for special-status bat species is present within the Project site. Construction activities within the Project site may result in temporary disturbance or mortality of individual special-status bat species, particularly during tree removal and the limited planned night work. Colonial or maternal roost habitat is not available for Townsend's big-eared bat and hoary bats are not known to breed in California; therefore, the Proposed Project would not impact special-status bat breeding.

These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of the following Mitigation Measures.

- AS-1** Prior to construction activities the Project Biologist shall conduct an Employee Education Program for the construction crew. The Project Biologist shall meet with the construction crew at the Project site at the onset of construction to educate the construction crew on the following: a) a review of the Project boundaries including staging areas and access routes; b) the special-status species that may be present, their habitat, and proper identification; c) the specific minimization and avoidance measures that will be incorporated into the construction effort, d) the general provisions and protections afforded by the Service and CDFW; and e); and the proper procedures if a special-status animal is encountered within the construction area. Each employee that receives the

training shall sign a sign-in sheet provided by the Project Biologist that shall be included in the daily log.

- AS-2** The Project Biologist shall monitor ground disturbing construction activities (i.e., vegetation removal, grading, excavation, or similar activities) to protect any special-status species encountered. The Project Biologist shall remain available to come to the site if a special-status species is identified until all ground disturbing activities are completed. Any handling and relocation protocols of special-status wildlife species shall be conducted by a qualified biologist with an appropriate scientific collection permit. After ground disturbing and vegetation removal activities are complete, or earlier if determined appropriate by the Project Biologist, the qualified biologist will designate a construction biological monitor to oversee on-site compliance with all avoidance and minimization measures. The Project Biologist shall ensure that this construction biological monitor receives the sufficient training in the identification of special-status species. The Project Biologist shall ensure the construction biological monitor is satisfactorily implementing all appropriate mitigation protocols by conducting site visits approximately weekly or when necessary as dictated by the Project activities, proximity to sensitive resources, or other reasons at the discretion of the Project Biologist. Both the Project Biologist and the construction biological monitor shall have the authority to stop and/or redirect Project activities to ensure protection of resources and compliance with all environmental permits and conditions of the Project. The Project Biologist and the construction biological monitor shall include in the daily log any special-status wildlife species observed and relocated.
- AS-3** All trash that may attract predators shall be properly contained, removed from the construction site, and disposed of regularly by the Project Contractor. Following construction, all trash and construction debris shall be removed from work areas. The Project Biologist and construction biological monitor shall monitor the Project site to ensure trash removal is implemented and shall include any trash-related issues and resolutions in the daily log.

Monterey Dusky-Footed Woodrat

Impacts to the Monterey dusky-footed woodrat may include direct mortality of individuals and temporary disturbance of habitat as a result of the construction of the Floodplain Restoration and Causeway Components of the Project. Additionally, ongoing maintenance activities, as described in **Section 1.4 Project Alternatives** may result in direct mortality or destruction or disturbance of nests.

*These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of **Mitigation Measures AS-1 through AS-3, NC-1 through NC-4** and the following Mitigation Measure.*

- AS-4** The Project Applicants shall retain a qualified biologist to conduct pre-construction surveys in suitable Monterey dusky-footed woodrat habitat proposed for construction, ground disturbance, or staging within three days prior to construction and maintenance activities for woodrat nests within the Project area and in buffer zone 25 feet out from the limit of disturbance. All woodrat nests will be flagged for avoidance of direct construction impacts, where feasible. Nests that cannot be avoided will be manually deconstructed prior to land clearing activities to allow animals to escape harm. If a litter of young is found or suspected, nest material will be replaced, and the nest shall be left alone for 2-3 weeks before a re-check to verify that young are capable of independent survival before proceeding with nest dismantling. For the construction phase only, the qualified biologist shall prepare a pre-construction survey report that documents the survey dates and results that shall be provided to the County prior to construction. If nest monitoring is necessary during construction, the qualified biologist shall prepare a construction monitoring report that documents the monitoring dates, activities, and results.

Nesting and Special-Status Raptors, Riparian Avian Species, Special-Status Ground-Dwelling Avian Species, and Other Special-Status Avian Species

If construction occurs during the nesting season, there is the potential to impact nesting and special-status raptors, riparian avian species, special-status ground-dwelling avian species, and other special-status avian species. Construction activities such as vegetation removal or site grading during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment within the Project site and adjacent areas of the BSA. Additionally, ongoing maintenance activities, as described in **Section 1.4 Project Alternatives** may result in direct mortality or destruction or disturbance of nests.

*These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of **Mitigation Measures AS-1 through AS-3, NC-1 through NC-4** and the following Mitigation Measures.*

- AS-5** To avoid impacts to nesting birds, vegetation proposed for removal for construction and maintenance will be removed prior to the nesting season (February 15 through September 1). If this is not possible, pre-construction surveys shall be conducted for nesting raptors, riparian avian species, or other special-status avian species in all areas that may provide suitable nesting habitat that exist in or within 300 feet of the Project boundary by a qualified biologist within 15 days prior to the commencement of construction activities. If nesting birds are identified during pre-construction surveys, an appropriate buffer will be imposed within which no construction activities or disturbance will take place (generally 300 feet in all directions). A qualified biologist shall be on-site during work re-initiation in the vicinity of the nest offset to ensure that the buffer is adequate and that the nest is not stressed and/or abandoned. No work may proceed in the vicinity of an

active nest until such time as all young are fledged, or until after September 1 (when young are assumed fledged). For the construction phase only, the qualified biologist shall prepare a pre-construction survey report that documents the survey dates and results that shall be provided to the County prior to construction. If nest monitoring is necessary during construction, the qualified biologist shall prepare a construction monitoring report that documents the monitoring dates, activities, and results.

Coast Range Newt, California Legless Lizard, and Western Pond Turtle

Individual Coast Range newts, California legless lizards, and western pond turtles may be impacted during the construction phase of the Project as a result of ground disturbing activities. Additionally, ongoing maintenance activities, as described in **Section 1.4 Project Alternatives** may result in direct mortality or destruction or disturbance of habitat for these species.

*These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation **Mitigation Measures AS-1 through AS-3, NC-1 through NC-4** and the measures below for the Preferred Project and Secondary Channel Alternative.*

These Mitigation Measures would also apply to the Reduced Project Alternative; however, due to the issues related to the less stable geomorphic configuration of the floodplain channel, the Reduced Project Alternative would result in significant and unavoidable impacts to western pond turtle.

AS-6 A qualified biologist shall conduct pre-construction and maintenance surveys for coast range newts, California legless lizards, and western pond turtles and their nests within three days prior to the commencement of activities. If an individual is found in any areas prior to or during these surveys, a qualified biologist shall relocate the individual from the site to a suitable location. If a western pond turtle nest is found during the survey, it will be monitored and avoided until the eggs hatch. For the construction phase only, the qualified biologist shall prepare a pre-construction survey report that documents the survey dates and results that shall be provided to the County prior to construction. If western pond turtle nest monitoring is necessary during construction, the qualified biologist shall prepare a construction monitoring report that documents the monitoring dates, activities, and results.

Plant Species (Section 2.3.3)

Construction activities will result in the removal of 10 Monterey pine and 15 Monterey cypress trees (both CNPS CRPR 1B plant species) located on the SR 1 embankment. However, the presence of these individuals within the Project site is not consistent with the goals and objectives of the Project, which is to return the site to a more naturally functioning floodplain. These individuals are reliant on an artificial feature within the floodplain (the SR 1 embankment). In addition, these individuals are not contiguous with any native Monterey pine or Monterey cypress

habitat and are very likely of genetically compromised horticultural origin. As such impacts to these trees are considered negligible in the context of the increase in native forested habitat that will result from the Project.

Ongoing maintenance activities which include mowing and removal of vegetation, as described in **Section 1.4 Project Alternatives**, may result in temporary but ongoing disturbance. However, the only special-status plants that are known from the site are Monterey Pine and Monterey Cypress. Any impacts resulting from maintenance to special status-plants that may colonize the site as a result of habitat improvements brought about by the Project are negligible.

Impacts to special-status plants are less-than-significant and no mitigation efforts will be implemented for Project impacts to these individuals.

b) Less than Significant with Mitigation Incorporated

All of the Build Alternatives would have a similar potential for impacts, except where specified.

Riparian Vegetation

The Proposed Project would have temporary and ongoing impacts to riparian vegetation, which is identified as sensitive on CDFW's *Natural Communities List* (CDFW 2010) and is regulated under Sections 1600-1616 of the Fish and Game Code. Riparian vegetation may also be considered waters of the state by the RWQCB, ESHA (coastal wetlands) by the CCC, and critical habitat for CRLF and S-CCC steelhead. A description of the riparian vegetation within the Project site is included in **Section 2.3.1 Natural Communities**. Vegetation removal and grading activities associated with the construction of the Preferred Project will impact approximately 4.1 acres of riparian vegetation; however, these impacts would be temporary as the site will be revegetated as described in the RMP. **Table 2.3.1-2 in Section 2.3.1 Natural Communities** shows the acreage of impacts within each Project component. The Reduced Project Alternative would impact only 1.2 acres of riparian habitat. Conversely, the Secondary Channel Alternative would impact an additional 0.9 acres (5.0 acres total) associated with the grading of the secondary channel.

Ongoing maintenance activities which include mowing and removal of vegetation, as described in **Section 1.4 Project Alternatives**, may also result in temporary disturbance of riparian habitat. The area of annual disturbance resulting from maintenance activities is approximately 15 acres for the Reduced Project Alternative, while the other two Build Alternatives include approximately 36 acres of annual maintenance. However, the vast majority of the maintenance area will be grassland and will not contain riparian habitat. Impacts to riparian habitat from annual maintenance will be temporary, and no net loss will occur in perpetuity. These impacts are considered negligible in the context of the increased habitat values created by the Project.

Impacts to riparian habitat outside of the grading limits or immediately adjacent to the Project site within the BSA may occur if activities are conducted outside of the established Project boundary or if construction activities result in erosion and sedimentation to adjacent habitats.

*These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of **Mitigation Measure HAZ-3** and the following Mitigation Measures. Please note that these measures would apply to any Build Alternative chosen for construction; with the acreage adjusted accordingly.*

- NC-1** Disturbance or removal of vegetation shall not exceed the minimum necessary to complete Project implementation.
- NC-2** Prior to issuance of a grading permit, the Project Applicants shall retain a qualified Project Biologist to monitor ground disturbing construction activities (i.e., vegetation removal, grading, excavation, or similar activities) to ensure measures to protect sensitive habitats are implemented. After ground disturbing and vegetation removal activities are complete, or earlier if determined appropriate by the Project Biologist, the qualified biologist will designate a construction monitor to oversee on-site compliance with all avoidance and minimization measures. The Project Biologist shall ensure that this construction monitor receives the sufficient training in the location of the sensitive habitats within and adjacent to the Project site and the protective measures afforded to them. The Project Biologist shall ensure the construction biological monitor is satisfactorily implementing all appropriate mitigation protocols by conducting site visits approximately weekly or when necessary as dictated by the Project activities, proximity to sensitive resources, or other reasons at the discretion of the Project Biologist. Both the Project Biologist and the construction biological monitor shall have the authority to stop and/or redirect Project activities to ensure protection of resources and compliance with all environmental permits and conditions of the Project. The Project Biologist and the construction biological monitor shall complete a daily log summarizing activities and environmental compliance throughout the duration of the Project that shall be provided to the County upon completion of the construction.
- NC-3** Prior to construction initiation, protective fencing shall be placed so as to keep construction vehicles and personnel from impacting riparian vegetation and other sensitive habitats adjacent to the Project site outside of grading limits. Trees or vegetation not required for removal, but directly adjacent to construction activities, shall be provided appropriate protection from impacts of construction activity. This includes fencing off shrubby vegetation and protective wood barriers for trees. Protective fencing for trees shall be far enough from trunk to adequately protect roots and large branches (typically installed at the drip line). Orange cyclone fencing or other materials that can entrap wildlife shall not be used. Protective fencing shall be installed under the

supervision of the Project Biologist. The Project Biologist and/or construction biological monitor shall monitor the fencing to ensure that the protective fencing remains intact and that all construction work is maintained within the limits of construction. Installation and monitoring of the fencing shall be documented in the daily log.

- NC-4** To mitigate for impacts to riparian habitat resulting from vegetation removal and grading, the RMP prepared for the Project includes replanting willow and cottonwood riparian forest within the Project site at a 3:1 ratio for the area of riparian forest disturbed and at a 2:1 ratio for the area of degraded riparian forest and riparian scrub disturbed (11.3 acres replanted). All compensatory mitigation will be installed during Tier 1 of the restoration, as described in the Project Description. **Table 3.2-1**²³ shows the mitigation ratios and acreage of riparian restoration presented in the RMP.

Table 3.3.4-1. Riparian Vegetation Mitigation

Type	Habitat Quality	Impact Acreage	Mitigation Ratio	Mitigation Acreage
<i>Riparian Forest</i>	High	3.1	3:1	9.3
<i>Degraded Riparian Forest</i>	Medium	0.5	2:1	1.0
<i>Riparian Scrub</i>	Medium	0.5	2:1	1.0
Total	--	4.1	--	11.3

Invasive Species

As identified in **Section 2.3.6 Invasive Species**, the RMP prepared for the Project includes an intensive invasive weed control strategy to reduce the spread or introduction of invasive plant species within the Project site, and also to ensure the success of the restoration of the Project site. However, Project construction activities, such as vegetation removal and grading, has the potential to spread or introduce invasive plant species within the Project site and surrounding areas. Invasive plant species may be brought in or out of the site by mud or other debris on construction equipment if not cleaned properly.

The Proposed Project may result in the expansion of bullfrog population within the vicinity, if permanent water is established within the water quality pond, which may result in a decline in native amphibian species, including the federally-listed CRLF.

In addition, the Secondary Channel Alternative has the potential to spread the invasive New Zealand mudsnail if mud or other debris containing the species is transported away from the Project site to other aquatic resources.

*These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation **Mitigation Measures NC-1 through NC-4**, and the following Mitigation Measure for all Build Alternatives.*

²³ Please note this is the same as **Table 2.3.1-4** included in **Section 2.3.1 Natural Communities**.

- IS-1** Construction equipment shall be cleaned of mud or other debris that may contain invasive plants and/or seeds and inspected to reduce the potential of spreading noxious weeds, before mobilizing to arrive at the construction site and before leaving the construction site.
- IS-2** The agricultural water quality pond shall not provide permanent standing water sufficient to allow American bullfrog to successfully breed. The Project Applicants shall be responsible for monitoring the water level on an annual basis. If it is determined that the pond is likely to maintain permanent water, it will be modified to ensure that it is dry for 72 hours in the month of September.

Implementation of the following additional Mitigation Measure would reduce impacts of the Secondary Channel Alternative to a less-than-significant level.

- IS-3** Construction equipment used within the Carmel River channel shall be cleaned of mud or other debris that may contain New Zealand mudsnail and inspected to reduce the potential of spreading this invasive aquatic species before leaving the construction site. Cleaning shall be conducted by pressure washing and use of brushes or other tools to remove stuck-on material.

c) Less than Significant with Mitigation Incorporated

All of the Build Alternatives would have a similar potential for impacts, except where specified.

The Proposed Project would be conducted in order to restore a more natural topography and hydrology to the floodplain, which would result in improved conditions for the future establishment of increased acreage of wetlands and substantially improved habitat values. The Preferred Project and Reduced Project Alternative would result in the temporary impacts to approximately 0.01 acre of wetlands and 0.06 acre of Other Waters that meet the federal definitions. An additional 0.04 acre of Other Waters (0.1 acres total) would be temporarily impacted as a result of the Secondary Channel Alternative.

The Preferred Project would result in the temporary impact of approximately 4.1 acres of potential coastal wetlands as a result of grading. The Reduced Project Alternative would impact only 1.3 acres of coastal wetland. An additional 0.9 acres of coastal wetland (5.0 acres total) would be temporarily impacted under the Secondary Channel Alternative. These impacts will be temporary and will result in no net loss of wetland habitats. **Table 2.3.2-1 in Section 2.3.2 Wetlands and Other Waters** shows the acreage of temporary impacts within each Project component for each Build Alternative.

Ongoing maintenance activities which include mowing and removal of vegetation, as described in **Section 1.4 Project Alternatives**, may also result in temporary disturbance of wetland habitat. The area of annual disturbance resulting from maintenance activities is approximately 15 acres for

the Reduced Project Alternative, while the other two Build Alternatives include approximately 36 acres of annual maintenance. However, the vast majority of the maintenance area will be grassland and will not contain wetland habitat. These impacts are considered negligible in the context of the increased habitat values created by the Project.

Impacts to wetland and Other Waters outside of the grading limits or immediately adjacent to the Project site within the BSA may occur if activities are conducted outside of the established Project boundary or if construction activities result in erosion and sedimentation to adjacent habitats. Flood flows could also impair the Carmel Lagoon should flows over the restored floodplain carry excessive amounts of sediment to the lagoon.

*These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of **Mitigation Measure HAZ-3** and **NC-1** through **NC-4**.*

d) No Impact

The Proposed Project will not 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. In addition, the Proposed Project would improve wildlife passage by increasing connectivity through the historic floodplain, under the causeway, between the habitat east and west of SR 1. Additionally, the Proposed Project would result in an increase in vegetation on the floodplain, which would provide protection for wildlife moving through the site. This is a beneficial impact of the Project.

e) No Impact

The Project will not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with relevant policies pertaining to biological resources.

f) No Impact

The Proposed Project is not located within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan area.

3.3.5 Cultural Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CEQA Significance Determinations for Cultural Resources***a, b, d) Less than Significant with Mitigation Incorporated***

All of the Build Alternatives would have a similar potential for impacts, except where specified.

As discussed in **Section 2.1.7 Cultural Resources**, three cultural resources occur within the APE; the culvert headwall which is a contributing element to Carmel to San Simeon Highway Historic District, the Carmel River Floodplain Agricultural Landscape and Historic District which consists of 13 separate features within and adjacent to the Project, and the Fish Ranch adobe located adjacent and outside of the Project. Additionally, the Project is within a highly sensitive zone for buried archaeological resources.

Buried Archeological Resources

Construction grading activities have the potential of inadvertently uncovering human remains or other archeological resources as the site is located within a highly sensitive area for archeological resources. The Reduced Project Alternative would have a reduced impact due to a reduction in grading compared to the other Build Alternatives.

This is potentially significant impact that can be reduced to a less-than-significant level with the implementation of the following Mitigation Measures.

CUL-1 The final grading plan for activities shall be prepared in consultation with a qualified archaeologist and an OCEN monitor.

CUL-2 Cultural resource sensitivity training will be provided for grading crews prior to the initiation of construction with the Project Archaeologist and OCEN monitor. During this

training, the construction contractor, Project Archaeologist, and OCEN monitor will agree on a communication plan and initial steps to implement Mitigation CUL-4 if potentially significant cultural resources are encountered.

- CUL-3** A professional archaeologist shall be on call to quickly assess any potentially significant cultural materials, archaeological resources, or human remains that might be uncovered during Project excavations. At least one OCEN monitor, and up to one OCEN monitor per excavation activity, shall be on site During excavation west of SR 1. Additionally, at OCEN's discretion, up to one OCEN monitor per excavation activity is optional east of SR 1. The Project Archeologist shall communicate and coordinate with the OCEN monitor(s) in regard to all data collection and the evaluation of all artifacts. Prior to the issuance of any grading permit for the Floodplain Restoration Component, the Project Applicants shall submit evidence to the County demonstrating that an on-call professional archaeologist and the OCEN monitor(s) have been retained. The Project Archeologist and the OCEN monitor(s) shall be provided contact, access, and schedule information sufficient to facilitate their monitoring efforts.
- CUL-4** If, at any time during Project construction, potentially significant cultural resources are encountered, work shall cease within 50 feet of the find until the Project Archaeologist and an OCEN monitor can evaluate the discovery. If the find is determined to be significant, steps shall be taken to protect the find from further damage or disruption. The Service's Regional Historic Preservation Officer (RHPO) and the County will be notified. Additionally, an appropriate mitigation plan shall be developed and implemented with the concurrence of the Lead Agencies and an OCEN representative.
- CUL-5** The Project Archaeological and OCEN monitors shall closely coordinate the recovery of any significant cultural materials that may be found in the excavated soil. If determined appropriate and necessary by the monitors, they shall selectively screen soil samples through 1/8" mesh to facilitate data recovery. All materials remaining in the screen and recovered artifacts of interest to OCEN shall be provided to the Chairperson of the OCEN Nation.
- CUL-6** In accordance with California PRC Sections 5097 and 7050.5, if, at any time, human remains are discovered, the Monterey County Coroner and Service's RHPO must be notified. If the Coroner determines that the remains are likely to be Native American, the Native American Heritage Commission will be notified and will appoint a Most Likely Descendent (MLD) to provide recommendations for the disposition of the remains and work will not resume until they have made a recommendation to the landowner or the person responsible for the excavation work, for means of treating and disposing of, with appropriate dignity, the human remains and any associated grave goods, as provided in California PRC 5097.98.

CUL-7 A Final Technical Report detailing the results of all analyses shall be completed within six months following the completion of monitoring work. This report shall be submitted to the Lead Agencies, the Northwest Information Center, Sonoma State University, and the Chairperson of the OCEN.

CUL-10 BSLT, a willing landowner, shall enter into an agreement with OCEN prior to issuance of the grading permit for reinternment of human remains, if any are found during Project construction, at a mutually agreeable location on BSLT property. This agreement shall also include provisions to allow post-construction access on BSLT property to OCEN members to collect native plants and vegetation for cultural purposes. Further, in recognition of the tribal cultural resources in or near the Project site, the agreement will identify a plan to collaborate on development of interpretive information and materials about the history of the OCEN people. This agreement shall be submitted to the County prior to issuance of a grading permit.

Culvert Headwall

The Project proposes removal of the culvert headwall, which is a contributing feature to the Carmel-San Simeon Highway Historic District. Section 106 consultation between the Service and the SHPO confirmed the removal of the headwall, one of 158 in the district, would be a minor loss of integrity to the historic district as a whole and would constitute a finding of No Adverse Effect.

This is a less-than-significant impact.

Fish Ranch Adobe

The Fish Ranch adobe is located outside of, but adjacent to, the grading limits of the Project. Work outside of Project limits could impact this historic resource.

*This is potentially significant impact that can be reduced to a less-than-significant level with the implementation of **Mitigation Measures CUL-1 and CUL-2** and the following Mitigation Measure.*

CUL-8 Installation of exclusionary fencing around the Fish Ranch Adobe shall be installed prior to the initiation of construction by the contractor under the supervision of the Project Archeologist. The purpose of the exclusionary fencing is to ensure construction activities avoid all impacts to this historic resource. Documentation of the installation of the fencing will be provided to the County prior to construction. Construction-phase monitoring will be conducted on weekly basis to ensure the exclusionary fencing is maintained during construction of the Project. The County will be notified immediately in the case that the fences are not being properly maintained.

Carmel River Floodplain Agricultural Landscape and Historic District

Section 106 consultation between the Service and the SHPO for the Project concluded that the Project would have no adverse effect on historic properties (see discussion of consultation in **Section 2.1.7 Cultural Resources**). However, although no direct impacts to the Carmel River Floodplain Agricultural Landscape and District will result from the construction of the Project; indirect, operational impacts resulting from an increase in backwater flood elevations may occur at the Barn Complex as a result of the Project.

All of the buildings that comprise the Barn Complex are located within the 100-year floodplain and are currently at risk under existing conditions. However, due to the larger volume of flow that will be routed under the causeway and out to the south arm of the Carmel Lagoon under the Preferred Project and Secondary Channel Alternative, the 100-year flood elevation will potentially increase by as much as 0.1 foot at the Complex. This means that compared to existing conditions, the Complex would be subject to a maximum increase of 1.2 inches in surface water elevation during the 100-year flood event post-Project.

Under the Reduced Project Alternative, the Complex is predicted to experience lower water surface elevations (0.4 foot less than existing conditions) associated with backwater flooding effects in the 100-year flood event. This means that compared to existing conditions, the Complex would be subject to a maximum decrease of 4.8 inches in surface water elevation during the 100-year flood event post-Project under the Reduced Project Alternative. The Reduced Project Alternative would avoid all impacts to the Barn Complex and improve existing conditions.

The Project is not in land use conflict with the County's floodplain ordinance that requires the first-floor elevation of buildings to be one foot above the BFE because all of the buildings that comprise the Complex are located within the 100-year floodplain and are currently at risk under existing conditions. However, because these buildings are a part of a district that is eligible for listing on the National Register of Historic Places, the slight increase in the existing flood risk of the buildings resulting from the Preferred Project and Secondary Channel Alternative may result in a significant impact that can be reduced to less-than-significant with implementation of the following Mitigation Measure.

The Reduced Project Alternative would result in no impacts to the Complex.

CUL-9 The Creamery and Blacksmith Shop will be raised and placed on concrete foundations prior to the levee plugs being removed (approximately three to five years following construction). It is anticipated that the buildings will be elevated between six to eight inches and then placed on concrete perimeter or pier foundations. Existing engineering plans, which were originally prepared by State Parks, shall be updated prior to implementation of this measure to reflect any changed conditions or changes in building codes since the original preparation. The County intends to enter into a MOU with State

Parks prior to the initiation of construction that outlines the details of this effort, including cost sharing. The MOU shall include the minimum experience requirements of the contractor(s) who bid for the lifting, cribbing, and moving of the structures and the foundation repair.

c) Less than Significant with Mitigation Incorporated

The Preferred Project and Secondary Channel Alternative would have a similar potential for impacts. The Reduced Project Alternative would have no impacts.

There are no documented paleontological localities within the boundaries of, nor adjacent to the Project site. The Qa, Qg, and Qls deposits mapped at the surface have low sensitivity for paleontological resource. However, these Quaternary sediments have unknown potential for producing significant paleontological resources at depths. The small area mapped as Tus in the easternmost portion of the Project site has high potential for paleontological resources both at the surface and at depth. Ground disturbance in geologic units and geographic areas known to contain scientifically significant fossils may produce adverse impacts to nonrenewable paleontological resources (State CEQA Guidelines, 14 CCR Sections 15064.5[3] and 15023; State CEQA Guidelines Appendix G, Section V, Part C). The Reduced Project Alternative does not include any grading within this area, and therefore, would have no impact to the area mapped at Tus.

This is potentially significant impact that can be reduced to a less-than-significant level with the implementation of the following Mitigation Measures.

The Reduced Project Alternative would result in no impacts to paleontological resources and no mitigation would be required.

PAL-1 Prior to issuance of a grading permit, the Project Applicants shall retain a qualified paleontologist to monitor ground disturbing construction activities. Paleontological monitoring shall include field inspections of cut slopes, trenches, spoils piles, and all graded surfaces for freshly exposed fossil remains, in accordance with Project safety requirements. Excavations near the southern boundary of the Project site that are greater than five feet in depth shall be periodically spot checked. The spot checks shall occur on a daily basis for at least the first three days to allow for the paleontological monitor to fully assess the onsite conditions and impacted sediments. Full time monitoring shall be implemented during excavations in to native Pleistocene sediments and Miocene marine sandstone (Tus), if encountered. If it is determined that paleontologically sensitive sediments are not being impacted, this can be reduced to weekly checks. Additionally, monitoring and spot checking efforts may be reduced, at the discretion of the qualified paleontologist in consultation with the County, Service, and Caltrans, if it is determined that only previously disturbed and Holocene-aged alluvial sediments are being impacted, or if sediments are deemed to be nonconductive to fossil preservation.

If a fossil is discovered by a monitor in a construction excavation, the monitor shall immediately notify the equipment operator and/or site project manager to stop work, and then mark the area surrounding the site with flagging until the discovery can be fully explored and evaluated. The paleontological monitor shall immediately notify the Principal Paleontologist, site project manager, and Resident Engineer. Construction activities in the immediate vicinity of the site shall stop until authorization for work to continue is provided by the qualified paleontologist. If a concentration of fossils are found, the area will be flagged and the site project manager, Resident Engineer, and Principal Paleontologist, will be notified to determine necessary action. Any action shall be communicated to the contractor and responsible agencies. Construction activities can continue outside of an appropriate buffer to the discovery site based on the size of the fossil and in consultation with the site project manager and/or Resident Engineer. All scientifically important fossils shall be salvaged and fully documented within a detailed stratigraphic framework as construction conditions and safety considerations permit. Significance criteria and salvage procedures are discussed in the Paleontological Identification Report/Paleontological Evaluation Report prepared for the Project.

A paleontological monitoring report shall be prepared and delivered to the County, Service, Caltrans, and the University of California Museum of Paleontology at Berkeley (or other appropriate fossil repository) within 30 days of the completion of field work, or as negotiated on consultation. The report shall include dates of field work, results of monitoring, fossil analyses, significance evaluation, conclusions, locality forms, and an itemized list of specimens.

- PAL-2** Prior to earthmoving activities, a qualified paleontologist shall provide a worker training program to inform construction personnel of the possibility for fossil discoveries (including the location of the areas of high potential) and shall instruct personnel to immediately inform their supervisor if any bones or other potential fossils are unearthed at the Project site and a paleontological monitor is not present. In such a case, workers shall immediately cease all activity within a 20-foot radius of the discovery site until a qualified professional paleontologist shall be mobilized to the Project site to examine and evaluate the find. If necessary, appropriate salvage measures will be developed in consultation with the responsible agencies and in conformance with Caltrans guidelines and best practices in mitigation paleontology. Work may not resume in the discovery area until it has been authorized by a qualified paleontologist.

3.3.6 Energy

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Cultural Resources***a) Less than Significant Impact***

All of the Build Alternatives would have a similar potential for impacts.

The Proposed Project does not have any electrical components that would result in the increase in energy use. In addition, the Proposed Project would not increase the traffic volume or capacity compared to the existing facilities or cause individuals to use their vehicles; vehicle use is a function of personal choice.

The operation of the Proposed Project would result in indirect energy consumption as a result of maintenance traffic and the use of maintenance equipment. However, the maintenance activities would not result in the consumption of energy such that existing supplies would be substantially constrained nor would it result in the unnecessary, wasteful, or inefficient use of energy resources.

This is a less-than-significant impact and no mitigation is required.

b) No Impact

The Proposed Project would not significantly constrain local or regional energy supplies, require additional capacity, or substantially affect peak and base periods of electrical demand. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with relevant policies pertaining to energy.

3.3.7 Geology and Soils

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Geology and Soils***ai) No Impact***

As discussed in **Section 2.2.3 Geology, Soils, Seismicity, and Topography**, the Proposed Project is not located within an Alquist-Priolo Earthquake Fault Zone. Therefore, this Project would not result in any structures being constructed within a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map.

aii-aiii) Less than Significant with Mitigation Incorporated

All of the Build Alternatives would have a similar potential for impacts, except where specified.

The Proposed Project site is located in a seismically active region and is within proximity to several active and potentially active faults. Due to the site's proximity to known faults, the site has the potential for moderate to high seismic activity. A moderately sized earthquake on any of the faults could expose the causeway to potential seismic-related hazards. Additionally, removal of portions of the existing south bank levees could, however, expose the remnant non-structural levees to potential seismic-related hazards related to ground shaking due to the weakened nature of remnant levee margins. As a result, the remaining levees could be susceptible to potential hazards during a strong seismic event if disturbed areas are not adequately re-planted and/or re-engineered to strengthen the remnant levee margins. However, the remaining levee "islands" will be reinforced by adding fill to the floodplain side of the retained levee segments such that the flow leaving the main river channel is oriented towards the direction of flow on the floodplain. Additionally, the retained levee "islands" will preserve important areas of existing vegetation that will support colonization and expansion of riparian communities along the banks, which would ensure levee stability. These hazards would not cause a substantial adverse effect to site occupants or structures. The potential hazard would be reduced under the Reduced Project Alternative as compared to the other Build Alternatives as only the existing "Notch" would be expanded and the majority of the existing levees would remain in place.

There is a moderate to high liquefaction potential in the Carmel River floodplain; however, no historical evidence of liquefaction was documented within two miles of the Project site. Nevertheless, the Causeway Component could be exposed to potential substantial adverse effects resulting from liquefaction hazards.

These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of the following Mitigation Measures.

- GEO-1** A design-level geotechnical report shall be prepared, by a licensed geotechnical engineer, to include analysis of site conditions and geologic hazards, conclusions, and project design recommendations. A copy of this report shall be submitted to Caltrans and the County for review and approval.
- GEO-2** The final design of the proposed causeway shall be completed in accordance with the recommendations of the detailed design-level geotechnical report that addresses potential hazards associated with lateral spreading and liquefaction. A licensed geotechnical engineer shall review the final construction plans and certify their recommendations have been incorporated into the project design. A copy of the construction plans and certification letter shall be submitted to Caltrans and the County for review and approval.

aiv) No Impact

No hazards associated with landslides were identified and no landslides have been documented on-site. The relatively flat terrain and absence of significant slopes preclude possible landslide hazards.

b) Less than Significant with Mitigation Incorporated

All of the Build Alternatives would have a similar potential for impacts.

The erosive potential of soils within the Project site ranges from low to moderate; however, the majority of soils are classified as having a low erosion potential. If left unprotected, these soils may be subject to wind erosion. In addition, water erosion and scouring may also occur. In order to stabilize channel geometry while vegetation takes hold and to minimize erosion upstream of the Carmel Lagoon, the design proposes a two-foot layer of cobble bed fill material to line the bottom of the distributary channels from approximately the causeway to just upstream of the south arm of the Carmel Lagoon. The bed fill material will be made up of a combination of rounded river cobble and gravel consistent with the existing bed in the main river channel in the vicinity of SR 1. In addition to providing increased stability during the grow-in period of the restoration plantings, the bed material will further emulate the substrate that would be expected from relict channels on the floodplain. Scouring at stream crossings can compromise the integrity of the structure and is one of the leading causes of bridge failure; a detailed analysis of potential bridge scouring for the Causeway Component is contained in **Section 2.2.1 Hydrology and Floodplain**.

Construction activities associated with the Project would result in temporary erosion related impacts associated with grading. The extent of potential erosion-related effects, however, is not anticipated to be substantial under the Preferred Project and Secondary Channel Alternative and would be even less substantial under the Reduced Project Alternative due to the reduced grading area. All ground disturbing activities would balance on site and would be subject to the requirements of Chapter 16.08 of the Monterey County Code; Section 16.08.340 stipulates specific erosion control requirements, including re-planting of disturbed areas, watering, and other physical erosion control methods. Following construction, revegetation of the Tier I restoration areas would begin immediately and the Tier II restoration areas would be seeded with a native seed mix to avoid erosion during the passive restoration of native habitats within this area. In addition, all construction-related activities would be subject to the requirements of an Erosion Control Plan, which is a standard Monterey County requirement for projects involving grading and land clearing.

The Floodplain Restoration Component will also be subject to the requirements of the NPDES Program, which includes the preparation of a SWPPP for construction activities disturbing one acre or more. Compliance with these requirements would ensure that construction activities associated with the Project would not have substantial adverse effect on soil erosion. Please refer to **Section 2.2.2 Water Quality and Storm Water Runoff** for more information.

*These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of **Mitigation Measures WAQ-1, NC-1 through NC-4, and GEO-1.***

c) No Impact

The Proposed Project is not located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project.

d) No Impact

No expansive soils, as defined in Table 18-1-B of the Uniform Building Code (1994), were identified on the Project site. As a result, the Project would not create a substantial risk to life or property due to expansive soil conditions.

e) No Impact

The Proposed Project does not entail the construction of septic tanks or a wastewater disposal system, the ability of the soil within the Proposed Project site to support septic tanks or wastewater disposal systems does not present a hazard.

3.3.8 Greenhouse Gas Emissions

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Greenhouse Gas Emissions***a) Less Than Significant***

All of the Build Alternatives would have a similar potential for long-term operational impacts. The Reduced Project Alternative would have less potential short-term construction impacts due to the decreased amount of grading for this alternative compared to the Preferred Alternative. The Secondary Channel Alternative would have a slightly greater potential short-term construction impacts due to the increased amount of grading for this alternative compared to the Preferred Alternative.

Short-term construction and long-term operational emissions were quantified using the California Emissions Estimator Model (CalEEMod), version 2016.3.2 (**Appendix J**). Short-term construction emissions were quantified based on estimated construction schedules, off-road equipment use, material handling activities, and on-road vehicle trips for the Proposed Project. Long-term operational emissions were quantified based on equipment usage requirements and maintenance-related vehicle trips associated with the Project. For purposes of this analysis, project-generated emissions in excess of 1,100 MTCO₂e/year would be considered to have a potentially significant impact on the environment that could conflict with the GHG-reduction goals of AB 32.

Estimated increases in GHG emissions associated with construction of the Proposed Project are summarized in **Table 3.3.8-1**²⁴. Annual emissions of greenhouse gases associated with Project construction would total approximately 2,999.6 MTCO₂e. Amortized GHG emissions, when averaged over an assumed 30-year project life, would total approximately 89.0 MTCO₂e/year. There would also be a small amount of GHG emissions from waste generated during construction; however, this amount is speculative. Actual emissions may vary, depending on the final construction schedules, equipment required, and activities conducted. Construction-generated GHG emissions would not exceed 1,100 MTCO₂e/year and would be considered to have a less-

²⁴ Please note this is the same as **Table 3.4.2-1** included in **Section 3.4 Climate Change**.

than-significant impact. To ensure a conservative analysis, amortized construction-generated emissions were also included in the operational GHG emissions assessment discussed below.

Table 3.3.8-1. Project GHG Emissions

Project GHG Emissions	(MTCO₂e/Y)
Amortized Construction Emissions Over 30 Years	89.0
Operational Emissions per Year	276.3
Combined Amortized Construction and Operational Emissions	365.2
Threshold	1,100
Exceed Threshold	NO

Operational emissions would be primarily associated with maintenance-related activities. Operational emissions are summarized in **Table 3.3.8-1**. With the inclusion of amortized construction emissions, the Proposed Project would generate an estimated total 365.2 MTCO₂e/year. Annual GHG emissions would not exceed the threshold of 1,100 MTCO₂e. The Proposed Project would not result in GHG emissions that would have a significant impact on the environment, nor would the Proposed Project conflict with applicable GHG reduction plans, policies or regulations.

Please refer to **Section 3.4 Climate Change** for additional GHG reduction strategies being implemented by the Project Applicants.

This is a less-than-significant impact and no mitigation is required.

B) No Impact

The Proposed Project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

3.3.9 Hazards and Hazardous Materials

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Hazards and Hazardous Materials***a) Less than Significant with Mitigation Incorporated***

All of the Build Alternatives would have a similar potential for impacts.

As identified in **Section 2.2.2 Hazardous Waste and Materials**, deposited lead from the leaded gasoline era is present adjacent to SR 1; however, the concentration does not exceed the hazardous waste thresholds identified above for California or Caltrans. Highway striping and wood treated

with a chemical preservative associated with rails need to be identified and disposed of properly. Improper disposal of any identified hazardous waste would result in a significant impact.

These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of the following Mitigation Measures.

HAZ-1 Paint striping or thermoplastic paint removal should be removed in accordance with Caltrans standard special provisions. A Lead Compliance Plan shall be required for conducting the paint removal activities, and it should describe proper handling methods of the paint material and should provide information regarding limiting exposure to lead chromate containing paint materials. Lead paint materials shall be disposed of at a solid waste landfill facility permitted to accept such wastes.

HAZ-2 Any treated wood should be properly stored and disposed of at a solid waste landfill facility permitted to accept such wastes.

b) Less than Significant with Mitigation Incorporated

All of the Build Alternatives would have a similar potential for impacts.

Construction activities associated with Proposed Project would require the use of hazardous materials (e.g., fuel for construction equipment, oil, solvents, or paints). However, use of hazardous materials in connection with Project construction would be temporary in nature and subject to existing regulatory requirements pertaining to the use and disposal of such materials.

Agricultural operations located within the agricultural preserve may entail the use of pesticides and fertilizers as part of routine agricultural operations that may be considered hazardous materials. Additionally, on-going weed management activities associated with the restoration activities may include chemical treatments.

If an accident during construction or as part of the operation of the Project were to result in the release of hazardous materials into the environment, there is a potential for a significant impact to occur given the proximity of the site to the Carmel River and Carmel Lagoon.

These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of the following Mitigation Measure.

HAZ-3 Cleaning and refueling of equipment and vehicles during construction shall occur only within designated staging areas. No maintenance, cleaning, or fueling of equipment shall occur within riparian areas and, at a minimum, all equipment and vehicles will be checked and maintained by the Project Contractor on a daily basis to ensure proper operation and avoid potential leaks or spills. During construction, all construction-related spills of hazardous materials within or adjacent to the construction site will be

cleaned up immediately. Spill prevention and clean-up materials shall be onsite at all times during construction. Construction materials/debris will also be stored within the designated staging areas. No debris, soil, silt, sand, oil, petroleum products, cement, concrete, or washings thereof shall be allowed to enter into, or be placed where they may be washed by rainfall or runoff, into riparian habitats or adjacent wetland habitats. All construction-related spills of hazardous materials within or adjacent to the construction site shall be reported to the Project Biologist and construction biological monitor immediately. The Project Biologist and construction biological monitor shall include any spill-related issues and resolutions in the daily log.

c, d) No Impact

The Proposed Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. As identified in **Section 2.2.2 Hazardous Waste and Materials**, the Proposed Project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

e, f) No Impact

The Proposed Project site is not located within an airport land use plan or within two miles of a public airport or private airstrip.

g) Less than Significant with Mitigation Incorporated

All of the Build Alternatives would have a similar potential for impacts.

Construction of the Causeway Component could result in adverse impacts such as reduced emergency access during construction due to temporary construction-related traffic, as well as potential increased congestion as a result of traffic delays and temporary lane closures.

*These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of **Mitigation Measure TT-1**.*

h) No Impact

The Proposed Project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires.

3.3.10 Hydrology and Water Quality

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Hydrology and Water Quality

a) Less than Significant with Mitigation Incorporated

All of the Build Alternatives would have a similar potential for impacts.

A violation of any water quality standard or waste discharge requirement would be a significant impact.

This is a potentially significant impact that can be reduced to a less-than-significant level with the implementation of the following Mitigation Measure.

WAQ-2 A SWPPP shall be prepared by a Qualified SWPPP Developer and implemented by the Project Contractor. The SWPPP shall identify the sources of pollutants that may affect the quality of stormwater and include the construction site BMPs. Additional non-stormwater BMPs will also be implemented. BMPs will included, but are not limited to, scheduling to minimize active Disturbed Soil Areas during rainy season and preserving existing vegetation to the maximum extent feasible. The Project Applicants will be responsible for coordinating the preparation of the SWPPP and obtaining coverage under the State Construction General Permit. The Qualified SWPPP Developer shall submit the SWPPP and Waste Discharger Identification Number to the County, for review and comments, prior to issuance of any related construction permits.

b) No Impact

The Proposed Project would represent a net benefit to groundwater supplies by reducing the extent of on-site agricultural activities and improving the site's hydrological function as part of the floodplain. This Proposed Project would increase the site's groundwater recharge capacity by creating the hydrologic characteristics necessary to restore the site as part of the Carmel River floodplain; floodplains promote groundwater recharge by providing additional storage capacity and increasing infiltration. Benefits to groundwater under the Reduced Project Alternative would be similar, but at a reduced level compared to the other Build Alternatives. Groundwater would, however, continue to be utilized in connection with on-site agricultural activities within the agricultural preserve, as well as establishment of the Tier 2 restoration area. The continued use of a portion of the site for agricultural activities would not increase on-site water use. Operation of the proposed causeway would not result in an increase demand for water supply. No impacts to site groundwater are anticipated as a result of the Proposed Project.

c) Less than Significant with Mitigation Incorporated

The Preferred Project and Secondary Channel Alternative would have a similar potential for impacts. The Reduced Project Alternative may result in additional impacts.

Preferred Project and Secondary Channel Alternative

Erosion and sedimentation on- and off-site occurs within floodplains as part of natural floodplain processes. By increasing the frequency of overflow from the main channel, a more dynamic and diverse floodplain geometry is expected to evolve through a cyclical process of erosion and deposition of the silts and sands that predominately comprise the valley floor. However, the natural deposit of sediment as a result of floodplain restoration activities in connection with the Preferred Project and Secondary Channel Alternative is not anticipated to be significant.

The proposed design of the restored floodplain under the Preferred Project and Secondary Channel Alternative also includes two distributary channels, one to the north and one to the south. Some separation between the distributary channels would be created by areas of high ground within the Project site and the confluence of distributary channels would be upstream of the proposed causeway. The proposed design would also incorporate a multi-channel configuration where the Proposed Project connects with the south arm of the Carmel Lagoon and would avoid significant impacts from erosion where the floodplain transitions to the lagoon. Willow plantings will be strategically placed between the distributary channels in order to provide a root network and bank stability. Along with a gentle slope conducive to sediment shedding, the design provides several sediment sequestration elements for redundancy. Each distributary channel has a dedicated sediment sequestration depression near the upstream end of its reach and two additional shared depressions.

The MFCAs will be mowed and maintained free of woody vegetation and planting will be limited to vegetation that will not impede flows during flood events in order to retain the flood conveyance capacity as designed. Maintenance of the MFCAs will be included in the long-term maintenance agreement between the County and the land owners and will delineate the parties' roles and responsibilities for long term and adaptive maintenance activities post-construction of the Project.

Removal of the most upstream portions of the south bank levees will allow for sediment deposition to occur well upstream of the Carmel Lagoon and substantial change in flood flow will be transitioned by retaining berms at the levee openings. This management strategy will assist floodplain vegetation establishment by limiting the volume and velocities of flows entering the floodplain during the first several flood seasons. Following construction, revegetation of the Tier I restoration areas would begin immediately and the Tier II restoration areas would be seeded with a native seed mix to avoid erosion during the passive restoration of native habitats within this area. The berms would be removed mechanically once vegetation is considered well established. Additionally, in order to stabilize channel geometry while vegetation takes hold and to minimize erosion upstream of the lagoon, the design proposes a two-foot layer of cobble bed fill material to line the bottom of the distributary channels from approximately the causeway to just upstream of the south arm of the Carmel Lagoon.

The Causeway Component could result in additional erosion-related effects associated with bridge scour and the sedimentation/siltation of the Carmel Lagoon. General and local scour calculations identified that general scour would largely be limited to the contraction type due to the relatively uniform planform of the floodplain at the proposed placement of the causeway. Contraction scour is predicted to occur to a depth of approximately five feet for the Preferred Project. The contraction scour is due to a smaller channel width at the bridge compared to the channel width upstream. Pier scour calculations were also completed which identified pier scour depths at 14 feet deep for the pier size proposed under the Preferred Project. The pier scour calculations assumed that the piers are skewed to flow, and that no debris was caught on the piers. Sediment transportation modeling indicated that the channel is likely to aggrade; however, degradation of up to four feet was assumed as a “worst case scenario” to avoid underestimating the bridge scour. An assessment of drift hazard was also completed that concluded that under the Preferred Project it is possible for large woody debris to accrue at the causeway during flood events. Concerns regarding a temporary increase in debris load due to the removal of the San Clemente Dam upstream of the site were considered during Project design; levee plugs have been factored into the design to reduce the frequency of the floodplain being engaged during the early post-construction years, which will limit the flow depth while the overall floodplain vegetation plan is established. The causeway has been designed in accordance with the recommendations of a design-level hydraulic analysis to ensure that potential scour hazards are minimized, including the spacing between piers.

Under the Secondary Channel Alternative, floodplain grading will be the same as described for the Preferred Project, except where the secondary channel is proposed (**Figure 1.4-7**). Construction of a secondary channel to the south of the Carmel River would seek to mimic the historical attributes of a multi-threaded channel ecosystem, as was present to the north of the Carmel River prior to European settlement and subsequent development. River flows in the Carmel River channel under normal conditions would be affected, but only in a minor way by the Secondary Channel Alternative and the beneficial impacts of the secondary channel would outweigh this minor impact, as discussed in **Section 2.2.1 Hydrology and Floodplain**.

These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of the following Mitigation Measures.

- HF-1** In order to reduce potential adverse effects associated with bridge scouring, the final design of the causeway shall be completed in accordance with the recommendations of a detailed design-level hydraulic analysis. The hydraulic analysis shall contain a detailed evaluation of potential bridge scouring and shall be prepared in accordance with the requirements of Caltrans. Prior to the issuance of any grading and/or building permit in connection with the causeway, a copy of this report shall be submitted to Caltrans and the County for review and approval.

WAQ-1 In order to reduce downstream sedimentation, bank stabilization measures recommended by a licensed civil engineer shall be implemented immediately following levee removal as part of the Floodplain Restoration Component. The remnant levees shall be monitored as part of on-going site monitoring to ensure that post-construction erosion is minimized. Adaptive management practices shall be implemented to the extent necessary in consultation with the Project Engineer. Prior to the issuance of any grading permit for levee removal, final grading plans shall include bank stabilization measures, subject to the review and approval of the County. The Project Applicants will be responsible for monitoring the implementation of the measures and shall, upon completion, provide the County certification from a licensed geotechnical engineer that all bank stabilization measures have been constructed in accordance with their recommendations and the approved plans.

Reduced Project Alternative

As discussed in **Section 2.2.1 Hydrology and Floodplain**, the risk of channel erosion and scour potential increases for a number of interconnected reasons associated with a less stable geomorphic configuration of the floodplain channel in the Reduced Project Alternative. The risk of channel avulsion (change in the direction of the main Carmel River flow path from its current course onto the floodplain) also increases with the limitation of one notch through which flows will enter the floodplain during flood events. Additionally, the narrower causeway is limited to conveying flows of about 3,500 cfs, so an avulsive shift of the channel onto the floodplain under a reduced alternative design would also create significant flooding problems at SR 1.

Reduced benefits in comparison to the Preferred Project include the potential for sediment transport into the Carmel Lagoon to increase with the elimination of sediment sequestration elements and with any increase in erosion. Less floodplain grading would yield a higher elevation ground surface which is then a further distance from the local groundwater source. Less available groundwater for riparian plantings could lead to less vigorous vegetation establishment. Floodplain and channel habitat complexity and enhancements would decrease with the elimination of streamwood log placements, islands, sediment sequestration elements, and fewer MFCAs.

These are significant and unavoidable impacts of the Reduced Project Alternative.

d, i) Less than Significant with Mitigation Incorporated

All of the Build Alternatives would have a similar potential for impacts, except where specified.

The site's existing drainage would be altered in the course of Project construction in order to create the hydrologic characteristics necessary to restore the site's longitudinal connectivity with the Carmel Lagoon and adjacent floodplain, as well as reduce flooding hazards to SR 1. The Proposed Project would result in a number of benefits by reducing flood hazards to the developed areas located north of the Carmel River, which have been subject to periodic flooding, and reducing

existing flood hazards to SR 1. These benefits would generally result from reducing portions of the existing levee, which would increase the site's capacity to accommodate floodwaters, as a result of the causeway. Flooding would increase within the undeveloped south floodplain consistent with the objectives of the Proposed Project, thus reducing the occurrence of flooding in the developed north overbank areas. This is considered a beneficial effect of the Project. Please refer to **Section 2.2.1 Hydrology and Floodplain** for a detailed analysis of flooding within the Project site.

Important flood control benefits would be reduced under the Reduced Project Alternative compared to the Preferred Project, though improved compared to the existing condition. The reduced conveyance between the Preferred Project and Reduced Project Alternative would translate into fewer flood control benefits for CSA 50.

However, the levee removal has the potential to reduce the strength of the existing non-structural levees at the margins between the retained and removed sections. The strength of the levee margins would be at their lowest immediately following ground disturbing activities due to vegetation removal. This could result in increased flooding on-site and downstream, as well as increased potential avulsion risks, exposing people and/or structures on the south bank of the Carmel River to additional hazards. Un-stabilized portions would be subject to erosive forces; if this were to occur it would have the potential to increase downstream sedimentation in the main channel. The lateral redistribution of loose substrate could lead to increased local widening, an increase in width/depth ratios, and localized braiding and/or bar formation within the main channel.

*This is a less-than-significant impact because the potential for these effects have been significantly reduced through the implementation of Project design elements to strengthen the remnant levees (as described in the **Section 1.4 Project Alternatives**).*

Downstream Structures

Several buildings and structures (identified as the Barn Complex in **Section 2.1.7 Cultural**), the CAWD treatment plant, the CAWD outfall and sewer force main pipeline crossing, and the red houses are currently located within the FEMA 100-year flood hazard area. Under Project conditions, these buildings and structures would remain within the 100-year base flow elevation. Impacts to these structures is discussed below. Please refer to **Section 2.2.1 Hydrology and Floodplain** for a detailed discussion of these impacts.

Red Houses

As shown in **Table 2.2.1-2** and **Figure 2.2.1-7**, construction of the Preferred Project and Secondary Channel Alternative would place the red houses above the 100-year FEMA BFE, which they currently are not. The Reduced Project Alternative would lower the WSE at the red houses during

the 100-year event (**Table 2.2.1-3** and **Figure 2.2.1-10**); however, they would still be below the 100-year FEMA BFE.

This is a beneficial impact of the Proposed Project.

State Parks Barn Complex

Compared to existing conditions, the Complex would be subject to a maximum increase of 1.2 inches in surface water elevation during the 100-year flood event post-Project under the Preferred Project and Secondary Channel Alternative (**Table 2.2.1-2** and **Figure 2.2.1-7**). As identified above, all of the buildings that comprise the Complex are located within the 100-year floodplain and are currently at risk under existing conditions. Therefore, the Project is not in land use conflict with the County's floodplain ordinance that requires the first-floor elevation of buildings to be one foot above the BFE. However, because these buildings are a part of a district that is eligible for listing on the National Register of Historic Places, the slight increase in the existing flood risk of the buildings resulting from the Preferred Project and Secondary Channel Alternative is a potentially significant impact.

Under the Reduced Project Alternative, the Complex is predicted to experience lower water surface elevations (0.4 foot less than existing conditions) associated with backwater flooding effects in the 100-year flood event (**Table 2.2.1-3** and **Figure 2.2.1-10**). This means that compared to existing conditions, the Complex would be subject to a maximum decrease of 4.8 inches in surface water elevation during the 100-year flood event post-project under the Reduced Project Alternative. This would be considered a beneficial impact of the Reduced Project Alternative.

*The slight increase in the existing flood risk of the buildings resulting from the Preferred Project and Secondary Channel Alternative represents a potentially significant impact that can be reduced to a less-than-significant level with the implementation of **Measure CUL-8**.*

The Reduced Project Alternative would result in no impacts to the Complex and no mitigation would be required.

CAWD Treatment Plant

The CAWD treatment plant is located along the border between the main channel of the Carmel River and the south overbank flow paths. Hydraulic modeling of the Build Alternatives predicts an overall reduction in the flood hazard at the CAWD treatment plant as a result of the Proposed Project (**Table 2.2.1-2** and **Figures 2.2.1-6** and **2.2.1-7**).

This is a beneficial impact of the Proposed Project.

CAWD Outfall and Sewer Force Main Pipeline Crossing

The CAWD outfall and sewer force main pipelines that cross the south arm of the Carmel River Lagoon are located within the south overbank reach in the currently-effective FEMA hydraulic model (Balance Hydrologics 2016a). Discharges, WSEs, and velocities at the CAWD outfall and sewer force main pipeline crossing under the 10-year and 100-year events are provided in **Table 2.2.1-1** and **Figures 2.2.1-6** and **2.2.1-7** for the Preferred Project. Under the Preferred Project during the 10-year event, the WSE is predicted to increase approximately 0.4 feet (or approximately 4.8 inches), from 10.4 feet to 10.8 feet, at the location of the pipe crossing compared to existing conditions. The velocity is predicted to increase approximately 1.3 fps, from 3.6 fps to 4.9 fps. During the 100-year event the impacts are slightly less pronounced, in large part because the Carmel Lagoon is in a more backwatered condition in both pre- and post-Project scenarios. As such, under the Proposed Project, the WSE is predicted to increase 0.3 feet (or approximately 3.6 inches) from 13.3 feet to 13.6 feet, while the velocity is predicted to increase 0.7 fps from 8.8 fps to 9.5 fps.

Considering the lagoon substrate material, it is anticipated that the threshold velocity for erosion and scour to be on the order of four fps (see Table 2-5 in USACE's Hydraulic Design of Flood Control Channels [USACE 1994]). Therefore, the 1.3 fps increase from 3.6 fps to 4.9 fps at the CAWD outfall and sewer force main pipeline crossing during the 10-year event for the Preferred Project increases the velocity beyond the threshold for erosion and scour (Balance Hydrologics 2016a and 2018a).

Flow, WSE, and velocities under the Reduced Project Alternative at the CAWD outfall and sewer force main pipeline crossing are predicted to be lower in the 10-year flood event and in the 100-year flood event (**Table 2.2.1-3**; **Figures 2.2.1-9** and **2.2.1-10**) compared to the Preferred Project (**Table 2.2.1-1**; **Figure 2.2.1-6** and **2.2.1-7**). In both cases, conditions are directly related to the differences between increases in flow onto the floodplain at the upstream extent of the Project, where multiple notches are engaged at high flows in the Preferred Project compared to the single existing notch or a single lower elevation notch in the Reduced Project Alternative. During the 100-year event, predicted values for flow (10,600 cfs), WSE (13.4 feet), and velocity (9.3 fps) are nominally smaller for the Reduced Project Alternative (**Figure 2.2.1-10**) than the Preferred Project flow (11,300 cfs), WSE (13.6 feet), and velocity (9.5 fps) (**Figure 2.2.1-7**). For both the Preferred Project and Reduced Project Alternative scenarios, WSEs of 13.4 and 13.6, respectively, are high enough to inundate the CAWD outfall and sewer force main pipelines crossing, and velocities are fast enough to promote scour that would represent a potentially significant impact.

In December 2018, CAWD identified deficiencies in the cross beams and two of four existing piles supporting the outfall and sewer force main pipelines were found to be vulnerable to failure in a 100-year flood event (CAWD, 2018). As a cautionary measure, in January 2019 CAWD initiated emergency repairs to forestall potential failure of the crossing structure. While CAWD needs to

ensure the long-term reliability of their infrastructure and repair as necessary, taken together with the potential adverse effects of the Proposed Project, the preferred approach to protect the CAWD pipelines will likely require moving the pipelines underground, below the south arm of the Carmel Lagoon, or some other sufficient method to protect the pipelines from increased flow velocity and woody debris (hereafter referred to as the “CAWD Project”). CAWD has asserted that, without the Proposed Project, CAWD might choose a method other than undergrounding of the outfall and sewer force main pipelines or might choose a different timing to address the deficiencies. To mitigate potential adverse effects associated with the Proposed Project, the CAWD Project must be implemented prior to completion of the Proposed Project. As of the writing of this Draft EIR/EA, the County and CAWD (also potentially BSLT) intend to enter into an agreement regarding funding responsibilities of the CAWD Project.

In 2017, CAWD began the process to develop engineering design plans for the CAWD Project (CAWD, 2017). An IS/MND for the outfall and sewer force main pipe improvement was adopted by the CAWD Board at their June 2018 board meeting. CAWD has indicated that, based on concerns raised by NMFS, additional project design, analysis, and recirculation of the environmental review document is needed.

These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of the following Mitigation Measures.

HF-3 The existing CAWD outfall and sewer force main pipelines must be protected through implementation of the CAWD Project prior to any change in existing floodplain conditions due to the Proposed Project. If the CAWD Project is not complete by the time construction of the Proposed Project begins, the following construction scheduling and design changes will be made to protect the CAWD outfall and sewer force main pipelines from any negative impacts from the Proposed Project compared to existing conditions:

1. The existing south bank river levee will remain intact until the CAWD Project is complete and CAWD has provided timely written notification to the County of completion.
2. The temporary SR 1 detour road, which will be constructed to an elevation equal to the existing SR 1 embankment to function as a barrier to maintain flows equal to the existing condition during a flood event, shall remain intact until the CAWD Project is complete and CAWD has provided timely written notification to the County of completion.

HF-4 In collaboration with CAWD, the County shall seek to obtain grant funding to fully fund the CAWD Project. The County shall support any and all efforts CAWD may undertake to obtain grant funding to complete the CAWD Project as part of and mitigation for the Proposed Project.

- HF-5** The County shall not issue a Notice to Proceed for construction of the Proposed Project until the County has received written assurance from CAWD that CAWD has obtained all necessary funding and approvals to proceed with the CAWD Project, and that any necessary funding agreements are in place between the County and CAWD.

e) No Impact

Construction of the causeway is not anticipated to substantially increase impervious surface area or generate runoff that would exceed the capacity of existing or planned storm water drainage facilities. Impervious surfaces are not part of the remaining components of the Proposed Project. The Proposed Project would not provide substantial additional sources of polluted runoff.

f) No Impact

As discussed in **Section 2.2.2 Water Quality and Storm Water Runoff**, the Proposed Project will have substantial positive benefits as it is intended to improve the quality of water entering the Carmel Lagoon by providing additional storage and filtration for sediment and nutrients. This includes enhancing several beneficial uses, such as GWR, FRESH, WARM, COLD, WILD, BIOL, and RARE, as identified in the Water Quality Control Plan for the Central Coastal Basin.

g) Less than Significant with Mitigation Incorporated

All of the Build Alternatives would have a similar potential for impacts, except where specified.

The Proposed Project would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. Conversely, under Preferred Project and Secondary Channel Alternative conditions, the red houses would be above the 100-year FEMA base flow elevation because these Alternatives would result in a reduced floodplain elevation post-Project. This is a beneficial impact of the Project. The Reduced Project Alternative would not result in this beneficial impact.

However, the changes in WSE that are predicted to occur as a result of the Project could invalidate the BFEs cited on the currently-effective FEMA Flood Insurance Rate Map Panel for the Project area.

This is a potentially significant impact that can be reduced to a less-than-significant level with the implementation of the following Mitigation Measure.

- HF-2** In order to reduce potential adverse effects associated with possible impacts to the validity of the base flood elevations cited on the currently-effective FEMA Flood Insurance Rate Map Panel for the Project area, the Monterey County Water Resources Agency shall, on behalf of the Project Applicants, obtain a FEMA Conditional Letter of Map Revision (CLOMR) prior to construction of the Project to have FEMA review and determine the precise way in which the flood map would be revised. Following the

completion of the Project, the Project Applicants shall obtain a FEMA Letter of Map Revision (LOMR) to officially update the flood map to reflect the revision. The Project Applicants or designated representative shall submit evidence to the County demonstrating that the identified requests have been made.

h) No Impact

The purpose of the Causeway Component is to accommodate flood flows that come into the south overbank area through removal of a portion of the levee and to increase hydrologic and habitat connectivity between the Carmel Lagoon and the Project site. Placement of the causeway within the 100-year flood hazard area would allow for floodwaters to pass from the Odello East property under SR 1 to the floodplain and south arm of the Carmel Lagoon to the west. This is a beneficial impact of the Project.

j) No Impact

The Proposed Project would not cause inundation by seiche, tsunami, or mudflow.

3.3.11 Land Use and Planning

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Land Use and Planning***a) No Impact***

The Proposed Project does not include division of an established community.

b) No Impact

As identified in **Section 2.1.1 Land Use**, the Proposed Project would not conflict with any applicable land use plan, policy, or regulation. The Proposed Project is consistent with the Carmel Area LUP, 1982 Monterey County General Plan, California Coastal Act, Monterey County Zoning Ordinance Title 20, and Point Lobos State Reserve and Carmel River State Beach General Plan. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with relevant policies pertaining to land use. The Proposed Project would achieve many of the goals and objectives of the evaluated policies by enhancing the site's ecological and hydrological value while also preserving the agricultural heritage of the site. This is a beneficial impact of the Project.

c) No Impact

The Proposed Project site is not within any applicable habitat conservation plan or natural community conservation plan areas.

3.3.12 Mineral Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Mineral Resources***a) No Impact***

No mineral resources are known within the Project site.

b) No Impact

No locally-important mineral resource recovery sites are known within the Project site.

3.3.13 Noise

Would the project result in:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Noise***a, b, d) Less than Significant with Mitigation Incorporated***

All of the Build Alternatives would have a similar potential for impacts, except where specified.

As identified in **Section 2.2.7 Noise and Vibration**, noise levels associated with construction activities such as asphalt removal, site preparation, grading, foundation construction can be predicted to range from 84 dBA to 88 dBA at 50 feet from the source. While the vast majority of the construction will occur during the day, paving of a limited section of SR 1, where the temporary detour road and SR 1 overlap, will occur at night; four times over the course of the two-year construction duration, each occurrence lasting from one to three nights. The predicted range of noise generated during construction of the project is approximately 83 to 88 dBA at 50 feet.

Noise levels generated during pile driving as part of the causeway construction could be as high as 101 dBA at 50 feet from the source. However, the nearest receptor is approximately 360 feet from the pile driving. As construction generated noise levels drop off at a rate of about 6 dBA per doubling of distance between the source and receptor, noise levels resulting from pile driving

would be approximately 85 dBA at the nearest sensitive receptor. Pile driving activities would be conducted approximately 1,500 feet from the open water of the Carmel Lagoon and approximately 1,000 feet from the Carmel River channel and may impact aquatic species, including S-CCC steelhead. The Reduced Project Alternative would result in the same noise impacts from pile driving, but for a shorter duration of time because there are fewer piles. An analysis of this potential impact is included in **Section 2.3.5 Threatened and Endangered Species** and **Section 3.3.4 Biological Resources**.

Both the ambient and predicted noise levels are above the NAC for the use categories.

*These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of **Mitigation Measure TE-5** and the following Mitigation Measures.*

NSE-1 Prior to initiation of construction, a CNMP shall be prepared consistent with the County of Monterey Noise Control Ordinance (Chapter 10.60 of the County's Code of Ordinances). The CNMP shall identify all areas where major noise-generating construction activities would result in noise levels at nearby land uses that would exceed instantaneously levels of 85 dBA for the daytime and 65 dBA Lmax, for the night, measured at the property line of the noise source. The CNMP shall be reviewed and approved by County planning staff and Caltrans prior to initiation of construction. The CNMP shall be implemented by all relevant contractors at the site, and noise shall be monitored during demolition, grading, pile driving, and other noise-generating activities. Reporting of implementation shall be provided to the County for review. The CNMP shall include, at a minimum, the following components:

- Identification of noise-reduction measures to be implemented with a noise-reduction goal sufficient to achieve the County's instantaneous noise standards. Noise-reduction measures may include, but are not limited to, the use of quieter equipment, equipment enclosures/surrounds, construction of temporary noise barriers, and/or installation of equipment noise control.
- A construction noise complaint and response program. Notification and response procedures/measures to be implemented in response to noise-related complaints shall be identified. The name(s) of designated noise-control representative(s) and daytime contact information shall be included.
- A construction noise monitoring program sufficient to provide verification that resultant noise levels associated with noise-generating construction activities would not exceed the County's daytime and nighttime intermittent noise standards
- Quiet models of air compressors and other stationary noise sources where technology exists shall be utilized.

- All internal combustion engine-driven equipment shall be equipped with mufflers that are in good condition and appropriate for the equipment.
- All stationary noise-generating equipment, such as air compressors and portable power generators, shall be located to maximize distances to residences/noise sensitive uses.
- Staging areas and construction material shall be located to maximize distances to residences or noise-sensitive land uses.
- Noise from construction workers' radios shall be controlled to a point that they are not audible at existing residences bordering the Project site.
- All unnecessary idling of internal combustion engines shall be prohibited.

NSE-2 Advance written notification shall be provided to property owners and building occupants that are located adjacent to construction areas. Notification shall be provided a minimum of five days prior to initiation of project construction. The notification shall identify the name and phone number of the construction representative to be contacted regarding construction-related complaints, as well as, the County of Monterey Planning Department contact information. Additional information regarding anticipated hours and dates of construction and recommended measures to minimize noise-related impacts (e.g., closure of building windows) shall also be included in the notification.

NSE-3 Noise-generating construction activities shall be limited during the nighttime hours between 10:00 p.m. and 7:00 a.m., consistent with Monterey County noise ordinance, Monday through Saturday. Noise-generating construction activities shall be prohibited on Sundays and State-recognized holidays.

c) No Impact

The Proposed Project would not result in a permanent increase in ambient noise levels as it will not include any increases in traffic or creation of new permanent noise sources.

e, f) No Impact

The Proposed Project site is not located within an airport land use plan or within two miles of a public airport or private airstrip.

3.3.14 Population and Housing

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Population and Housing***a) No Impact***

The Project would not cause unplanned growth because the Proposed Project will provide no additional carrying capacity to SR 1.

b, c) No Impact

The Proposed Project is not located in a developed community and will not require relocation of any homes or businesses and will not displace any people.

3.3.15 Public Services

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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:				
a) Fire protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CEQA Significance Determinations for Public Services***a, b, d, e) Less than Significant with Mitigation Incorporated***

All of the Build Alternatives would have a similar potential for impacts.

There would be no increase in demand for emergency services as a result of the Proposed Project. However, SR 1 is identified as an emergency access route in the 1982 Monterey County General Plan. The construction of the Causeway Component could result in adverse impacts such as reduced emergency access during construction due to temporary construction-related traffic, as well as potential increased congestion as a result of traffic delays and temporary lane closures.

*This is a potentially significant impact that can be reduced to a less-than-significant level with the implementation of **Mitigation Measure TT-1**.*

c) No Impact

There are no schools in the vicinity where inadequate emergency service may result from the temporary construction-related traffic.

3.3.16 Recreation

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Recreation***a, b) No Impact***

The Proposed Project will change a large portion of the current land use from agricultural to open space and will include a series of access roads/trails which will connect the adjacent parks to the Project site and to each other and provide a dedicated crossing under SR 1. The Proposed Project will provide increased public access to the Carmel River State Beach and coastal resources, as well as Palo Corona Regional Park. However, the creation and expansion of these recreational facilities would not result in a substantial deterioration of the existing parks or result in adverse physical effects on the environment.

3.3.17 Transportation/Traffic

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Transportation/Traffic***a, b) Less than Significant with Mitigation Incorporated***

All of the Build Alternatives would have a similar potential for impacts.

The Proposed Project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system or an applicable congestion management program. Please refer to **Appendix F Project Consistency with Relevant Land Use Policies** for a detailed discussion of the Project's consistency with relevant policies pertaining to transportation and traffic.

As described in **Section 2.1.5 Traffic and Transportation**, construction of the causeway would address existing deficiencies associated with this segment of SR 1 and construct a southbound left turn lane at the Palo Corona Regional Park entrance, and would have no post-construction impacts on traffic and transportation; however, the Proposed Project would result in a temporary increase in traffic during construction. The typical average number of trips to the site totals approximately 52 per day. The total upper limit of daily trips generated by the Project would be 132 trips (for approximately 30 days over the course of the two-year construction window), while the vast majority of the time it would be 50 trips per day. Given that the AADT for the year 2014 was 14,200, these additional trips are negligible.

The Project has been designed to avoid traffic impacts, including installation of a temporary detour road. The majority of the temporary detour road would be constructed to the east side of SR 1, and as a result would have no effect on traffic during its construction. The paving where the temporary detour road ties-in to the existing SR 1 would be performed at night under temporary traffic control. With the tie-ins complete, traffic would then be directed over to the temporary detour road for the duration of the causeway construction work. While traffic is being directed over the temporary detour road during Project construction, the speed limit would be reduced from 55 to 45 miles per hour. However, this reduction in speed would not increase traffic because the Project is located where the current speed limit transitions from 55 to 45 mph. Therefore, while this transition will occur approximately one tenth of a mile south of the current location, the reduction in speed would be consistent with existing conditions and would not result in any new traffic impacts.

Similarly, after the causeway and associated SR 1 work is complete, the final (permanent) paving where the highway ties-in to the temporary detour road would be performed at night under temporary traffic control and traffic will be moved on to the completed highway. After the causeway is complete, the temporary detour road would be removed, and a haul road would be constructed under the causeway to allow the excess cut soil from the west side of the highway to be hauled under the causeway as needed. Contractor staging areas will be located on both sides of SR 1 so that construction can occur with a minimal movement of construction equipment across the highway.

However, minor modifications to four driveways within the Project vicinity, as a result of changes in profile grade and construction of the temporary detour road may result in temporary impacts associated with the construction of these modifications. All work will be coordinated with the affected property owners to ensure that access is satisfactorily maintained during construction.

These are potentially significant impacts that can be reduced to a less-than-significant level with the implementation of the following Mitigation Measure.

- TT-1** In order to minimize the extent of impacts associated with construction-related traffic, a Transportation Management Plan shall be prepared by a designated representative and

submitted to Caltrans and the County for review and approval, prior to the issuance of an encroachment permit in connection with the Causeway Component. The Transportation Management Plan shall provide information related to public awareness, temporary traffic control measures, traffic diversions and lane closures, safety measures, construction notification information, and other information as deemed necessary by Caltrans.

c) No Impact

The Proposed Project would not result in a change in air traffic patterns.

d) No Impact

The Proposed Project will not substantially increase hazards due to a design feature or incompatible uses. The final configuration of the causeway will be the same as existing conditions. The temporary detour road would be slightly curved but would be designed to Caltrans standards to allow for speeds of 45 mph and would not increase hazards.

e) Less than Significant with Mitigation Incorporated

All of the Build Alternatives would have a similar potential for impacts.

Construction of the Causeway Component could result in adverse impacts such as reduced emergency access during construction due to temporary construction-related traffic, as well as potential increased congestion as a result of traffic delays and temporary lane closures.

*This is potentially significant impacts that can be reduced to a less-than-significant level with the implementation of **Mitigation Measure TT-1**.*

f) No Impact

The Proposed Project would not conflict any adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities. As described in **Section 2.1.5 Traffic and Transportation**, bicycle facilities were considered in the design of the Proposed Project. During construction, the temporary detour road would accommodate bike traffic along eight-foot wide shoulders. The causeway incorporates eight-foot wide shoulders, transitioning to match existing four-foot wide shoulders at the southern Project limits. This shoulder width satisfies Class II and Class III bicycle facility requirements. Additionally, through a long-term maintenance agreement, use of the access roads/trails within the Project site by bicycles will be managed by each respective land owner and coordinated jointly by BSLT, State Parks, and MPRPD, based on allowed uses on public lands, ongoing restoration and maintenance activities, and seasonal conditions. Types of use on public lands, and directional and interpretive signage will be guided by adopted General Plans or Management Plans, and will be implemented by the long-term maintenance agreement for post-construction long term management of the Project pursuant to adopted plans.

3.3.18 Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	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 section 5020.1(k), or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CEQA Significance Determinations for Tribal Cultural Resources***a, b) Less than Significant with Mitigation Incorporated***

The Proposed Project and Secondary Channel Build Alternatives would have a similar potential for impacts. The Reduced Project Alternative would have a reduced potential for impacts because of a reduction in the amount of ground disturbance.

The County conducted consultation with the OCEN in accordance with AB-52 to discuss potential Project impacts to tribal cultural resources and feasible alternatives or mitigation measures to avoid or substantially lessen the impact. OCEN is composed of Native Americans descended from the ancestral community who lived in villages historically located within the present-day Greater Monterey Bay Regional boundaries, including the middle and lower reaches of the Carmel River drainage. Members trace their ancestries in part to the Mission San Carlos Borromeo (Carmel) and to the villages and districts that came under Spanish control there from 1770 to 1834. The Mission San Carlos Borromeo is located approximately 0.6 miles west of the project site on the north bank of the Carmel River.

Consultation was initiated on December 8, 2015 and included in-person, email, or phone communication on 12 separate dates:

- December 8, 2015,
- January 12, 2016,

- February 9, 2016,
- March 8, 2016,
- April 12, 2016,
- May 10, 2016,
- June 12, 2016,
- August 9, 2016,
- July 10, 2018,
- September 11, 2018,
- September 21, 2018, and
- October 2, 2018.

During the consultation, OCEN representatives identified that the Project area, at the Carmel River mouth and lower watershed with its close location to the Mission San Carlos Borromeo and nearby ancestral villages, contains tribal cultural resources. Construction grading activities have the potential to inadvertently uncover tribal cultural resources during construction grading activities as the site is also located within a highly sensitive area for archeological resources. BSLT, co-applicant for the Project, in both the consultation and in direct communications, has offered OCEN a location on the Project site owned by BSLT for reinternment of Native American human remains or other artifacts, if any are found during the Project construction. Based on BSLT's discussion with OCEN representatives outside of the County's consultation, OCEN has been receptive to these proposed mitigation measures. BSLT has also indicated it is committed to other opportunities to recognize tribal coastal resources post-construction of the Project. This would include activities such as allowing access for collection of native plant materials and development of interpretive signage to acknowledge the indigenous ancestry on the Project site and surrounding landscape.

The County provided OCEN with proposed mitigation in good faith and after reasonable effort on September 11, 2018 based on coordination and communication over the duration of the consultation and in accordance with California PRC Section 21080.3.2 (**Measures CUL-1 through CUL-8 and CUL-10** as identified in **Section 2.1.7 Cultural Resources** and **Section 3.3.5 Cultural Resources**). OCEN was contacted again by the County on September 21, 2018, soliciting response to the proposed mitigation within two weeks (October 5, 2018). A final contact was made on October 2 to remind the OCEN of the upcoming October 5 deadline for receipt of comments. OCEN provided no formal response to the proposed mitigation. As such, consultation was closed on October 5, 2018.

*This is a potentially significant impact that can be reduced to a less-than-significant level with the implementation of **Mitigation Measures CUL-1 through CUL-8 and CUL-10**. These Mitigation Measures were developed during this consultation process with OCEN, as identified above.*

3.3.19 Utilities and Service Systems

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Utilities and Service Systems***a-c) No Impact***

The Project will not produce wastewater or require or result in the construction of new water, wastewater treatment, or storm water drainage facilities or expansion of existing facilities.

d) No Impact

Sufficient water supplies are available to serve the Project from existing entitlements. West of SR 1, State Parks has a riparian well (to be relocated by the Project) that will provide sufficient irrigation supplies to support the Project's restoration activities on State Parks' property. This area includes most of the Tier 1 restoration area, as described in **Section 1.4 Project Alternatives**. East of SR-1, BSLT holds Water Right License 13888 with an appropriative right to divert 28.1 acre-feet per year for irrigation purposes from Odello Well #2. MPRPD also maintains a riparian well (Riverfield well) that can be used for any minimal irrigation needed for the restoration on 3.3 acres of MPRPD property at the far eastern end of the Project site. In October 2017, the State Water

Resources Control Board approved BSLT's water rights change petition to expand the place of use for License 13888 to add the 79-acre property that was donated to BSLT by Clinton Eastwood and the Margaret Eastwood Trust to the original 49-acre place of use, for a total place of use in License 13888 of approximately 128 acres. The Tier 2 restoration phasing and an irrigation schedule will be implemented only with the available water right under License 13888 (28.1 AFY). Irrigation to establish native vegetation will only be needed initially over the first few years for each phase. Once native vegetation has been established in the Tier 2 area and no irrigation is required, BSLT will continue to utilize its water right for agricultural activities on the 23-acre agricultural preserve elevated out of the 100-year floodplain.

e) No Impact

The Project will not produce wastewater.

f, g) No Impact

The Proposed Project would generate construction waste and debris; however, waste would be recycled to the extent possible consistent with construction waste diversion practices and would not exceed the permitted capacity of the existing landfill. Other than limited construction debris, no solid waste would be generated by the Project. All cut and fill of soils would balance on site. The Project would comply with federal, state, and local statutes and regulations related to solid waste.

3.3.20 Mandatory Findings of Significance

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CEQA Significance Determinations for Mandatory Findings of Significance***a) Less than Significant Impact with Mitigation Incorporated***

The Preferred Project and Secondary Channel Alternative would have a similar potential for impacts. The Reduced Project Alternative may result in significant and unavoidable impacts.

Based on the analysis within the EIR/EA, the Preferred Project and Secondary Channel Alternative would not result in significant impacts on the environment with the implementation of Mitigation Measures identified in this document.

The Reduced Project Alternative would have the potential to degrade the quality of the environment and substantially reduce the habitat of sensitive fish and wildlife species as a result of a less stable geomorphic configuration of the floodplain channel due to an increased potential for channel avulsion and subsequent erosion and sedimentation. *This is a significant and unavoidable impact of the Reduced Project Alternative. The following checklist items are identified above as significant and unavoidable impacts of the Reduced Project Alternative:*

- *Biological Resources, checklist item a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or*

special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

- *Hydrology and Water Quality, checklist item c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.*

b) Less than Significant Impact

The Preferred Project and Secondary Channel Alternative would result in beneficial impacts. The Reduced Project Alternative may result in additional impacts.

Based on the analysis provided in this EIR/EA, and as identified in **Section 2.4 Cumulative Impacts**, the Preferred Project and Secondary Channel Alternative may have an overall net beneficial cumulative impact on hydrology, water quality, and the biological environment. Impacts to all other resources are not considered cumulatively considerable as they are short-term, construction-related impacts that would be fully mitigated to a less-than-significant level through the incorporated of mitigation measures identified in this EIR/EA. The Proposed Project is one component of a larger conceptual restoration for the lower Carmel River and Lagoon (PWA et al. 1999). The first phase of the larger restoration, known as CRLEP, was completed in 2004 by State Parks on their property, and included restoration of the south arm of the Carmel Lagoon. The Proposed Project will be physically and hydrologically connected to the south arm and will, to a large extent, complete the lower Carmel River and Lagoon restoration effort that was envisioned almost two decades prior. State Parks, MPRPD, and the County have worked collaboratively to bring these projects forward to improve habitat conditions, flood attenuation, and public access within and along the Carmel River, Lagoon, and historic floodplain. As such, the Project, in conjunction with several other projects (identified in **Table 2.4-1** in **Section 2.4 Cumulative Impacts**) would restore hydrologic connectivity with the upper and lower reaches of the Carmel River, improve surface water flow by reducing the amounts of CalAm's diversions from the Carmel River subterranean flow, and improve existing sensitive habitat and habitat for special-status species (including federally-threatened fish and frogs).

Conversely, based on the analysis provided in this EIR/EA, the Reduced Project Alternative may have significant unavoidable impacts on hydrology, water quality, and the biological environment, as a result of a less stable geomorphic configuration of the floodplain channel. Therefore, the cumulative impacts of the Reduced Project Alternative on hydrology, water quality, and the biological environment would also be significant and unavoidable.

c) Less than Significant Impact

The Project would not result in environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.

3.4 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to GHG emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (1, 1, 1, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the United States, the main source of GHG emissions is electricity generation, followed by transportation²⁵. In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) are the largest contributors of GHG emissions²⁶. The dominant GHG emitted is CO₂, mostly from fossil fuel combustion.

Two terms are typically used when discussing the impacts of climate change: “GHG mitigation” and “adaptation.” GHG mitigation covers the activities and policies aimed at reducing GHG emissions to limit or “mitigate” the impacts of climate change. Adaptation, on the other hand, is concerned with planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels, or using a “green” infrastructure approach, such as the Proposed Project).

3.4.1 Regulatory Setting

This section outlines federal and state efforts to comprehensively reduce GHG emissions from transportation sources.

State

With the passage legislation including State Senate and ABs and EOs, California has been innovative and proactive in addressing GHG emissions and climate change.

²⁵ <https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014>

²⁶ <https://www.arb.ca.gov/cc/inventory/data/data.htm>

AB 1493, Pavley, Vehicular Emissions: Greenhouse Gases, 2002

This bill requires CARB to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

EO S-3-05 (June 1, 2005)

The goal of this EO is to reduce California's GHG emissions to 1) year 2000 levels by 2010, 2) year 1990 levels by 2020, and 3) 80 percent below the year 1990 levels by 2050. This goal was further reinforced with the passage of AB 32 in 2006 and SB 32 in 2016.

AB 32, Núñez and Pavley, The Global Warming Solutions Act of 2006

AB 32 codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that CARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code Section 38551(b)). The law requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

EO S-01-07 (January 18, 2007)

This order set forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020. CARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.

Senate Bill (SB) 97 Chapter 185, 2007, Greenhouse Gas Emissions

This bill required the Governor's OPR to develop recommended amendments to CEQA Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

SB 375, Chapter 728, 2008, Sustainable Communities and Climate Protection

This bill requires CARB to set regional emissions reduction targets from passenger vehicles. The MPO for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan for the achievement of the emissions target for their region.

SB 391 Chapter 585, 2009 California Transportation Plan

This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

EO B-16-12 (March 2012)

This EO orders State entities under the direction of the Governor, including CARB, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.

EO B-30-15 (April 2015)

This EO establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO_{2e}). Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, *Safeguarding California*, every three years, and to ensure that its provisions are fully implemented.

SB 32 Chapter 249, 2016

This legislation codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

Federal

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

NEPA (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The FHWA recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices²⁷.

This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values - “the triple bottom line of sustainability²⁸”. Program and project elements that foster sustainability and resilience also support economic

²⁷ <https://www.fhwa.dot.gov/environment/sustainability/resilience/>

²⁸ <https://www.sustainablehighways.dot.gov/overview.aspx>

vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life. Addressing these factors up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the “National Clean Car Program” and EO 13693, as discussed below.

The Service is currently addressing climate change through their strategic plan titled *Rising to the Urgent Challenge – Strategic Plan for Responding to Accelerating Climate Change* (Service 2010). This plan establishes a basic framework within which the agency will work as part of the larger conservation community to help ensure the sustainability of fish, wildlife, plants and habitats in the face of accelerating climate change. It is also an integral part of the Department of the Interior's Strategy for addressing climate change. This strategic response employs a science-based adaptive resource management framework for conserving species on a landscape scale.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

The Energy Policy Act of 1992 (EPACT92, 102nd Congress H.R.776.ENR)

With this act, Congress set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. EPACT92 consists of 27 titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light-duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of the Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

Energy Policy Act of 2005 (109th Congress H.R.6 (2005–2006)

This act sets forth an energy research and development program covering: 1) energy efficiency; 2) renewable energy; 3) oil and gas; 4) coal; 5) Indian energy; 6) nuclear matters and security; 7) vehicles and motor fuels, including ethanol; 8) hydrogen; 9) electricity; 10) energy tax incentives; 11) hydropower and geothermal energy; and 12) climate change technology.

Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel Standards

This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the Corporate Average

Fuel Economy (CAFE) program on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

EO 13693, Planning for Federal Sustainability in the Next Decade, 80 Federal Register 15869, 2015

This EO reaffirms the policy of the United States that federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities. It sets sustainability goals for all agencies to promote energy conservation, efficiency, and management by reducing energy consumption and GHG emissions. It builds on the adaptation and resiliency goals in previous EOs to ensure agency operations and facilities prepare for impacts of climate change. This order revokes EO 13514.

The EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing FCAA and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, the EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six GHGs constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and the EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions.

The EPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010²⁹ and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards required these vehicles to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules' long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and CARB will decide on CAFE and GHG emissions standard stringency for model years 2022–2025. NHTSA has not formally adopted standards for model years 2022 through 2025. However, the EPA finalized its mid-term review in January 2017, affirming that the target fleet average of at least 54.5 miles per gallon by 2025 was appropriate. In March 2017, President Trump ordered EPA to reopen the review and reconsider the mileage target³⁰.

²⁹ <https://one.nhtsa.gov/Laws-&-Regulations/CAFE-%E2%80%93-Fuel-Economy>

³⁰ <http://www.nbcnews.com/business/autos/trump-rolls-back-obama-era-fuel-economy-standards-n734256> and <https://www.federalregister.gov/documents/2017/03/22/2017-05316/notice-of-intention-to-reconsider-the-final-determination-of-the-mid-term-evaluation-of-greenhouse>

NHTSA and the EPA issued a Final Rule for “Phase 2” for medium- and heavy-duty vehicles to improve fuel efficiency and cut carbon pollution in October 2016. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO₂ emissions by up to 1.1 billion metric tons over the lifetimes of model year 2018–2027 vehicles.

Presidential EO 13783, Promoting Energy Independence and Economic Growth, of March 28, 2017

This EO orders all federal agencies to apply cost-benefit analyses to regulations of GHG emissions and evaluations of the social cost of carbon, nitrous oxide, and methane.

3.4.2 Environmental Setting

In 2006, the Legislature passed AB 32, which created a comprehensive, multi-year program to reduce GHG emissions in California. AB 32 required CARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020. The Scoping Plan was first approved by CARB in 2008 and must be updated every 5 years. The second updated plan, California’s 2017 Climate Change Scoping Plan, adopted on December 14, 2017, reflects the 2030 target established in EO B-30-15 and SB 32.

The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the updated Scoping Plan, CARB released the GHG inventory for California³¹. CARB is responsible for maintaining and updating California’s GHG Inventory per H&SC Section 39607.4. The associated forecast/projection is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented.

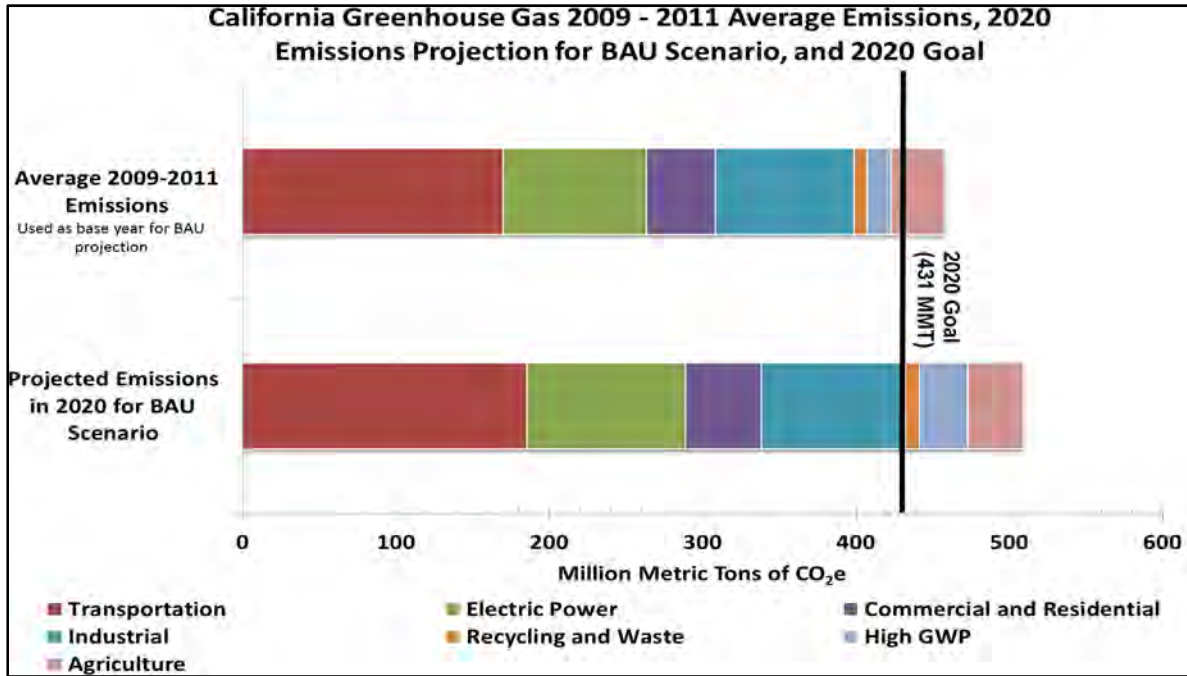
An emissions projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns. The projected 2020 emissions provided in **Figure 3.4-1** represent a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists CARB in demonstrating progress toward meeting the 2020 goal of 431 MMTCO₂e. The 2018 edition of the GHG emissions inventory found total California emissions of 429 MMTCO₂e for 2016.

The 2020 BAU emissions projection was revisited in support of the First Update to the Scoping Plan (2014). This projection accounts for updates to the economic forecasts of fuel and energy demand as well as other factors. It also accounts for the effects of the 2008 economic recession and the projected recovery. The total emissions expected in the 2020 BAU scenario include reductions anticipated from Pavley I and the Renewable Electricity Standard (30 MMTCO₂e total).

³¹ 2018 Edition of the GHG Emission Inventory released (July 2018).
<https://www.arb.ca.gov/cc/inventory/data/data.htm>

With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 MMTCO₂e.

Figure 3.4-1 Business as Usual (BAU) Emissions Projection 2014 Edition



Source: <https://www.arb.ca.gov/cc/inventory/data/bau.htm>

Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.³² In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of a project must be compared with the effects of past, current, and probable future projects. The County currently gathers community GHG emissions inventory data according to the U.S. Protocol for Accounting and Reporting of GHG Emissions, which does not provide for project-level GHG accounting and recording. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

³² This approach is supported by the Association of Environmental Professionals (*Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents*, March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011), and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

Neither the State of California nor the MBARD have identified quantitative thresholds of significance for the evaluation of project-generated GHGs. In addition, it is important to note that AB 32 does not establish a statutory mandate that requires local air pollution control districts to establish GHG significance thresholds for CEQA purposes. However, to date, several air districts have identified GHG significance thresholds. Most recently, the Sacramento Metropolitan Air Quality Management District (SMAQMD) has identified recommended GHG thresholds of significance to be used for the analysis of project-related impacts. For construction and operational activities, the SMAQMD recommends a GHG mass-emissions threshold of 1,100 metric tons of CO₂e per year (MTCO₂e/year) to be applied for the assessment of short-term construction and long-term operational impacts. The SMAQMD's recommended GHG significance threshold is generally consistent with mass-emissions thresholds recommended by other air districts for the evaluation of GHG impacts. For instance, the San Luis Obispo County Air Pollution Control District (SLOAPCD) has identified a recommended GHG significance threshold of 1,150 MTCO₂e/year and the Bay Area Air Quality Management District (BAAQMD) has identified a recommended GHG mass-emissions threshold of 1,100 MTCO₂e/year.

Unlike criteria air pollutants that primarily affect the local or regional environment within which they are emitted, GHG emissions are evaluated based on potential impacts to the global environment and, hence, are inherently a cumulative impact. For this reason, some air districts have advocated for consideration of more regional GHG emission thresholds that are not necessarily limited to air district boundaries or air basins. For instance, the Ventura County Air Pollution Control District is coordinating with the South Coast Air Quality Management District to identify GHG emission thresholds that would help to streamline CEQA project-level analysis and be consistent with those applied within other areas of Southern California (Ventura County Air Pollution Control District, 2011). Similarly, MBARD worked with SLOAPCD on a work plan for development of a regional CEQA GHG threshold, which was the basis for the GHG thresholds currently adopted by SLOAPCD. MBARD currently considers the use of CEQA thresholds identified by other air districts, including the neighboring SLOAPCD- or BAAQMD-recommended GHG significance thresholds, to be adequate for the analysis of CEQA GHG impacts. It is also important to note that the GHG significance thresholds currently being recommended by the above-discussed air districts are based on AB 32 GHG emission reduction goals, which take into consideration the emission reduction strategies outlined in ARB's Scoping Plan. As such, project-generated emissions that would exceed these thresholds would be considered to have a potentially significant impact on the environment that could conflict with the GHG-reduction goals of AB 32. For purposes of this analysis, project-generated emissions in excess of 1,100 MTCO₂e/year would be considered to have a potentially significant impact on the environment that could conflict with the GHG-reduction goals of AB 32.

CEQA Conclusion

Short-term construction and long-term operational emissions were quantified using the California Emissions Estimator Model (CalEEMod), version 2016.3.2 (**Appendix J**). Short-term construction emissions were quantified based on estimated construction schedules, off-road equipment use, material handling activities, and on-road vehicle trips for the Proposed Project. Long-term operational emissions were quantified based on equipment usage requirements and maintenance-related vehicle trips associated with the Project.

Estimated increases in GHG emissions associated with construction of the Proposed Project are summarized in **Table 3.4.2-1**. Annual emissions of greenhouse gases associated with Project construction would total approximately 2,999.6 MTCO₂e. Amortized GHG emissions, when averaged over an assumed 30-year project life, would total approximately 89.0 MTCO₂e/year. There would also be a small amount of GHG emissions from waste generated during construction; however, this amount is speculative. Actual emissions may vary, depending on the final construction schedules, equipment required, and activities conducted. Construction-generated GHG emissions would not exceed 1,100 MTCO₂e/year and would be considered to have a less-than-significant impact. To ensure a conservative analysis, amortized construction-generated emissions were also included in the operational GHG emissions assessment discussed below.

Table 3.4.2-1. Project GHG Emissions

Project GHG Emissions	(MTCO₂e/Y)
<i>Amortized Construction Emissions Over 30 Years</i>	89.0
<i>Operational Emissions per Year</i>	276.3
<i>Combined Amortized Construction and Operational Emissions</i>	365.2
<i>Threshold</i>	1,100
<i>Exceed Threshold</i>	NO

Operational emissions would be primarily associated with maintenance-related activities. Operational emissions are summarized in **Table 3.4.2-1**. With the inclusion of amortized construction emissions, the Proposed Project would generate an estimated total 365.2 MTCO₂e/year. Annual GHG emissions would not exceed the threshold of 1,100 MTCO₂e. The Proposed Project would not result in GHG emissions that would have a significant impact on the environment, nor would the Proposed Project conflict with applicable GHG reduction plans, policies or regulations. This impact would be considered less than significant. No mitigation is required.

GHG Reduction Strategies

Federal Efforts

U.S. Fish and Wildlife Service

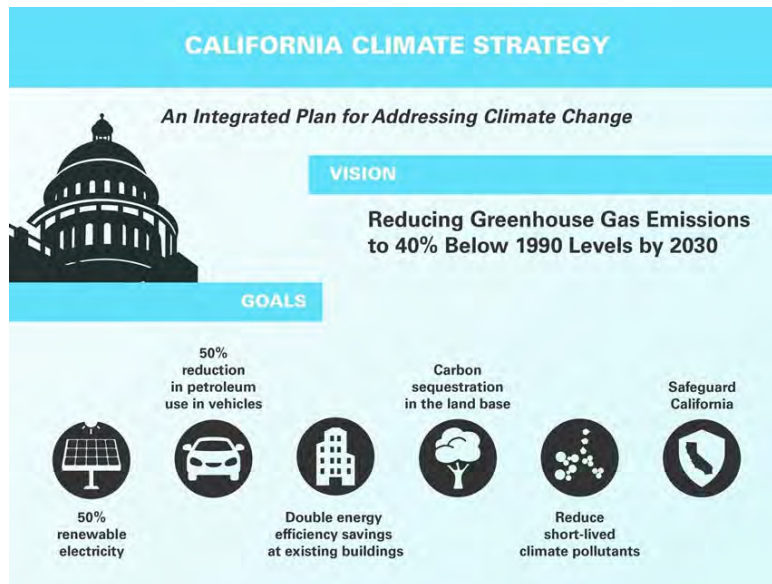
The Service's climate change strategy, titled *Rising to the Urgent Challenge: Strategic Plan for Responding to Accelerating Climate Change* (Service 2010), establishes a basic framework within

which the Service will work as part of the larger conservation community to help ensure the sustainability of fish, wildlife, plants and habitats in the face of accelerating climate change. The plan is implemented through a dynamic action plan that details specific steps the Service will take during the next several years to implement the Strategic Plan. This includes changing business practices to achieve carbon neutrality by the Year 2020 by 1) assessing and reducing the carbon footprint of the Service's facilities, vehicles, workforce, and operations; 2) assessing and reducing the Service's land management carbon footprint; and 3) offsetting the remaining carbon balance through carbon sequestration or other methods such as buying offsets.

Statewide Efforts

In an effort to further the vision of California's GHG reduction targets outlined in AB 32 and SB 32, Governor Brown identified key climate change strategy pillars (concepts) (**Figure 3.4-2**). These pillars highlight the idea that several major areas of the California economy will need to reduce emissions to meet the 2030 GHG emissions target. These pillars are 1) reducing today's petroleum use in cars and trucks by up to 50 percent; 2) increasing from one-third to 50 percent our electricity derived from renewable sources; 3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; 4) reducing the release of methane, black carbon, and other short-lived climate pollutants; 5) managing farm and rangelands, forests, and wetlands so they can store carbon; and 6) periodically updating the state's climate adaptation strategy, *Safeguarding California*.

**Figure 3.4-2 The Governor's Climate Change Pillars:
2030 Greenhouse Gas Reduction Goals**



The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that we build on our past successes in reducing criteria and

toxic air pollutants from transportation and goods movement activities. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled. One of Governor Brown's key pillars sets the ambitious goal of reducing today's petroleum use in cars and trucks by up to 50 percent by 2030.

Governor Brown called for support to manage natural and working lands, including forests, rangelands, farms, wetlands, and soils, so they can store carbon. These lands have the ability to remove carbon dioxide from the atmosphere through biological processes, and to then sequester carbon in above- and below-ground matter.

California Department of Transportation

Caltrans continues to be involved on the Governor's Climate Action Team as the CARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set a new interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve Caltrans' collective vision for California's future statewide, integrated, multimodal transportation system. It serves as an umbrella document for all of the other statewide transportation planning documents.

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

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

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

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several funding and technical assistance programs that have GHG reduction benefits. These include the Bicycle Transportation Program, Safe Routes to School, Transportation

Enhancement Funds, and Transit Planning Grants. A more extensive description of these programs can be found in *Caltrans Activities to Address Climate Change* (2013b).

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a department policy that will ensure coordinated efforts to incorporate climate change into departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013b) provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce GHG emissions resulting from agency operations.

Local Efforts

County of Monterey

The 2010 Monterey County General Plan called for the adoption of a climate action plan. The policies within the 2010 General Plan call for the development and implementation of a GHG Reduction Plan with a target to reduce emissions by 2020 to a level that is 15 percent less than 2005 emission levels and development of transportation strategies to “protect air quality” and “reduce the consumption of fossil fuels. The Community Climate Action Plan (CCAP) for Monterey County is currently under development and will apply countywide, both inland and in the Coastal Zone, when completed. The CCAP will:

- Establish an inventory of 2005 GHG emissions in Monterey County including but not limited to residential, commercial, industrial, and agricultural emissions;
- Forecast GHG emissions for 2020 for County operations;
- Forecast GHG emissions for areas within the jurisdictional control of the County for “business as usual” conditions;
- Identify methods to reduce GHG emissions;
- Quantify the reductions in GHG emissions from the identified methods;
- Establish requirements for monitoring and reporting of GHG emissions;
- Establish a schedule of actions for implementation;
- Identify funding sources for implementation;
- Identify a reduction goal for the 2030 Planning Horizon; and
- Evaluate carbon sequestration in agricultural soils and crops as a measure to reduce GHG emissions.

The plan will also evaluate potential options for changes in County policies regarding land use and circulation, as necessary, to further achieve the 2020 and 2030 reduction goals and measures to promote urban forestry and public awareness concerning climate change.

Association of Monterey Bay Area Governments

AMBAG's 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS), adopted in June 2018, serves as a blueprint for addressing the mobility and sustainability challenges faced in the Monterey Bay region. The 2040 MTP/SCS will improve the quality of life for residents by implementing sound land use and transportation choices for the future. By 2040, the region is envisioned to have more travel choices and a safer, more efficient transportation system that provides improved access to jobs and education. This 2040 MTP/SCS is built on a set of integrated policies, strategies, and investments to maintain and improve the transportation system to meet the diverse needs of the region through 2040.

The MTP component of the plan sets forth an integrated approach to transportation investments that makes the most out of the existing transportation system by investing in system preservation and maintenance and strategic system expansion and transportation management strategies. These transportation investments will provide more travel choices for the region's residents and visitors. The SCS identifies a future land use and development pattern integrated with transportation networks, programs and strategies. One of the projected outcomes of the MTP/SCS is that it would reduce regional GHG emissions by 6.6% by the year 2040.

Project-Level GHG Reduction Strategies

As discussed in **Section 2.2.6 Air Quality**, construction activities (e.g., excavation, grading, on-site vehicles) associated with the Project would result in short-term increases in fugitive dust and PM₁₀ emissions that would exceed applicable MBARD thresholds of significance in the absence of mitigation. However, implementation of mitigation measures **AQ-1** and **AQ-2** would ensure that temporary construction-related PM₁₀ emissions resulting from the Project would be below the applicable threshold and would not be cumulatively significant. Additionally, when feasible, the County of Monterey requires construction contracts be given to those contractors, who show evidence of the use of soot traps, ultra-low sulfur fuels, and other diesel engine emissions upgrades that reduce PM₁₀ emissions to less than 50% of the statewide PM₁₀ emissions average for comparable equipment.

While construction-related emissions are unavoidable, there will likely be GHG benefits by restoring native riparian and floodplain habitat and hydrologic function to a portion of the lower floodplain along the Carmel River, the majority of which is currently agricultural fields. The Proposed Project as a whole would provide carbon sequestration benefits consistent with the Governor's Climate Change Pillars as a mosaic of habitats would be established across the site, including willow and cottonwood riparian forest, mixed riparian forest, coastal scrub, and grassland, and agricultural use on a portion of the site will be preserved.

The Project will not increase roadway capacity or vehicle miles traveled. Accordingly, it will not result in any GHG emissions due to operation following construction.

Adaptation Strategies

“Adaptation strategies” refer to how agencies and others can plan for the effects of climate change on the state’s transportation infrastructure and strengthen or protect the facilities from damage—or, put another way, planning and design for resilience. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. These types of impacts to the transportation infrastructure may also have economic and strategic ramifications.

Federal Efforts

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the CEQ, the OSTP, and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011³³, outlining the federal government's progress in expanding and strengthening the nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provided an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as fresh water, and providing accessible climate information and tools to help decision-makers manage climate risks.

The federal Department of Transportation (DOT) issued *U.S. DOT Policy Statement on Climate Adaptation* in June 2011, committing to “integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services and operations remain effective in current and future climate conditions³⁴.”

To further the DOT Policy Statement, on December 15, 2014, FHWA issued order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*³⁵). This directive established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The FHWA will work to integrate consideration of these risks into its planning, operations, policies, and programs in order to promote preparedness and resilience; safeguard federal investments; and ensure the safety, reliability, and sustainability of the nation’s transportation systems.

³³ <https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/resilience>

³⁴ https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm

³⁵ <https://www.fhwa.dot.gov/legisregs/directives/orders/5520.cfm>

FHWA has developed guidance and tools for transportation planning that fosters resilience to climate effects and sustainability at the federal, state, and local levels.³⁶

U.S. Fish and Wildlife Service

The Service's climate change strategy includes development of a National Fish and Wildlife Climate Adaptation Strategy, which describes seven goals that, if met, will help fish, wildlife, plants, and ecosystems adapt to a changing climate, and provides a list of practical actions that can be taken or initiated in the next five to ten years. These goals are:

- Conserve habitat to support healthy fish, wildlife, and plant populations and ecosystem functions in a changing climate;
- Manage species and habitats to protect ecosystem functions and provide sustainable cultural, subsistence, recreational, and commercial use in a changing climate;
- Enhance capacity for effective management in a changing climate
- Support adaptive management in a changing climate through integrated observation and monitoring and use of decision tools;
- Increase knowledge and information on impacts and responses of fish, wildlife, and plants to a changing climate;
- Increase awareness and motivate action to safeguard fish, wildlife, and plants in a changing climate; and
- Reduce non-climate stressors to help fish, wildlife, plants, and ecosystems adapt to a changing climate.

Statewide Efforts

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise and directed all state agencies planning to construct projects in areas vulnerable to future sea-level rise to consider a range of sea-level rise scenarios for the years 2050 and 2100, assess project vulnerability, and to the extent feasible, reduce expected risks and increase resiliency to sea-level rise. Sea-level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, and storm surge and storm wave data.

Governor Schwarzenegger also requested the National Academy of Sciences to prepare an assessment report to recommend how California should plan for future sea-level rise. The final report, *Sea-Level Rise for the Coasts of California, Oregon, and Washington* (Sea-Level Rise

³⁶ <https://www.fhwa.dot.gov/environment/sustainability/resilience/>

Assessment Report) was released in June 2012 and included relative sea-level rise projections for the three states, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates; and the range of uncertainty in selected sea-level rise projections (National Research Council 2012). It provided a synthesis of existing information on projected sea-level rise impacts to state infrastructure (such as roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems; and a discussion of future research needs regarding sea-level rise.

In addition to addressing projected sea level rise, the Resources Agency was directed to coordinate with local, regional, state and federal public and private entities to develop *The California Climate Adaptation Strategy* (2009), revised to *Safeguarding California: Reducing Climate Risk* (2014), which summarizes the best-known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency. The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the Cal/EPA; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

Governor Jerry Brown enhanced the overall adaptation planning effort by signing EO B-30-15 in April 2015, requiring state agencies to factor climate change into all planning and investment decisions. In March 2016, sector-specific Implementation Action Plans that demonstrate how state agencies are implementing EO B-30-15 were added to the Safeguarding California Plan. This effort represents a multi-agency, cross-sector approach to addressing adaptation to climate change-related events statewide.

EO S-13-08 also gave rise to the *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance), produced by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), of which Caltrans is a member (2013). First published in 2010, the document provided “guidance for incorporating sea-level rise (SLR) projections into planning and decision making for projects in California,” specifically, “information and recommendations to enhance consistency across agencies in their development of approaches to SLR³⁷.”

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation

³⁷ <http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/>

and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is actively engaged in working towards identifying these risks throughout the state and will work to incorporate this information into all planning and investment decisions as directed in EO B-30-15.

Project-Level Adaptation Strategies

Floodplain restoration is a key coastal resiliency strategy to address climate change in California, as noted in the California Natural Resources Agency's (Resources Agency's) report *Safeguarding California: Reducing Climate Risk* (Resources Agency 2014) as well as in the Resources Legacy Fund's recommendations in their *Ecosystem Adaptation to Climate Change in California: Nine Guiding Principles* (Resources Legacy Fund 2012). The Proposed Project's restored natural floodplain systems will provide a superior protective buffer against increased frequency and intensity of storms and sea level changes. The Causeway Component will help protect the existing highway bridge over the river and its embankment from new or future flood damage. Potential elevated lagoon levels and increasing flood events were key considerations in the design of the floodplain restoration and causeway design. The causeway design will allow for the expansion of the Carmel Lagoon and will convey flood flows under the highway, which will reduce the potential for increased levels of impacts to the highway and existing bridge resulting from climate change.

Projections for climate change impacts on California's central coast include more violent and intense flooding events, as well as a rise in sea level within the Project area by approximately one foot by 2050 and as much as three feet by 2100 (Balance Hydrologics 2018b). Seaward progradation would tend to eliminate the lagoon system as abundant sediment builds up the channel bed, fills the estuary, and creates a delta at the beach. Landward retreat would likely cause inundation and expansion of the Carmel Lagoon and portions of the lower floodplain, despite complexities in sediment transport and deposition that could create both bed aggradation and incision in certain locations (Balance Hydrologics 2015a).

With projected sea level rise reaching east of SR 1 during flood events, the Proposed Project is the key opportunity to establish a resilient and functioning floodplain to buffer against climate change impacts. Opening up the southern floodplain will re-establish a more natural flow regime in this episodic riverine system. This will emulate more closely the historical recurrence of flooding on the lower Carmel River, which favors native fisheries and fauna that have adapted to, respond to, and reap benefits from a floodplain that receives infrequent and potentially widespread flood waters. Riparian environments rejuvenate relatively swiftly at widely spaced intervals between abrupt, episodic disruptions of storm and flood flows. Additionally, the developed areas on the north side of the Carmel River that are already in the 100-year floodplain will be even more affected by future sea-level rise, and these areas will greatly benefit from the additional flood and hydrologic capacity that will be provided by opening the levees on the south bank, restoration of the floodplain, and construction of the causeway to expand flows beyond the presently constricted main stem of the Carmel River.

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Chapter 4 Comments and Coordination

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, level of analysis, potential impacts and mitigation measures, and related environmental requirements. Agency and tribal consultation and public participation for this Project have been accomplished through a variety of formal and informal methods, including Project development team meetings and interagency coordination meetings, public meetings, and public notices. This chapter summarizes the results of the efforts to identify, address, and resolve Project-related issues through early and continuing coordination.

A complete list of the parties to whom the document has been sent can be found in **Chapter 6 Distribution List**. This list includes members of the public who attended meetings, business and property owners near the Project area, nearby school districts, utility operators within the Project area, and local elected officials.

Below is a detailed list of coordination with the general public and appropriate public agencies:

2006-2007 Feasibility and Design Alternatives Analysis

- Created a technical advisory committee (TAC) of BSLT, Monterey County Water Resources Agency (MCWRA) and MPWMD to develop a scope for further hydrologic and geomorphic analyses to be completed in the Carmel floodplain.
 - Meeting dates for the technical advisory committee included June 6, July 27, and October 11, 2006; and February 21 and March 15, 2007.
- An interagency meeting was held on May 17, 2007 with the MCWRA, MPWMD, County, Caltrans, State Parks, TAMC, and the Carmel Development Corporation.
- Meetings with the adjacent landowner's representative, Carmel Development Corporation, on October 23, 2006; and March 14, and June 20, 2007.
- Project scope was presented to Community Services Area 50 at a public meeting on August 21, 2007.
- BSLT hosted a meeting on September 17, 2007 with resource agencies to discuss funding and necessary permits for the Project.

2008 – 2011 Project Planning and Conceptual Design (15% Plans)

- Continued meetings of the TAC for planning and conceptual design phase of the Project, including meetings with representatives from Caltrans, Monterey County Public Works and Planning Departments, County Service Area 50, MCWRA, State Parks, TAMC, and the Carmel Development Company/landowner representatives, BSLT and Project consultant team.

- Meetings held on July 29, October 16, and November 6, 2008; March 24 and December 22, 2009; and January 29, April 14, and April 19, 2011.
- Public hearings held by MCWRA for consideration and adoption of an IS/MND on February 28, March 28, and April 25, 2011 for phased approach to the Project.

2014 – 2018 Preliminary Design – Intermediate Design Phase (35%-60% Plans)

- Presentation by BSLT and the County to regulatory agencies on September 24, 2014 (Service, NMFS, CDFW, CCC, State Parks, CAWD, Pebble Beach Community Services District, Monterey County).
- Presentation by BSLT to grant funding agencies on September 25, 2014 (EPA, State Coastal Conservancy, California Department of Water Resources, Wildlife Conservation Board).
- Focused meetings with State Parks regarding tie in to Carmel River Lagoon and Project features on Carmel River State Beach on September 16 and November 20, 2014.
- Focused meeting with MPRPD regarding Project features on Palo Corona Regional Park on October 9, 2014.
- Joint meeting with State Parks and MPRPD on May 28, 2015.
- Stakeholder meeting on public access and trails planning in the Project area and vicinity on November 20, 2014 with State Parks, CCC, MPRPD, CAWD, City of Carmel, TAMC, Carmel Development Company, the County, and BSLT.
- County, BSLT, Private landowner coordination meetings (Eastwood/Carmel Development Company) on August 27, 2014; and February 12 and July 9, 2015.
- Carmel River Task Force detailed Project presentation on May 21, 2015, and quarterly meeting with brief Project updates on September 4 and November 14, 2014; February 19, and September 3, 2015; and January 14, and April 14, 2016, January 26, 2017, May 25, 2017, and October 5, 2017, January 18, 2018 and April 12, 2018. Participants in these meetings include, but are not limited to, Carmel River Watershed Conservancy, Carmel River Steelhead Association, Trout Unlimited, MPWMD, MPRPD, Monterey County RMA, County Service Area 50, Monterey County Resource Conservation District, and other members of the general public.
- Stakeholder meeting with Big Sur International Marathon leadership, BSLT, County, City of Carmel, and TAMC on May 5, 2015.
- Presentations to CSA-50 Advisory Committee Board on May 19 and September 14, 2015; January 19, and June 22, 2016; and August 29, 2017.
- Joint meeting with the County, BSLT, regulatory agencies and Project funders on June 11, 2015.
- Presentation to MPRPD Board on August 3, 2015.

- Anthropological Studies Center sent letters to Native American individuals and organizations, as identified by the Native American Heritage Commission, who may have knowledge of potential cultural resources within the Project area on August 27 and September 8, 2016. A response was received from Edward Ketchum of the Amah Mutsun Tribal Band on September 9, 2015 via phone and email. Mr. Ketchum provided information on the location of known villages in the region and said that he feels the Esselen people are better representatives of the Project location. Mr. Ketchum asked to be informed concerning the Project and that a copy of the report is sent to him.
- Presentation to CCC staff on September 10, 2015.
- Presentation to MPWMD Board on September 16, 2015 and to MPWMD Carmel River Advisory Committee on October 28, 2015.
- Presentation to the Monterey Regional Stormwater Management Program on September 23, 2015.
- Presentation to the Monterey Regional Stormwater Management Program on October 28, 2015.
- Tribal consultation was initiated via mail by the Service with the cultural resources staff of the tribes and individuals identified by the Native American Heritage Council as having an interest in this area. A total of 11 memos were sent on December 4, 2015. The memo included a description of the undertaking and cultural APE, Project maps, and a description of land use history and proposed identification effort. No responses have been received.
- Presentation to Carmel River Watershed Conservancy Board on January 28, 2016.
- Site visits with California Department of Water Resources grant manager on January 21, 2016 and Wildlife Conservation Board grant manager on February 2, 2016.
- Site visit with the Wildlife Conservation Board Executive Direction on March 2, 2016.
- Meeting with Caltrans, TAMC, CCC, the County, and BSLT at Caltrans Headquarters in Sacramento on March 25, 2016.
- Meeting with TAMC to add the Project to their Regional Transportation Plan on April 27, 2016.
- Press event regarding the Eastwood land donation to BSLT; attended by multiple stakeholders on June 28, 2016.
- Meeting with local restoration experts and advisors on July 1, 2016.
- Obtained letters of support for multiple grant applications from U.S. Congressman Sam Farr, State Senator William Monning, Assembly Member Mark Stone, the MPWMD, CSA-50, Carmel River Conservancy, Carmel River Steelhead Association, CalAm, and the Resource Conservation District of Monterey County.

- Joint meeting with the County, BSLT, regulatory agencies and Project funders on August 8, 2016.
- Meeting with State Parks to discuss comments on Project documents on September 8, 2016.
- Presentation to the Carmel Valley Association at their annual members meeting on September 15, 2016.
- Meeting with CAWD to discuss comments on Project documents on October 27, 2016, with follow up meetings on May 26, 2017, June 9, 2017 (with County District 5 Supervisor Mary Adams), July 21, 2017, October 31, 2017, January 29, 2018 and March 15, 2018.
- Collaboration with CSUMB Advanced Watershed Science 660 class on long term adaptive management on Project site.
- Meeting with State Coastal Conservancy, the County, and BSLT to discuss Project status on January 12, 2017.
- Meeting with State Parks, the County, and BSLT to review a preliminary draft update to the 2010 MOU for planning phase of the Project (which is being amended for the construction phase of the Project) on January 19, 2017.
- Meeting with MPRPD, the County, and BSLT to review a preliminary draft MOU update the construction phase of the Project on February 9, 2017.
- Meeting with CDFW, the County, and BSLT to address Project design questions on February 28, 2017.
- Presentation to MPRPD Board of Directors at their regular meeting of March 8, 2017.
- Meeting with MPWMD to discuss the Project status and review a preliminary draft MOU update for the construction phase of the Project on March 22, 2017.
- Presentation to the Carmel Valley Association at their annual meeting on March 26, 2017.
- Site visits with staff from the Wildlife Conservation Board on May 11, 2017 and March 26, 2018.
- Meetings with the City of Carmel staff and mayor on June 12, 2018 and July 6, 2018.
- Presentation to the Arroyo Carmel and Riverwood Homeowner Associations on July 11, 2017.
- Presentation to the Monterey Bay Chapter of the American Public Works Association on August 2, 2017.
- Presentation to the Carmel Valley Association Board on August 17, 2017.
- Meeting with parties to the Project's MOU to review and plan for the draft construction-phase MOU, including staff from the County, BSLT, State Parks, MPRPD, MPWMD, and MCWRA.
- Presentation about the Project at the Monterey County Coastal Resilience Workshop put on by FEMA.

Comments and Coordination

- Site tour with the Middlebury Institute of International Studies' Sustainable Coastal Management class on October 9, 2017.
- "Highway and Habitat Resilience" Field Trip with Caltrans Director and other Sacramento staff, Coastal Commission staff, Coastal Conservancy staff, Assembly Member Mark Stone, The Nature Conservancy, and others on November 30, 2017.
- Santa Catalina High School Environmental Science class presentation and site visit on January 15 and January 25, 2018.
- Site visit with the Carmel Garden Club on February 1, 2018.
- Presentation to Monterey Bay Aquarium staff and volunteers on February 13, 2018.
- Site visit with staff from DWR Integrated Regional Water Management program on February 21, 2018.
- Site visit with Carmel River School 5th grade class on March 5, 2018.
- Information table about the Project at California Wildlife Day celebration at Garland Ranch Regional Park on March 24, 2018.
- Coordination meeting with State Parks on May 15, 2018.
- Public site tours by BSLT on June 22, July 28, August 3, September 7, and September 28, 2018.
- Project status update at CSA-50 Advisory Committee meeting on September 18, 2018.

Upcoming in late 2018/2019:

- Staff and approving bodies review and approval of a revised Draft MOU for the construction-phase of the Project by Project Parties (the County, BSLT, State Parks, MPRPD, MPWMD, and MCWRA).
- Project status update meeting with regulatory/permit agencies and grant funders during circulation of the CEQA/NEPA document.
- Continued quarterly reports to the Carmel River Task Force and Integrated Regional Water Management Group.
- Continued Project status updates to CSA-50.

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Chapter 6 Distribution List

This EIR/EA was distributed to the following federal, state, and regional responsible and trustee agencies and elected officials. In addition to the following list, local officials, stakeholders, community groups, businesses, and interested persons were notified of the availability of this document. Public meetings, as described in **Chapter 4.0 Comments and Coordination**, were held. Furthermore, all property owners/occupants near the Project area received a project mailer, informing them of the availability of this EIR/EA.

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Carmel Harrison Library
Park Branch
PO Box 800
Carmel, CA 93921

Mark Anderson
Monterey County Weekly
668 Williams Ave.
Seaside, CA 93955

Monterey Herald
2200 Garden Road
Monterey, CA 93940

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65 West Carmel Valley Road
Carmel Valley, CA 93924

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For hydraulic studies and floodplain encroachment information, see Chapter 17 - Floodplains: <http://www.dot.ca.gov/ser/vol1/sec3/special/ch17flood/chap17.htm>
For Coastal Zone permits information, see Chapter 18 - Coastal Zone: <http://www.dot.ca.gov/ser/vol1/sec3/special/ch18coastal/chap18.htm>
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Appendix A

Section 4(f)

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DEPARTMENT OF TRANSPORTATION**Central Region**

1150 LAUREL LANE, SUITE 175
SAN LUIS OBISPO, CA 93401-8616
PHONE (805) 542-4691
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www.dot.ca.gov



*Serious drought.
Help save water!*

September 30, 2015

Mr. Carl P. Holm
Director
Monterey County Resource Management Agency
168 W. Alisal, 2nd Floor
Salinas, CA 93901

Dear Mr. Holm:

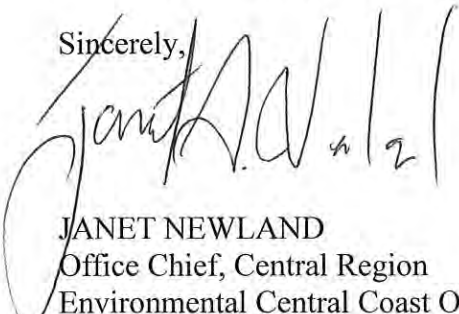
The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA) under its assumption of responsibility pursuant to 23 USC 327, has determined that the Carmel River Floodplain Restoration and Environmental Enhancement Project is not subject to Section 4(f) of the Department of Transportation Act (23 CFR 774) as defined under the *Section 4(f) Policy Paper* (adopted by the FHWA Office of Planning, Environment and Realty Project Development and Environmental Review on July 20, 2012). This project falls under situations when Section 4(f) would not apply, as listed under Paragraph 1.3 from Part I:

A project intended to address a purpose that is unrelated to the movement of people, goods, and services from one place to another (i.e., a purpose that is not a transportation purpose).

The purpose of the US Fish and Wildlife Services' (lead agency under NEPA) proposed project is to improve flood control and to restore native riparian and floodplain habitat and hydrologic function to a portion of the lower floodplain along the Carmel River. The proposed project would involve altering State Route 1 by replacing an earthen embankment with a 360 foot long causeway, however, this action is not the purpose of the project. It is an interdependent project component, therefore Section 4(f) would not be triggered.

If you have any further questions, please contact John Thomas, Associate Environmental Planner, Central Region Environmental Division, at (559) 445-6481.

Sincerely,


JANET NEWLAND
Office Chief, Central Region
Environmental Central Coast Office

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Appendix B

Title VI Policy Statement

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DEPARTMENT OF TRANSPORTATION

OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
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*Flex your power!
Be energy efficient!*

March 2013

**NON-DISCRIMINATION
POLICY STATEMENT**

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

A blue ink signature of Malcolm Dougherty, written in a cursive style.

MALCOLM DOUGHERTY
Director

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Appendix C

Minimization and/or Mitigation Summary Table

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Avoidance, Minimization, and/or Mitigation Summary Table

In order to be sure that all of the environmental measures identified in this document are executed at the appropriate times, the following mitigation program (as articulated on the proposed Environmental Commitments Record [ECR] which follows) would be implemented. During project design, avoidance, minimization, and /or mitigation measures will be incorporated into the project's final plans, specifications, and cost estimates, as appropriate. All permits will be obtained prior to implementation of the project. During construction, environmental and construction/engineering staff will ensure that the commitments contained in this ECR are fulfilled. Following construction and appropriate phases of project delivery, long-term mitigation maintenance and monitoring will take place, as applicable. As the following ECR is a draft, some fields have not been completed, and will be filled out as each of the measures is implemented. Note: Some measures may apply to more than one resource area. Duplicative or redundant measures have not been included in this ECR.

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
2.1.5 Traffic and Transportation	TT-1	In order to minimize the extent of impacts associated with construction-related traffic, a Transportation Management Plan shall be prepared by a designated representative and submitted to Caltrans and the County for review and approval, prior to the issuance of an encroachment permit in connection with the Causeway Component. The Transportation Management Plan shall provide information related to public awareness, temporary traffic control measures, traffic diversions and lane closures, safety measures, construction notification information, and other information as deemed necessary by Caltrans.
2.1.6 Visual/Aesthetics	VA-1	Bridge rail shall be Type 80 with architectural texture and color.
2.1.6 Visual/Aesthetics	VA-2	Bicycle and pedestrian rail shall be colored to compliment the Type 80 bridge rail.
2.1.6 Visual/Aesthetics	VA-3	All new and replaced guardrail and end treatments shall be colored to reduce reflectivity and blend with the natural setting. Coloring shall be applied to metal posts and beams.
2.1.6 Visual/Aesthetics	VA-4	A minimum of two trees will be planted for each tree removed from Caltrans right-of-way. Replacement trees will be planted within the Caltrans right-of-way to the greatest extent possible considering horticultural viability and safety requirements. These trees will be installed, maintained and monitored according to the methods and requirements for the Tier 1 compensatory mitigation planting detailed in the RMP prepared for the project and other measures required by Caltrans as part of the Encroachment Permit process. The trees will consist of native, locally occurring species that are compatible with the Tier 1 plantings. The location of the mitigation plantings within the Caltrans right-of-way will be determined as part of the PS&E stage of the Project and will maximize connectivity with adjacent Tier 1 riparian mitigation planting areas outside of the right-of-way.
2.1.7 Cultural Resources	CUL-1	The final grading plan for activities shall be prepared in consultation with a qualified archaeologist and an OCEN monitor.

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
<i>2.1.7 Cultural Resources</i>	CUL-2	Cultural resource sensitivity training will be provided for grading crews prior to the initiation of construction by the Project Archaeologist and OCEN monitor. During this training, the Project contractor, Project Archaeologist, and OCEN monitor will agree on a communication plan and initial steps to implement Mitigation CUL-4 if potentially significant cultural resources are encountered.
<i>2.1.7 Cultural Resources</i>	CUL-3	A professional archaeologist shall be on call to quickly assess any potentially significant cultural materials, archaeological resources, or human remains that might be uncovered during project excavations. At least one OCEN monitor, and up to one OCEN monitor per excavation activity, shall be on site during excavation west of SR 1. Additionally, at OCEN's discretion, up to one OCEN monitor per excavation activity is optional east of SR 1. The Project Archeologist shall communicate and coordinate with the OCEN monitor(s) in regard to all data collection and the evaluation of all artifacts. Prior to the issuance of any grading permit for the Floodplain Restoration Component, the Project Applicants shall submit evidence to the County demonstrating that an on-call professional archaeologist and the OCEN monitor(s) have been retained. The Project Archeologist and the OCEN monitors shall be provided contact, access, and schedule information sufficient to facilitate their monitoring efforts.
<i>2.1.7 Cultural Resources</i>	CUL-4	If, at any time during Project construction, potentially significant cultural resources are encountered, work shall cease within 50 feet of the find until the Project Archaeologist and an OCEN monitor can evaluate the discovery. If the find is determined to be significant, steps shall be taken to protect the find from further damage or disruption. The Service's Regional Historic Preservation Officer (RHPO) and the County will be notified. Additionally, an appropriate mitigation plan shall be developed and implemented with the concurrence of the Lead Agencies and an OCEN representative.
<i>2.1.7 Cultural Resources</i>	CUL-5	The Project Archaeological and OCEN monitors shall closely coordinate the recovery of any significant cultural materials that may be found in the excavated soil. If determined appropriate and necessary by the monitors, they shall selectively screen soil samples through 1/8" mesh to facilitate data recovery. All materials remaining in the screen and recovered artifacts of interest to OCEN shall be provided to the Chairperson of OCEN.

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
<i>2.1.7 Cultural Resources</i>	CUL-6	In accordance with California PRC Sections 5097 and 7050.5, if, at any time, human remains are discovered, the Monterey County Coroner and the Service's RHPO must be notified. If the Coroner determines that the remains are likely to be Native American, the Native American Heritage Commission will be notified and will appoint a Most Likely Descendant (MLD) to provide recommendations for disposition of the remains and work will not resume until they have made a recommendation to the landowner or the person responsible for the excavation work, for means of treating and disposing of, with appropriate dignity, the human remains and any associated grave goods, as provided in California PRC 5097.98.
<i>2.1.7 Cultural Resources</i>	CUL-7	A Final Technical Report detailing the results of all analyses shall be completed within six months following the completion of monitoring work. This report shall be submitted to the Lead Agencies, the Northwest Information Center, Sonoma State University, and the Chairperson of the OCEN.
<i>2.1.7 Cultural Resources</i>	CUL-8	Installation of exclusionary fencing around the Fish Ranch Adobe shall be installed prior to the initiation of construction by the contractor under the supervision of the Project Archeologist. The purpose of the exclusionary fencing is to ensure construction activities avoid all impacts to this historic resource. Documentation of the installation of the fencing will be provided to the County prior to construction. Construction-phase monitoring will be conducted on weekly basis to ensure the exclusionary fencing is maintained during construction of the Project. The County will be notified immediately in the case that the fences are not being properly maintained.
<i>2.1.7 Cultural Resources</i>	CUL-9	The Creamery and Blacksmith Shop will be raised and placed on concrete foundations prior to the levee plugs being removed (approximately three to five years following construction). It is anticipated that the buildings will be elevated between six to eight inches and then placed on concrete perimeter or pier foundations. Existing engineering plans, which were originally prepared by State Parks, shall be updated prior to implementation of this measure to reflect any changed conditions or changes in building codes since the original preparation. The County intends to enter into a MOU with State Parks prior to the initiation of construction that outlines the details of this effort, including cost sharing. The MOU shall include the minimum experience requirements of the contractor(s) who bid for the lifting, cribbing, and moving of the structures and the foundation repair.

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
2.1.7 Cultural Resources	CUL-10	<p>Prior to issuance of the grading permit for the project, BSLT, project co-applicant, shall enter into an agreement with the County that provides the following:</p> <ul style="list-style-type: none"> ▪ Documented evidence that BSLT has offered a location on BSLT property to OCEN for reinternment of Native American human remains, should any be found at the during construction of the Project; ▪ BSLT statement of intent to provide post-project construction access at the Project site to OCEN members to collect native materials for cultural purposes, and a date-certain by which BSLT will provide documented evidence that BSLT has offered a mechanism to provide said access to OCEN; and ▪ BSLT statement of intent to work with OCEN to collaboratively develop interpretive information and materials about the history of the OCEN people at the Project site.
2.2.1 Hydrology and Floodplain	HF-1	<p>In order to reduce potential adverse effects associated with bridge scouring, the final design of the causeway shall be completed in accordance with the recommendations of a detailed design-level hydraulic analysis. The hydraulic analysis shall contain a detailed evaluation of potential bridge scouring and shall be prepared in accordance with the requirements of Caltrans. Prior to the issuance of any grading and/or building permit in connection with the causeway, a copy of this report shall be submitted to Caltrans and the County for review and approval.</p>
2.2.1 Hydrology and Floodplain	HF-2	<p>In order to reduce potential adverse effects associated with possible impacts to the validity of the base flood elevations cited on the currently-effective FEMA Flood Insurance Rate Map Panel for the Project area, the Monterey County Water Resources Agency shall, on behalf of the Project Applicants, obtain a FEMA Conditional Letter of Map Revision (CLOMR) prior to construction of the Project to have FEMA review and determine the precise way in which the flood map would be revised. Following the completion of the Project, the Project Applicants shall obtain a FEMA Letter of Map Revision (LOMR) to officially update the flood map to reflect the revision. The Project Applicants or designated representative shall submit evidence to the County demonstrating that the identified requests have been made.</p>

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
<i>2.2.1 Hydrology and Floodplain</i>	HF-3	<p>The existing CAWD outfall and sewer force main pipelines must be protected through implementation of the CAWD Project prior to any change in existing floodplain conditions due to the Proposed Project. If the CAWD Project is not complete by the time construction of the Proposed Project begins, the following construction scheduling and design changes will be made to protect the CAWD outfall and sewer force main pipelines from any negative impacts from the Proposed Project compared to existing conditions:</p> <ol style="list-style-type: none"> 1. The existing south bank river levee will remain intact until the CAWD Project is complete and CAWD has provided timely written notification to the County of completion. 2. The temporary SR 1 detour road, which will be constructed to an elevation equal to the existing SR 1 embankment to function as a barrier to maintain flows equal to the existing condition during a flood event, shall remain intact until the CAWD Project is complete and CAWD has provided timely written notification to the County of completion.
<i>2.2.1 Hydrology and Floodplain</i>	HF-4	In collaboration with CAWD, the County shall seek to obtain grant funding to fully fund the CAWD Project. The County shall support any and all efforts CAWD may undertake to obtain grant funding to complete the CAWD Project as part of and mitigation for the Proposed Project.
<i>2.2.1 Hydrology and Floodplain</i>	HF-5	The County shall not issue a Notice to Proceed for construction of the Proposed Project until the County has assurance that CAWD has obtained all necessary funding and approvals to proceed with the CAWD Project, and that any necessary funding agreements are in place between the County and CAWD.
<i>2.2.2 Water Quality and Storm Runoff</i>	WAQ-1	In order to reduce downstream sedimentation, bank stabilization measures recommended by a licensed civil engineer shall be implemented immediately following levee removal as part of the Restoration Component. The remnant levees shall be monitored as part of on-going site monitoring to ensure that post-construction erosion is minimized. Adaptive management practices shall be implemented to the extent necessary in consultation with the Project Engineer. Prior to the issuance of any grading permit for levee removal, final grading plans shall include bank stabilization measures, subject to the review and approval of the County. The Project Applicants will be responsible for monitoring the implementation of the measures and shall, upon completion, provide the County certification from a licensed geotechnical engineer that all bank stabilization measures have been constructed in accordance with their recommendations and the approved plans.

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
2.2.2 Water Quality and Storm Runoff	WAQ-2	A SWPPP shall be prepared by a Qualified SWPPP Developer and implemented by the Project Contractor. The SWPPP shall identify the sources of pollutants that may affect the quality of stormwater and include the construction site BMPs. BMPs will included, but are not limited to, scheduling to minimize active Disturbed Soil Areas during rainy season and preserving existing vegetation to the maximum extent feasible. The Project Applicants will be responsible for coordinating the preparation of the SWPPP and obtaining coverage under the State Construction General Permit. The Qualified SWPPP Developer shall submit the SWPPP and Waste Discharger Identification Number to the County, for review and comments, prior to issuance of any related construction permits.
2.2.3 Geology	GEO-1	A design-level geotechnical report shall be prepared, by a licensed geotechnical engineer, to include analysis of site conditions and geologic hazards, conclusions, and project design recommendations. A copy of this report shall be submitted to Caltrans and the County for review and approval.
2.2.3 Geology	GEO-2	The final design of the proposed causeway shall be completed in accordance with the recommendations of the detailed design-level geotechnical report that addresses potential hazards associated with lateral spreading and liquefaction. A licensed geotechnical engineer shall review the final construction plans and certify their recommendations have been incorporated into the project design. A copy of the construction plans and certification letter shall be submitted to Caltrans and the County for review and approval.

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
2.2.4 Paleontology	PAL-1	<p>Prior to issuance of a grading permit, the Project Applicants shall retain a qualified paleontologist to monitor ground disturbing construction activities. Paleontological monitoring shall include field inspections of cut slopes, trenches, spoils piles, and all graded surfaces for freshly exposed fossil remains, in accordance with Project safety requirements. Excavations near the southern boundary of the Project site that are greater than five feet in depth shall be periodically spot checked. The spot checks shall occur on a daily basis for at least the first three days to allow for the paleontological monitor to fully assess the onsite conditions and impacted sediments. Full time monitoring shall be implemented during excavations in to native Pleistocene sediments and Miocene marine sandstone (Tus), if encountered. If it is determined that paleontologically sensitive sediments are not being impacted, this can be reduced to weekly checks. Additionally, monitoring and spot checking efforts may be reduced, at the discretion of the qualified paleontologist in consultation with the County, Service, and Caltrans, if it is determined that only previously disturbed and Holocene-aged alluvial sediments are being impacted, or if sediments are deemed to be nonconductive to fossil preservation.</p> <p>If a fossil is discovered by a monitor in a construction excavation, the monitor shall immediately notify the equipment operator and/or site project manager to stop work, and then mark the area surrounding the site with flagging until the discovery can be fully explored and evaluated. The paleontological monitor shall immediately notify the Principal Paleontologist, site project manager, and Resident Engineer. Construction activities in the immediate vicinity of the site shall stop until authorization for work to continue is provided by the qualified paleontologist. If a concentration of fossils are found, the area will be flagged and the site project manager, Resident Engineer, and Principal Paleontologist, will be notified to determine necessary action. Any action shall be communicated to the contractor and responsible agencies. Construction activities can continue outside of an appropriate buffer to the discovery site based on the size of the fossil and in consultation with the site project manager and/or Resident Engineer. All scientifically important fossils shall be salvaged and fully documented within a detailed stratigraphic framework as construction conditions and safety considerations permit. Significance criteria and salvage procedures are discussed in the Paleontological Identification Report/Paleontological Evaluation Report prepared for the Project.</p> <p>A paleontological monitoring report shall be prepared and delivered to the County, Service, Caltrans, and the University of California Museum of Paleontology at Berkeley (or other appropriate fossil repository) within 30 days of the completion of field work, or as negotiated on consultation. The report shall include dates of field work, results of monitoring, fossil analyses, significance evaluation, conclusions, locality forms, and an itemized list of specimens.</p>

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
2.2.4 Paleontology	PAL-2	Prior to earthmoving activities, a qualified paleontologist shall provide a worker training program to inform construction personnel of the possibility for fossil discoveries (including the location of the areas of high potential) and shall instruct personnel to immediately inform their supervisor if any bones or other potential fossils are unearthed at the Project site and a paleontological monitor is not present. In such a case, workers shall immediately cease all activity within a 20-foot radius of the discovery site until a qualified professional paleontologist shall be mobilized to the Project site to examine and evaluate the find. If necessary, appropriate salvage measures will be developed in consultation with the responsible agencies and in conformance with Caltrans guidelines and best practices in mitigation paleontology. Work may not resume in the discovery area until it has been authorized by a qualified paleontologist.
2.2.5 Hazardous Waste and Materials	HAZ-1	Paint striping or thermoplastic paint removal shall be removed in accordance with Caltrans standard special provisions. A Lead Compliance Plan would be required for conducting the paint removal activities, and it should describe proper handling methods of the paint material and shall provide information regarding limiting exposure to lead chromate containing paint materials. The material will be disposed at a solid waste landfill facility permitted to accept such wastes.
2.2.5 Hazardous Waste and Materials	HAZ-2	Any treated wood should be properly stored and disposed of at a solid waste landfill facility permitted to accept such wastes.
2.2.5 Hazardous Waste and Materials	HAZ-3	Cleaning and refueling of equipment and vehicles during construction shall occur only within designated staging areas. No maintenance, cleaning, or fueling of equipment shall occur within riparian areas and, at a minimum, all equipment and vehicles will be checked and maintained by the Project Contractor on a daily basis to ensure proper operation and avoid potential leaks or spills. During construction, all construction-related spills of hazardous materials within or adjacent to the construction site will be cleaned up immediately. Spill prevention and clean-up materials shall be onsite at all times during construction. Construction materials/debris will also be stored within the designated staging areas. No debris, soil, silt, sand, oil, petroleum products, cement, concrete, or washings thereof shall be allowed to enter into, or be placed where they may be washed by rainfall or runoff, into riparian habitats or adjacent wetland habitats. All construction-related spills of hazardous materials within or adjacent to the construction site shall be reported to the Project Biologist and construction biological monitor immediately. The Project Biologist and construction biological monitor shall include any spill-related issues and resolutions in the daily log.

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
2.2.6 Air Quality	AQ-1	<p>The Project Contractor shall comply with Caltrans' Standard Specifications in Section 14(2010).</p> <ul style="list-style-type: none"> ▪ Section 14-9.01 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances. ▪ Section 14-9.02 is directed at controlling dust.
2.2.6 Air Quality	AQ-2	<p>In order to reduce potential adverse air quality effects associated with Project construction, BMPs to reduce PM₁₀ emissions shall be implemented by the Project Contractor to the extent practicable throughout the duration of Project construction. Standard BMPs may include, but are not limited to:</p> <ul style="list-style-type: none"> ▪ Apply water to the site and equipment as frequently as necessary to control fugitive dust emissions. No dust palliative materials other than water are to be used within the floodplain. ▪ Spread soil binder on any unpaved roads used for construction purposes, and all Project construction parking areas, when practical. ▪ Wash off trucks as necessary to control fugitive dust emissions. ▪ Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114. ▪ Locate equipment and material storage sites as far away from residences and recreational areas as practical. Keep construction areas clean and orderly. ▪ Use track-out reduction measures such as gravel pads at Project access points to minimize dust and mud deposits on roads affected by construction traffic. ▪ Cover all transported loads of soils and wet materials prior to transport to minimize emission of dust (particulate matter) during transportation. ▪ To decrease particulate matter, promptly and regularly remove dust and mud that is deposited on paved, public roads due to construction activity and traffic. ▪ Route and schedule construction traffic to avoid peak travel times as much as possible, to reduce congestion and related air quality impacts caused by idling vehicles along local roads. ▪ Locate construction equipment and truck staging and maintenance areas to the extent feasible and nominally downwind of schools, active recreation areas, and other areas of high population density.

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
		<ul style="list-style-type: none"> ▪ Cover inactive storage piles. ▪ Post a publicly visible sign which specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the MBARD shall be visible to ensure compliance with Rule 402 (Nuisance).
2.2.7 Noise and Vibration	NSE-1	<p>Prior to initiation of construction, a Construction Noise Management Plan (CNMP) shall be prepared consistent with the County of Monterey Noise Control Ordinance (Chapter 10.60 of the County's Code of Ordinances). The CNMP shall identify all areas where major noise-generating construction activities would result in noise levels at nearby land uses that would exceed instantaneously levels of 85 dBA for the daytime and 65 dBA Lmax, for the night, measured at the property line of the noise source. The CNMP shall be reviewed and approved by County planning staff and Caltrans prior to initiation of construction. The CNMP shall be implemented by all relevant contractors at the site, and noise shall be monitored during demolition, grading, pile driving, and other noise-generating activities. Reporting of implementation shall be provided to the County for review. The CNMP shall include, at a minimum, the following components:</p> <ul style="list-style-type: none"> ▪ Identification of noise-reduction measures to be implemented with a noise-reduction goal sufficient to achieve the County's instantaneous noise standards. Noise-reduction measures may include, but are not limited to, the use of quieter equipment, equipment enclosures/surrounds, construction of temporary noise barriers, and/or installation of equipment noise control. ▪ A construction noise complaint and response program. Notification and response procedures/measures to be implemented in response to noise-related complaints shall be identified. The name(s) of designated noise-control representative(s) and daytime contact information shall be included. ▪ A construction noise monitoring program sufficient to provide verification that resultant noise levels associated with noise-generating construction activities would not exceed the County's daytime and nighttime intermittent noise standards ▪ Quiet models of air compressors and other stationary noise sources where technology exists shall be utilized. ▪ All internal combustion engine-driven equipment shall be equipped with mufflers that are in good condition and appropriate for the equipment.

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
		<ul style="list-style-type: none"> ▪ All stationary noise-generating equipment, such as air compressors and portable power generators, shall be located to maximize distances to residences/noise sensitive uses. ▪ Staging areas and construction material shall be located to maximize distances to residences or noise-sensitive land uses. ▪ Noise from construction workers' radios shall be controlled to a point that they are not audible at existing residences bordering the Project site. ▪ All unnecessary idling of internal combustion engines shall be prohibited.
2.2.7 Noise and Vibration	NSE-2	Advance written notification shall be provided to property owners and building occupants that are located adjacent to construction areas. Notification shall be provided a minimum of five days prior to initiation of project construction. The notification shall identify the name and phone number of the construction representative to be contacted regarding construction-related complaints, as well as, the County of Monterey Planning Department contact information. Additional information regarding anticipated hours and dates of construction and recommended measures to minimize noise-related impacts (e.g., closure of building windows) shall also be included in the notification.
2.2.7 Noise and Vibration	NSE-3	Noise-generating construction activities shall be limited during the nighttime hours between 10:00 p.m. and 7:00 a.m., consistent with Monterey County noise ordinance, Monday through Saturday. Noise-generating construction activities shall be prohibited on Sundays and State-recognized holidays.
2.3.1 Natural Communities	NC-1	Disturbance or removal of vegetation shall not exceed the minimum necessary to complete Project implementation.

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
<i>2.3.1 Natural Communities</i>	NC-2	Prior to issuance of a grading permit, the Project Applicants shall retain a qualified Project Biologist to monitor ground disturbing construction activities (i.e., vegetation removal, grading, excavation, or similar activities) to ensure measures to protect sensitive habitats are implemented. After ground disturbing and vegetation removal activities are complete, or earlier if determined appropriate by the Project Biologist, the Project Biologist will designate a construction monitor to oversee on-site compliance with all avoidance and minimization measures. The Project Biologist shall ensure that this construction monitor receives the sufficient training in the location of the sensitive habitats within and adjacent to the Project site and the protective measures afforded to them. The Project Biologist shall ensure the construction biological monitor is satisfactorily implementing all appropriate mitigation protocols by conducting site visits approximately weekly or when necessary as dictated by the Project activities, proximity to sensitive resources, or other reasons at the discretion of the Project Biologist. Both the Project Biologist and the construction monitor shall have the authority to stop and/or redirect Project activities to ensure protection of resources and compliance with all environmental permits and conditions of the Project. The Project Biologist and the construction biological monitor shall complete a daily log summarizing activities and environmental compliance throughout the duration of the Project that shall be provided to the County upon completion of the construction.
<i>2.3.1 Natural Communities</i>	NC-3	Prior to construction initiation, protective fencing shall be placed so as to keep construction vehicles and personnel from impacting riparian vegetation and other sensitive habitats adjacent to the Project site outside of grading limits. Trees or vegetation not required for removal, but directly adjacent to construction activities, shall be provided appropriate protection from impacts of construction activity. This includes fencing off shrubby vegetation and protective wood barriers for trees. Protective fencing for trees shall be far enough from trunk to adequately protect roots and large branches (typically installed at the drip line). Orange cyclone fencing or other materials that can entrap wildlife shall not be used. Protective fencing shall be installed under the supervision of the Project Biologist. The Project Biologist and/or construction monitor shall monitor the fencing to ensure that the protective fencing remains intact and that all construction work is maintained within the limits of construction. Installation and monitoring of the fencing shall be documented in the daily log.
<i>2.3.1 Natural Communities</i>	NC-4	To mitigate for impacts to riparian habitat resulting from vegetation removal and grading, the RMP prepared for the Project includes replanting willow and cottonwood riparian forest within the Project site at a 3:1 ratio for the area of riparian forest disturbed and at a 2:1 ratio for the area of degraded riparian forest and riparian scrub disturbed (11.3 acres replanted). All compensatory mitigation will be installed during Tier 1 of the restoration, as described in the Project Description. Table 2.3.1-4 shows the mitigation ratios and acreage of riparian restoration presented in the RMP.

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
<i>2.3.4 Animal Species</i>	AS-1	Prior to construction activities the Project Biologist shall conduct an Employee Education Program for the construction crew. The Project Biologist shall meet with the construction crew at the Project site at the onset of construction to educate the construction crew on the following: a) a review of the Project boundaries including staging areas and access routes; b) the special-status species that may be present, their habitat, and proper identification; c) the specific minimization and avoidance measures that will be incorporated into the construction effort, d) the general provisions and protections afforded by the Service and CDFW; and e); the proper procedures if a special-status animal is encountered within the construction area. Each employee that receives the training shall sign a sign-in sheet provided by the Project Biologist that shall be included in the daily log.
<i>2.3.4 Animal Species</i>	AS-2	The Project Biologist shall monitor ground disturbing construction activities (i.e., vegetation removal, grading, excavation, or similar activities) to protect any special-status species encountered. The Project Biologist shall remain available to come to the site if a special-status species is identified until all ground disturbing activities are completed. Any handling and relocation protocols of special-status wildlife species shall conducted by a qualified biologist with an appropriate scientific collection permit. After ground disturbing and vegetation removal activities are complete, or earlier if determined appropriate by the Project, the qualified biologist will designate a construction biological monitor to oversee on-site compliance with all avoidance and minimization measures. The Project Biologist shall ensure that this construction biological monitor receives the sufficient training in the identification of special-status species. The Project Biologist shall ensure the construction biological monitor is satisfactorily implementing all appropriate mitigation protocols by conducting site visits approximately weekly or when necessary as dictated by the project activities, proximity to sensitive resources, or other reasons at the discretion of the Project Biologist. Both the Project Biologist and the construction biological monitor shall have the authority to stop and/or redirect Project activities to ensure protection of resources and compliance with all environmental permits and conditions of the Project. The Project Biologist and the construction biological monitor shall include in the daily log any special-status wildlife species observed and relocated.
<i>2.3.4 Animal Species</i>	AS-3	All trash that may attract predators shall be properly contained, removed from the construction site, and disposed of regularly by the Project Contractor. Following construction, all trash and construction debris shall be removed from work areas. The Project Biologist and construction biological monitor shall monitor the Project site to ensure trash removal is implemented and shall include any trash-related issues and resolutions in the daily log.

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
2.3.4 <i>Animal Species</i>	AS-4	The Project Applicants shall retain a qualified biologist to conduct pre-construction surveys in suitable Monterey dusky-footed woodrat habitat proposed for construction, ground disturbance, or staging within three days prior to construction and maintenance activities for woodrat nests within the Project area and in a buffer zone 25 feet out from the limit of disturbance. All woodrat nests will be flagged for avoidance of direct construction impacts, where feasible. Nests that cannot be avoided will be manually deconstructed prior to land clearing activities to allow animals to escape harm. If a litter of young is found or suspected, nest material will be replaced, and the nest shall be left alone for 2-3 weeks before a re-check to verify that young are capable of independent survival before proceeding with nest dismantling. For the construction phase only, the qualified biologist shall prepare a pre-construction survey report that documents the survey dates and results that shall be provided to the County prior to construction. If nest monitoring is necessary during construction, the qualified biologist shall prepare a construction monitoring report that documents the monitoring dates, activities, and results.
2.3.4 <i>Animal Species</i>	AS-5	To avoid impacts to nesting birds, vegetation proposed for removal for construction and maintenance will be removed prior to the nesting season (February 15 through September 1). If this is not possible, pre-construction surveys shall be conducted for nesting raptors, riparian avian species, or other special-status avian species in all areas that may provide suitable nesting habitat that exist in or within 300 feet of the Project boundary by a qualified biologist within 15 days prior to the commencement of construction activities. If nesting birds are identified during pre-construction surveys, an appropriate buffer will be imposed within which no construction activities or disturbance will take place (generally 300 feet in all directions). A qualified biologist shall be on-site during work re-initiation in the vicinity of the nest offset to ensure that the buffer is adequate and that the nest is not stressed and/or abandoned. No work may proceed in the vicinity of an active nest until such time as all young are fledged, or until after September 1 (when young are assumed fledged). For the construction phase only, the qualified biologist shall prepare a pre-construction survey report that documents the survey dates and results that shall be provided to the County prior to construction. If nest monitoring is necessary during construction, the qualified biologist shall prepare a construction monitoring report that documents the monitoring dates, activities, and results.

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
2.3.4 Animal Species	AS-6	A qualified biologist shall conduct pre-construction and maintenance surveys for coast range newts, California legless lizards, and western pond turtles and their nests within three days prior to the commencement of activities. If an individual is found in any areas prior to or during these surveys, a qualified biologist shall relocate the individual from the site to a suitable location. If a western pond turtle nest is found during the survey, it will be monitored and avoided until the eggs hatch. For the construction phase only, the qualified biologist shall prepare a pre-construction survey report that documents the survey dates and results that shall be provided to the County prior to construction. If western pond turtle nest monitoring is necessary during construction, the qualified biologist shall prepare a construction monitoring report that documents the monitoring dates, activities, and results.
2.3.5 Threatened and Endangered Species	TE-1	Prior to issuance of a grading permit, the Project Applicants shall retain a Service-Approved Biologist. The Service-Approved Biologist shall survey appropriate areas of the construction site daily before the onset of work activities for the presence of CRLF. The Service-Approved Biologist shall remain available to come to the site if a CRLF is identified until all ground disturbing activities are completed. If any life stage of the CRLF is found and these individuals are likely to be killed or injured by work activities, the Service-Approved Biologist shall be contacted and work shall stop in that area until the CRLF is relocated. The Service-Approved Biologist shall relocate the CRLF the shortest distance possible to an area that contains suitable habitat and will not be affected by construction activities. The Service-Approved Biologist shall maintain detailed records of any individuals that are moved (e.g., size, coloration, any distinguishing features, photographs) to assist him or her in determining whether translocated animals are returning to the original point of capture. Only Service- Approved Biologists shall participate in activities associated with the capture, handling, and monitoring of CRLF. The Service-Approved Biologist shall prepare a pre-construction survey report that documents the survey dates and results that shall be provided to the County prior to construction. The Service-Approved Biologist shall also prepare a construction monitoring report that documents the monitoring dates, activities, and results following construction completion.

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
2.3.5 Threatened and Endangered Species	TE-2	After ground disturbing and vegetation removal activities are complete, or earlier if determined appropriate by the Service-Approved Biologist in coordination with the Service, the Service-Approved Biologist will designate a construction biological monitor to oversee on-site compliance with all avoidance and minimization measures. The Service-Approved Biologist shall ensure that the construction biological monitor receives the sufficient training in the identification of CRLF. The construction biological monitor and the Service-Approved Biologist are authorized to stop work if the avoidance and/or minimization measures are not being followed. If work is stopped, the Service shall be notified. The Service-Approved Biologist and the construction biological monitor shall complete a daily log summarizing activities and environmental compliance throughout the duration of the Project.
2.3.5 Threatened and Endangered Species	TE-3	To prevent inadvertent entrapment of CRLF during the Project construction, all excavated, steep-walled holes or trenches more than two feet deep will be covered by the Project Contractor at the close of each working day with plywood or similar materials. Before such holes or trenches are filled, they will be thoroughly inspected by the Service-Approved Biologist or construction biological monitor for trapped animals.
2.3.5 Threatened and Endangered Species	TE-4	Prior to the initiation of maintenance activities which include mowing and removal of vegetation, as described in Section 1.4 Project Alternatives, the Project Applicants shall retain a Service-Approved Biologist. The Service-Approved Biologist shall survey appropriate areas before the onset of work activities for the presence of CRLF. If any life stage of the CRLF is found the Service-Approved Biologist shall relocate the CRLF the shortest distance possible to an area that contains suitable habitat and will not be affected by maintenance activities. The Service-Approved Biologist shall maintain detailed records of any individuals that are moved (e.g., size, coloration, any distinguishing features, photographs) to assist him or her in determining whether translocated animals are returning to the original point of capture. Only Service-Approved Biologists shall participate in activities associated with the capture, handling, and monitoring of CRLF. The Service-Approved Biologist shall also prepare a maintenance monitoring report that documents the monitoring dates, activities, and results following construction completion.
2.3.5 Threatened and Endangered Species	TE-5	All applicable measures outlined in the attached CDFW Avoidance and Minimization Measures (Appendix K of the EIR/EA) shall be implemented.
2.3.6 Invasive Species	IS-1	Construction equipment will be cleaned of mud or other debris that may contain invasive plants and/or seeds and inspected to reduce the potential of spreading noxious weeds, before mobilizing to arrive at the construction site and before leaving the construction site.

Avoidance, Minimization, and/or Mitigation Summary Table

Section and Topic	Measure Number	Avoidance, Minimization, and Mitigation Measures
<i>2.3.6 Invasive Species</i>	IS-2	The agricultural water quality pond shall not provide permanent standing water sufficient to allow American bullfrog to successfully breed. The Project Applicants shall be responsible for monitoring the water level on an annual basis. If it is determined that the pond is likely to maintain permanent water, it will be modified to ensure that it is dry for 72 hours in the month of September.
<i>2.3.6 Invasive Species</i>	IS-3 (For Secondary Channel Alternative only)	Construction equipment used within the Carmel River channel shall be cleaned of mud or other debris that may contain New Zealand mudsnail and inspected to reduce the potential of spreading this invasive aquatic species before leaving the construction site. Cleaning shall be conducted by pressure washing and use of brushes or other tools to remove stuck-on material.

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Appendix D

List of Acronyms

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List of Acronyms

99-DWQ	Caltrans 1999 NPDES Permit Oder No. 99-DWQ
AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
af/yr	acre feet per year
AGR	Agricultural Supply (beneficial use)
ASBS	Areas of Special Biological Significance
ADA	Americans with Disabilities Act
AADT	Average Annual Daily Traffic
AMBAG	Association of Monterey Bay Area Governments
APE	Area of Potential Effect
AQMP	Air Quality Management Plan
ARPA	Archaeological Resources Protection Act
ASR	Architectural Survey Report
BA	Biological Assessment
BAAQMD	Bay Area Air Quality Management District
BAU	Business as Usual
BFE	Base Floodplain Elevation
bgs	below ground surface
BIOL	Presence of Biological Habitats of Special Significance (beneficial use)
BLM	Bureau of Land Management
BMPs	Best Management Practices
BO	Biological Opinion
BSA	Biological Study Area
BSLT	Big Sur Land Trust
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
Cal-am	California-American Water
CalEEMod	California Emissions Estimator Model
Cal/EPA	California Environmental Protection Agency
Cal Fire	California Department of Forestry and Fire Protection

List of Acronyms

Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CAP	Coastal Agricultural Preserve
CARB	California Air Resources Board
CAWD	Carmel Area Wastewater District
CCAA	California Clean Air Act
CCC	California Coastal Commission
CCO	Construction Change Order
CCoWS	Central Coast Watershed Studies Team
CDP	Coastal Development Permit
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CERFA	Community Environmental Response Facilitation Act of 1992
CESA	California Endangered Species Act
CFCs	chlorofluorocarbons
CFP	California Fully Protected Species
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH ₄	methane
CHHSL	California Human Health Screening Levels
CIP/RC	conventionally reinforced concrete
CLOMR	Conditional Letter of Map Revision
Coastal Act	California Coastal Act of 1976
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CNPPA	California Native Plant Protection Act
CO	carbon monoxide
CO ₂	carbon dioxide

List of Acronyms

COLD	Cold Water Habitat (beneficial use)
COMM	Commercial & Sport Fishing (beneficial use)
Complex	State Parks Barn Complex
County	County of Monterey
CRLF	California red-legged frog
CRMB	Carmel River Mitigation Bank
CRPR	California Rare Plant Rank
CRZ	Clear Recovery Zone
CSA 50	Community Service Area 50
CSC	California Species of Special Concern
CTP	California Transportation Plan
CWA	Clean Water Act
CZMA	Coastal Zone Management Act of 1972
dBA	A-weighted sound level
DD&A	Denise Duffy & Associates
DOT	Department of Transportation
DSA	Disturbed Soil Area
DTSC	California Department of Toxic Substances Control
EE2	United States Exclusive Economic Zone
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIR/EA	Environmental Impact Report/Environmental Assessment
EIS	Environmental Investigation Services, Inc.
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Federal Endangered Species Act
ESHA	Environmentally Sensitive Habitat Area
ESL	Environmental Screening Levels
FCAA	Federal Clean Air Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration

List of Acronyms

FIFRA	Federal Insecticide, Fungicide, & Rodenticide Act
FIMA	Flood Insurance and Mitigation Administration
FMMP	Farmland Mapping and Monitoring Program
FMP	Fisheries Management Plan
Form	NRCS Farmland Conversion Impact Rating Form AD-1006
FPPA	Farmland Protection Policy Act
Fps	feet per second
FR	Federal Register
FRESH	Freshwater Replenishment (beneficial use)
FS	Forest Service
FTA	Federal Transit Authority
FTIP	Federal Transportation Improvement Programs
GfF	Gazos Silt Loam
GHG	greenhouse gas
GIS	Geographic Information System
GLO	General Land Office
Guidelines	Section 404 (b)(1) Guidelines
GWR	Groundwater Recharge (beneficial use)
H ₂ S	hydrogen sulfide
HAPC	Habitat of Particular Concern
HEC-18	Hydraulic Engineering Circular No. 18, Evaluating Scour at Bridges
HEC-RAS	Hydrologic Engineering Centers River Analysis System
HFC-23	floroform
HFC-134a	s,s,s,2 tetrafluoroemane
HFC-152a	difluroemane
Hp	horsepower
HTH	H.T. Harvey & Associates
IFM	Important Farmland Maps
IND	Industrial Service Supply
IPCC	Intergovernmental Panel on Climate Change
ISA	Initial Site Assessment

List of Acronyms

IS/MND	Initial Study/Mitigated Negative Declaration
K-factor	soil erodibility factor
LEDPA	Least Environmentally Damaging Practicable Alternative
LCFS	Low Carbon Fuel Standard
LCP	Local Coastal Program
LeD	Lockwood Shaly Loam
LOMR	Letter of Map Revision
LOS	Level of Service
LUST	Leaking Underground Storage Tank
MBTA	Migratory Bird Treaty Act
MBARD	Monterey Bay Air Resources District
MBCP	Monterey Bay Community Power
MDR/3	Medium Density Residential/3 units/acre
Mf	Metz Fine Sandy Loam
MFCAs	Maintained Flow Conveyance Areas
mg/kg	milligrams/kilogram
mg/l	milligrams/liter
MHHW	Mean High High Water
MLD	Most Likely Descendant
MMTCO _{2e}	Million Metric Tons of Carbon Dioxide Equivalent
MPO	Metropolitan Planning Organization
MPWMD	Monterey Peninsula Water Management District
MS4	Municipal Separate Storm Sewer Systems
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy
MUN	Municipal and Domestic Supply (beneficial use)
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NAHC	Native American Heritage Commission
NCCAB	North Central Coast Air Basin
NCWC	National Coastal Wetlands Conservation Grant Program

List of Acronyms

NES	Natural Environment Study
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act of 1966
NCCAB	North Central Coast Air Basin
NEPA	National Environmental Policy Act
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
NNI	Net New Impervious
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	National Parks Service
NRCS	Natural Resources Conservation Service
O ₃	ozone
OCEN	Ohlone/Costanoan-Esselen Nation
OHW	Ordinary High Water
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Act
OSTP	Office of Science and Technology Policy
PA	Programmatic Agreement
Pa	Pacheco Clay Loam
Pb	lead
PCE	Primary Constituent Element
PEAR	Preliminary Environmental Assessment Report
PER	Paleontological Evaluation Report
Pf	Pico Fine Sandy Loam
PID	Project Initiation Document
PIR	Paleontological Identification Report
PJD	Preliminary Jurisdictional Determination
PM ₁₀	respirable particulate matter

List of Acronyms

PM _{2.5}	fine particulate matter
PMP	Paleontological Mitigation Plan
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
ppt.	parts per thousand
PRC	California Public Resources Code
Project/Proposed Project	Carmel River Floodplain Restoration and Environmental Enhancement Project
PRPA	Paleontological Resources Preservation Act
PS&E	Plans, Specifications and Estimates
PSI	Preliminary Site Investigation
PSR	Project Study Report
Qa	Quaternary alluvium
Qg	Quaternary stream channel deposits
Qls	Quaternary landslides debris
RARE	Rare, Threatened, or Endangered Species Mitigation of Aquatic Organisms (Beneficial Use)
RCRA	Resources Conservation and Recovery Act
REC 1	Water Contact Recreation (beneficial use)
REC 2	Non-Contact Water Recreation (beneficial use)
RHPO	Regional Historic Preservation Officer
RIS	Replaced Impervious Surface
RMP	Restoration Management Plan
RTP	Regional Transportation Plan
RWD	Reports of Waste Discharge
RWQCB	Regional Water Quality Control Board
SRWQCB	State Regional Water Quality Control Board
SB	Senate Bill
S-CCC Steelhead	South-Central California Coast Steelhead
SCS	Sustainable Communities Strategy
SDC	Caltrans Seismic Design Criteria
Service	United States Fish and Wildlife Service

List of Acronyms

SF ₆	sulfur hexafluoride
SfE	Santa Lucia Shaly Clay Loam
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SLIC	Spills, Leaks, Investigations, and Cleanup
SLOAPCD	San Luis Obispo County Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO _x	sulfur oxides
South Floodplain	Southern Carmel River Floodplain
SPWN	Spawning, Reproduction, and/or Early Development (beneficial use)
SR1	State Route 1
State Parks	California Department of Parks & Recreation
State Parks General Plan	Point Lobos State Reserve and Carmel River State Beach General Plan
SWMP	Stormwater Management Plan
SWPPP	Storm Water Pollution Prevention Plan
TAMC	Transportation Agency for Monterey County
TMDL	Total Maximum Daily Load
TBMP	Treatment Best Management Practices
TSCA	Toxic Substances Control Act
Tus	Miocene marine sandstone
UCMP	University of California Museum of Paleontology
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USGS	United States Geologic Survey
VOC	volatile organic compounds
WARM	Warm Fresh Water Habitat (beneficial use)
WDR	Waste Discharge Requirements
WILD	Wildlife Habitat (beneficial use)

List of Acronyms

WPCP	Water Pollution Control Plan
WSE	Water Surface Evaluation

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Appendix E

NOP

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www.co.monterey.ca.us/rma

NOTICE OF PREPARATION

To: Responsible Agencies/Interested Parties

Date: March 6, 2018

From: Melanie Beretti, Special Projects Manager, Monterey County Resource Management Agency

Subject: Notice of Preparation (NOP) of A Draft Environmental Impact Report for the Carmel River Floodplain Restoration and Environmental Enhancement Project, Planning File Number: REF140048.

The Monterey County Resource Management Agency (RMA) and the Big Sur Land Trust (BSLT), a 501(c)(3) non-profit organization, have partnered on the Carmel River Floodplain Restoration and Environmental Enhancement Project to improve flood control and to restore native riparian and floodplain habitat and hydrologic function to a portion of the lower floodplain along the Carmel River, the majority of which is currently agricultural fields.

Through a cooperative agreement with the California Department of Transportation (Caltrans), the County of Monterey (County) will be the Lead Agency and will prepare an Environmental Impact Report (EIR) for the Carmel River Floodplain Restoration and Environmental Enhancement Project in accordance with the requirements of California Environmental Quality Act (CEQA) Guidelines §15050(a). This document will be a combined CEQA/National Environmental Policy Act (NEPA) document, consisting of an EIR in satisfaction of CEQA and an Environmental Assessment (EA) in satisfaction of NEPA. Through a separate cooperating agreement with Caltrans, the United States Fish and Wildlife Service (Service) is acting as the Lead Agency in accordance with the requirements of the National Environmental Policy Act (NEPA) regulation 40 Code of Federal Regulations (CFR) §1501. Caltrans District 5 is serving as a federal cooperating agency.

We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the EIR is not attached. Due to time limits mandated by state law, your response must be sent at the earliest possible date, but not later than April 13, 2018.

Please submit your response to the address shown above. We will need the name for a contact person in your agency.

Attachments: Project and Scoping Meeting Information, including Potential Environmental Effects; Project Vicinity and Location Maps; and Conceptual Design Plan, Project Design Features, and Access Roads/Trails Figures.

Cc: State Clearinghouse, Office of Planning and Research
1400 Tenth Street, Room 212
P.O. Box 3044
Sacramento, CA 95812-3044

MONTEREY COUNTY

RESOURCE MANAGEMENT AGENCY

Carl P. Holm, AICP, Director

Building Services / Environmental Services / Planning Services / Public Works & Facilities
1441 Schilling Pl, Salinas, CA 93901, 2nd Floor (831)755-5025
Salinas, CA 93901 <http://www.co.monterey.ca.us/rma>



March 6, 2018

NOTICE OF PREPARATION AND SCOPING MEETING

SUBJECT: Notice of Preparation of an Environmental Impact Report (EIR) for the Carmel River Floodplain Restoration and Environmental Enhancement Project (Planning File Number: REF140048). The County of Monterey will be the Lead Agency and will prepare an EIR for the project identified below. This document will be a combined CEQA/National Environmental Policy Act (NEPA) document, consisting of an EIR in satisfaction of CEQA and an Environmental Assessment (EA) in satisfaction of NEPA. The County requests input on the scope and content of the environmental analysis.

PROJECT NAME: Carmel River Floodplain Restoration and Environmental Enhancement Project

PROJECT LOCATION: The Proposed Project is located at the downstream end of the Carmel River Watershed, approximately half a mile from the river mouth, immediately east and west of State Route 1 (SR 1), just south of the Carmel River Bridge, in Monterey County, California. The Project is located on property owned by the Big Sur Land Trust (BSLT) (Assessor's Parcel Numbers [APNs] 243-071-005-000, 243-071-006-000, and 243-071-008-000), California Department of Parks and Recreation (State Parks; APN 243-021-007-000), Monterey Peninsula Regional Park District (MPRPD; APN 157-121-001-000), and Clinton and Margaret Eastwood (APN 243-071-008-000) (**Vicinity and Location Maps Attached**).

DUE DATE FOR COMMENTS: Due to the time limits mandated by State law, your response must be sent at the earliest possible date, but not later than **April 13, 2018**.

PROJECT DESCRIPTION:

The Proposed Project consists of two interdependent Project components: The Floodplain Restoration and the Causeway (**Conceptual Design Plan and Project Design Features Figures Attached**). The Floodplain Restoration Component consists of: (1) removing approximately 1,470 linear feet of non-structural earthen levees on the south side of the Carmel River channel; (2) grading on approximately 100 acres to restore the site's ecological function as a floodplain by creating the hydrogeomorphic characteristics necessary to support floodplain restoration activities; (3) grading to elevate approximately 23 acres of existing farmland above the 100-year floodplain elevation to create an agricultural preserve; and (4) implementation of the Restoration Management Plan (RMP). The RMP includes restoration of a mosaic of native habitats across the site in two phases, and maintenance, monitoring, and reporting protocols to ensure the success of the revegetation specific to compensatory mitigation requirements.

The Causeway Component consists of replacing a portion of the SR 1 roadway embankment (Route 1, Post Mile 71.9 to 72.3) with a 360-foot long causeway section to accommodate flood flows that enter into

the south overbank area as a function of the removal of portions of the levees as described above and to restore hydrologic connectivity between the Project site and the Carmel Lagoon. The Project would result in the reconnection and restoration of approximately 100 acres of historic floodplain. SR 1 is currently a two-lane conventional highway that has 12-foot travel lanes with four-foot to eight-foot shoulders. Once construction of the Causeway is complete, SR 1 would remain a two-lane conventional highway with 12-foot travel lanes; however, the Causeway incorporates 8-foot wide shoulders, transitioning to match existing 4-foot-wide shoulders at the southern project limits. The Causeway would also include a southbound left turn lane at the Palo Corona Regional Park entrance and public trails (**Access Roads/Trails Figure Attached**).

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: Aesthetics, Air Quality, Biological Resources, Cultural Resources, Farmland, Geology and Soils, Hazardous Waste and Materials, Hydrology and Floodplains, Land Use, Water Quality and Stormwater Runoff, Noise and Vibration, Paleontology, Parks and Recreational Facilities, Traffic and Transportation, Utilities and Emergency Services.

PUBLIC SCOPING MEETING: Pursuant to the public participation goals of CEQA, the County of Monterey will host an EIR Scoping Meeting to gather additional input on the content and focus of the environmental analysis to be conducted and presented in the EIR. The date, time, and location of the scoping meeting are listed below.

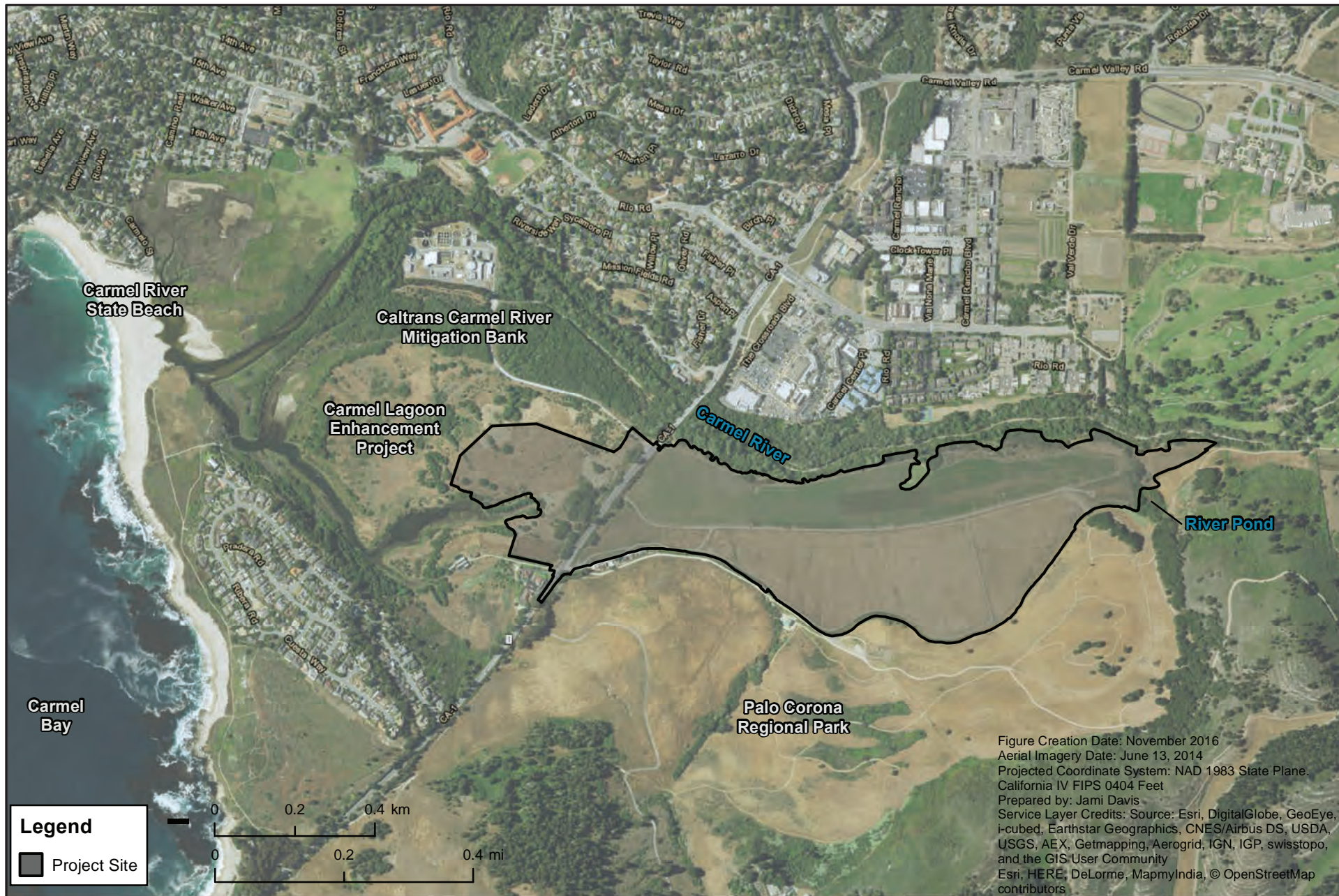
Date: March 26, 2018
Time: 1:30 pm to 2:30 pm and 6:30 pm to 7:30 pm
Location: Rancho Cañada Conference Room

COMMENTS ON THE SCOPE OF THE EIR: The County of Monterey welcomes all comments regarding the potential environmental impacts of the Proposed Project. All comments will be considered in the preparation of the EIR. **Written comments** must be submitted by **April 13, 2018**. Please direct your comments to:

Melanie Beretti, Special Projects Manager
Monterey County Resource Management Agency
1441 Schilling Pl, 2nd Floor
Salinas, CA 93901

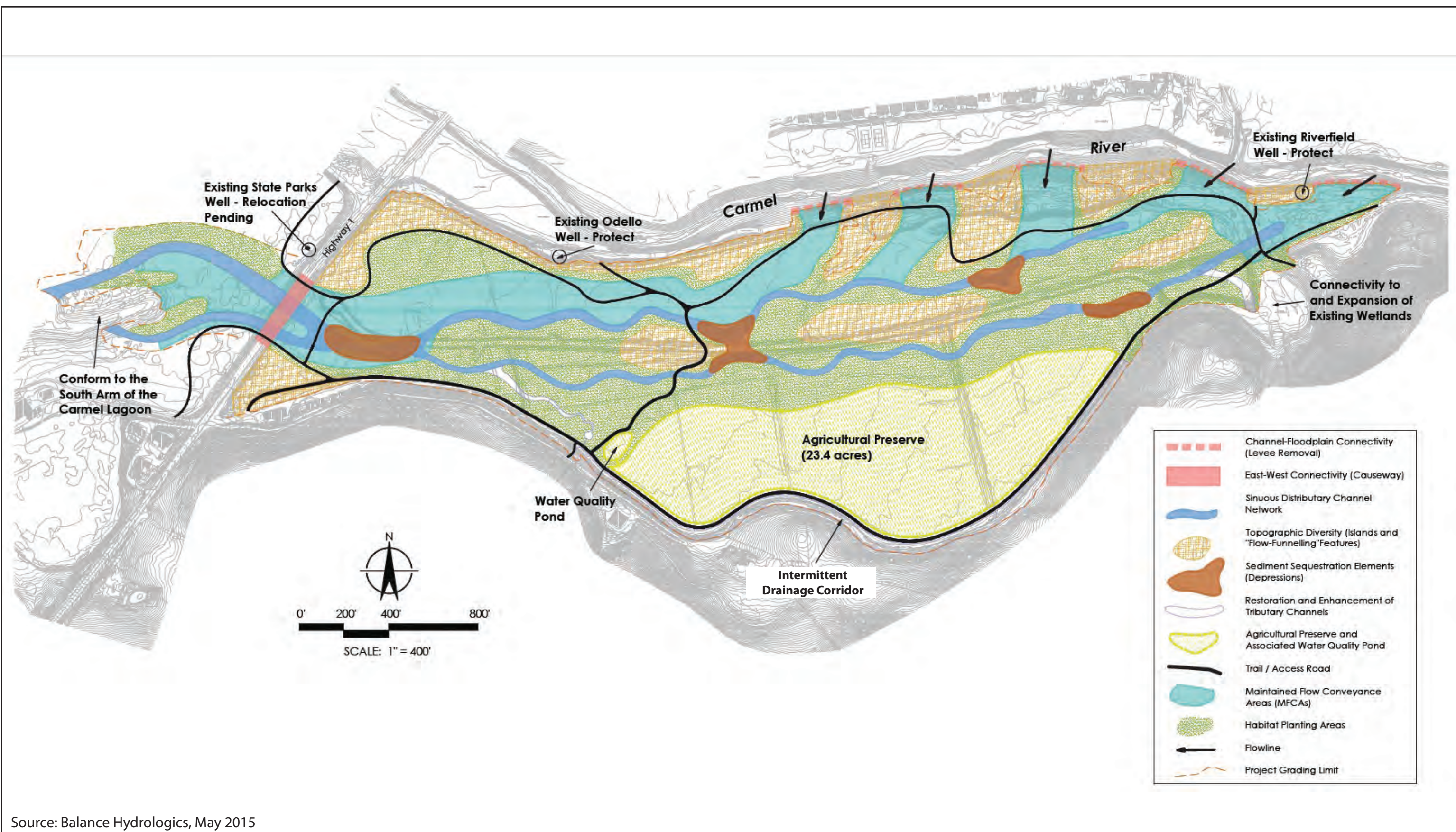
Or

CEQAcomments@co.monterey.ca.us



Project Location Map

March 2018

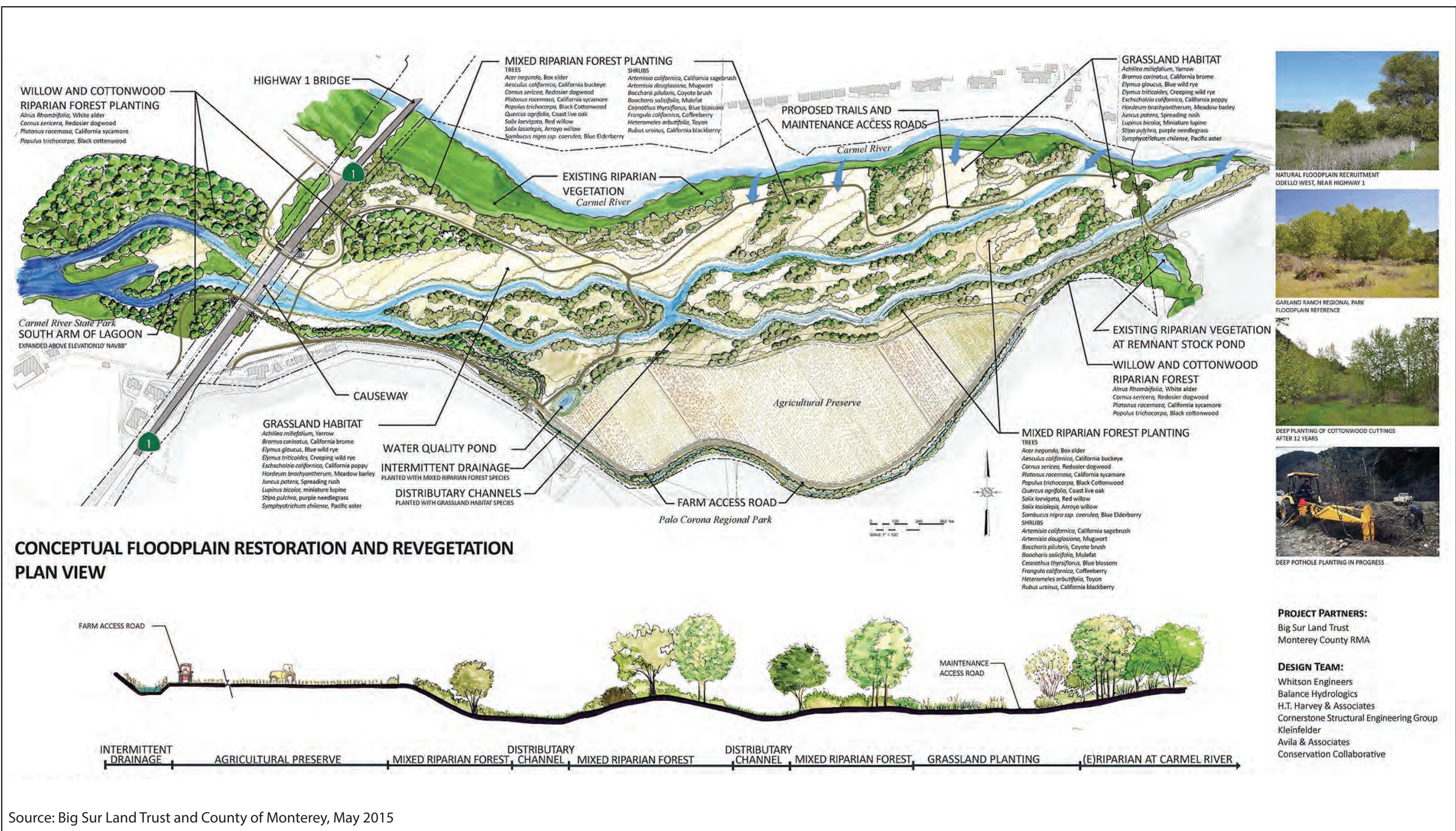


Source: Balance Hydrologics, May 2015



Project Design Features

March 2018

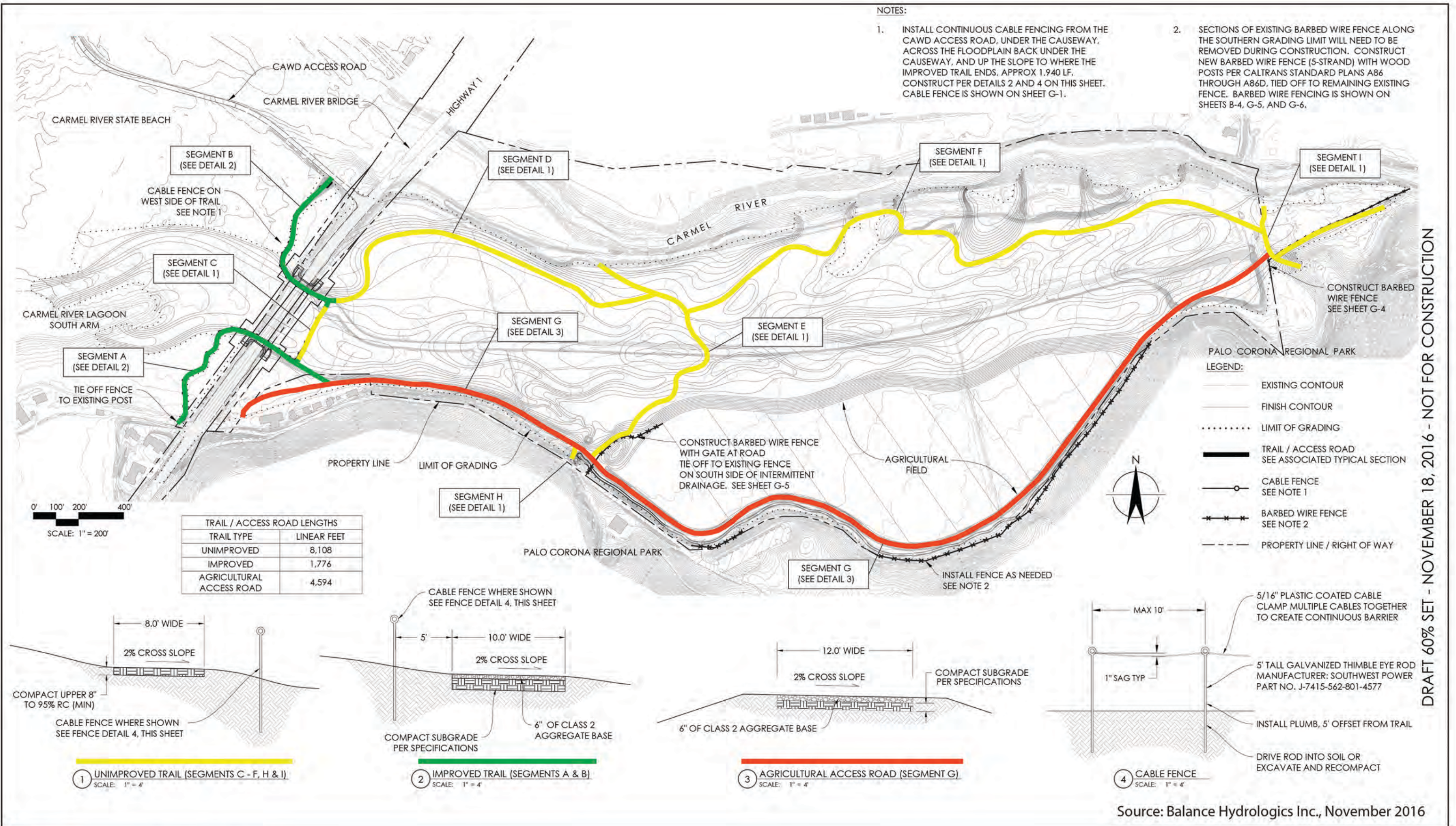


Source: Big Sur Land Trust and County of Monterey, May 2015



Conceptual Design Plan

March 2018



Appendix F

Project Consistency with Relevant Land Use Policies

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Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Carmel Area Land Use Plan		
2.2 Visual Resources		
2.2.3.8	Landscape screening and restoration shall consist of plant and tree species consistent with the surrounding vegetation. Screening on open grassy slopes and ridges should be avoided.	<i>Project consistent.</i> The Proposed Project is a landscape restoration project which will enhance both riparian and grassland vegetation consistent with the surrounding vegetation along the Carmel River riparian corridor and Palo Corona slopes.
2.2.3.10	The County encourages creative public and private efforts to restore the scenic beauty of visually impacted areas of the coast and will assist such efforts where possible.	<i>Project consistent.</i> The Project is a joint effort of Monterey County and the Big Sur Land Trust. Overall, the Project would enhance the site's visual character. The Project would retain the existing open space character of the Odello East site, which is no longer contemplated for development as described in Policy 4.4.3.F.2 in the Carmel Area Land Use Plan. The Project is a creative public and private effort to enhance the visual character of the area.
2.2.4.3	Residential, recreational and visitor-serving, and agricultural access shall be provided by existing roads and trails, where possible, to minimize further scarring of the landscape, particularly of the visible slopes.	<i>Project consistent.</i> The Project includes grading activities that would alter the site's existing topography to create the hydrologic and ecological characteristics necessary to support landscape and habitat restoration. New recreational trails will be provided across the project site. The Palo Corona Ranch visible frontal slopes are not part of the Project area. Temporary visual impacts would occur in connection with Project construction. These temporary construction-related impacts would not significantly disrupt views from SR 1.
2.2.4.7	Continued agricultural uses on the level land and open slopes along the Highway 1 corridor south Carmel River are considered compatible with the area's scenic character and, accordingly, shall be encouraged.	<i>Project consistent.</i> The Project would include a 23-acre agricultural preserve and ensure agricultural activity on the site in perpetuity.
2.2.4.12	Public highway facilities including signs, guardrails, and restrooms shall be of a design complementary to the scenic character of the Carmel area, with preference materials. Private driveway entrances, gates, roadside fences, mailboxes, and signs along Highway 1 should reflect the same design concept. Protective barrier by Caltrans should utilize boulders or walls or rock construction.	<i>Project consistent.</i> The final design of the proposed causeway will be required to comply with this policy, and follow the guidelines of the Caltrans Big Sur Coast Highway Management Plan that identifies designs and materials complementary to the scenic character of this segment of State Route-1 (SR-1).

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Carmel Area Land Use Plan		
2.3 Environmentally Sensitive Habitats		
2.3.3.1	Development, including vegetation removal, excavation, grading, filling, and the construction of roads and structures, shall be avoided in critical and sensitive habitat areas, riparian corridors, wetlands, sites of known rare and endangered species of plants and animals, rookeries and major roosting and haul-out sites, and other wildlife breeding or nursery areas identified as critical. Resource-dependent uses, including nature education and research, hunting, fishing, and aquaculture, shall be allowed within environmentally sensitive habitats and only if such uses will not cause significant disruption of habitat values. Only small-scale development necessary to support the resource-dependent uses may be located in sensitive habitat areas if they cannot feasibly be located elsewhere.	<i>Project consistent.</i> The Proposed Project has been designed to improve critical and sensitive habitat. Construction of the Project would result in removal of riparian habitat. However, removal of this habitat is necessary in order to create the hydrologic characteristics on the site to restore critical and sensitive habitats in addition to mitigated replacement of the removed vegetation areas, primarily due to levee removal and grading of new channels to conform to the south arm of the Carmel Lagoon and expand its restoration area. The Project would result in an increase of habitat features on-site by restoring the site to its historical function as part of the Carmel River floodplain. The Proposed Project would not result in the loss of critical habitat. The Proposed Project would result in temporary construction-related impacts to critical habitat due to the removal of the existing levees. Section 2.3.5 Threatened and Endangered Species provides additional information regarding critical habitat. Information concerning other sensitive habitat areas such as riparian and wetlands can be found in Section 2.3.1 Natural Communities and Section 2.3.2 Wetlands .
2.3.3.2	Land uses adjacent to locations of environmentally sensitive habitats shall be compatible with the long-term maintenance of the resource. New land uses shall be considered compatible only where they incorporate all site planning and design features needed to prevent habitat impacts and where they do not establish a precedent for continued land development which, on a cumulative basis, could degrade the resource.	<i>Project consistent.</i> The Proposed Project, including all Project components, is compatible with adjacent land uses. The Project site is surrounded by State Park land to the west, and property owned by the Monterey Peninsula Regional Park District to the south and east. The Carmel River is located to the north. Development potential contemplated on Odello East under Special Treatment Area policy 4.4.3.F.2 has been extinguished and avoided in order to facilitate the Project's restoration and enhancement of environmentally sensitive habitats.
2.3.3.7	Where development is permitted in or adjacent to environmentally sensitive habitat areas, the County, through the development review process, shall restrict the removal of indigenous vegetation and land disturbance (grading, excavation, paving, etc.) to that needed for the structural improvements themselves.	<i>Project consistent.</i> The Proposed Project would not result in the loss of critical habitat. The Proposed Project would result in temporary construction-related impacts to critical habitat due to the removal of the existing levees. The Project would, however, improve and expand critical habitat by restoring the site to its historical function as part of the Carmel River floodplain. Section 2.3.5 Threatened and Endangered Species provides additional information regarding critical habitat.

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Carmel Area Land Use Plan		
2.3.3.9	Where public access occurs or has been introduced in areas of environmentally sensitive habitats, it shall be limited to low-intensity recreational, scientific, or educational uses such as nature study and observation, education programs in which collecting is restricted, photography, and hiking. Access in such areas shall be controlled and confined to designated trails and paths. No access shall be approved which results in significant disruption of habitat.	<i>Project consistent.</i> The Project would include maintenance access roads that would also serve as public access trails. Public access would not be allowed in the areas where environmentally sensitive habitat areas would be restored on the site, would be limited to low-intensity uses, and would be controlled and confined to designated trails and paths.
2.3.3.10	The County should request advice and guidance from the California Department of Fish and Game in evaluating proposals for new or intensified land uses - including public access, recreation, and associated facilities - in or adjacent to environmentally sensitive habitat areas.	<i>Project consistent.</i> The County is coordinating with the California Department of Fish and Wildlife, in cooperation with the Big Sur Land Trust. DFW's advice and guidance would be requested on the long term adaptive management strategies for the restoration of environmentally sensitive habitat areas.
Terrestrial Plant Habitats		
2.3.4.1	To afford long-term protection from the impacts of existing or potential development, public or private acquisition of sites of rare, endangered, and sensitive plants shall be encouraged by the County.	<i>Project consistent.</i> The Odello East property was acquired by Clinton and Margaret Eastwood in 1995, who subsequently donated a 49 acre portion of the site to the Big Sur Land Trust (BSLT) in order to be retained in long term open space and agricultural uses, thereby eliminating the development potential for medium density residential and other uses that may have been allowed pursuant to Special Treatment Area Policy 4.4.3.F.2 in the Carmel Area Land Use Plan. Further, an agricultural and open space easement, held jointly by Monterey County and BSLT, was placed over the remainder of the Odello East site held in Eastwood ownership. Eastwood has donated an additional 82 acres of the Odello east property to BSLT for purposes of the Project.
2.3.4.2	Public access to areas of rare, endangered, and sensitive plants should be actively discouraged and directed to less sensitive areas. Where allowed, public access should be strictly managed. Otherwise, the area should be closed.	<i>Project consistent.</i> Public access to areas of rare, endangered, and sensitive plants would be actively discourage and directed to less sensitive areas. Public access would be managed to avoid restoration areas on the site, which will be phased.
Riparian Corridors and Other Terrestrial Wildlife Habitats		
2.3.4.1	Riparian plant communities shall be protected by establishing setbacks consisting of a 150-foot open space buffer zone on each side of the bank of perennial streams and 50 feet on each side of the bank of intermittent streams, or the extent of riparian vegetation,	<i>Project consistent.</i> The Proposed Project would result in temporary construction-related impacts to riparian vegetation due to the removal of portions of the existing levees. The Project would restore the historical function of the Carmel River floodplain on the south bank of the river, and avoids the

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Carmel Area Land Use Plan		
	whichever is greater. No new development, including structural flood control projects, shall be allowed within the riparian corridor. However, improvements to existing dikes and levees shall be allowed if riparian vegetation damage can be minimized and at least an equivalent amount and quality of replacement vegetation is planted. In addition, exceptions may be made for carefully sited recreational trails. The setback requirement may be modified if it can be demonstrated that a narrower corridor is sufficient to protect existing riparian vegetation. Riparian vegetation is an association of plant species which typically grows adjacent to freshwater courses and needs or tolerates a higher level of soil moisture than dryer upland vegetation.	need for structural flood control improvements as identified in Monterey County's 2014 County Service Area 50 (CSA-50) Flood Control and Stormwater Management Report. Construction of the Proposed Project would result in the removal of riparian habitat. The Project would ultimately enhance the ecological function of the site by restoring connectivity to the main channel of the Carmel River thereby providing the hydrodynamic conditions necessary to support riparian habitat. No new development is proposed that would need to be setback from riparian vegetation.
2.3.4.3	The County should encourage a program of riparian woodland restoration as a part of the development and environmental review process. As a condition of approval of projects adjacent to riparian corridors, the County, where appropriate, should require landscaping with native riparian species.	<i>Project consistent.</i> The Proposed Project would restore riparian woodland habitats in portions of the Project site and would use of native plant species for re-planting efforts. Native re-planting will occur to the extent necessary to support the native colonization of the site. On-going invasive plant management will occur as part of the long-term maintenance of the site in order to encourage natural colonization. Please refer to the RMP for more information on native species proposed for re-planting.
2.3.4.4	To protect important wildlife habitat, all off-road recreational vehicle activity should be discouraged within riparian corridors and public access should be limited to designated areas. Accordingly, roads and trails should be sited to avoid impacts to riparian habitat.	<i>Project consistent.</i> No off-road recreational vehicle activities would be allowed within the Project area, and public access would be limited to designated areas. The Proposed Project's maintenance roads and trails would be sited to avoid impacts to riparian habitat. In addition, the construction of the causeway would provide an important wildlife corridor that would improve connectivity between the Project site and Carmel River Lagoon.
Wetlands and Marine Habitats		
2.3.4.1	A setback of 100 feet from the edge of all coastal wetlands shall be provided and maintained in open space use. No new development shall be allowed in this setback area. The edge of wetlands shall be pursuant to policy 2.3.3.5, based on the wetlands definition in policy 2.3.3.1 and using the U.S. Fish and Wildlife Service's (USFWS)	<i>Project consistent:</i> Environmentally sensitive habitat areas such as wetland areas potentially under the jurisdiction of the USACE and the CCC (see Section 2.3.2 Wetland and Other Waters of this IS/EA for additional information) and riparian are mapped within the Project site. Wetland areas would be temporarily impacted as a result of the construction phase of the

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Carmel Area Land Use Plan		
	classification of Wetlands and Deep Water Habitats of the United States.	Project. However, the Project will result in expanded areas of coastal wetland and riparian habitat post-construction to be maintained in open space use.
2.3.4.2	The County shall assist the maintenance and protection of the Carmel River lagoon and marsh by encouraging the retention of sufficient instream flows and controlling erosion and sedimentation from surrounding and upstream areas.	<i>Project consistent.</i> Sections 2.2.1 Hydrology and Floodplain and 2.2.3 Geology, Soils, Seismicity, and Topography of this IS/EA evaluate the Project's potential impacts related to geology and hydrology as a result of construction and function of the Project. Design elements of the Project have been included avoid or reduce impacts to the Carmel River Lagoon and marsh. Specifically, mitigation has been identified to reduce downstream sedimentation associated with the removal of the existing levees and also minimize construction generated erosion. These impacts were identified as less-than-significant. Moreover, the function of the Project would improve water recharge and increase instream flows to the Carmel River Lagoon south arm as part of natural floodplain processes. Additionally, appropriate mitigation measures have been identified, where necessary, to reduce potential impacts due to construction-related activities.
2.3.4.3	The County shall seek designation of the Carmel River lagoon and marsh as a natural preserve within the State Park Systems as recommended by the Point Lobos - Carmel River State Beach General Plan. Eventual management by the Department of Parks and Recreation shall include measures to limit public access to this natural preserve and to retain the present character of the marsh and lagoon. Particular attention should be given to the control of sedimentation and "filling-in" of this wetlands area.	<i>Project consistent.</i> The California Department of Parks and Recreation (State Parks) has designated portions of the Carmel River Lagoon as a natural reserve. This designation would not be effected by the Project. Mitigation has been identified to reduce downstream sedimentation associated with the removal of the existing levees and also minimize construction generated erosion within wetland areas. These impacts are identified as less-than-significant.
2.4 WATER AND MARINE RESOURCES		
2.4.3.2	New development including access roads shall be sited, designed and constructed to minimize runoff, erosion, and resulting sedimentation. Land divisions shall be designed to minimize the need to clear erodable slopes during subsequent development. Runoff volumes and rates should be maintained at pre-development levels, unless provisions to implement this result in greater	<i>Project consistent.</i> No land divisions are proposed as part of the Project. The Project would improve conveyance of stormwater runoff into a restored floodplain area and away from developed and impervious areas. Sections 2.2.1 Hydrology and Floodplain and 2.2.3 Geology, Soils, Seismicity, and Topography of this IS/EA evaluate the Project's potential impacts related to geology and hydrology as a result of construction and function of the Project.

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Carmel Area Land Use Plan		
	environmental damage.	Appropriate mitigation measures have been identified, where necessary, to reduce potential impacts due to construction-related activities. Specifically, mitigation has been identified to reduce downstream sedimentation associated with the removal of the existing levees and also minimize construction generated erosion. These impacts were identified as less-than-significant.
<i>C. Erosion and Sedimentation Control</i>		
2.4.4.C.1	The effects of all new development proposals or intensification of land use activities or water uses on the natural character and values of the Carmel coasts streams will be specifically considered in all land use decisions. Subjects to be addressed in such evaluations include protection of water quantity and quality, wildlife and fish habitat, and recreational and scenic values. Land use proposals determined to pose unacceptable impacts to the natural integrity of the stream must be modified accordingly. The County should request technical assistance from the State Department of Fish and Game in determining effects on fish and wildlife habitat and appropriate mitigation measures.	<i>Project consistent.</i> The Project objectives include improving water quality, increasing groundwater recharge and restoring critical habitats. The Project would restore hydrologic function of the southern floodplain of the Carmel River. Sections 2.2.1 Hydrology and Floodplain and 2.2.3 Geology, Soils, Seismicity, and Topography of this IS/EA evaluate the Project's potential impacts related to geology and hydrology as a result of construction and function of the Project. Design elements of the Project will avoid or reduce impacts from the function of the Project. The USFWS and DFW will provide assistance and guidance on the habitat restoration.
2.4.4.C.3	Sediment basins (e.g., debris basins, desilting basins, or silt traps) shall be installed in conjunction with the initial grading operations and maintained through the development process to remove sediment and run-off waters. All sediment should be retained onsite.	<i>Project consistent.</i> Sections 2.2.1 Hydrology and Floodplain and 2.2.3 Geology, Soils, Seismicity, and Topography of this IS/EA evaluate the Project's potential impacts related to geology and hydrology as a result of construction and function of the Project. All sediment will be retained on site. The Project includes several sediment sequestration depressions in the grading plan for the proposed floodplain channels; however they are not proposed to be conventional sediment basins typical within developed areas.
2.4.4.C.4	The native vegetation cover, temporary vegetation, seeding, mulching, or other suitable stabilization methods shall be used to protect soils subject to erosion that have been disturbed during grading or development. All cut and fill slopes shall be stabilized as soon as possible with planting of native annual grasses and shrubs, appropriate non-native plants, or with approved landscaping practices.	<i>Project consistent.</i> The Project represents a voluntary restoration project being undertaken by the BSLT in order to improve resource conservation on-site, to reduce flooding hazards to the surrounding community by restoring natural floodplain conveyance, and to restore the site to its natural character as part of the river floodplain. The Proposed Project entails the use of native plant species as part of re-planting efforts. Native re-planting will occur to the extent necessary to support the native colonization of the site. On-going invasive plant

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Carmel Area Land Use Plan		
		management will occur as part of the long-term maintenance of the site in order to encourage natural colonization. Please refer to the RMP for more information on native species proposed for re-planting.
2.4.4.C.5	Provisions shall be made to conduct, surface water to storm drains or suitable watercourses to prevent erosion. Onsite drainage devices shall be designed to accommodate increased run-off resulting from site modification. Where appropriate, on-site retention of stormwater should be required.	<i>Project consistent.</i> The Project will result in the lateral dispersal of a portion of the Carmel River onto its historic floodplain during high flow events. This will allow the water to spread out over natural pervious surfaces, providing for significantly increased percolation compared to pre-project and ensuring compliance with this policy. The Project would restore the site to its historical capacity as part of the Carmel River floodplain and would restore the site's hydrologic connectivity with the main channel of the Carmel River and adjacent floodplain.
2.6 AGRICULTURE		
2.6.2	Key Policy: The County shall support the preservation of prime agricultural land for agricultural use. Development adjacent to prime farmland shall be planned to be compatible with the continued agricultural use of the land. Ranching activities should also be encouraged as a desirable agricultural pursuit and as a traditional use of upland areas.	<i>Project consistent.</i> The project would include a 23-acre agricultural preserve and ensure agricultural activity on the site in perpetuity. The floodplain restoration would retain open spaces uses adjacent to the agricultural preserve, and would not conflict with ranching activities on the adjacent frontal slopes of Palo Corona Regional Park.
2.6.3.1	Prime agricultural lands, including public lands but excluding Odello east, shall be designated for agricultural use and should be retained in large parcels. Development on these agricultural lands shall be limited to buildings, including the existing amount of farm residences, required for agricultural activities and uses.	<i>Project consistent.</i> The majority of the Project site is proposed on the Odello east property that is excluded from this policy. The project would include a 23-acre agricultural preserve on Odello east and ensure agricultural activity on the site in perpetuity. The portion of the Project on Odello west expands the area of the Carmel River Lagoon south arm that was restored in 2004. No new buildings are included in the Project.
2.6.4.1	Well-defined buffer zones should be established adjacent to agricultural areas to protect agriculture from potential impacts of adjacent development and to mitigate against the effects of agricultural operations on adjacent land uses.	<i>Project consistent.</i> The Project would retain the areas adjacent to agricultural activities on the 23-acre agricultural preserve in open space. No new development is proposed that would impact agricultural operations.

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Carmel Area Land Use Plan		
2.6.4.2	The agricultural use of the entire State-owned prime agricultural parcel should be continued. In order to protect the scenic views from Highway 1 to the ocean, the agricultural usage should continue to be a low type of crop such as artichokes.	<i>Project consistent.</i> No portion of the Odello West site dedicated to agricultural uses would be impacted by the Project.
2.7 HAZARDS		
2.7.2	Key Policy: Land uses and development in areas of high geologic, flood, and fire hazard shall be carefully regulated through the best available planning practices in order to minimize risks to life and property and damage to the natural environment.	<i>Project consistent.</i> The Proposed Project would be retained in open space and would not expose people or structures to significant hazards due to ground shaking. The proposed causeway will be completed in accordance with a design-level geotechnical analysis and liquefaction hazards analysis consistent with the recommendations of the Preliminary Geotechnical Report. Development in accordance with a design-level geotechnical analysis will ensure potential affects from ground shaking, liquefaction, landslides, and other geologic hazards will be reduced in accordance with applicable seismic safety standards. The Project objectives include reducing the risks to life and property in the developed areas on the north bank of the Carmel River as well as flood risks to SR-1.
2.7.3.2	In high hazard areas, low-intensity or open space uses will be encouraged as the most appropriate land uses. Critical facilities (fire, police hospitals, emergency communication facilities, bridges and overpasses, public utilities, dams), heavy industry involving the manufacture or storage of explosive or toxic materials, and high occupancy structures (high-rise apartments, schools, hotels, etc.) shall not be permitted in high hazard areas unless consistent with all other Plan policies. Critical facilities may be allowed in floodplains if part of a flood management program per policy 2.7.4. Flood 3. Development may be permitted in areas by recent alluvium so long as appropriate engineering standards are employed to mitigate any adverse effects.	<i>Project consistent.</i> The Proposed Project would retain open spaces uses on the Project site and does not entail the construction of any habitable structures. Project Construction does, however, include the construction of an elevated causeway that would be considered a critical facility on SR-1 and is identified as part of the CSA-50 flood management program. Preliminary analyses indicate that the proposed causeway may be susceptible to liquefaction related hazards. Mitigation has been identified in this IS/EA (please refer to Section 2.2.3 Geology, Soils, Seismicity, and Topography) to ensure that the final design of the proposed causeway is completed in accordance with a design-level geotechnical and liquefaction hazard analyses. Final foundation design will be required to comply with the findings of these reports. The Project would not expose people and/or property to significant hazards associated with dam or levee failure. Appropriate measures have been

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Carmel Area Land Use Plan		
		incorporated as mitigation to ensure that the remnant levee margins are stabilized following Project construction to reduce potential risks of channel avulsion and failure of the remnant non-structural levees.
<i>Geologic Hazards</i>		
2.7.4.1	All development shall be sited and designed to conform to site topography and to minimize grading and other site preparation activities. Applications for grading and building permits and applications for subdivisions shall be reviewed for potential impacts to onsite and offsite development arising from geologic and seismic hazards and erosion. Mitigation measures shall be required as necessary.	<p><i>Project consistent.</i> The Project includes grading activities that would alter the site's existing topography to create the hydrologic and ecological characteristics necessary to support landscape and habitat restoration. No subdivision of land is proposed as part of the Project.</p> <p>The Proposed Project would replace a segment of the existing SR 1 embankment with an elevated causeway. Mitigation has been identified in this Initial Study in order to reduce potential geologic hazards consistent with the recommendations of the preliminary geotechnical analysis. The Project site is not located in an area that is at a high risk from fault rupture. Mitigation has been identified in Section 2.2.3 Geology, Soils, Seismicity, and Topography to ensure that the final design of the proposed causeway will be completed in accordance with a design-level analysis. The Project site is susceptible to liquefaction hazards. Final design of the causeway will be required to be completed in accordance with a design level geotechnical and liquefaction hazard analysis consistent with the recommendations of the Preliminary Geotechnical Report and supporting engineering analyses.</p> <p>The Proposed Project will implement erosion control measures in order to reduce potential erosion related impacts as required pursuant to Chapter 16.08 of the Monterey County Code, Project-specific SWPPP, and identified BMPs.</p>
<i>Flood Hazards</i>		
2.7.4.1	The County's primary means of minimizing risk from flood hazards shall be through land use planning. Open space uses such as agriculture, passive to low intensity recreation, and wildlife habitat are considered acceptable land uses in the 100-year floodplain.	<i>Project consistent.</i> The Proposed Project would retain the 100-year floodplain on the south bank of the Carmel River in open space uses. Project development would not result in the construction of habitable structures within the floodplain. The Project would reduce existing flooding hazards to the north overbank area while enhancing the ecological value of the site and retaining a

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Carmel Area Land Use Plan		
		portion of the site in agricultural uses.
2.7.4.3	<p>The development of a flood-plain management program for the lower Carmel River Valley shall emphasize the use of nonstructural methods of flood protection which do not involve substantial alterations of the river and shall seek to preserve the river's natural plant and wildlife habitat and aesthetic values. If, after thorough study, it is concluded that structural means of flood control are necessary to protect the lower valley, then such structural means shall be allowed only if the following criteria are met:</p> <ul style="list-style-type: none"> - facilities would be located outside the zone of riparian vegetation. - erosion and sedimentation from construction would be adequately minimized and controlled. - plant and wildlife habitat, including steelhead trout habitat, would be maintained and protected both along the river and in the marsh and lagoon. - the aesthetic and scenic values of the lower river would be maintained. <p>Excavation, dredging and vegetation removal would be allowed only within the scope of the flood management program and only if no other method for protecting existing structures in the floodplain is, feasible and where such protection is necessary for public safety or to protect existing development and only if the best mitigation measures are incorporated into the program including protection of the fish habitat. Maintenance of the river channel would be allowed, including removal of fallen trees and other such obstruction, in order to allow free flow of the river.</p>	<p><i>Project consistent.</i> The Project was identified in the 2014 CSA-50 Flood Control and Stormwater Management study and would avoid the need for a number of structural improvements to the existing levees. The Project would implement non-structural methods of flood control by restoring the hydrologic connectivity of the Project site with the main channel of the river and the adjacent floodplain located west of SR 1, as discussed in Section 2.2.1 Hydrology and Floodplain and Section 2.2.2 Water Quality and Storm Water Runoff. In addition, the Project would also reduce flooding hazards to SR 1 by constructing an elevated causeway to allow floodwater to flow under SR 1. The Project does not involve substantial alterations to the existing river main stem channel or the existing south arm of the Carmel River Lagoon. The Project would restore and enhance riparian vegetation and other plant and wildlife habitat. No dredging is proposed in existing wetlands or the river corridor.</p>
2.7.4.5	Where development is allowed or structural flood control measures are required, restoration of waterway banks and disturbed areas to a natural vegetated appearance shall be required. Landscaping themes shall emphasize the use of native plants which are appropriate to	<p><i>Project consistent.</i> The Proposed Project would implement this policy. It consists of a floodplain restoration Project that would improve the Project site's hydrologic and ecological function as part of the Carmel River floodplain. The Proposed Project would restore the landscape with riparian and</p>

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	riparian corridors. Revegetation of disturbed riparian corridors by planting of native trees shall be encouraged due to their role in absorbing and channeling the force of floods away from adjacent banks.	grassland habitats would use of native plant species for re-planting efforts. Native re-planting will occur to the extent necessary to support the native colonization of the site. On-going invasive plant management will occur as part of the long-term maintenance of the site in order to encourage natural colonization. Please refer to the RMP for more information on native species proposed for re-planting.
2.8 ARCHAEOLOGICAL RESOURCES		
2.8.3.1	Monterey County shall encourage the timely identification and evaluation of archaeological, historical and paleontological resources in order that these resources be given consideration during the conceptual design phase of land-use planning or project development.	<i>Project consistent.</i> An Archaeological Survey Report and Paleontology Survey Report were prepared in connection with the Proposed Project. Please refer to Section 2.1.7 Cultural Resources and Section 2.2.4 Paleontology for a detailed discussion of the Project's potential impacts to archaeological, cultural and paleontological resources.
2.8.3.2	Whenever development is to occur in the coastal zone, the Archaeological Site Survey Office or other appropriate authority shall be contacted to determine whether the property has received an archaeological survey. If not and the parcel are in an area of high archaeological sensitivity, such a survey shall be conducted to determine if an archaeological site exists. The Archaeological Survey should describe the sensitivity of the site and recommend appropriate levels of development and mitigation consistent with the site's need for protection.	<i>Project consistent.</i> An Archaeological Survey Report was prepared in connection with the Proposed Project. Please refer to Section 2.1.7 Cultural Resources for a detailed discussion and findings of the Project's potential impacts to archaeological and/or cultural resources and appropriate mitigation measures.
2.8.3.4	When developments are proposed for parcels where archaeological or other cultural sites are located, project design shall be required which avoids or substantially minimizes impacts to such cultural sites. To this end, emphasis should be placed on preserving the entire site rather than on excavation of the resource, particularly where the site has potential religious significance.	<i>Project consistent.</i> The Proposed Project, as designed and mitigated, will avoid impacts to sensitive archaeological sites. The Project will not cause a substantial adverse impact to a Native American resource. Mitigation has been incorporated to ensure that any unknown or buried remains are not disturbed in connection with Project grading, as well as for the protection of tribal cultural resources.
3.1 TRANSPORTATION		
3.1.2	Key Policy - Monterey County will take a strong and active role in guiding future use and development of Highway 1 and all categories	<i>Project consistent.</i> The Proposed Project would replace a segment of the existing SR 1 embankment with an elevated causeway. Monterey County is the

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	of land use related to and dependent on the highway. State Route One south of the Carmel River will remain a two-lane highway.	Project Sponsor in a cooperative agreement with Caltrans for this component of the Project. SR-1 will remain a two lane highway through the Project area. The Project areas adjacent to SR-1 on both the east and west sides will be retained in open space land uses.
3.1.3.5	All highway improvements shall be consistent with the retention of Highway 1 as a scenic two- lane road south of the Carmel River. This policy is not intended to preclude widening of the Carmel River bridge, if necessary, or providing adequate access to properties in the vicinity of Point Lobos. The overall objective for Highway 1 should be to maintain the highest possible standard of scenic quality in management and maintenance activities carried on within the State right-of-way. Bike lanes and left turn lanes are permitted.	<i>Project consistent.</i> The Proposed Project would be consistent with the retention of SR-1 as a scenic two-lane road through the Project area. Improvements to SR-1 would be consistent with the Caltrans Big Sur Coast Highway Management Plan, which has been adopted to guide implementation of this policy. The project would provide shoulder widths to accommodate a Class III bike lane in this stretch of SR-1, and a left hand turn lane would be included to provide access to the Odello east portions of the project site as well as Palo Corona Regional Park and the existing farm houses and structures east of SR-1.
4. LAND USE AND DEVELOPMENT		
4.4.1	Key Policy: All future development within the Carmel Coastal Segment must be clearly consistent with and subordinate to the foremost priority of protecting the area's scenic beauty and natural resource values.	<i>Project consistent.</i> The Project site is surrounded by State Park land to the west, and property owned by the Monterey Peninsula Regional Park District to the south and east. The Carmel River is located to the north. Overall, the Project would enhance the site's visual character by retaining the site in open space and agricultural land uses, and restoring the site's hydrologic and ecological function as part of the Carmel River floodplain. The Project would not adversely affect the existing visual character of the area.
4.4.2.2	Agricultural activities, passive and low-intensity recreation and rural residential use of the Carmel area's large private landholdings are the most appropriate land uses for these areas.	<i>Project consistent.</i> The Project would include open space, agriculture and low-intensity recreation land uses.
4.4.2.7	All development and use of the land, whether public or private, must conform to the policies of this plan and must meet the same resource protection standards set forth in the plan. Where conflicts occur between one or more provisions of the plan, such conflicts shall be resolved in a manner which on the whole is the most protective of significant coastal resources.	<i>Project consistent.</i> The Proposed Project would conform to the policies of this plan and implement its resource protection standards. The Project would implement floodplain restoration and protect sensitive coastal resources most protective than would have been feasible if the Odello east property had been developed pursuant to the Special Treatment Area policy 4.4.3.F.2 of the Carmel Land Use Plan.

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4.4.3.B.2	<p><i>Agriculture</i> – The agricultural land west of Highway 1 in public ownership shall be designated “Agricultural Preservation” in order to conserve the land for exclusive agricultural use. The agricultural land east of Highway 1 shall be designated “Agricultural Conservation” in order to protect the greater portion of the land for long-term agricultural use while allowing conversion of a 54 acre area to other uses which will promote the owner’s ability to support continued agricultural operations.</p>	<p><i>Project consistent.</i> The site is currently designated for Agricultural Preservation and Agricultural Conservation within the Carmel Area LUP.</p> <p>Per the 2002 Initial Study/Mitigated Negative Declaration prepared for the Carmel River State Beach Lagoon Restoration Project, it was also found to be consistent with the State Park General Plan which was amended in 1996, designating the Carmel River State Beach property for riparian and wetland habitat. The Final IS/MND further stated that “Following the 1995 floods, levees that protected the artichoke fields on the proposed project site were removed to reduce the risk of future flooding in the Mission Fields neighborhood on the north side of the Carmel River. The Odello family attempted to resume farming the site, but after losing their crop again to floods in 1998, determined that artichoke farming on the site was no longer feasible.” The Proposed Project would enhance the Carmel River Lagoon Restoration Project implemented in 2004 and would expand restoration on 28 acres of Odello West. No portion of the Odello West site dedicated to agricultural uses would be impacted by the Project.</p> <p>The Project would retain a 23-acre agricultural preserve on the east side of SR-1, while restoring the remainder of the site to floodplain habitats. This policy pre-dates the restoration plans developed for the Project site and Odello west as a result of the flood events in 1995 and 1998, as well as the extinguishment of the development potential on the east side of SR-1 through the Eastwood purchase of the 131 acre property from the Odello family and donation of the 49 acres of the medium density residential development area to the Big Sur Land Trust. Further, agricultural and open space easements were subsequently placed on the Odello east properties.</p>
4.4.3.C.2	<p><i>Recreation</i> - Use of the Gowen cypress and Monterey cypress areas of Point Lobos State Reserve and of the Carmel River lagoon and marsh shall be limited to very low-intensity recreational and educational uses such as walking, nature study, photography and</p>	<p><i>Project consistent.</i> The Project would restore additional areas of the Carmel River Lagoon and marsh. Recreational uses and designation of trails, access points and interpretative facilities on Carmel River State Beach would be determined by the Carmel Area State Parks General Plan update, currently</p>

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	scenic viewing. Facilities shall be limited to properly sited and designed trails, access points and interpretive and directional signs. There shall be no public access into the marsh.	under preparation and are not a part of the proposed Project.
4.4.3.D.8	Recreation and visitor-serving commercial development on the Odello parcel may be permitted. Allowable uses consist of a recreational complex, and/or a farmers market and restaurant. Specific provisions are set forth in Section F. Special Treatment.	<i>Project consistent.</i> No visitor-serving commercial development is proposed on the Odello parcel as part of the proposed Project. The Project would include low intensity recreation uses on new public access trails and would enhance recreational uses by providing connectivity to adjacent public lands on Carmel River State Beach and Palo Corona Regional Park.
4.4.3.F.2	<p>The Odello parcel shall be designated for "Special Treatment" on the land use map. The following policies, when used with those applicable policies in Section 2.6.2, shall specifically govern the type, intensity and location of uses within this Special Treatment Area.</p> <ul style="list-style-type: none"> a. Residential use (162 units at a density of 3 units per acre) is allowed on 54 acres of the property against the Palo Corona frontal slopes. b. Development of a farmers market and restaurant adjacent to Highway 1 may be permissible. Parking facilities must be screened and must comply to the greatest extent possible to the viewshed policies of the plan. c. Sufficient low-income employee housing must be provided to replace existing units which may be demolished and to serve new employees required by new development on the property. d. Development of a recreational complex consisting of tennis and/or racquetball courts, swimming pool, etc. to serve the general public and residents of new residential development may be permitted against the Palo Corona frontal slopes. e. Public access along the existing levee shall be provided. 	<i>Project consistent.</i> While Carmel Area LUP Policy 4.4.3.F.2 designates the Odello East property for "Special Treatment" and would allow expanded development opportunities on the site, this policy does not require or mandate a greater intensity of development. The proposed development of the site for habitat protection, flood control, and long-term preservation of agricultural production is consistent with other LUP policies regarding resource conservation, flood protection, environmentally sensitive habitat, and visual resources. These other LUP policies support and encourage the proposed re-use of the Odello East property. The Odello East property is located within the 100-year floodplain of the Carmel River, and under the Flood Hazards section of the LUP, policies encourage the use of this area for open space, agriculture, passive to low intensity recreation, and wildlife habitat (Policy 2.7.4.1). Furthermore, Policy 2.7.4.3 encourages the development of a floodplain management program for the lower Carmel River Valley that would emphasize the use of nonstructural methods of flood protection which do not involve substantial alterations of the river and shall seek to preserve the river's natural plant and wildlife habitat and aesthetic values. The CRFREE project would be a key component of floodplain management for the lower Carmel River Valley area. The proposed habitat protection is supported by LUP Policies 2.3.3.2 and 2.3.3.4, which direct that land uses adjacent to locations of environmentally sensitive habitats (i.e., the Carmel River) be compatible with the long-term maintenance of the resource and not degrade the resource, and retention of contiguous areas of undisturbed land in open space. LUP Policies

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		4.5.D and E support the preservation and conservation of viable agricultural land capable of long-term productivity, specifically identify the Odello parcel, and also allow the use of agricultural lands for flood overflow.
4.4.3.G.1	The development of large properties (over 50 acres) and ranches should be guided by an overall management plan. The plan should reflect the long-range open space values, and low- intensity recreation, and how development of the property will be phased over time.	<i>Project consistent.</i> The Project would retain the site in open space. Implementation of the Restoration Management Plan would occur in phases and by guided by long term adaptive management strategies.
4.4.3.G.4	Owners of large properties should carefully consider tax benefits available through working with non-profit conservation agencies or trusts, such as the California Coastal Conservancy, the Big Sur Land Trust, the Trust for Public Lands, and the Nature Conservancy.	<i>Project consistent.</i> The Eastwoods donated a 49-acre portion of the Odello east property to the BSLT in 1997, and is donating an additional 82 acres to BSLT for the purposes of the Project.
4.5.E	<i>Agricultural Conservation</i> - Conservation of viable agricultural land is emphasized. This designation is applied to the Odello parcel where there are both prime agricultural soils in agricultural production and less or non-productive soils. Emphasis is given to the protection of agricultural land capable of long-term productivity.	<i>Project consistent.</i> The Project includes a 23 acre Agricultural Preserve that would be elevated out of the 100-year floodplain and retained in an area of prime agricultural soils.
5.3 PUBLIC ACCESS		
5.3.1	Key Policy: Public access shall be protected and provided where consistent with public safety needs and the need to protect the rights of private property owners and natural resource areas from overuse.	<i>Project consistent.</i> The Project would provide public access trails on dedicated maintenance access roads and would restrict public access to protect public safety and sensitive resources.
5.3.3.3.d	The water quality of Carmel River, other riparian corridors, and Carmel Bay should be protected by siting and designing improvements to public access areas in a manner compatible with these sensitive resources. Similarly, private water supplies should be protected by locating accessways an adequate distance from surface water, springs, and wells.	<i>Project consistent.</i> The locations of the proposed maintenance access roads and trails are sited in a manner consistent with the changes in topography on the project site and would restrict public access within the restoration areas during periods of plant establishment. No public access would be allowed to wells within the Project site, or to the river riparian corridor.

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5.3.3.5.b	Where public agencies develop accessways through or adjacent to land in agricultural uses, these uses should be fully protected from disturbance from human activities. A full range of mitigation measures should be used including buffer strips, berms, fences, and periodic closures.	<i>Project consistent.</i> Public access trails for low-intensity hiking and walking would be sited away from the 23 acre agricultural preserve or would be buffered by fencing or periodic closures, as needed.
5.3.3.7.a	All plans to improve existing trails or create new ones should ensure that environmentally sensitive habitats are protected from overuse. Measures to prevent or reduce impacts will be used, including: <ul style="list-style-type: none"> - routing or re-routing of trails to avoid these habitats. - design features to screen or separate trails and destination points from sensitive resources. revegetation projects, sediment basins, and other site features. - restriction of the number of access points into an area. - 10 foot wide easements or dedications. 	<i>Project consistent.</i> The locations of the proposed maintenance access roads and trails are sited in a manner consistent with the changes in topography on the project site and would restrict public access within the restoration areas during periods of plant establishment. No public access would be allowed within environmental sensitive habitat restoration areas.

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20.146.030.A.1.	Visual Resource Development Standards – Public Viewshed Determination	<i>Project consistent.</i> The Project is within the public viewshed. No buildings are proposed.
20.146.030.B	Visual Resource Development Standards – Undergrounding Utilities Requirement	<i>Project consistent.</i> Within the SR-1 right-of-way, utilities would be placed underground. Existing overhead utilities east of SR-1 would be placed underground if riparian plantings will not effectively screen the utilities. If they cannot be effectively screened they will be placed underground.
20.146.030.C.1.a-d, 2 - 9	Visual Resource Development Standards – General Development Standards.	<i>Project consistent.</i> No above ground structures or subdivisions are proposed as part of the Project.
20.146.030.C.1.e	Visual Resource Development Standards – General Development Standards, Landscape screening.	<i>Project consistent.</i> The Proposed Project is a landscape restoration project which will enhance both riparian and grassland vegetation consistent with the surrounding vegetation along the Carmel River riparian corridor and Palo Corona slopes. The Project includes grading activities that would alter the site's existing topography to create the hydrologic and ecological characteristics necessary to support landscape and habitat restoration. No development is proposed that would require screening. The Project would have a beneficial visual impact.
20.146.030.D.1	Visual Resource Development Standards – Specific Development Standards, Roads	<i>Project consistent.</i> The Project includes grading activities that would alter the site's existing topography to create the hydrologic and ecological characteristics necessary to support landscape and habitat restoration. New maintenance roads that will also serve as recreational trails will be provided across the project site. The new road alignments are design to conform to the proposed restoration area grading plan, with modified topography to accommodate two off stream channels across the floodplain as well as higher ground islands and depressions to diversify the habitat restoration areas. Existing roads will be removed as part of the floodplain restoration plan. New road/trail alignments would be needed to implement and maintain the restoration areas. The Project would not occur on steep slopes. All permits would be obtained prior to Project construction.

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20.146.030.D.3a	Visual Resource Development Standards – Specific Development Standards, Public Highway Facilities	<i>Project consistent.</i> The Proposed Project would be consistent with the Caltrans Big Sur Coast Highway Management Plan, which has been adopted to guide design of highway facilities complimentary to the scenic character of the Project site area.
20.146.040.A	Environmentally Sensitive Habitats Development Standards, Biological Survey Requirements.	<i>Project consistent.</i> Required biological studies have been prepared as part of the IS/MND for the Project. Section 2.3 Biological Environment contains a detailed discussion of the Project’s potential impacts to biological resources. The analysis was based on field reconnaissance performed by DD&A Natural Resource Division Biologists, an evaluation of on-site habitats, and provides mitigation to avoid, reduce, or mitigate impacts. In addition, technical supporting biological documents were also prepared in connection with the Proposed Project. These documents are included in of this IS/EA.
20.146.040.B.2	Environmentally Sensitive Habitats Development Standards, General Development Standards	<i>Project consistent.</i> The Project would result in an increase of habitat features on-site by restoring the site to its historical function as part of the Carmel River floodplain. The Proposed Project would result in temporary construction-related impacts to critical habitat due to the removal of the existing levees. Section 2.3.5 Threatened and Endangered Species provides additional information regarding critical habitat.
20.146.040.B.6	Environmentally Sensitive Habitats Development Standards, General Development Standards	<i>Project consistent.</i> The County is coordinating with the California Department of Fish and Wildlife, in cooperation with the Big Sur Land Trust. DFW’s advice and guidance would be requested on the long term adaptive management strategies for the restoration of environmentally sensitive habitat areas.
20.146.040.B.7	Environmentally Sensitive Habitats Development Standards, General Development Standards	<i>Project consistent.</i> Permanent conservation easements were placed on the Odello east portion of the Project site in 1997 and 1998. Grant agreements for the Project from the California Department of Water Resources and the USFWS require a deed restriction or easement to be placed on the Project site to ensure long term maintenance of the floodplain restoration area. New or amended permanent conservation easements would be placed over the entire Project site prior to completion of the Project.
20.146.040.B.8	Environmentally Sensitive Habitats Development Standards, General Development Standards	<i>Project consistent.</i> The Proposed Project would not result in the loss of critical habitat. The Proposed Project would result in temporary construction-related impacts to critical habitat due to the removal of the existing levees. The Project would, however, improve and expand critical

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		habitat by restoring the site to its historical function as part of the Carmel River floodplain. Section 2.3.5 Threatened and Endangered Species provides additional information regarding critical habitat.
20.146.040.B.9, 11	Environmentally Sensitive Habitats Development Standards, General Development Standards	<i>Project consistent.</i> The locations of the proposed maintenance access roads and trails are sited in a manner consistent with the changes in topography on the project site and would restrict public access within the restoration areas during periods of plant establishment. No public access would be allowed within environmental sensitive habitat restoration areas.
20.146.040.B.10	Environmentally Sensitive Habitats Development Standards, General Development Standards	<i>Project consistent.</i> The Proposed Project would restore riparian habitats in portions of the Project site and would use of native plant species for re-planting efforts. Native re-planting will occur to the extent necessary to support the native colonization of the site.
20.146.040.C.2.b-e	Environmentally Sensitive Habitats Development Standards, Specific Development Standards, Riparian Corridors and other Terrestrial Wildlife Habitats	<i>Project consistent.</i> Grant agreements require a deed restriction or conservation easement to be placed on the entire Project site to ensure long term maintenance of the floodplain restoration area and open space uses. The Proposed Project would result in temporary construction-related impacts to riparian vegetation due to the removal of portions of the existing levees. No new development is proposed that would need to be setback from riparian vegetation. The Proposed Project's maintenance roads and trails would be sited to avoid impacts to riparian habitat.
20.146.040.C.3.a	Environmentally Sensitive Habitats Development Standards, Specific Development Standards, Wetlands and Marine Habitats	<i>Project consistent:</i> Environmentally sensitive habitat areas such as wetland areas potentially under the jurisdiction of the USACE and the CCC (see Section 2.3.2 Wetland and Other Waters of this IS/EA for additional information) and riparian are mapped within the Project site. Wetland areas would be temporarily impacted as a result of the construction phase of the Project. However, the Project will result in expanded areas of coastal wetland and riparian habitat post-construction to be maintained in open space use.
20.146.050.D.2	Water and Marine Resources Development Standards, General Development Standards	<i>Project consistent.</i> No land divisions are proposed as part of the Project. The Project would improve conveyance of stormwater runoff into a restored floodplain area and away from developed and impervious areas. Sections 2.2.1 Hydrology and Floodplain and 2.2.3 Geology, Soils, Seismicity, and Topography of this IS/EA evaluate the Project's potential

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		impacts related to geology and hydrology as a result of construction and function of the Project. Appropriate mitigation measures have been identified, where necessary, to reduce potential impacts due to construction-related activities. Specifically, mitigation has been identified to reduce downstream sedimentation associated with the removal of the existing levees and also minimize construction generated erosion. These impacts were identified as less-than-significant.
20.146.050.E.1.a	Water and Marine Resources Development Standards, Specific Development Standards, Water Availability	<i>Project consistent.</i> Restoration plantings will be phased based on the limited available water to the Project site. Available water supplies include riparian water rights and wells on Carmel River State Beach and Palo Corona Regional Park, as well as BSLT Appropriative Water Right License 13888 (Permit 20905A), which allows for the diversion of up to 28.1 acre-feet per year from Odello Well #2.
20.146.050.E.4	Water and Marine Resources Development Standards, Specific Development Standards, Erosion and Sedimentation Control	<i>Project consistent.</i> An Erosion Control Plan would be included in the final design plans, consistent with these requirements. The Proposed Project will be required to implement standard BMPs as required pursuant to Chapter 16.08 of the Monterey County Code.
20.146.060.A.1	Forest Resources Development Standards, Coastal Development Permit Requirement	<i>Project consistent.</i> A Coastal Development Permit would be obtained for the entire project, including for any tree removal.
20.146.060.B	Forest Resources Development Standards, Forest Management Requirement	<i>Project consistent.</i> The requirements for a Forest management Plan will be incorporated into the final Restoration Management Plan to be prepared for Proposed Project.
20.146.060.D.3	Forest Resources Development Standards	<i>Project consistent.</i> The Proposed Project includes the preservation of densest portion of riparian forest along the levee.

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20.146.060.D.5	Forest Resources Development Standards	<i>Project consistent.</i> The Proposed Project would result in temporary construction-related impacts to riparian vegetation due to the removal of portions of the existing levees. However, the grading limits of the Project avoids the Carmel River main stem and no vegetation removed would be allowed to enter the stream. The Project would ultimately enhance the ecological function of the site by restoring connectivity to the main channel of the Carmel River thereby providing the hydrodynamic conditions necessary to support riparian habitat.
20.146.060.D.6	Forest Resources Development Standards	<i>Project consistent.</i> The Proposed Project would restore riparian habitats in portions of the Project site and would use of native plant species, including replacement of any native trees removed as part of the floodplain restoration, for re-planting efforts.
20.146.070.A	Agricultural Resources Development Standards, Overall Development and Management Plan	<i>Project consistent.</i> BSLT will prepare a long term adaptive management plan for the Tier 2 restoration area, including the 23 acre agricultural preserve. The long term adaptive management plan will incorporate the requirements for an overall development and management plan to address agricultural uses on Odello East.
20.146.070.C	Agricultural Resources Development Standards, Odello West Development Standards	<i>Project consistent.</i> The Project would include a 23-acre agricultural preserve on Odello east and ensure agricultural uses on the site in perpetuity. The portion of the Project on Odello west expands area of the Carmel River Lagoon south arm that was restored in 2004, and the Project area does not impact agricultural uses Odello West. No new buildings are included in the Project.
20.146.070.D.2	Agricultural Resources Development Standards, General Development Standards	<i>Project consistent.</i> The Project would include open space, agriculture and low-intensity recreation land uses. No residential development or other incompatible uses with agriculture are proposed. Open space and agricultural easements have already been placed on the Odello east properties.
20.146.080.A.1	Hazardous Area Development Standards, Special Permit Requirements	<i>Project consistent.</i> The Special Permit requirements for work within the floodway fringe or riverbank area will be included as part of the over Coastal Development Permit application package. It is anticipated that the Coastal Commission will retain original jurisdiction over the permits and approval process, in lieu of the Monterey County Planning Commission. The Project would both reduce flood risks to adjoining properties and adjacent developed area,

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		while also enhancing riparian vegetation on the restored floodplain area. No development is proposed in the floodway.
20.146.080.B.1.a-b, f, i	Hazardous Area Development Standards, Geologic Hazards, Geologic Report Requirement	<i>Project consistent.</i> A design-level geologic/geotechnical analysis consistent with the recommendations of the Preliminary Foundation Report (Kleinfelder 2015) will be prepared for the project. Final design of the Causeway shall be completed in accordance with the recommendations of the design-level investigation. A copy of this report shall be submitted to the Caltrans and the County for review and approval. The final design of the proposed Causeway shall be completed in accordance with the recommendations of a detailed design-level liquefaction hazard analysis that addresses potential hazards associated with lateral spreading and liquefaction. A copy of this report shall be submitted to Caltrans and the County for review and approval. Please refer to Section 2.2.3 Geology, Soils, Seismicity, and Topography for additional information.
20.146.080.C.2	Hazardous Area Development Standards, Geologic Hazards, General Development Standards	<i>Project consistent.</i> The Project was identified in the 2014 CSA-50 Flood Control and Stormwater Management study and would avoid the need for a number of structural improvements to the existing levees. The proposed causeway component would be a critical facility. Final design of the causeway will be required to be completed in accordance with a design level geotechnical and liquefaction hazard analysis consistent with the recommendations of the Preliminary Geotechnical Report and supporting engineering analyses.
20.146.080.D.1.a	Hazardous Area Development Standards, Specific Development Standards, Geologic Hazards	<i>Project consistent.</i> The Project includes grading activities that would alter the site's existing topography to create the hydrologic and ecological characteristics necessary to support landscape and habitat restoration.
20.146.080.D.2	Hazardous Area Development Standards, Specific Development Standards, Flood Hazards	<i>Project consistent.</i> The Project was identified in the 2014 CSA-50 Flood Control and Stormwater Management study and would avoid the need for a number of structural improvements to the existing levees. The Project would implement non-structural methods of flood control by restoring the hydrologic connectivity of the Project site with the main channel of the river and the adjacent floodplain located west of SR 1, as discussed in Section 2.2.1 Hydrology and Floodplain and Section 2.2.2 Water Quality and Storm Water Runoff . In addition, the Project would also reduce flooding hazards to SR 1 by constructing an elevated

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Subject of Policy	Consistency Analysis
Carmel Area Coastal Implementation Plan (Monterey County Code Title 20)		
		causeway to allow floodwater to flow under SR 1. The Project does not involve substantial alterations to the existing river main stem channel or the existing south arm of the Carmel River Lagoon. The Project would restore and enhance riparian vegetation and other plant and wildlife habitat. No dredging is proposed in existing wetlands or the river corridor.
20.146.090.B	Archaeological Resource Development Standards, Archaeological Report Requirements	<i>Project consistent.</i> An Archaeological Survey Report was prepared in connection with the Proposed Project. Please refer to Section 2.1.7 Cultural Resources for a detailed discussion of the Project's potential impacts to archaeological and/or cultural resources.
20.146.090.C.1	Archaeological Resource Development Standards, Environmental Assessment Requirements	<i>Project consistent.</i> An Archaeological Survey Report was prepared in connection with the Proposed Project. Please refer to Section 2.1.7 Cultural Resources of the IS/MND for a detailed discussion of the Project's potential impacts to archaeological and/or cultural resources.
20.146.090.D.4	Archaeological Resource Development Standards, General Development Standards	<i>Project consistent.</i> The Proposed Project, as designed and mitigated, will avoid impacts to sensitive archaeological sites.
20.146.090.E.1, 2	Archaeological Resource Development Standards, Specific Development Standards	<i>Project consistent.</i> The Project would provide public access trails on dedicated maintenance access roads and would restrict public access to protect sensitive resources. No off-road vehicle use or unauthorized collecting of artifacts or other activities which could destroy or damage archaeological resources will be allowed.
20.146.100.A.2	Transportation Development Standards, Highway 1 and Transportation Development Standards	<i>Project consistent.</i> The Proposed Project would be consistent with the retention of SR-1 as a scenic two-lane road through the Project area. Improvements to SR-1 would be consistent with the Caltrans Big Sur Coast Highway Management Plan, which has been adopted to guide implementation of this policy. The project would provide shoulder widths to accommodate a Class III bike lane in this stretch of SR-1, and a left hand turn lane would be included to provide access to the Odello east portions of the project site as well as Palo Corona Regional Park and the existing farm houses and structures east of SR-1.
20.146.120.B.2.a	Land Use and Development Standards,	<i>Project consistent.</i> The Project would restore additional areas of the Carmel River Lagoon and

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Policy Number	Subject of Policy	Consistency Analysis
Carmel Area Coastal Implementation Plan (Monterey County Code Title 20)		
	Specific Development Standards, Recreation	marsh. Recreational uses and designation of trails, access points and interpretative facilities on Carmel River State Beach would be determined by the Carmel Area State Parks General Plan update, currently under preparation and are not a part of the proposed Project.
20.146.120.C.2	Land Use and Development Standards, Specific Development Standards, Special Treatment Area Development Standards, Odello East Property	<i>Project consistent.</i> The Proposed project would not implement the development that would have been allowed by this Special Treatment Area. The Odello east property was acquired by the Eastwoods in order to eliminate the potential development that could have occurred under this policy, particularly the 49-acre parcel Eastwood donated to BSLT in 1997. Following the flood events that occurred in 1995 and 1998, initial restoration plans were developed for the Odello east site that have been further developed by the proposed Project to restore the site's natural hydrologic and ecologic characteristics as a floodplain.
20.146.120.D.1	Land Use and Development Standards, Specific Development Standards, Development of Large Properties and Ranches	<i>Project consistent.</i> The Project would retain the site in open space. Implementation of the Restoration Management Plan would occur in phases and by guided by long term adaptive management strategies.
20.146.130.A	Public Access Development Standards, Access Management Plan Requirement	<i>Project consistent.</i> The access management plan will be incorporated into a long term adaptive management plan for the Tier 2 project area to describe how access will be managed on the new trails proposed across the Project site.
20.146.130.E.5	Public Access Development Standards, Development Standards, Trails	<i>Project consistent.</i> The access management plan will be incorporated into a long term adaptive management plan for the Tier 2 project area to describe how proposed trail alignments and train management will restrict access to environmentally sensitive habitat area and protect wildlife, riparian vegetation, and the Carmel River from impacts due to the trail, and to ensure land use compatibility.

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Policy Number	Policy Summary	Consistency Determination
California Coastal Act		
Chapter 3; Article 4 Marine Environment		
Section 30230	Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.	<i>Project consistent.</i> The Project objectives include improving water quality, increasing groundwater recharge and restoring critical habitats. The Project would restore hydrologic function of the southern floodplain of the Carmel River. The Project site is located approximately one mile upstream of Carmel Bay, an Area of Special Biological Significance (please refer to Section 2.2.2 Water Quality for additional information).
Section 30231	The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.	<i>Project consistent.</i> Please see response above.
Section 30232	Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.	<i>Project consistent.</i> Operation and construction of the Proposed Project could result in the accidental release of hazardous materials. Avoidance, minimization, and/or mitigation measures identified in Section 2.2.5 Hazardous Waste Materials in this IS/EA would avoid or reduce the potential for impacts related to hazardous materials.
Section 30233	(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:	<i>Project consistent.</i> The Proposed Project represents a voluntary restoration project being undertaken by the BSLT in order to improve resource conservation on-site, to reduce flooding hazards to the surrounding community by restoring natural floodplain conveyance. The Proposed Project would restore the site to its natural character as part of the river floodplain. The Proposed Project would result in

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Policy Number	Policy Summary	Consistency Determination
California Coastal Act		
	<p>(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.</p> <p>(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.</p> <p>(3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.</p> <p>(4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.</p> <p>(5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.</p> <p>(6) Restoration purposes.</p> <p>(7) Nature study, aquaculture, or similar resource dependent activities</p> <p>(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for these purposes to appropriate beaches or into suitable longshore current systems.</p> <p>(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division. For the purposes of this section, "commercial fishing facilities in Bodega Bay" means that not less than 80 percent of all boating</p>	<p>expanded areas of coastal wetland and riparian habitat post-construction to be maintained in open space use.</p> <p>The Proposed Project would implement erosion control measures in order to reduce potential erosion related impacts are required pursuant to Chapter 16.08 of the Monterey County Code, Project-specific SWPPP, and identified BMPs.</p>

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California Coastal Act		
	<p>facilities proposed to be developed or improved, where the improvement would create additional berths in Bodega Bay, shall be designed and used for commercial fishing activities.</p> <p>(d) Erosion control and flood control facilities constructed on watercourses can impede the movement of sediment and nutrients that would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for these purposes are the method of placement, time of year of placement, and sensitivity of the placement area.</p>	
Section 30236	<p>Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.</p>	<p><i>Project consistent.</i> The Proposed Project represents the best flood control project to protect existing structures in the floodplain that is feasible. In addition, the project will result in improvement of fish and wildlife habitat.</p>
Chapter 3, Article 5 Land Resources		
Section 30240	<p>(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.</p> <p>(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat</p>	<p><i>Project consistent.</i> The proposed project would not result in any significant disruption or degradation of habitat areas. The proposed project would result in the restoration of sensitive habitats, increase public access and protect cultural resources for future generation on state park property.</p>

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Policy Number	Policy Summary	Consistency Determination
California Coastal Act		
	and recreation areas.	
Section 30244	Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required	<i>Project consistent.</i> Please see Section 2.1.7 Cultural Resources and Section 2.2.4 Paleontology for avoidance, minimization, and/or mitigation measures identified for the Proposed Project.
Chapter 3, Article 6 Development		
Section 30251	The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.	<i>Project consistent.</i> The Proposed Project is a landscape restoration project which will enhance both riparian and grassland vegetation consistent with the surrounding vegetation along the Carmel River riparian corridor and Palo Corona slopes. No development is proposed that would require screening. The Project would have a beneficial visual impact.
Chapter 7, Article 1 General Provisions		
Section 30607.1	Where any dike and fill development is permitted in wetlands in conformity with Section 30233 or other applicable policies set forth in this division, mitigation measures shall include, at a minimum, either acquisition of equivalent areas of equal or greater biological productivity or opening up equivalent areas to tidal action; provided, however, that if no appropriate restoration site is available, an in-lieu fee sufficient to provide an area of equivalent productive value or surface areas shall be dedicated to an appropriate public agency, or the replacement site shall be purchased before the dike or fill development may proceed. The mitigation measures shall not be required for temporary or short-term fill or diking if a bond or other evidence of financial responsibility is provided to assure that restoration will be accomplished in the shortest feasible time.	<i>Project consistent.</i> The Proposed Project represents a voluntary restoration project being undertaken by the BSLT in order to improve resource conservation on-site, to reduce flooding hazards to the surrounding community by restoring natural floodplain conveyance, and to restore the site to its natural character as part of the river floodplain. Approximately 4.1 acres of potential coastal wetlands would be impacted as a result of the proposed project; however, the Proposed Project would result in expanded areas of coastal wetland and riparian habitat post-construction to be maintained in open space use. The Proposed Project conforms with Section 30233 of the California Coastal Act (See above).

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California Coastal Act		

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Policy Number	Policy Summary	Consistency Determination
California Public Resource Code		
5019.53	<p>State parks consist of relatively spacious areas of outstanding scenic or natural character, oftentimes also containing significant historical, archaeological, ecological, geological, or other similar values. The purpose of state parks shall be to preserve outstanding natural, scenic, and cultural values, indigenous aquatic and terrestrial fauna and flora, and the most significant examples of ecological regions of California, such as the Sierra Nevada, northeast volcanic, great valley, coastal strip, Klamath-Siskiyou Mountains, southwest mountains and valleys, redwoods, foothills and low coastal mountains, and desert and desert mountains.</p> <p>Each state park shall be managed as a composite whole in order to restore, protect, and maintain its native environmental complexes to the extent compatible with the primary purpose for which the park was established.</p> <p>Improvements undertaken within state parks shall be for the purpose of making the areas available for public enjoyment and education in a manner consistent with the preservation of natural, scenic, cultural, and ecological values for present and future generations. Improvements may be undertaken to provide for recreational activities including, but not limited to, camping, picnicking, sightseeing, nature study, hiking, and horseback riding, so long as those improvements involve no major modification of lands, forests, or waters. Improvements that do not directly enhance the public's enjoyment of the natural, scenic, cultural, or ecological values of the resource, which are attractions in themselves, or which are otherwise available to the public within a reasonable distance outside the park, shall not be undertaken within state parks.</p> <p>State parks may be established in the terrestrial or nonmarine aquatic (lake or stream) environments of the state.</p>	<i>Project consistent.</i> The proposed project would result in the restoration of sensitive habitats, increase public access and protect cultural resources for future generation on state park property.
5019.56 (c)	<p>State recreation units consist of areas selected, developed, and operated to provide outdoor recreational opportunities. The units shall be designated by the commission by naming, in accordance with Article 1 (commencing with Section 5001) and this article relating to classification.</p> <p>In the planning of improvements to be undertaken within state recreation</p>	<i>Project consistent.</i> Please see response above.

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California Public Resource Code		
	<p>units, consideration shall be given to compatibility of design with the surrounding scenic and environmental characteristics.</p> <p>State recreation units may be established in the terrestrial or non-marine aquatic (lake or stream) environments of the state and shall be further classified as one of the following types:</p> <p>(a) State recreation areas, consisting of areas selected and developed to provide multiple recreational opportunities to meet other than purely local needs. The areas shall be selected for their having terrain capable of withstanding extensive human impact and for their proximity to large population centers, major routes of travel, or proven recreational resources such as manmade or natural bodies of water. Areas containing ecological, geological, scenic, or cultural resources of significant value shall be preserved within state wildernesses, state reserves, state parks, or natural or cultural preserves, or, for those areas situated seaward of the mean high tide line, shall be designated state marine reserves, state marine parks, state marine conservation areas, or state marine cultural preservation areas.</p> <p>Improvements may be undertaken to provide for recreational activities, including, but not limited to, camping, picnicking, swimming, hiking, bicycling, horseback riding, boating, waterskiing, diving, winter sports, fishing, and hunting.</p> <p>Improvements to provide for urban or indoor formalized recreational activities shall not be undertaken within state recreation areas.</p> <p>(b) Underwater recreation areas, consisting of areas in the non-marine aquatic (lake or stream) environment selected and developed to provide surface and subsurface water-oriented recreational opportunities, while preserving basic resource values for present and future generations.</p> <p>(c) State beaches, consisting of areas with frontage on the ocean, or bays designed to provide swimming, boating, fishing, and other beach-oriented recreational activities. Coastal areas containing ecological, geological, scenic, or cultural resources of significant value shall be preserved within state wildernesses, state reserves, state parks, or natural or cultural preserves, or, for those areas situated seaward of the mean high tide line, shall be designated state marine reserves, state marine parks, state marine</p>	

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

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California Public Resource Code		
	conservation areas, or state marine cultural preservation areas. (d) Wayside campgrounds, consisting of relatively small areas suitable for overnight camping and offering convenient access to major highways.	
5001.9(b)	(b) No new facility may be developed in any unit of the state park system unless it is compatible with the classification of the unit.	<i>Project consistent.</i> The Proposed Project would not result in the development of new facilities that would be incompatible with the classification of the Carmel River State Beach unit. The projects would result in the restoration of sensitive habitats, increase public access and protect cultural resources for future generation on state park property.
5019.71	Natural preserves consist of distinct non-marine areas of outstanding natural or scientific significance established within the boundaries of other state park system units. The purpose of natural preserves shall be to preserve such features as rare or endangered plant and animal species and their supporting ecosystems, representative examples of plant or animal communities existing in California prior to the impact of civilization, geological features illustrative of geological processes, significant fossil occurrences or geological features of cultural or economic interest, or topographic features illustrative of representative or unique biogeographical patterns. Areas set aside as natural preserves shall be of sufficient size to allow, where possible, the natural dynamics of ecological interaction to continue without interference, and to provide, in all cases, a practicable management unit. Habitat manipulation shall be permitted only in those areas found by scientific analysis to require manipulation to preserve the species or associations that constitute the basis for the establishment of the natural preserve.	<i>Project consistent.</i> The proposed project would result in the restoration of a section of the Carmel River floodplain and would connect the restored floodplain with the south arm of Carmel Lagoon. The proposed project would restore critical and sensitive habitat,

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Policy Number	Policy Summary	Consistency Determination
Point Lobos State Reserve and Carmel River State Beach General Plan 1979, Including Amendments		
<i>Natural Resources</i>		
Geological Hazards	New permanent Facility development shall avoid geological hazards. Site-specific geologic investigations shall be conducted by a registered geologist or certified engineering geologist before final siting of facilities. The investigation shall identify potential geological hazards of the site, and shall provide for mitigating measures to ensure structural stability of the development.	<i>Project consistent.</i> A design-level geologic/geotechnical analysis consistent with the recommendations of the Preliminary Foundation Report (Kleinfelder 2015) will be prepared for the project. Final design of the Causeway shall be completed in accordance with the recommendations of the design-level investigation. A copy of this report shall be submitted to the Caltrans and the County for review and approval. The final design of the proposed Causeway shall be completed in accordance with the recommendations of a detailed design-level liquefaction hazard analysis that addresses potential hazards associated with lateral spreading and liquefaction. A copy of this report shall be submitted to Caltrans and the County for review and approval. Please refer to Section 2.2.3 Geology, Soils, Seismicity, and Topography for additional information.
Landscaping	In order to maintain the diversity of native species, landscaping in developed areas should consist of species indigenous to the unit, or to Point Lobos State Reserve. Monterey pine from seed collected at Point Lobos State Reserve shall be used a screening in the Amended Area. If exotic species are used, these shall be species which are incapable of naturalizing in the wild, and which will not require a permanent irrigation system.	<i>Project consistent.</i> The Proposed Project would restore riparian woodland habitats in portions of the Project site and would use of native plant species for re-planting efforts. Native re-planting will occur to the extent necessary to support the native colonization of the site. On-going invasive plant management will occur as part of the long-term maintenance of the site in order to encourage natural colonization. Please refer to the RMP for more information on native species proposed for re-planting.
Wildlife Requiring Special Management Consideration	Specific management programs shall be developed when appropriate for animal species that are threatened, endangered, or of special concern. Necessary and suitable habitat, where it exists, shall be perpetuated. Programs or projects undertaken at Carmel River State Beach shall be planned and designed so that animal life requiring special management consideration will not be adversely affected. Resource management actions will focus on natural processes, in recognition that natural processes are mutually beneficial to all important resources.	<i>Project consistent.</i> The Proposed Project would provide increased habitat and significantly improved habitat values over time by restoring the site as part of the Carmel River floodplain. Avoidance, minimization, and/or mitigation measures in Section 2.3.4 Animal Species and Section 2.3.5 Threatened and Endangered Species would reduce potential impacts to protected animal species.
<i>Cultural Resources</i>		

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Policy Number	Policy Summary	Consistency Determination
Point Lobos State Reserve and Carmel River State Beach General Plan 1979, Including Amendments		
Conservation of Archeological Sites	Where use or facility development creates impacts to archeological sites, the department shall take the necessary steps to preserve their heritage values. Threatened sites shall be protected with appropriate stabilization measures. Where human-causes bluff edge erosion is occurring from nondesignated trails, the areas shall be stabilized by the planting of native vegetation or other appropriate means consistent with preservation of the unit's scenic, cultural, and natural values. Maintenance and public use of the existing improved trail through the area may continue.	<i>Project consistent.</i> The Proposed Project would protect and maintain cultural resource values. Avoidance, minimization, and/or mitigation measures in Section 2.1.7 Cultural Resources would avoid and reduce potential impacts to cultural resources within the project site.
<i>Esthetic Resources</i>		
Natural Landscape Management	The emphasis of landscape Management at Carmel River State Beach shall be toward the maintenance of the natural landscape. Facilities shall be screened to the extent possible and harmonious with the natural land forms of the unit. Human-made intrusions shall be reduced or eliminated. The department shall work with the appropriate local agencies to place overhead utility lines adjacent to the unit underground, where feasible.	<i>Project consistent.</i> The proposed project would improve and maintain natural landscapes.

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Policy Number	Policy Summary	Consistency Determination
Monterey County General Plan (1982)		
1.1	Objective: Designate open space where its use will preserve, conserve, and maintain the natural resource and physical features of Monterey County.	<i>Project consistent.</i> The Project would result in the establishment and maintenance open space where its use will preserve, conserve, and maintain the natural resource and physical features of Monterey County.
1.1.1	Open space land use designations shall be used, as needed for compliance with the goals, objectives, and policies of this Plan.	<i>Project consistent.</i> Please see the response above.
1.1.2	Open space land use designations shall be used as needed to preserve the physical and natural features contributing to the County's outstanding natural beauty.	<i>Project consistent.</i> Please see the response above.
1.1.3	Landowners shall be encouraged voluntarily to restrict the development potential of property through grants of conservation easements, Williamson Act contracts, or other appropriate protections in areas designated for open space uses such as agriculture and resource conservation.	<i>Project consistent.</i> The Project represents a voluntary restoration project being undertaken by the BSLT. The Project would include a 23-acre agricultural preserve and ensure agricultural activity on the site in perpetuity. Additionally, the proposed project would create and maintain open space habitat compatible with the establishment of a 23-acre agricultural preserve.
3.2.3	Lands having a high erosion potential as identified in the Soil Survey shall require adequate erosion control methods for agricultural uses.	<i>Project consistent.</i> The proposed project would comply with this policy to the extent that it is applicable to the proposed project. Design elements have been included as part of the proposed project to minimize impacts associated with erosion. Please refer to Section 2.2.1 Hydrology and Floodplain and Section 2.2.2 Water Quality and Storm Water Runoff for avoidance, minimization, and /or mitigation measures identified for erosion and erosion related effects.
4.1.3	All farmlands designated as prime, of statewide importance, unique, or of local importance shall be protected from incompatible uses on adjacent lands.	<i>Project consistent.</i> The proposed project would create and maintain open space habitat compatible with the remaining agricultural land uses on a 23 area agricultural preserve.
4.2	Objective: Identify agricultural lands which are used for grazing and related purposes and preserve and enhance this agricultural resource in Monterey County.	<i>Project consistent.</i> The proposed project would create and maintain open space habitat compatible with the establishment of a 23-acre agricultural preserve.
5.1.2	Land use and development shall be accomplished in a manner to	<i>Project consistent.</i> The proposed project would be accomplished in a manner that

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Monterey County General Plan (1982)		
	minimize runoff and maintain groundwater recharge in vital water resource areas.	would minimize runoff. Additionally the restored floodplain would improve floodplain hydrology by reducing the occurrence of flooding in the developed north overbank areas and improve groundwater recharge by spreading flows across the Project site.
7.1.1	Development shall be carefully planned in, or adjacent to, areas containing limited or threatened plant communities, and shall provide for the conservation and maintenance of the plant communities.	<i>Project consistent.</i> The proposed project would result in the establishment and maintenance of native habitat which will support sensitive and threatened plant communities.
7.2.2	Native and native compatible species, especially drought resistant species, shall be utilized to the extent possible in fulfilling landscaping requirements imposed as conditions of discretionary permits.	<i>Project consistent.</i> The proposed project would result in the establishment and maintenance of native habitats.
8.2	Objective: Encourage conservation of native trees as a component for attaining broad conservation and open space goals.	<i>Project consistent.</i> To mitigate for impacts to riparian habitat resulting from vegetation removal and grading, the RMP prepared for the Project includes replanting within the Project site of 10.8 acres of willow and cottonwood riparian forest to mitigate for impacts to intact and degraded riparian forest, and mixed riparian forest to mitigate for impacts to riparian scrub.
9.1	Objective: Promote the conservation of large, continuous expanses of native vegetation as the most suitable habitat for maintaining abundant and diverse wildlife	<i>Project consistent.</i> The Proposed Project would provide increased habitat and significantly improved habitat values over time by restoring the site as part of the Carmel River floodplain.
9.1.1	Development shall be carefully planned in areas known to have particular value for wildlife and, where allowed, shall be located so that the reasonable value of the habitat for wildlife is maintained,	<i>Project consistent.</i> Please see the response above.
9.1.2	Development shall be carefully planned in areas having high value for fish and wildlife reproduction.	<i>Project consistent.</i> The Proposed Project would provide increased habitat and significantly improved habitat values over time by restoring the site as part of the Carmel River floodplain. Avoidance, minimization, and/or mitigation measures in Section 2.3.4 Animal Species and Section 2.3.5 Threatened and Endangered Species would reduce potential impacts to protected animal species.
9.2	Objective: Assure quality freshwater habitats through cooperation with the California Department of Fish and Game and other public	<i>Project consistent.</i> Please see response above. Additional information is available in Section 2.3.4 Animal Species and Section 2.3.5 Threatened and Endangered

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Monterey County General Plan (1982)		
	and private conservation organizations.	Species of this IS/EA,
9.2.1	Land use practices which could result in siltation and pollution of inland and marine waters shall be carefully managed in order to assure a clean and productive habitat.	<i>Project consistent.</i> The Project would improve conveyance of stormwater runoff into a restored floodplain area and away from developed and impervious areas. Sections 2.2.1 Hydrology and Floodplain and 2.2.3 Geology, Soils, Seismicity, and Topography of this IS/EA evaluate the Project's potential impacts related to geology and hydrology as a result of construction and function of the Project. Appropriate mitigation measures have been identified, where necessary, to reduce potential impacts due to construction-related activities. Specifically, mitigation has been identified to reduce downstream sedimentation associated with the removal of the existing levees and also minimize construction generated erosion. These impacts were identified as less-than-significant. Additionally, operation and construction of the Proposed Project could result in the accidental release of hazardous materials. Avoidance, minimization, and/or mitigation measures identified in Section 2.2.5 Hazardous Waste Materials in this IS/EA would avoid or reduce the potential for impacts related to hazardous materials.
10.1	Objective: Promote protection of the native plant and animal communities of the Pacific Ocean along the coast of Monterey County.	<i>Project consistent.</i> The Proposed Project has been designed to improve critical and sensitive habitat function and value. The Project would result in an increase of habitat features on-site by restoring the site to its historical function as part of the Carmel River floodplain.
10.1.2	Special restrictions shall be placed on activities that adversely affect the County's remaining estuaries, salt marshes, sloughs, and river and stream mouth areas.	<i>Project Consistent.</i> The proposed project would manage public access which will ensure restrictions on activities that adversely affect the floodplain.
11.1.1	The California Native Plant Society shall be consulted and appropriate measures shall be taken to protect rare and endangered plant species and their habitats.	<i>Project Consistent.</i> The proposed project would be required to comply with this policy to the extent that it is applicable to the proposed project.

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Monterey County General Plan (1982)		
11.1.2	The California Department of Fish and Game shall be consulted and appropriate measures shall be taken to protect Areas of Special Biological Importance.	<i>Project Consistent.</i> The County is coordinating with the California Department of Fish and Wildlife, in cooperation with the Big Sur Land Trust. DFW's advice and guidance would be requested on the long term adaptive management strategies for the restoration of environmentally sensitive habitat areas.
11.1.3	Land uses shall be carefully controlled and waste discharges shall be prohibited in order to protect water quality in state designated Areas of Special Biological Significance.	<i>Project consistent.</i> The Project objectives include improving water quality, increasing groundwater recharge and restoring critical habitats. The Project would restore hydrologic function of the southern floodplain of the Carmel River. The Project site is located approximately one mile upstream of Carmel Bay, an Area of Special Biological Significance (please refer to Section 2.2.2 Water Quality for additional information).
12.1.2	The Archaeological Sensitivity Zones map shall be used, along with whatever other data is appropriate, to evaluate whether archaeological resources are threatened by proposed development projects. The map shall be updated continuously as new data becomes available and shall have an appropriate review in five years (January 1, 1987).	<i>Project consistent.</i> The proposed project would comply with this policy to the extent that it is applicable to the proposed project. Archaeological sensitive areas within and adjacent to the proposed project areas have been identified, and the threat to archaeological resources as a result of the proposed project have been evaluated. Please refer to Section 2.1.7 Cultural Resources for avoidance, minimization, and/or mitigation measures that have been identified to reduce or avoid impacts to archaeological resources.
12.1.3	All proposed development, including land divisions, within high sensitivity zones shall require an archaeological field inspection prior to project approval.	<i>Project consistent.</i> Please see response above.
12.1.4	All major projects (i.e., 2.5 acres or more) that are proposed for moderate sensitivity zones, including land divisions, shall require an archaeological field inspection prior to project approval.	<i>Project consistent.</i> Please see response above.
12.1.6	Where development could adversely affect archaeological resources, reasonable mitigation procedures shall be required prior to project approval.	<i>Project consistent.</i> Please see response above.

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Monterey County General Plan (1982)		
12.1.7	All available measures, including purchase of archaeological easements, dedication to the County, tax relief, purchase of development rights, consideration of reasonable project alternatives, etc., shall be explored to avoid development on sensitive archaeological sites.	<i>Project consistent.</i> The proposed project would be required to comply with this policy to the extent that it is applicable to the proposed project.
13.3.3	Plans for major projects shall address opportunities for reducing energy used for transportation, including pedestrian and bicycle pathways, access to transit, and roadway design.	<i>Project consistent.</i> Bicycle facilities were considered in the design of the Proposed Project. The Causeway component of the proposed project incorporates 8-foot wide shoulders, transitioning to match existing 4'-wide shoulders at the southern project limits. This shoulder width satisfies Class III bicycle facility requirements. As such, the Causeway Component of the Proposed Project would partially address existing deficiencies associated with this segment of SR 1.
15.1	Objective: Reduce the risks resulting from earthquakes to an acceptable level by regulating the type, density, location, and/or design and construction of development in seismic hazard areas.	<i>Project consistent.</i> A design-level geologic/geotechnical analysis consistent with the recommendations of the Preliminary Foundation Report (Kleinfelder 2015) will be prepared for the project. Final design of the Causeway shall be completed in accordance with the recommendations of the design-level investigation. A copy of this report shall be submitted to the Caltrans and the County for review and approval. The final design of the proposed Causeway shall be completed in accordance with the recommendations of a detailed design-level liquefaction hazard analysis that addresses potential hazards associated with lateral spreading and liquefaction. A copy of this report shall be submitted to Caltrans and the County for review and approval. Please refer to Section 2.2.3 Geology, Soils, Seismicity, and Topography for additional information.

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Monterey County General Plan (1982)		
15.1.4	All new development and land divisions in designated high hazard zones shall provide a preliminary seismic and geologic hazard report which addresses the potential for surface ruptures, ground shaking, liquefaction, and landsliding before the application is considered complete. This report shall be completed by a registered geologist and conform to the standards of a preliminary report adopted by the County.	<i>Project consistent.</i> Please see response above.
15.1.6	Prior to the construction of a new public facility or critical structure within a high hazard zone, the County shall require a full geological investigation by a registered geologist.	<i>Project consistent.</i> Please see response above.
15.1.15	Side castings from the grading of roads and building pads shall be removed from the site unless they can be distributed on the site so as not to change the natural landform. An exception to this policy will be made for those cases where changes in the natural landform are required as a condition of development approval.	<i>Project consistent.</i> The project cut and fill will be balanced on-site and the project land-form will be modified to more accurately function as a natural floodplain.
16.2.2	Open space uses such as agriculture, passive to low intensity recreation, and conservation are considered the most acceptable land uses in the floodplain.	<i>Project consistent.</i> The proposed project proposes open space, managed public recreation, and agricultural land uses in the floodplain.
16.2.3	All new development for which a discretionary permit is required, including filling, grading, and construction, shall be prohibited within 200 feet of the riverbank or within the 100-year floodway except as permitted by ordinance. No new development, including structural flood control projects, shall be allowed within the riparian corridor. However, improvements to existing dikes and levees shall be allowed if riparian vegetation damage can be minimized and at least an equivalent amount and quality of replacement is planted. In addition, exceptions may be made for carefully sited recreational trails.	<i>Project consistent.</i> The Proposed Project has been designed to improve critical and sensitive habitat function and value. Construction of the Project would result in removal of riparian habitat. However, removal of this habitat is necessary in order to create the hydrologic characteristics on the site to restore critical and sensitive habitats in addition to mitigated replacement of the removed vegetation areas, primarily due to levee removal and grading of new channels to conform to the south arm of the Carmel Lagoon and expand its restoration area. The Project would result in an increase of habitat features on-site by restoring the site to its historical function as part of the Carmel River floodplain. To mitigate for impacts to riparian habitat resulting from vegetation removal and grading, the RMP

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Monterey County General Plan (1982)		
		prepared for the Project includes replanting within the Project site of 10.8 acres of willow and cottonwood riparian forest to mitigate for impacts to intact and degraded riparian forest, and mixed riparian forest to mitigate for impacts to riparian scrub.
16.2.4	All new development, including filling, grading, and construction, within designated 100-year floodplain areas shall conform to the guidelines of the National Flood Insurance Program and policies established by the County Board of Supervisors, with the advice of the Monterey County Flood Control and Water Conservation District.	<i>Project Consistent.</i> The proposed project would be required to comply with this policy to the extent that it is applicable to the proposed project.
16.2.5	All new development, including filling, grading, and construction, proposed within designated floodplains shall require submission of a written assessment prepared by a qualified hydrologist/engineer on whether the development will significantly contribute to the existing flood hazard. Development shall be conditioned on receiving approval of this assessment by the County Flood Control and Water Conservation District.	<i>Project Consistent.</i> A written assessment has been prepared for the proposed project by a qualified hydrologist/engineer on whether the development will significantly contribute to the existing flood hazard. Please refer to Sections 2.2.1 Hydrology and Floodplain . The written assessment of the proposed project's contribution to existing flood hazard will be submitted to County Flood Control and Water Conservation District for approval.
16.2.6	Development of new, or expansion of existing, flood control measures to protect individual properties should be permitted only within the framework of an approved management plan and program. With the exception of appropriate emergency measures and until such time that a management plan and program are completed, piecemeal solutions such as alleviating the flood hazard for individual properties shall be permitted only when new studies determine that the existing protective measures are not adequate to provide the level of protection deemed necessary on the basis of the most recent information available. Such individual solutions will be permitted subject to approval by the Monterey County Flood Control and Water Conservation District and also upon obtaining all other necessary	<i>Project consistent.</i> The proposed project represents a holistic approach to flood management and habitat restoration.

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Monterey County General Plan (1982)		
	permits.	
22.2.1	The County shall require new development to conform to the noise parameters established by Table 6, Land Use Compatibility for Exterior Community Noise Environments.	<i>Project consistent.</i> The proposed project would be required to comply with this policy to the extent that it is applicable to the proposed project.
22.2.3	The County shall require environmental review of all proposed new development, expansion of industrial facilities, and quarry excavation and processing activities which may increase the noise level in surrounding areas or generate noise levels greater than those specified in Table 6.	<i>Project consistent.</i> The County, as lead agency, is conducting environmental review of the project under CEQA in the preparation of a IS/MND.
22.2.5	The County, in accordance with Table 6, should require ambient sound levels to be less at night (10 p.m. to 7 a.m.) than during the day.	<i>Project consistent.</i> The proposed project would be required to comply with this policy to the extent that it is applicable to the proposed project.
26.1.6	Development which preserves and enhances the County's scenic qualities shall be encouraged.	<i>Project consistent.</i> The Project site is surrounded by State Park land to the west, and property owned by the Monterey Peninsula Regional Park District to the south and east. The Carmel River is located to the north. Overall, the Project would enhance the site's visual character by retaining the site in open space and agricultural land uses, and restoring the site's hydrologic and ecological function as part of the Carmel River floodplain. The Project would not adversely affect the existing visual character of the area.
26.1.8	Development in scenic road and highway corridors shall be governed by policies located in the transportation section of this General Plan.	<i>Project consistent.</i> The proposed project would be required to comply with this policy to the extent that it is applicable to the proposed project.
35.1.2	Any development in critical watershed areas shall be designed, sited, and constructed in a manner which minimizes negative effects on the watershed.	<i>Project consistent.</i> Sections 2.2.1 Hydrology and Floodplain and 2.2.3 Geology, Soils, Seismicity, and Topography of this IS/EA evaluate the Project's potential impacts related to hydrology as a result of construction and function of the Project. The proposed project would result in the restoration of a section of the Carmel River floodplain and would connect the restored floodplain with the south arm of Carmel Lagoon.

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Monterey County General Plan (1982)		
37.2.1	Transportation demands of proposed development shall not exceed an acceptable level of service for existing transportation facilities, unless appropriate increases in capacities are provided for.	<i>Project consistent.</i> The proposed project would not increase the traffic volume or capacity. Please refer to Section 2.1.5 Traffic and Transportation/Pedestrian and Bicycle Facilities for additional information.
37.3	Objective: Support the safety standards established by transportation-related agencies, and guide land use so as to ensure the safe operation of the County's transportation systems.	<i>Project consistent.</i> The proposed project would be required to comply with this policy to the extent that it is applicable to the proposed project.
38.1	Objective: Plan for transportation modes and strategies that ensure good air quality, reduce noise, reduce the consumption of fossil fuels, and reduce the need to devote additional lands to transportation use.	<i>Project consistent.</i> The proposed project would be required to comply with this policy to the extent that it is applicable to the proposed project.
39.2.2	The needs of bicyclists, pedestrians, utilities, and drainage shall be considered and, where appropriate, provided for on all public rights-of-way.	<i>Project consistent.</i> Bicycle facilities were considered in the design of the Proposed Project. Please refer to Section 2.1.5 Traffic and Transportation/Pedestrian and Bicycle Facilities for additional information. The Causeway component of the proposed project would change the drainage within the public right-of-way and improve the hydrological connection between the restored floodplain and the south arm of the Carmel Lagoon. Please refer to Section 2.2.1 Hydrology and Floodplain for additional information. Utilities within the project area, including along the Causeway component were considered in the project plans. Please refer to Section 2.1.4 Utilities and Emergency Services for additional information.
39.4.3	On-street truck loading and unloading shall be discouraged on arterials during peak traffic flow hours.	<i>Project Consistent.</i> The proposed project would be required to comply with this policy to the extent that it is applicable to the proposed project.
41.1.2	Developers of major traffic generating activities shall provide fixed transit facilities such as bus shelters and pullouts, consistent with the anticipated demand.	<i>Project consistent.</i> The proposed project would not increase the traffic volume or capacity. Please refer to Section 2.1.5 Traffic and Transportation/Pedestrian and Bicycle Facilities for additional information.

Carmel River Floodplain Restoration and Environmental Enhancement Project Consistency With Relevant Land Use Policies

Policy Number	Policy Summary	Consistency Determination
Monterey County General Plan (1982)		
45.1.4	Bicycle routes in transportation corridors shall be improved, where feasible.	<i>Project consistent.</i> Bicycle facilities were considered in the design of the Proposed Project. The Causeway component of the proposed project incorporates 8-foot wide shoulders, transitioning to match existing 4'-wide shoulders at the southern project limits. This shoulder width satisfies Class III bicycle facility requirements. As such, the Causeway Component of the Proposed Project would partially address existing deficiencies associated with this segment of SR 1.
51.1.3	Recreational trails shall not cross agricultural lands used for agricultural purposes unless such trails are part of a development permit or where natural boundaries exist that can separate the trails from agricultural use	<i>Project consistent.</i> The Project would include maintenance access roads that would also serve as public access trails. These maintenance access roads will not cross the 23-acre agricultural preserve.

Appendix G

U.S. Department of Agriculture Farmland Conversion Impact Rating Form and Associated Score Explanation Table

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FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request			
Name of Project		Federal Agency Involved			
Proposed Land Use		County and State			
PART II (To be completed by NRCS)		Date Request Received By NRCS		Person Completing Form:	
Does the site contain Prime, Unique, Statewide or Local Important Farmland? (If no, the FPPA does not apply - do not complete additional parts of this form)		YES <input type="checkbox"/>	NO <input type="checkbox"/>	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %		Amount of Farmland As Defined in FPPA Acres: %		
Name of Land Evaluation System Used	Name of State or Local Site Assessment System		Date Land Evaluation Returned by NRCS		
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly					
B. Total Acres To Be Converted Indirectly					
C. Total Acres In Site					
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland					
B. Total Acres Statewide Important or Local Important Farmland					
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted					
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value					
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)					
PART VI (To be completed by Federal Agency) Site Assessment Criteria (Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)		Maximum Points	Site A	Site B	Site C
1. Area In Non-urban Use		(15)			
2. Perimeter In Non-urban Use		(10)			
3. Percent Of Site Being Farmed		(20)			
4. Protection Provided By State and Local Government		(20)			
5. Distance From Urban Built-up Area		(15)			
6. Distance To Urban Support Services		(15)			
7. Size Of Present Farm Unit Compared To Average		(10)			
8. Creation Of Non-farmable Farmland		(10)			
9. Availability Of Farm Support Services		(5)			
10. On-Farm Investments		(20)			
11. Effects Of Conversion On Farm Support Services		(10)			
12. Compatibility With Existing Agricultural Use		(10)			
TOTAL SITE ASSESSMENT POINTS		160			
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100			
Total Site Assessment (From Part VI above or local site assessment)		160			
TOTAL POINTS (Total of above 2 lines)		260			
Site Selected:	Date Of Selection	Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>			
Reason For Selection:					
Name of Federal agency representative completing this form:					Date:

(See Instructions on reverse side)

Form AD-1006 (03-02)

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

- Step 1 - Federal agencies (or Federally funded projects) involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form. For Corridor type projects, the Federal agency shall use form NRCS-CPA-106 in place of form AD-1006. The Land Evaluation and Site Assessment (LESA) process may also be accessed by visiting the FPPA website, <http://fppa.nrcs.usda.gov/lesa/>.
- Step 2 - Originator (Federal Agency) will send one original copy of the form together with appropriate scaled maps indicating location(s) of project site(s), to the Natural Resources Conservation Service (NRCS) local Field Office or USDA Service Center and retain a copy for their files. (NRCS has offices in most counties in the U.S. The USDA Office Information Locator may be found at http://offices.usda.gov/scripts/ndISAPI.dll/oip_public/USA_map, or the offices can usually be found in the Phone Book under U.S. Government, Department of Agriculture. A list of field offices is available from the NRCS State Conservationist and State Office in each State.)
- Step 3 - NRCS will, within 10 working days after receipt of the completed form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland. (When a site visit or land evaluation system design is needed, NRCS will respond within 30 working days.
- Step 4 - For sites where farmland covered by the FPPA will be converted by the proposed project, NRCS will complete Parts II, IV and V of the form.
- Step 5 - NRCS will return the original copy of the form to the Federal agency involved in the project, and retain a file copy for NRCS records.
- Step 6 - The Federal agency involved in the proposed project will complete Parts VI and VII of the form and return the form with the final selected site to the servicing NRCS office.
- Step 7 - The Federal agency providing financial or technical assistance to the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

(For Federal Agency)

Part I: When completing the "County and State" questions, list all the local governments that are responsible for local land use controls where site(s) are to be evaluated.

Part III: When completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them or other major change in the ability to use the land for agriculture.
2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities planned build out capacity) that will cause a direct conversion.

Part VI: Do not complete Part VI using the standard format if a State or Local site assessment is used. With local and NRCS assistance, use the local Land Evaluation and Site Assessment (LESA).

1. Assign the maximum points for each site assessment criterion as shown in § 658.5(b) of CFR. In cases of corridor-type project such as transportation, power line and flood control, criteria #5 and #6 will not apply and will, be weighted zero, however, criterion #8 will be weighed a maximum of 25 points and criterion #11 a maximum of 25 points.
2. Federal agencies may assign relative weights among the 12 site assessment criteria other than those shown on the FPPA rule after submitting individual agency FPPA policy for review and comment to NRCS. In all cases where other weights are assigned, relative adjustments must be made to maintain the maximum total points at 160. For project sites where the total points equal or exceed 160, consider alternative actions, as appropriate, that could reduce adverse impacts (e.g. Alternative Sites, Modifications or Mitigation).

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, convert the site assessment points to a base of 160.

Example: if the Site Assessment maximum is 200 points, and the alternative Site "A" is rated 180 points:

$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \times 160 = 144 \text{ points for Site A}$

For assistance in completing this form or FPPA process, contact the local NRCS Field Office or USDA Service Center.

NRCS employees, consult the FPPA Manual and/or policy for additional instructions to complete the AD-1006 form.

Form 1006 - Part VI Question #	Evaluation Methods Applied	Score	Comments
		Alt 1	
(1) How much land is in nonurban use within a radius of 1.0 miles from where the project is intended? 0-15 points	Using Monterey Zoning GIS layers, calculated the landuse within 1 mile of the project site in ArcMap.	8.5	Approximately 62.4% of land within a mile of the project site is in nonurban use.
(2) How much of the perimeter of the site borders on land in non-urban use? 0-10 points	Using Monterey Zoning GIS layers, calculated landuse on the perimeter area of project site in ArcMap.	10	While an urban build-up area is less than 0.1 miles from a portion of the northern perimeter, the project site is directly bordered by land in non-urban use
(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than 5 years of the last ten years? 0-20 points	More than 20 percent of the project site has been farmed (managed for a scheduled harvest or timber activity) for only 3 of the last 10 years.	0	Between 2005 and 2015 more than 20 percent of the land was farmed in 2007, 2008, and 2009.
(4) Is the site subject to State or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland? 0-20 points	Agricultural and Open Space Conservation Easements exist on land within the project site. Additionally, portions of the site are zoned as Coastal Agricultural Preserve according to Title 20 of the Monterey County Zoning.	20	The proposed project would maintain open space and agriculture on the project site.
(5) How close is the site to an Urban build-up area? 0-15 points	Using Monterey Zoning GIS layers, calculated proximity of urban build-areas to the project site in ArcMap.	5	An urban build-up area is located less than a mile from of the northern project site boundary.
(6) How close is the site to waterlines, sewer lines, and/or other local facilities and services whose capacities and design would promote non-agricultural uses? 0-15 points	These services exist within the urban build-up area located less than 0.1 mile from portions of the north boundary of project site.	0	

<p>(7) Is the farm unit(s) containing the site (before the project) as large as the average-size farming unit in the county? 0-10 points</p>	<p>NRCS notes that the average farm unit in Monterey County is 1076 ac. The entire project site is 12.5% of the average farm; that is 87.5% below the average farm size. For the score 1 point was deducted for ever 5% below average, down to 0 points if 50 percent or more.</p>	0	
<p>(8) If this site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns? 0-10 points</p>	<p>Approximately 112 acres of the project site, including 38 acres of prime and unique farmland as identified by FMMP, will be non-farmable. FMMP identified 55.6 acres of Prime and Unique farmland within the project site.</p>	10	<p>The proposed project would not result urban development within the project site. The project would include a 23 acre agricultural preserve. The proposed project would result in an indirect conversion of farmland.</p>
<p>(9) Does the site have available adequate supply of farm supplies, equipment dealers, processing and storage facilities and farmer's markets? 0-5 points</p>		5	
<p>(10) Does the site have substantial and well maintained on-farm investments such as barns, other storage buildings, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures? 0-20 points</p>	<p>A moderate amount of on-farm investments, including irrigation exist on the project site. The site has non-structural levees.</p>	3.5	<p>A portion of the levees were removed following flood events in 1995 to reduce future flood risks to the developed area north of the site. The levees on the proposed project site are not maintained and the site is subject to flooding during high flow events in the Carmel River.</p>

<p>(11) Would the project at this site reduce the demand for farm support services so as to jeopardize the continued existence of these support services, and thus the viability of the farms remaining in the area? 0-10 points</p>	<p>The proposed project may result in a slight reduction of demand for farm support services in the local area; however, given the proximity of the project site to the Salinas Valley the reduction of services that may result is not likely to jeopardize the continued existence of these support service in the region.</p>	<p>1</p>	<p>The agricultural preserve (part of the Restoration Component) would remain in the area, on the project site, and would require farm support services.</p>
<p>(12) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to non-agricultural use? 0-10 points</p>	<p>The proposed project improve flood control and to restore native riparian and floodplain habitat and hydrologic function to a portion of the lower floodplain along the Carmel River. The intensity of the proposed is expected to be low. The project is not incompatible with agriculture and is not anticipated to contribute to the eventual conversion of surrounding farmland to non-agricultural use.</p>	<p>0</p>	

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Appendix H

National Marine Fisheries Service Driving Calculator

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Project Title	Carmel River Floodplain Restor. & Env. Enhancement
Pile information (size, type, number, pile strikes, etc.)	56" diameter CISS pipe, 12 piles, ~2,000-3,000 strikes per pile, ~500 pile strikes per day, Impact hammer

Fill in green cells: estimated sound levels and distances at which they were measured, estimated number of pile strikes per day, and transmission loss constant.

	Acoustic Metric			
	Peak	SEL	RMS	Effective Quiet
Measured single strike level (dB)	165	140	155	150
Distance (m)	60	60	60	

Estimated number of strikes	7000
-----------------------------	-------------

Cumulative SEL at measured distance	178.45			
	Distance (m) to threshold			
	Onset of Physical Injury			Behavior
	Peak dB	Cumulative SEL dB**		RMS dB
		Fish ≥ 2 g	Fish < 2 g	
Transmission loss constant (15 if unknown)	206	187	183	150
15	0	13	13	129

** This calculation assumes that single strike SELs < 150 dB do not accumulate to cause injury (Effective Quiet)

Notes (source for estimates, etc.)
Estimates number of strikes per pile and number of pile strikes per day: Personal communication with Shawn Cullers Cornerstone Structural Engineering Group, November 18, 2016
Unattenuated Sound Measurements Example Project from Table I.2-3: Russian River Geyserville Temporary Trestle Piles - 48" CISS Steel Pipe, Land-based, Diesel Impact
Distance from piles to Carmel River: ~300 meters Distance from piles to Carmel Lagoon: ~ 460 meters
Project Action Area assumed within 1,000 meters of pile driving activity

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Appendix I

California Department of Fish and Wildlife Avoidance
and Minimization Measures

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STEELHEAD (*Oncorhynchus mykiss*)

Project work within the wetted stream shall be limited to the period between June 15 and November 1, or the first significant fall rainfall. This is to take advantage of low stream flows and to avoid the spawning and egg/alevin incubation period of steelhead.

Whenever possible, the work period at individual sites shall be further limited to entirely avoid periods when salmonids are present (for example, in a seasonal creek, work will be confined to the period when the stream is dry).

No heavy equipment shall operate in the live stream, except as may be necessary to construct coffer dams to divert stream flow and isolate the work site and to excavate the stored sediments from the stream channel immediately upstream of the road crossing.

Work must be performed in isolation from the flowing stream. If there is any flow when the work is done, the operator shall construct coffer dams upstream and downstream of the excavation site and divert all flow from upstream of the upstream dam to downstream of the downstream dam. The coffer dams may be constructed with clean river gravel or sand bags, and may be sealed with sheet plastic. Upon project completion, sand bags and any sheet plastic shall be removed from the stream in such a manner that would allow for the least disturbance to the substrate. Clean river gravel may be left in the stream, but the coffer dams must be breached to return the stream flow to its natural channel.

For minor actions, where the disturbance to construct coffer dams to isolate the work site would be greater than to complete the action (for example, placement of a single boulder cluster), measures will be put in place immediately downstream of the work site to capture suspended sediment. This may include installation of silt catchment fences across the stream, or placement of a filter berm of clean river gravel. Silt fences and other non-native materials will be removed from the stream following completion of the activity. Gravel berms may be left in place after breaching, provided they do not impede the stream flow or fish passage.

The channel shall not be excavated for the purpose of isolating the workspace from flowing water.

The Operator shall obtain a biologist with all necessary State and Federal permits, to rescue any fish within work sites prior to dewatering. Rescued fish shall be moved to the nearest appropriate site on the stream outside of the work area. A record shall be maintained of all fish rescued and moved, and the record shall be provided to DFG at the completion of the work season.

A Service-approved biologist shall permanently remove from within the project work site, any individuals of exotic species, such as bullfrogs, centrarchid fishes, and non-native crayfish, to the maximum extent possible. The Operator shall have the responsibility that such removals are done in compliance with the California Department of Fish and Game Code.

If it is necessary to divert flow around the work site, either by pump or by gravity flow, the suction end of the intake pipe shall be fitted with fish screens meeting DFG and NMFS criteria to prevent entrainment or impingement of small fish. Any turbid water pumped from the work site itself to maintain it in a dewatered state shall be disposed of in an upland location where it will not drain directly into any stream channel.

Any disturbed banks shall be fully restored upon completion of construction. Revegetation shall be done using locally obtained native species. Planting techniques can include seed casting, hydroseeding, or live planting methods using the techniques in Part XI of the *California Salmonid Stream Habitat Restoration Manual*.

Suitable large woody debris removed from fish passage barriers that is not used for habitat enhancement, shall be left within the riparian zone so as to provide a source for future recruitment of wood into the stream, reduce surface erosion, contribute to amounts of organic debris in the soil, encourage fungi, provide immediate cover for small terrestrial species, and to speed recovery of native vegetation.

The following measures shall be taken to minimize injury and mortality to listed salmonids resulting from fish relocation and dewatering activities:

- a) Fish relocation and dewatering activities shall only occur between June 15 and November 1 of each year,
- b) The Operator shall minimize the amount of wetted stream channel that is dewatered at each individual project site to the fullest extent possible, and
- c) All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

Installation of the contracted bridge(s) will be of adequate size that it will allow anadromous fish passage at all life stages and is designed to comply with current National Marine Fisheries Service (NMFS) Southwest Region fish passage guidelines.

If for some reason these mitigation measures cannot be implemented, or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to anadromous salmonids or their habitat, then activity at that work site will be discontinued.

HAZARDS AND HAZARDOUS MATERIALS

The Operator shall have dependable radio or phone communication on-site to be able to report any accidents or fire that might occur.

Heavy equipment that will be used in these activities will be in good condition and will be inspected for leakage of coolant and petroleum products and repaired, if necessary, before work is started.

All equipment operators will be trained in the procedures to be taken should an accident occur. Prior to the commencement of work, the Operator shall provide DFG with a plan allowing for prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

All activities performed in or near a stream will have absorbent materials designed for spill containment and cleanup at the activity site for use in case of an accidental spill.

All fueling and maintenance of vehicles, other equipment, and staging/storage areas shall be located at least 20 meters from any riparian habitat or water body. The Operator shall ensure contamination of habitat does not occur during such operations.

Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be checked and maintained daily, to prevent leaks or materials that if introduced to water could be deleterious to aquatic life.

Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders, located within the dry portion of the stream channel or adjacent to the stream, will be positioned over drip-pans.

All internal combustion engines shall be fitted with spark arrestors.

The Operator shall have an appropriate fire extinguisher(s) and fire fighting tools (shovel and axe at a minimum) present at all times when there is a risk of fire.

Vehicles shall not be parked in tall grass or any other location where heat from the exhaust system could ignite a fire.

The Operator shall follow any additional rules the landowner has for fire prevention.

HYDROLOGY AND WATER QUALITY

Work shall be conducted during the period of lowest flow.

If it is necessary to divert water around the work site, unimpeded bypass flows shall be maintained at all times to maintain downstream water quality.

When a dam (any artificial obstruction) is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain fishlife bellow the dam pursuant to Fish and Game Code Section 5837.

Debris, soil, silt, 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 project related activities, shall be prevented from contaminating the soil and/or entering the waters of the state. Any of these materials, placed within or where they may enter a stream or lake, by Operator or any party working under contract, or with the permission of the Operator, shall be removed immediately.

Effective erosion control measures shall be in-place at all times during construction. Construction within the 5-year flood plain will not begin until all temporary erosion controls (e.g., straw bales or silt fences that are effectively keyed-in) are in-place down slope of project activities within the riparian area. Erosion control measures shall be maintained throughout the construction period.

Adequate erosion control supplies (gravel, straw bales, shovels, etc.) shall be kept at all restoration sites to ensure sediment is kept out of water bodies. Erosion control measures shall be utilized throughout all phases of operation where sediment runoff from exposed slopes threatens to enter waters of the State. At no time shall silt laden runoff be allowed to enter the stream or be placed where it may enter the stream.

Silty/turbid water from the excavation and/or project activities shall not be discharged into the stream, lake, or into storm drains. Such water shall be pumped into a holding facility or into a settling pond located in flat stable areas outside of the stream channel, or sprayed over a large area outside the stream channel to allow for natural filtration of sediments. At no time shall turbid water from the settling ponds be allowed to enter back into the stream channel until water is clear of silt.

Sediment shall be removed from sediment controls once it has reached one-third of the exposed height of the control. Whenever straw bales are used, they shall be staked and dug into the ground six (6) inches. Catch basins shall be maintained so that no more than six (6) inches of sediment depth accumulates within traps or sumps.

Sediment-laden water created by construction, washing or other activities or shall be filtered before it leaves the right-of-way or enters the stream network or an aquatic resource area. Silt fences or other detention methods shall be installed as close as possible to culvert outlets to reduce the amount of sediment entering aquatic systems.

Preparation shall be made so that runoff from steep, erodible surfaces will be diverted into stable areas with little erosion potential.

If continued erosion is likely to occur after construction is completed, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided.

Upon project completion, all exposed soil present in and around the project site shall be stabilized within seven (7) days.

Work sites will be winterized at the end of each day when significant rains are forecast that may cause unfinished excavations to erode. Winterization procedures shall

supervised by a professional trained in erosion control techniques and involve taking necessary measures to minimize erosion on unfinished work surfaces. Winterization includes the following: smoothing unfinished surfaces to allow water to freely drain across them without concentration or ponding; compacting unfinished surfaces where concentrated runoff may flow with an excavator bucket or similar tool, to minimize surface erosion and the formation of rills; and installation of culverts, silt fences, and other erosion control devices where necessary to convey concentrated water across unfinished surfaces, and trap exposed sediment before it leave the work site.

Mulching and seeding using local native species mix is required on all exposed soil which may deliver sediment to a stream.

Poured concrete shall be excluded from the wetted channel for a period of two (2) weeks after it is poured. During that time the poured concrete shall be kept moist, and runoff shall not be allowed to enter a live stream. Commercial sealants (e.g. Deep Seal, Elasto-Deck BT Reservoir Grade) may be applied to the poured concrete surface where difficulty in excluding water flow for a long period may occur. If sealant is used, water shall be excluded from the site until the sealant is dry.

RIPARIAN VEGETATION

No more than 1/3 of any willow plant shall be harvested annually. Care shall be taken during harvest not to trample or over harvest the willow sources.

Planting of seedlings shall begin after December 1, or when sufficient rainfall has occurred to ensure the best chance of survival of the seedlings, but in no case after April 1.

Building materials and/or construction equipment shall not be stockpiled or stored where they could be washed into the water or where they will cover aquatic or riparian vegetation.

The contractor shall not dump any litter or construction debris within the riparian/stream zone. All such debris and waste shall be picked up daily and properly disposed of at an appropriate site. During all activities at project work sites, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.

The Operator shall retain as many trees and brush as feasible, emphasizing shade producing and bank stabilizing trees and brush.

The Operator shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.

Use project designs and access points that minimize riparian disturbance without affecting less stable areas, which may increase the risk of channel instability.

Minimize compaction by using equipment that either has (relative to other equipment available) less pressure per square inch on the ground or a greater reach, thus resulting in less compaction or less area overall compacted or disturbed.

At the completion of the project, soil compaction that is not an integral element of the design of a crossing should be de-compacted.

Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations.

Disturbed and compacted areas shall be revegetated with locally obtained native plant species. The species used should be specific to the project vicinity or the region of the state where the project is located, and comprise a diverse community structure (plantings should include both woody and herbaceous species). Plant at a ratio of two plantings to one removed plant.

Unless otherwise specified, the standard for success is 80 percent survival of plantings or 80 percent ground cover for broadcast planting of seed after a period of three (3) years. If at the end of three (3) years there is less than 80% survival, all dead plants shall be replaced.

RARE PLANTS

Prior to the commencement of work, the Operator will employ one or more of the following protective measures:

- a) Fencing to prevent accidental disturbance of rare plants during construction,
- b) On-site monitoring by a qualified biologist during construction to assure that rare plants are not disturbed, and
- c) Redesign of proposed work to avoid disturbance of rare plants.

If it becomes impossible to implement the project at the work site without potentially significant impacts to rare plants, then activity at that work site will be discontinued.

Appendix J

California Emissions Estimator Model (CalEEMod) Results

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Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

Carmel River Floodplain Restoration and Environmental Enhancement Project

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	128.20	Acre	128.20	5,584,392.00	0
Other Asphalt Surfaces	5.40	Acre	5.40	235,224.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.6	Precipitation Freq (Days)	55
Climate Zone	4			Operational Year	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

Project Characteristics - Inputs are consistent with Carmel River Floodplain Restoration and Environmental Enhancement Project Draft EIR/EIS

Land Use -

Construction Phase - Per construction schedule provided by Whitson Engineers.

Trips and VMT - Assumptions provided by Whitson Engineers.

Vehicle Trips - The project does not include any public parking facilities. As such, only weekday trips by maintenance workers and land managers were included in this analysis.

Consumer Products - No emission from consumer products.

Energy Use -

Water And Wastewater -

Solid Waste -

Land Use Change -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	3,100.00	232.00
tblConstructionPhase	NumDays	200.00	60.00
tblConstructionPhase	NumDays	310.00	450.00
tblConstructionPhase	NumDays	220.00	8.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	PhaseEndDate	3/30/2035	12/23/2022
tblConstructionPhase	PhaseEndDate	9/17/2021	2/9/2021
tblConstructionPhase	PhaseEndDate	5/12/2023	5/5/2022
tblConstructionPhase	PhaseEndDate	2/1/2036	12/31/2022
tblConstructionPhase	PhaseStartDate	5/13/2023	5/6/2022
tblConstructionPhase	PhaseStartDate	3/5/2022	2/10/2021

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

tblConstructionPhase	PhaseStartDate	3/31/2035	12/24/2022
tblConsumerProducts	ROG_EF	2.14E-05	0
tblGrading	AcresOfGrading	1,125.00	775.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	24.00
tblTripsAndVMT	VendorTripNumber	954.00	40.00
tblTripsAndVMT	VendorTripNumber	0.00	15.00
tblTripsAndVMT	WorkerTripNumber	15.00	40.00
tblTripsAndVMT	WorkerTripNumber	20.00	40.00
tblTripsAndVMT	WorkerTripNumber	2,444.00	40.00
tblTripsAndVMT	WorkerTripNumber	15.00	40.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	2.00

2.0 Emissions Summary

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

2.1 Overall Construction (Maximum Daily Emission)**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	3.5324	34.5676	23.6098	0.0453	0.3962	1.6682	2.0645	0.1066	1.5509	1.6575	0.0000	4,404.050 3	4,404.050 3	1.0863	0.0000	4,431.208 6
2021	4.4405	49.2209	32.9499	0.0723	8.3394	1.9963	10.3357	3.6413	1.8369	5.4782	0.0000	7,069.260 5	7,069.260 5	1.9867	0.0000	7,118.9280
2022	3.8550	41.5090	30.9278	0.0722	8.3395	1.6447	9.9841	3.6413	1.5134	5.1547	0.0000	7,055.626 5	7,055.626 5	1.9857	0.0000	7,105.268 8
Maximum	4.4405	49.2209	32.9499	0.0723	8.3395	1.9963	10.3357	3.6413	1.8369	5.4782	0.0000	7,069.260 5	7,069.260 5	1.9867	0.0000	7,118.928 0

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	3.5324	34.5676	23.6098	0.0453	0.3962	1.6682	2.0645	0.1066	1.5509	1.6575	0.0000	4,404.050 3	4,404.050 3	1.0863	0.0000	4,431.208 5
2021	4.4405	49.2209	32.9499	0.0723	4.0228	1.9963	6.0191	1.7122	1.8369	3.5491	0.0000	7,069.260 5	7,069.260 5	1.9867	0.0000	7,118.9280
2022	3.8550	41.5090	30.9278	0.0722	4.0228	1.6447	5.6675	1.7122	1.5134	3.2256	0.0000	7,055.626 5	7,055.626 5	1.9857	0.0000	7,105.268 8
Maximum	4.4405	49.2209	32.9499	0.0723	4.0228	1.9963	6.0191	1.7122	1.8369	3.5491	0.0000	7,069.260 5	7,069.260 5	1.9867	0.0000	7,118.928 0

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	50.56	0.00	38.57	52.21	0.00	31.39	0.00	0.00	0.00	0.00	0.00	0.00

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3992	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.4986	1.7702	4.9826	0.0150	1.1650	0.0121	1.1771	0.3120	0.0112	0.3232		1,512.5961	1,512.5961	0.0710		1,514.3706
Total	0.8978	1.7703	4.9962	0.0150	1.1650	0.0121	1.1771	0.3120	0.0113	0.3233		1,512.6254	1,512.6254	0.0711	0.0000	1,514.4018

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3992	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.4986	1.7702	4.9826	0.0150	1.1650	0.0121	1.1771	0.3120	0.0112	0.3232		1,512.5961	1,512.5961	0.0710		1,514.3706
Total	0.8978	1.7703	4.9962	0.0150	1.1650	0.0121	1.1771	0.3120	0.0113	0.3233		1,512.6254	1,512.6254	0.0711	0.0000	1,514.4018

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/12/2020	2/9/2021	7	60	
2	Grading	Grading	2/10/2021	5/5/2022	7	450	
3	Building Construction	Building Construction	5/6/2022	12/23/2022	7	232	
4	Paving	Paving	12/24/2022	12/31/2022	7	8	

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 775****Acres of Paving: 5.4****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	40.00	10.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	40.00	24.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	40.00	40.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	40.00	15.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

Water Exposed Area

3.2 Demolition - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0436	1.2244	0.3196	2.8800e-003	0.0676	6.6900e-003	0.0743	0.0195	6.4000e-003	0.0259		302.4774	302.4774	0.0133		302.8092
Worker	0.1767	0.1422	1.5370	3.5600e-003	0.3286	2.8400e-003	0.3314	0.0872	2.6200e-003	0.0898		353.8681	353.8681	0.0151		354.2458
Total	0.2203	1.3666	1.8566	6.4400e-003	0.3962	9.5300e-003	0.4058	0.1066	9.0200e-003	0.1157		656.3454	656.3454	0.0284		657.0549

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

3.2 Demolition - 2020**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0436	1.2244	0.3196	2.8800e-003	0.0676	6.6900e-003	0.0743	0.0195	6.4000e-003	0.0259		302.4774	302.4774	0.0133		302.8092
Worker	0.1767	0.1422	1.5370	3.5600e-003	0.3286	2.8400e-003	0.3314	0.0872	2.6200e-003	0.0898		353.8681	353.8681	0.0151		354.2458
Total	0.2203	1.3666	1.8566	6.4400e-003	0.3962	9.5300e-003	0.4058	0.1066	9.0200e-003	0.1157		656.3454	656.3454	0.0284		657.0549

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

3.2 Demolition - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0360	1.1226	0.2798	2.8500e-003	0.0677	3.4200e-003	0.0711	0.0195	3.2700e-003	0.0227		300.0855	300.0855	0.0127		300.4024
Worker	0.1629	0.1270	1.4000	3.4400e-003	0.3286	2.7400e-003	0.3313	0.0872	2.5300e-003	0.0897		342.0118	342.0118	0.0135		342.3487
Total	0.1989	1.2495	1.6798	6.2900e-003	0.3962	6.1600e-003	0.4024	0.1066	5.8000e-003	0.1124		642.0973	642.0973	0.0262		642.7512

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

3.2 Demolition - 2021**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0360	1.1226	0.2798	2.8500e-003	0.0677	3.4200e-003	0.0711	0.0195	3.2700e-003	0.0227		300.0855	300.0855	0.0127		300.4024
Worker	0.1629	0.1270	1.4000	3.4400e-003	0.3286	2.7400e-003	0.3313	0.0872	2.5300e-003	0.0897		342.0118	342.0118	0.0135		342.3487
Total	0.1989	1.2495	1.6798	6.2900e-003	0.3962	6.1600e-003	0.4024	0.1066	5.8000e-003	0.1124		642.0973	642.0973	0.0262		642.7512

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

3.3 Grading - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8485	0.0000	7.8485	3.5074	0.0000	3.5074			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	7.8485	1.9853	9.8338	3.5074	1.8265	5.3340		6,007.043 4	6,007.043 4	1.9428		6,055.613 4

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0864	2.6941	0.6715	6.8400e-003	0.1624	8.2200e-003	0.1706	0.0467	7.8600e-003	0.0546		720.2052	720.2052	0.0304		720.9658
Worker	0.1629	0.1270	1.4000	3.4400e-003	0.3286	2.7400e-003	0.3313	0.0872	2.5300e-003	0.0897		342.0118	342.0118	0.0135		342.3487
Total	0.2493	2.8211	2.0715	0.0103	0.4909	0.0110	0.5019	0.1339	0.0104	0.1443		1,062.217 0	1,062.217 0	0.0439		1,063.314 6

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

3.3 Grading - 2021**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.5318	0.0000	3.5318	1.5784	0.0000	1.5784			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	3.5318	1.9853	5.5172	1.5784	1.8265	3.4049	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0864	2.6941	0.6715	6.8400e-003	0.1624	8.2200e-003	0.1706	0.0467	7.8600e-003	0.0546		720.2052	720.2052	0.0304		720.9658
Worker	0.1629	0.1270	1.4000	3.4400e-003	0.3286	2.7400e-003	0.3313	0.0872	2.5300e-003	0.0897		342.0118	342.0118	0.0135		342.3487
Total	0.2493	2.8211	2.0715	0.0103	0.4909	0.0110	0.5019	0.1339	0.0104	0.1443		1,062.217 0	1,062.217 0	0.0439		1,063.314 6

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

3.3 Grading - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8485	0.0000	7.8485	3.5074	0.0000	3.5074			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	3.6248	38.8435	29.0415	0.0621	7.8485	1.6349	9.4834	3.5074	1.5041	5.0115		6,011.4105	6,011.4105	1.9442		6,060.0158

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0791	2.5517	0.6073	6.7800e-003	0.1624	7.1400e-003	0.1695	0.0467	6.8300e-003	0.0536		714.2437	714.2437	0.0294		714.9792
Worker	0.1510	0.1138	1.2790	3.3100e-003	0.3286	2.6400e-003	0.3312	0.0872	2.4400e-003	0.0896		329.9723	329.9723	0.0121		330.2738
Total	0.2301	2.6655	1.8863	0.0101	0.4910	9.7800e-003	0.5007	0.1339	9.2700e-003	0.1432		1,044.2160	1,044.2160	0.0415		1,045.2530

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

3.3 Grading - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.5318	0.0000	3.5318	1.5784	0.0000	1.5784			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	3.6248	38.8435	29.0415	0.0621	3.5318	1.6349	5.1667	1.5784	1.5041	3.0825	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0791	2.5517	0.6073	6.7800e-003	0.1624	7.1400e-003	0.1695	0.0467	6.8300e-003	0.0536		714.2437	714.2437	0.0294		714.9792
Worker	0.1510	0.1138	1.2790	3.3100e-003	0.3286	2.6400e-003	0.3312	0.0872	2.4400e-003	0.0896		329.9723	329.9723	0.0121		330.2738
Total	0.2301	2.6655	1.8863	0.0101	0.4910	9.7800e-003	0.5007	0.1339	9.2700e-003	0.1432		1,044.2160	1,044.2160	0.0415		1,045.2530

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

3.4 Building Construction - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1319	4.2528	1.0122	0.0113	0.2706	0.0119	0.2825	0.0779	0.0114	0.0893		1,190.4061	1,190.4061	0.0490		1,191.6320
Worker	0.1510	0.1138	1.2790	3.3100e-003	0.3286	2.6400e-003	0.3312	0.0872	2.4400e-003	0.0896		329.9723	329.9723	0.0121		330.2738
Total	0.2829	4.3666	2.2912	0.0146	0.5992	0.0145	0.6137	0.1651	0.0138	0.1789		1,520.3784	1,520.3784	0.0611		1,521.9058

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

3.4 Building Construction - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1319	4.2528	1.0122	0.0113	0.2706	0.0119	0.2825	0.0779	0.0114	0.0893		1,190.4061	1,190.4061	0.0490		1,191.6320
Worker	0.1510	0.1138	1.2790	3.3100e-003	0.3286	2.6400e-003	0.3312	0.0872	2.4400e-003	0.0896		329.9723	329.9723	0.0121		330.2738
Total	0.2829	4.3666	2.2912	0.0146	0.5992	0.0145	0.6137	0.1651	0.0138	0.1789		1,520.3784	1,520.3784	0.0611		1,521.9058

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

3.5 Paving - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	1.7685					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.8713	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0495	1.5948	0.3796	4.2400e-003	0.1015	4.4600e-003	0.1059	0.0292	4.2700e-003	0.0335		446.4023	446.4023	0.0184		446.8620
Worker	0.1510	0.1138	1.2790	3.3100e-003	0.3286	2.6400e-003	0.3312	0.0872	2.4400e-003	0.0896		329.9723	329.9723	0.0121		330.2738
Total	0.2005	1.7086	1.6586	7.5500e-003	0.4301	7.1000e-003	0.4372	0.1164	6.7100e-003	0.1231		776.3746	776.3746	0.0305		777.1358

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

3.5 Paving - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	1.7685					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.8713	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0495	1.5948	0.3796	4.2400e-003	0.1015	4.4600e-003	0.1059	0.0292	4.2700e-003	0.0335		446.4023	446.4023	0.0184		446.8620
Worker	0.1510	0.1138	1.2790	3.3100e-003	0.3286	2.6400e-003	0.3312	0.0872	2.4400e-003	0.0896		329.9723	329.9723	0.0121		330.2738
Total	0.2005	1.7086	1.6586	7.5500e-003	0.4301	7.1000e-003	0.4372	0.1164	6.7100e-003	0.1231		776.3746	776.3746	0.0305		777.1358

4.0 Operational Detail - Mobile

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4986	1.7702	4.9826	0.0150	1.1650	0.0121	1.1771	0.3120	0.0112	0.3232		1,512.596 1	1,512.596 1	0.0710		1,514.370 6
Unmitigated	0.4986	1.7702	4.9826	0.0150	1.1650	0.0121	1.1771	0.3120	0.0112	0.3232		1,512.596 1	1,512.596 1	0.0710		1,514.370 6

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	256.40	0.00	0.00	390,983	390,983
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	256.40	0.00	0.00	390,983	390,983

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.548528	0.027912	0.206330	0.127577	0.020437	0.005268	0.019586	0.027922	0.004162	0.002641	0.007642	0.001233	0.000761
Other Asphalt Surfaces	0.548528	0.027912	0.206330	0.127577	0.020437	0.005268	0.019586	0.027922	0.004162	0.002641	0.007642	0.001233	0.000761

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3992	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312
Unmitigated	0.3992	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3710					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2600e-003	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312
Total	0.3992	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3710					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2600e-003	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312
Total	0.3992	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Summer

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

Carmel River Floodplain Restoration and Environmental Enhancement Project

Monterey County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	128.20	Acre	128.20	5,584,392.00	0
Other Asphalt Surfaces	5.40	Acre	5.40	235,224.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.6	Precipitation Freq (Days)	55
Climate Zone	4			Operational Year	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

Project Characteristics - Inputs are consistent with Carmel River Floodplain Restoration and Environmental Enhancement Project Draft EIR/EIS

Land Use -

Construction Phase - Per construction schedule provided by Whitson Engineers.

Trips and VMT - Assumptions provided by Whitson Engineers.

Vehicle Trips - The project does not include any public parking facilities. As such, only weekday trips by maintenance workers and land managers were included in this analysis.

Consumer Products - No emission from consumer products.

Energy Use -

Water And Wastewater -

Solid Waste -

Land Use Change -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	3,100.00	232.00
tblConstructionPhase	NumDays	200.00	60.00
tblConstructionPhase	NumDays	310.00	450.00
tblConstructionPhase	NumDays	220.00	8.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	PhaseEndDate	3/30/2035	12/23/2022
tblConstructionPhase	PhaseEndDate	9/17/2021	2/9/2021
tblConstructionPhase	PhaseEndDate	5/12/2023	5/5/2022
tblConstructionPhase	PhaseEndDate	2/1/2036	12/31/2022
tblConstructionPhase	PhaseStartDate	5/13/2023	5/6/2022
tblConstructionPhase	PhaseStartDate	3/5/2022	2/10/2021

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

tblConstructionPhase	PhaseStartDate	3/31/2035	12/24/2022
tblConsumerProducts	ROG_EF	2.14E-05	0
tblGrading	AcresOfGrading	1,125.00	775.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	24.00
tblTripsAndVMT	VendorTripNumber	954.00	40.00
tblTripsAndVMT	VendorTripNumber	0.00	15.00
tblTripsAndVMT	WorkerTripNumber	15.00	40.00
tblTripsAndVMT	WorkerTripNumber	20.00	40.00
tblTripsAndVMT	WorkerTripNumber	2,444.00	40.00
tblTripsAndVMT	WorkerTripNumber	15.00	40.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	2.00

2.0 Emissions Summary

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

2.1 Overall Construction (Maximum Daily Emission)**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	3.5505	34.6187	23.6304	0.0449	0.3962	1.6684	2.0646	0.1066	1.5510	1.6577	0.0000	4,372.758 5	4,372.758 5	1.0868	0.0000	4,399.929 3
2021	4.4604	49.2774	33.0234	0.0719	8.3394	1.9967	10.3361	3.6413	1.8373	5.4786	0.0000	7,026.412 3	7,026.412 3	1.9889	0.0000	7,076.135 8
2022	3.8735	41.5565	30.9921	0.0718	8.3395	1.6450	9.9845	3.6413	1.5137	5.1550	0.0000	7,013.473 8	7,013.473 8	1.9880	0.0000	7,063.172 6
Maximum	4.4604	49.2774	33.0234	0.0719	8.3395	1.9967	10.3361	3.6413	1.8373	5.4786	0.0000	7,026.412 3	7,026.412 3	1.9889	0.0000	7,076.135 8

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	3.5505	34.6187	23.6304	0.0449	0.3962	1.6684	2.0646	0.1066	1.5510	1.6577	0.0000	4,372.758 5	4,372.758 5	1.0868	0.0000	4,399.929 3
2021	4.4604	49.2774	33.0234	0.0719	4.0228	1.9967	6.0194	1.7122	1.8373	3.5495	0.0000	7,026.412 3	7,026.412 3	1.9889	0.0000	7,076.135 8
2022	3.8735	41.5565	30.9921	0.0718	4.0228	1.6450	5.6678	1.7122	1.5137	3.2259	0.0000	7,013.473 8	7,013.473 8	1.9880	0.0000	7,063.172 6
Maximum	4.4604	49.2774	33.0234	0.0719	4.0228	1.9967	6.0194	1.7122	1.8373	3.5495	0.0000	7,026.412 3	7,026.412 3	1.9889	0.0000	7,076.135 8

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	50.56	0.00	38.57	52.21	0.00	31.39	0.00	0.00	0.00	0.00	0.00	0.00

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3992	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.4574	1.8875	5.2433	0.0142	1.1650	0.0121	1.1772	0.3120	0.0113	0.3233		1,432.2153	1,432.2153	0.0725		1,434.0281
Total	0.8566	1.8876	5.2569	0.0142	1.1650	0.0122	1.1772	0.3120	0.0114	0.3234		1,432.2446	1,432.2446	0.0726	0.0000	1,434.0592

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3992	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.4574	1.8875	5.2433	0.0142	1.1650	0.0121	1.1772	0.3120	0.0113	0.3233		1,432.2153	1,432.2153	0.0725		1,434.0281
Total	0.8566	1.8876	5.2569	0.0142	1.1650	0.0122	1.1772	0.3120	0.0114	0.3234		1,432.2446	1,432.2446	0.0726	0.0000	1,434.0592

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/12/2020	2/9/2021	7	60	
2	Grading	Grading	2/10/2021	5/5/2022	7	450	
3	Building Construction	Building Construction	5/6/2022	12/23/2022	7	232	
4	Paving	Paving	12/24/2022	12/31/2022	7	8	

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 775****Acres of Paving: 5.4****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	40.00	10.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	40.00	24.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	40.00	40.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	40.00	15.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

Water Exposed Area

3.2 Demolition - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0461	1.2386	0.3649	2.7900e-003	0.0676	6.8700e-003	0.0745	0.0195	6.5700e-003	0.0260		293.7214	293.7214	0.0145		294.0834
Worker	0.1923	0.1791	1.5124	3.3300e-003	0.3286	2.8400e-003	0.3314	0.0872	2.6200e-003	0.0898		331.3322	331.3322	0.0144		331.6923
Total	0.2384	1.4177	1.8772	6.1200e-003	0.3962	9.7100e-003	0.4059	0.1066	9.1900e-003	0.1158		625.0536	625.0536	0.0289		625.7757

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

3.2 Demolition - 2020**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0461	1.2386	0.3649	2.7900e-003	0.0676	6.8700e-003	0.0745	0.0195	6.5700e-003	0.0260		293.7214	293.7214	0.0145		294.0834
Worker	0.1923	0.1791	1.5124	3.3300e-003	0.3286	2.8400e-003	0.3314	0.0872	2.6200e-003	0.0898		331.3322	331.3322	0.0144		331.6923
Total	0.2384	1.4177	1.8772	6.1200e-003	0.3962	9.7100e-003	0.4059	0.1066	9.1900e-003	0.1158		625.0536	625.0536	0.0289		625.7757

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

3.2 Demolition - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0383	1.1324	0.3217	2.7700e-003	0.0677	3.5800e-003	0.0712	0.0195	3.4200e-003	0.0229		291.3079	291.3079	0.0139		291.6551
Worker	0.1773	0.1598	1.3728	3.2200e-003	0.3286	2.7400e-003	0.3313	0.0872	2.5300e-003	0.0897		320.2298	320.2298	0.0128		320.5502
Total	0.2156	1.2922	1.6945	5.9900e-003	0.3962	6.3200e-003	0.4026	0.1066	5.9500e-003	0.1126		611.5377	611.5377	0.0267		612.2053

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

3.2 Demolition - 2021**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0383	1.1324	0.3217	2.7700e-003	0.0677	3.5800e-003	0.0712	0.0195	3.4200e-003	0.0229		291.3079	291.3079	0.0139		291.6551
Worker	0.1773	0.1598	1.3728	3.2200e-003	0.3286	2.7400e-003	0.3313	0.0872	2.5300e-003	0.0897		320.2298	320.2298	0.0128		320.5502
Total	0.2156	1.2922	1.6945	5.9900e-003	0.3962	6.3200e-003	0.4026	0.1066	5.9500e-003	0.1126		611.5377	611.5377	0.0267		612.2053

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

3.3 Grading - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8485	0.0000	7.8485	3.5074	0.0000	3.5074			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	7.8485	1.9853	9.8338	3.5074	1.8265	5.3340		6,007.043 4	6,007.043 4	1.9428		6,055.613 4

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0920	2.7178	0.7722	6.6500e-003	0.1624	8.5900e-003	0.1709	0.0467	8.2200e-003	0.0549		699.1390	699.1390	0.0333		699.9722
Worker	0.1773	0.1598	1.3728	3.2200e-003	0.3286	2.7400e-003	0.3313	0.0872	2.5300e-003	0.0897		320.2298	320.2298	0.0128		320.5502
Total	0.2693	2.8776	2.1450	9.8700e-003	0.4909	0.0113	0.5023	0.1339	0.0108	0.1446		1,019.368 8	1,019.368 8	0.0461		1,020.522 4

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

3.3 Grading - 2021**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.5318	0.0000	3.5318	1.5784	0.0000	1.5784			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	3.5318	1.9853	5.5172	1.5784	1.8265	3.4049	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0920	2.7178	0.7722	6.6500e-003	0.1624	8.5900e-003	0.1709	0.0467	8.2200e-003	0.0549		699.1390	699.1390	0.0333		699.9722
Worker	0.1773	0.1598	1.3728	3.2200e-003	0.3286	2.7400e-003	0.3313	0.0872	2.5300e-003	0.0897		320.2298	320.2298	0.0128		320.5502
Total	0.2693	2.8776	2.1450	9.8700e-003	0.4909	0.0113	0.5023	0.1339	0.0108	0.1446		1,019.368 8	1,019.368 8	0.0461		1,020.522 4

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

3.3 Grading - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8485	0.0000	7.8485	3.5074	0.0000	3.5074			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	3.6248	38.8435	29.0415	0.0621	7.8485	1.6349	9.4834	3.5074	1.5041	5.0115		6,011.4105	6,011.4105	1.9442		6,060.0158

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0843	2.5699	0.7006	6.5900e-003	0.1624	7.4900e-003	0.1699	0.0467	7.1600e-003	0.0539		693.1019	693.1019	0.0323		693.9096
Worker	0.1645	0.1432	1.2500	3.1000e-003	0.3286	2.6400e-003	0.3312	0.0872	2.4400e-003	0.0896		308.9614	308.9614	0.0114		309.2472
Total	0.2487	2.7131	1.9506	9.6900e-003	0.4910	0.0101	0.5011	0.1339	9.6000e-003	0.1435		1,002.0633	1,002.0633	0.0437		1,003.1568

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

3.3 Grading - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.5318	0.0000	3.5318	1.5784	0.0000	1.5784			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	3.6248	38.8435	29.0415	0.0621	3.5318	1.6349	5.1667	1.5784	1.5041	3.0825	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0843	2.5699	0.7006	6.5900e-003	0.1624	7.4900e-003	0.1699	0.0467	7.1600e-003	0.0539		693.1019	693.1019	0.0323		693.9096
Worker	0.1645	0.1432	1.2500	3.1000e-003	0.3286	2.6400e-003	0.3312	0.0872	2.4400e-003	0.0896		308.9614	308.9614	0.0114		309.2472
Total	0.2487	2.7131	1.9506	9.6900e-003	0.4910	0.0101	0.5011	0.1339	9.6000e-003	0.1435		1,002.0633	1,002.0633	0.0437		1,003.1568

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

3.4 Building Construction - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1404	4.2831	1.1676	0.0110	0.2706	0.0125	0.2831	0.0779	0.0119	0.0898		1,155.1699	1,155.1699	0.0538		1,156.5159
Worker	0.1645	0.1432	1.2500	3.1000e-003	0.3286	2.6400e-003	0.3312	0.0872	2.4400e-003	0.0896		308.9614	308.9614	0.0114		309.2472
Total	0.3049	4.4263	2.4176	0.0141	0.5992	0.0151	0.6143	0.1651	0.0144	0.1794		1,464.1312	1,464.1312	0.0653		1,465.7632

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

3.4 Building Construction - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1404	4.2831	1.1676	0.0110	0.2706	0.0125	0.2831	0.0779	0.0119	0.0898		1,155.1699	1,155.1699	0.0538		1,156.5159
Worker	0.1645	0.1432	1.2500	3.1000e-003	0.3286	2.6400e-003	0.3312	0.0872	2.4400e-003	0.0896		308.9614	308.9614	0.0114		309.2472
Total	0.3049	4.4263	2.4176	0.0141	0.5992	0.0151	0.6143	0.1651	0.0144	0.1794		1,464.1312	1,464.1312	0.0653		1,465.7632

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

3.5 Paving - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	1.7685					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.8713	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0527	1.6062	0.4378	4.1200e-003	0.1015	4.6800e-003	0.1062	0.0292	4.4800e-003	0.0337		433.1887	433.1887	0.0202		433.6935
Worker	0.1645	0.1432	1.2500	3.1000e-003	0.3286	2.6400e-003	0.3312	0.0872	2.4400e-003	0.0896		308.9614	308.9614	0.0114		309.2472
Total	0.2171	1.7494	1.6878	7.2200e-003	0.4301	7.3200e-003	0.4374	0.1164	6.9200e-003	0.1233		742.1501	742.1501	0.0316		742.9407

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

3.5 Paving - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	1.7685					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.8713	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0527	1.6062	0.4378	4.1200e-003	0.1015	4.6800e-003	0.1062	0.0292	4.4800e-003	0.0337		433.1887	433.1887	0.0202		433.6935
Worker	0.1645	0.1432	1.2500	3.1000e-003	0.3286	2.6400e-003	0.3312	0.0872	2.4400e-003	0.0896		308.9614	308.9614	0.0114		309.2472
Total	0.2171	1.7494	1.6878	7.2200e-003	0.4301	7.3200e-003	0.4374	0.1164	6.9200e-003	0.1233		742.1501	742.1501	0.0316		742.9407

4.0 Operational Detail - Mobile

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4574	1.8875	5.2433	0.0142	1.1650	0.0121	1.1772	0.3120	0.0113	0.3233		1,432.2153	1,432.2153	0.0725		1,434.0281
Unmitigated	0.4574	1.8875	5.2433	0.0142	1.1650	0.0121	1.1772	0.3120	0.0113	0.3233		1,432.2153	1,432.2153	0.0725		1,434.0281

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	256.40	0.00	0.00	390,983	390,983
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	256.40	0.00	0.00	390,983	390,983

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.548528	0.027912	0.206330	0.127577	0.020437	0.005268	0.019586	0.027922	0.004162	0.002641	0.007642	0.001233	0.000761
Other Asphalt Surfaces	0.548528	0.027912	0.206330	0.127577	0.020437	0.005268	0.019586	0.027922	0.004162	0.002641	0.007642	0.001233	0.000761

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3992	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312
Unmitigated	0.3992	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3710					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2600e-003	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312
Total	0.3992	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3710					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2600e-003	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312
Total	0.3992	1.2000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0292	0.0292	8.0000e-005		0.0312

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Winter

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Annual

Carmel River Floodplain Restoration and Environmental Enhancement Project

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	128.20	Acre	128.20	5,584,392.00	0
Other Asphalt Surfaces	5.40	Acre	5.40	235,224.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.6	Precipitation Freq (Days)	55
Climate Zone	4			Operational Year	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

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Project Characteristics - Inputs are consistent with Carmel River Floodplain Restoration and Environmental Enhancement Project Draft EIR/EIS

Land Use -

Construction Phase - Per construction schedule provided by Whitson Engineers.

Trips and VMT - Assumptions provided by Whitson Engineers.

Vehicle Trips - The project does not include any public parking facilities. As such, only weekday trips by maintenance workers and land managers were included in this analysis.

Consumer Products - No emission from consumer products.

Energy Use -

Water And Wastewater -

Solid Waste -

Land Use Change -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	3,100.00	232.00
tblConstructionPhase	NumDays	200.00	60.00
tblConstructionPhase	NumDays	310.00	450.00
tblConstructionPhase	NumDays	220.00	8.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	PhaseEndDate	3/30/2035	12/23/2022
tblConstructionPhase	PhaseEndDate	9/17/2021	2/9/2021
tblConstructionPhase	PhaseEndDate	5/12/2023	5/5/2022
tblConstructionPhase	PhaseEndDate	2/1/2036	12/31/2022
tblConstructionPhase	PhaseStartDate	5/13/2023	5/6/2022
tblConstructionPhase	PhaseStartDate	3/5/2022	2/10/2021

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tblConstructionPhase	PhaseStartDate	3/31/2035	12/24/2022
tblConsumerProducts	ROG_EF	2.14E-05	0
tblGrading	AcresOfGrading	1,125.00	775.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	24.00
tblTripsAndVMT	VendorTripNumber	954.00	40.00
tblTripsAndVMT	VendorTripNumber	0.00	15.00
tblTripsAndVMT	WorkerTripNumber	15.00	40.00
tblTripsAndVMT	WorkerTripNumber	20.00	40.00
tblTripsAndVMT	WorkerTripNumber	2,444.00	40.00
tblTripsAndVMT	WorkerTripNumber	15.00	40.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	2.00

2.0 Emissions Summary

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2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0353	0.3461	0.2355	4.5000e-004	3.8400e-003	0.0167	0.0205	1.0400e-003	0.0155	0.0165	0.0000	39.7326	39.7326	9.8500e-003	0.0000	39.9789
2021	0.7890	8.6610	5.8131	0.0126	1.4745	0.3556	1.8301	0.6055	0.3275	0.9330	0.0000	1,117.1157	1,117.1157	0.3126	0.0000	1,124.9300
2022	0.4842	4.9736	4.1596	9.4000e-003	0.8862	0.2007	1.0868	0.2785	0.1866	0.4651	0.0000	834.4092	834.4092	0.1863	0.0000	839.0669
Maximum	0.7890	8.6610	5.8131	0.0126	1.4745	0.3556	1.8301	0.6055	0.3275	0.9330	0.0000	1,117.1157	1,117.1157	0.3126	0.0000	1,124.9300

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0353	0.3461	0.2355	4.5000e-004	3.8400e-003	0.0167	0.0205	1.0400e-003	0.0155	0.0165	0.0000	39.7326	39.7326	9.8500e-003	0.0000	39.9789
2021	0.7890	8.6610	5.8131	0.0126	0.7103	0.3556	1.0659	0.2853	0.3275	0.6127	0.0000	1,117.1146	1,117.1146	0.3126	0.0000	1,124.9289
2022	0.4842	4.9736	4.1596	9.4000e-003	0.4531	0.2007	0.6538	0.1403	0.1866	0.3269	0.0000	834.4085	834.4085	0.1863	0.0000	839.0662
Maximum	0.7890	8.6610	5.8131	0.0126	0.7103	0.3556	1.0659	0.2853	0.3275	0.6127	0.0000	1,117.1146	1,117.1146	0.3126	0.0000	1,124.9289

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	50.64	0.00	40.76	51.80	0.00	32.41	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	12-12-2020	3-11-2021	1.9100	1.9100
2	3-12-2021	6-11-2021	2.4692	2.4692
3	6-12-2021	9-11-2021	2.4684	2.4684
4	9-12-2021	12-11-2021	2.4443	2.4443
5	12-12-2021	3-11-2022	2.1274	2.1274
6	3-12-2022	6-11-2022	1.6546	1.6546
7	6-12-2022	9-11-2022	1.0107	1.0107
8	9-12-2022	9-30-2022	0.2087	0.2087
		Highest	2.4692	2.4692

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2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0728	2.0000e-005	1.7000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.3200e-003	3.3200e-003	1.0000e-005	0.0000	3.5300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0597	0.2395	0.6426	1.8600e-003	0.1466	1.5700e-003	0.1482	0.0394	1.4600e-003	0.0408	0.0000	170.2522	170.2522	8.3400e-003	0.0000	170.4606
Waste						0.0000	0.0000		0.0000	0.0000	2.2390	0.0000	2.2390	0.1323	0.0000	5.5470
Water						0.0000	0.0000		0.0000	0.0000	0.0000	155.5264	155.5264	7.0300e-003	1.4500e-003	156.1358
Total	0.1325	0.2395	0.6443	1.8600e-003	0.1466	1.5800e-003	0.1482	0.0394	1.4700e-003	0.0408	2.2390	325.7819	328.0209	0.1477	1.4500e-003	332.1469

Mitigated Operational

[illegible]

Carmel River Floodplain Restoration and Environmental Enhancement Project - Monterey County, Annual

2.3 Vegetation**Vegetation**

	CO2e
Category	MT
Vegetation Land Change	5,330.000 0
Total	5,330.000 0

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/12/2020	2/9/2021	7	60	
2	Grading	Grading	2/10/2021	5/5/2022	7	450	
3	Building Construction	Building Construction	5/6/2022	12/23/2022	7	232	
4	Paving	Paving	12/24/2022	12/31/2022	7	8	

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 775****Acres of Paving: 5.4****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

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OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	40.00	10.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	40.00	24.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	40.00	40.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	40.00	15.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

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3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2386
Total	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2386

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3.2 Demolition - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.5000e-004	0.0124	3.4000e-003	3.0000e-005	6.6000e-004	7.0000e-005	7.3000e-004	1.9000e-004	6.0000e-005	2.5000e-004	0.0000	2.7106	2.7106	1.3000e-004	0.0000	2.7138
Worker	1.7500e-003	1.6300e-003	0.0146	3.0000e-005	3.1800e-003	3.0000e-005	3.2100e-003	8.5000e-004	3.0000e-005	8.7000e-004	0.0000	3.0234	3.0234	1.3000e-004	0.0000	3.0266
Total	2.2000e-003	0.0140	0.0180	6.0000e-005	3.8400e-003	1.0000e-004	3.9400e-003	1.0400e-003	9.0000e-005	1.1200e-003	0.0000	5.7340	5.7340	2.6000e-004	0.0000	5.7404

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2385
Total	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2385

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3.2 Demolition - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.5000e-004	0.0124	3.4000e-003	3.0000e-005	6.6000e-004	7.0000e-005	7.3000e-004	1.9000e-004	6.0000e-005	2.5000e-004	0.0000	2.7106	2.7106	1.3000e-004	0.0000	2.7138
Worker	1.7500e-003	1.6300e-003	0.0146	3.0000e-005	3.1800e-003	3.0000e-005	3.2100e-003	8.5000e-004	3.0000e-005	8.7000e-004	0.0000	3.0234	3.0234	1.3000e-004	0.0000	3.0266
Total	2.2000e-003	0.0140	0.0180	6.0000e-005	3.8400e-003	1.0000e-004	3.9400e-003	1.0400e-003	9.0000e-005	1.1200e-003	0.0000	5.7340	5.7340	2.6000e-004	0.0000	5.7404

3.2 Demolition - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0633	0.6288	0.4313	7.8000e-004		0.0310	0.0310		0.0288	0.0288	0.0000	68.0016	68.0016	0.0191	0.0000	68.4801
Total	0.0633	0.6288	0.4313	7.8000e-004		0.0310	0.0310		0.0288	0.0288	0.0000	68.0016	68.0016	0.0191	0.0000	68.4801

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3.2 Demolition - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.4000e-004	0.0227	5.9700e-003	6.0000e-005	1.3200e-003	7.0000e-005	1.3900e-003	3.8000e-004	7.0000e-005	4.5000e-004	0.0000	5.3777	5.3777	2.4000e-004	0.0000	5.3837
Worker	3.2300e-003	2.9000e-003	0.0265	6.0000e-005	6.3600e-003	5.0000e-005	6.4100e-003	1.6900e-003	5.0000e-005	1.7400e-003	0.0000	5.8441	5.8441	2.3000e-004	0.0000	5.8499
Total	3.9700e-003	0.0256	0.0325	1.2000e-004	7.6800e-003	1.2000e-004	7.8000e-003	2.0700e-003	1.2000e-004	2.1900e-003	0.0000	11.2218	11.2218	4.7000e-004	0.0000	11.2336

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0633	0.6288	0.4313	7.8000e-004		0.0310	0.0310		0.0288	0.0288	0.0000	68.0015	68.0015	0.0191	0.0000	68.4800
Total	0.0633	0.6288	0.4313	7.8000e-004		0.0310	0.0310		0.0288	0.0288	0.0000	68.0015	68.0015	0.0191	0.0000	68.4800

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3.2 Demolition - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.4000e-004	0.0227	5.9700e-003	6.0000e-005	1.3200e-003	7.0000e-005	1.3900e-003	3.8000e-004	7.0000e-005	4.5000e-004	0.0000	5.3777	5.3777	2.4000e-004	0.0000	5.3837
Worker	3.2300e-003	2.9000e-003	0.0265	6.0000e-005	6.3600e-003	5.0000e-005	6.4100e-003	1.6900e-003	5.0000e-005	1.7400e-003	0.0000	5.8441	5.8441	2.3000e-004	0.0000	5.8499
Total	3.9700e-003	0.0256	0.0325	1.2000e-004	7.6800e-003	1.2000e-004	7.8000e-003	2.0700e-003	1.2000e-004	2.1900e-003	0.0000	11.2218	11.2218	4.7000e-004	0.0000	11.2336

3.3 Grading - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3895	0.0000	1.3895	0.5823	0.0000	0.5823	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.6811	7.5400	5.0178	0.0101		0.3226	0.3226		0.2968	0.2968	0.0000	885.5435	885.5435	0.2864	0.0000	892.7035
Total	0.6811	7.5400	5.0178	0.0101	1.3895	0.3226	1.7122	0.5823	0.2968	0.8791	0.0000	885.5435	885.5435	0.2864	0.0000	892.7035

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3.3 Grading - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0144	0.4430	0.1165	1.1000e-003	0.0257	1.3600e-003	0.0270	7.4200e-003	1.3000e-003	8.7200e-003	0.0000	104.8655	104.8655	4.6800e-003	0.0000	104.9824
Worker	0.0262	0.0236	0.2152	5.3000e-004	0.0517	4.5000e-004	0.0521	0.0137	4.1000e-004	0.0142	0.0000	47.4833	47.4833	1.8800e-003	0.0000	47.5304
Total	0.0406	0.4666	0.3316	1.6300e-003	0.0773	1.8100e-003	0.0791	0.0212	1.7100e-003	0.0229	0.0000	152.3489	152.3489	6.5600e-003	0.0000	152.5128

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.6253	0.0000	0.6253	0.2620	0.0000	0.2620	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.6811	7.5400	5.0177	0.0101		0.3226	0.3226		0.2968	0.2968	0.0000	885.5424	885.5424	0.2864	0.0000	892.7025
Total	0.6811	7.5400	5.0177	0.0101	0.6253	0.3226	0.9479	0.2620	0.2968	0.5588	0.0000	885.5424	885.5424	0.2864	0.0000	892.7025

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3.3 Grading - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0144	0.4430	0.1165	1.1000e-003	0.0257	1.3600e-003	0.0270	7.4200e-003	1.3000e-003	8.7200e-003	0.0000	104.8655	104.8655	4.6800e-003	0.0000	104.9824
Worker	0.0262	0.0236	0.2152	5.3000e-004	0.0517	4.5000e-004	0.0521	0.0137	4.1000e-004	0.0142	0.0000	47.4833	47.4833	1.8800e-003	0.0000	47.5304
Total	0.0406	0.4666	0.3316	1.6300e-003	0.0773	1.8100e-003	0.0791	0.0212	1.7100e-003	0.0229	0.0000	152.3489	152.3489	6.5600e-003	0.0000	152.5128

3.3 Grading - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.7873	0.0000	0.7873	0.2513	0.0000	0.2513	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2266	2.4277	1.8151	3.8800e-003		0.1022	0.1022		0.0940	0.0940	0.0000	340.8412	340.8412	0.1102	0.0000	343.5971
Total	0.2266	2.4277	1.8151	3.8800e-003	0.7873	0.1022	0.8895	0.2513	0.0940	0.3453	0.0000	340.8412	340.8412	0.1102	0.0000	343.5971

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3.3 Grading - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0700e-003	0.1612	0.0406	4.2000e-004	9.8800e-003	4.6000e-004	0.0103	2.8500e-003	4.4000e-004	3.2900e-003	0.0000	39.9931	39.9931	1.7400e-003	0.0000	40.0366
Worker	9.3500e-003	8.1300e-003	0.0754	2.0000e-004	0.0199	1.7000e-004	0.0200	5.2800e-003	1.5000e-004	5.4300e-003	0.0000	17.6202	17.6202	6.5000e-004	0.0000	17.6363
Total	0.0144	0.1693	0.1160	6.2000e-004	0.0297	6.3000e-004	0.0304	8.1300e-003	5.9000e-004	8.7200e-003	0.0000	57.6133	57.6133	2.3900e-003	0.0000	57.6730

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3543	0.0000	0.3543	0.1131	0.0000	0.1131	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2266	2.4277	1.8151	3.8800e-003		0.1022	0.1022		0.0940	0.0940	0.0000	340.8408	340.8408	0.1102	0.0000	343.5967
Total	0.2266	2.4277	1.8151	3.8800e-003	0.3543	0.1022	0.4565	0.1131	0.0940	0.2071	0.0000	340.8408	340.8408	0.1102	0.0000	343.5967

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3.3 Grading - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0700e-003	0.1612	0.0406	4.2000e-004	9.8800e-003	4.6000e-004	0.0103	2.8500e-003	4.4000e-004	3.2900e-003	0.0000	39.9931	39.9931	1.7400e-003	0.0000	40.0366
Worker	9.3500e-003	8.1300e-003	0.0754	2.0000e-004	0.0199	1.7000e-004	0.0200	5.2800e-003	1.5000e-004	5.4300e-003	0.0000	17.6202	17.6202	6.5000e-004	0.0000	17.6363
Total	0.0144	0.1693	0.1160	6.2000e-004	0.0297	6.3000e-004	0.0304	8.1300e-003	5.9000e-004	8.7200e-003	0.0000	57.6133	57.6133	2.3900e-003	0.0000	57.6730

3.4 Building Construction - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1979	1.8114	1.8982	3.1200e-003		0.0939	0.0939		0.0883	0.0883	0.0000	268.8013	268.8013	0.0644	0.0000	270.4112
Total	0.1979	1.8114	1.8982	3.1200e-003		0.0939	0.0939		0.0883	0.0883	0.0000	268.8013	268.8013	0.0644	0.0000	270.4112

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3.4 Building Construction - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0157	0.4986	0.1255	1.3000e-003	0.0306	1.4100e-003	0.0320	8.8300e-003	1.3500e-003	0.0102	0.0000	123.7120	123.7120	5.3800e-003	0.0000	123.8466
Worker	0.0174	0.0151	0.1400	3.6000e-004	0.0369	3.1000e-004	0.0372	9.8000e-003	2.8000e-004	0.0101	0.0000	32.7030	32.7030	1.2000e-003	0.0000	32.7331
Total	0.0331	0.5137	0.2655	1.6600e-003	0.0674	1.7200e-003	0.0691	0.0186	1.6300e-003	0.0203	0.0000	156.4150	156.4150	6.5800e-003	0.0000	156.5796

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1979	1.8114	1.8982	3.1200e-003		0.0939	0.0939		0.0883	0.0883	0.0000	268.8010	268.8010	0.0644	0.0000	270.4109
Total	0.1979	1.8114	1.8982	3.1200e-003		0.0939	0.0939		0.0883	0.0883	0.0000	268.8010	268.8010	0.0644	0.0000	270.4109

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3.4 Building Construction - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0157	0.4986	0.1255	1.3000e-003	0.0306	1.4100e-003	0.0320	8.8300e-003	1.3500e-003	0.0102	0.0000	123.7120	123.7120	5.3800e-003	0.0000	123.8466
Worker	0.0174	0.0151	0.1400	3.6000e-004	0.0369	3.1000e-004	0.0372	9.8000e-003	2.8000e-004	0.0101	0.0000	32.7030	32.7030	1.2000e-003	0.0000	32.7331
Total	0.0331	0.5137	0.2655	1.6600e-003	0.0674	1.7200e-003	0.0691	0.0186	1.6300e-003	0.0203	0.0000	156.4150	156.4150	6.5800e-003	0.0000	156.5796

3.5 Paving - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4100e-003	0.0445	0.0583	9.0000e-005		2.2700e-003	2.2700e-003		2.0900e-003	2.0900e-003	0.0000	8.0110	8.0110	2.5900e-003	0.0000	8.0758
Paving	7.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0115	0.0445	0.0583	9.0000e-005		2.2700e-003	2.2700e-003		2.0900e-003	2.0900e-003	0.0000	8.0110	8.0110	2.5900e-003	0.0000	8.0758

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3.5 Paving - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-004	6.4500e-003	1.6200e-003	2.0000e-005	4.0000e-004	2.0000e-005	4.1000e-004	1.1000e-004	2.0000e-005	1.3000e-004	0.0000	1.5997	1.5997	7.0000e-005	0.0000	1.6015
Worker	6.0000e-004	5.2000e-004	4.8300e-003	1.0000e-005	1.2700e-003	1.0000e-005	1.2800e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.1277	1.1277	4.0000e-005	0.0000	1.1287
Total	8.0000e-004	6.9700e-003	6.4500e-003	3.0000e-005	1.6700e-003	3.0000e-005	1.6900e-003	4.5000e-004	3.0000e-005	4.8000e-004	0.0000	2.7274	2.7274	1.1000e-004	0.0000	2.7302

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4100e-003	0.0445	0.0583	9.0000e-005		2.2700e-003	2.2700e-003		2.0900e-003	2.0900e-003	0.0000	8.0110	8.0110	2.5900e-003	0.0000	8.0758
Paving	7.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0115	0.0445	0.0583	9.0000e-005		2.2700e-003	2.2700e-003		2.0900e-003	2.0900e-003	0.0000	8.0110	8.0110	2.5900e-003	0.0000	8.0758

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3.5 Paving - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-004	6.4500e-003	1.6200e-003	2.0000e-005	4.0000e-004	2.0000e-005	4.1000e-004	1.1000e-004	2.0000e-005	1.3000e-004	0.0000	1.5997	1.5997	7.0000e-005	0.0000	1.6015
Worker	6.0000e-004	5.2000e-004	4.8300e-003	1.0000e-005	1.2700e-003	1.0000e-005	1.2800e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.1277	1.1277	4.0000e-005	0.0000	1.1287
Total	8.0000e-004	6.9700e-003	6.4500e-003	3.0000e-005	1.6700e-003	3.0000e-005	1.6900e-003	4.5000e-004	3.0000e-005	4.8000e-004	0.0000	2.7274	2.7274	1.1000e-004	0.0000	2.7302

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0597	0.2395	0.6426	1.8600e-003	0.1466	1.5700e-003	0.1482	0.0394	1.4600e-003	0.0408	0.0000	170.2522	170.2522	8.3400e-003	0.0000	170.4606
Unmitigated	0.0597	0.2395	0.6426	1.8600e-003	0.1466	1.5700e-003	0.1482	0.0394	1.4600e-003	0.0408	0.0000	170.2522	170.2522	8.3400e-003	0.0000	170.4606

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	256.40	0.00	0.00	390,983	390,983
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	256.40	0.00	0.00	390,983	390,983

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.548528	0.027912	0.206330	0.127577	0.020437	0.005268	0.019586	0.027922	0.004162	0.002641	0.007642	0.001233	0.000761
Other Asphalt Surfaces	0.548528	0.027912	0.206330	0.127577	0.020437	0.005268	0.019586	0.027922	0.004162	0.002641	0.007642	0.001233	0.000761

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

[illegible]

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5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

Mitigated

[illegible]

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5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0728	2.0000e-005	1.7000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.3200e-003	3.3200e-003	1.0000e-005	0.0000	3.5300e-003
Unmitigated	0.0728	2.0000e-005	1.7000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.3200e-003	3.3200e-003	1.0000e-005	0.0000	3.5300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0677					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.3200e-003	3.3200e-003	1.0000e-005	0.0000	3.5300e-003
Total	0.0728	2.0000e-005	1.7000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.3200e-003	3.3200e-003	1.0000e-005	0.0000	3.5300e-003

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6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0677					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.3200e-003	3.3200e-003	1.0000e-005	0.0000	3.5300e-003
Total	0.0728	2.0000e-005	1.7000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.3200e-003	3.3200e-003	1.0000e-005	0.0000	3.5300e-003

7.0 Water Detail**7.1 Mitigation Measures Water**

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	155.5264	7.0300e-003	1.4500e-003	156.1358
Unmitigated	155.5264	7.0300e-003	1.4500e-003	156.1358

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 152.748	155.5264	7.0300e-003	1.4500e-003	156.1358
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		155.5264	7.0300e-003	1.4500e-003	156.1358

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 152.748	155.5264	7.0300e-003	1.4500e-003	156.1358
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		155.5264	7.0300e-003	1.4500e-003	156.1358

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.2390	0.1323	0.0000	5.5470
Unmitigated	2.2390	0.1323	0.0000	5.5470

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8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	11.03	2.2390	0.1323	0.0000	5.5470
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		2.2390	0.1323	0.0000	5.5470

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	11.03	2.2390	0.1323	0.0000	5.5470
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		2.2390	0.1323	0.0000	5.5470

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

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	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	5,330.000 0	0.0000	0.0000	5,330.000 0

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Cropland	100 / 23	-477.4000	0.0000	0.0000	-477.4000
Scrub	0 / 18	257.4000	0.0000	0.0000	257.4000
Trees	0 / 50	5,550.000 0	0.0000	0.0000	5,550.000 0
Total		5,330.000 0	0.0000	0.0000	5,330.000 0

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Appendix K

List of Technical Studies that are Bound Separately

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List of Technical Studies that are Bound Separately

The following technical studies are available on the Monterey County Resource Management Agency's Planning Department website for the Carmel River Floodplain Restoration and Environmental Enhancement Project:

<http://www.co.monterey.ca.us/government/departments-i-z/resource-management-agency-rma-/planning/current-major-projects/carmel-river-free>

Project Plans:

- 60% Restoration Plans
- 60% Causeway Plans

Biological Reports:

- Habitat Restoration Management Plan
- Biological Assessment
- Natural Environment Study
- Wetland Delineation (Combined Federal and Coastal)

Paleontology Reports:

- Initial Paleontology Memo
- Paleontological Identification Report, Evaluation Report, and Paleontological Mitigation Plan

Water Quality Reports:

- Water Quality Assessment Report

Hydrology Reports:

- Anticipated Changes to Downstream BFE Memo
- Scour Calculation Summary Memo
- Large Woody Debris (drift) Potential Memo
- CAWD Outfall Pipe Impact Assessment Memo
- State Parks Barn Complex Impact Assessment Memo
- Supplementary 2D Model Results Memo

Hazardous Materials Reports:

- Initial Site Assessment (Phase I)
- Preliminary Site Investigation (Phase II)

Climate Change Reports:

- Climate Change Impacts Memo

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