FINAL

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

MONTEREY BAY SANCTUARY SCENIC TRAIL – MOSS LANDING BICYCLE/PEDESTRIAN PATH AND BRIDGE PROJECT

MONTEREY COUNTY, CALIFORNIA

LSA

July 2015

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INITIAL STUDY

I. BACKGROUND INFORMATION

Project Title:	Monterey Bay Sanctuary Scenic Trail- Moss Landing Bicycle/Pedestrian Path and Bridge Project
File No.:	N/A
Project Location:	Moss Landing Road across Elkhorn Slough Bridge in Moss Landing, California
Name of Property Owner:	County of Monterey, Caltrans, Moss Landing Harbor District, Dynegy, and Nadar Agha
Name of Applicant:	County of Monterey Department of Public Works
Assessor's Parcel Number(s):	APN 133-181-009, APN 133-173-005, and APN 133-173-002
Acreage of Property:	The project area is approximately 4,466 feet (0.85 mile) long
General Plan Designations:	Heavy Coastal Dependent Industrial, Wetlands and Coastal Strand, Recreation and Visitor Serving, and Public/Quasi-Public- Harbor Facilities
Zoning:	"HI(CZ)" or Heavy Industrial (Coastal Zone), "VSC(CZ)" or Visitor Serving Commercial (Coastal Zone), "RC(CZ)" or Resource Conservation (Coastal Zone), and "PQP(CZ)" or Public/Quasi-Public (Coastal Zone)
Lead Agency:	County of Monterey Department of Public Works
Prepared By:	LSA Associates, Inc. 1998 Santa Barbara Street, Suite 120 San Luis Obispo, California 93401
Date Prepared:	July 2015
Contact Person:	Laurel Frakes and Pam Reading
Phone Number:	(805) 782-0745

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II. DESCRIPTION OF PROJECT AND ENVIRONMENTAL SETTING

A. Description of Project:

The Monterey Bay Sanctuary Scenic Trail (MBSST) corridor would span the entire coast of the Monterey Bay National Marine Sanctuary from Lovers Point in Pacific Grove to Wilder Ranch north of Santa Cruz. The Moss Landing Bicycle/Pedestrian Path and Bridge Project is a segment of MBSST (proposed project). The proposed project is located in Moss Landing, in Monterey County (County) in the Central Coastal Region of California. The proposed project area is approximately 5 miles (mi) northwest of Castroville and 26 mi south of Santa Cruz, near the mouth of Elkhorn Slough. Monterey Bay is just to the west of the proposed project area (refer to Figure 1, Project Location).

Construction of all proposed segments of the MBSST corridor would result in a continuous Class I bicycle and pedestrian pathway along Monterey Bay. The proposed project objective is to construct the Moss Landing segment of the MBSST. The proposed project is an approximately 4,466-foot (ft) (0.85 mi) segment of the MBSST. The proposed project would be constructed within the County right of way and State right of way parallel to State Route 1 (SR-1) with the exception of three privately owned parcels located at the southern and northern parts of the project area (Assessor's Parcel Numbers 133-173-002, 133-173-005, 133-181-009). The proposed project segment would run along the north side of Moss Landing Road on the west side of Moro Cojo Slough eastward to SR-1, then turn northward along the west side of SR-1, cross Elkhorn Slough and join the existing segment of the MBSST adjacent to the North Harbor facilities of the Moss Landing Harbor District on the north side of Elkhorn Slough. The purpose of the proposed project is to enhance appreciation, understanding and protection of the Monterey Bay National Marine Sanctuary by promoting public use and enjoyment at its shoreline. Currently, the only alternative for bicycle and pedestrian traffic in this area is along the shoulders of SR-1, which has high traffic volumes at highway speeds. The proposed project would provide convenient, safe, and legal access for pedestrians and bicyclists along SR-1.

The proposed project has been subdivided into five distinct segments (refer to Figure 2, Proposed Project Alignment). A detailed description of the proposed project, by segment, is provided below.

Segment 1: Moss Landing Road to Moss Landing Power Plant (Station 55+82 to Station 75). Along the north side of Moss Landing Road along the south shore of Moss Landing Harbor, the proposed project would be constructed along the north side of a curb and gutter that would be constructed by a separate project along the edge of the roadway. The proposed bicycle/pedestrian pathway pavement would be 10 ft wide, with a 2 ft wide decomposed granite shoulder along the north side. The north side of the proposed bicycle/pedestrian pathway shoulder would be supported by an embankment slope between the proposed project and the harbor. The embankment slope would extend into the tidal zone and would be stabilized with rock slope protection. The area of rock slope protection would be about 250 ft long and would vary between 10 ft and 25 ft in width.

From Moss Landing Road to a point opposite Dolan Road, the slopes in the proposed project area are gentle, and the proposed project can be constructed with minimal grading. A low retaining wall, approximately 700 ft long and typically 2 ft high but up to 3 ft 6 inches high in one location, would be constructed, primarily below the current grade of SR-1, along the west side of the proposed bicycle/ pedestrian pathway in order to support the harbor-side edge of the proposed project.

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FIGURE 1

Initial Study/Mitigated Negative Declaration
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Project Location Map

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FIGURE 2

LEGEND

- Project Alignment
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5

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PHOTO SOURCE: Wood Rodgers, 2009

Initial Study/Mitigated Negative Declaration
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Project Alignment

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Additionally, some tree trimming and removal of approximately 8 trees greater than 24 dbh to provide space for the proposed project would be required. The proposed bicycle/pedestrian pathway alignment was designed to be as near to the harbor shoreline as feasible. Due to the slope of the harbor, locating the proposed project closer to the harbor would have required higher retaining walls which would have resulted in greater impacts to aesthetics along SR-1 and the proposed project.

Segment 2: Through Moss Landing Power Plant (Station 75 to Station 88). North of Dolan Road, along the southern seawater intake facility for the Moss Landing Power Plant (MLPP), the proposed project would be constructed near the west edge of SR-1. The existing metal guardrail would be replaced with a concrete barrier between the proposed project and the highway. A retaining wall of the soldier-pile type, approximately 490 ft long, would be required to support the west side of the proposed project. The proposed project, in this location, had to be located adjacent to SR-1 to minimize the removal of trees and vegetation to meet the Americans with Disabilities Act requirements and because of the ongoing use of MLPP facilities and access roads. However, as noted above, the proposed project design includes important features, such as a retaining wall, that provides vertical separation between SR-1 and the proposed project. The existing 6 ft chain-link security fence along the intake facility would be replaced with an 8 ft chain-link fence relocated onto the new retaining wall.

The pathway segment grade to the north of the driveway into the northern seawater intake facility for the MLPP would slope gently to the north at about the same grade as the adjacent SR-1 travel lanes, which would require excavation. To separate the proposed project from the adjacent southbound SR-1, a concrete barrier would be constructed. At this point, portions of the proposed project would be located on MLPP right of way. There is an existing 6 ft chain-link security fence around the intake facility at this location. For security reasons, the MLPP is requiring the County to replace the 6 ft chain link fence with an 8 ft chain-link fence. In addition, the removal of approximately 20 eucalyptus trees and a few cypress trees would be necessary to provide sufficient width for the pathway.

Just north of the MLPP's existing northern pedestrian tunnel, the proposed project would turn west and slope downhill at less than 4 percent grade for approximately 100 ft, adjacent to the northern seawater intake facility for the MLPP. A retaining wall of the soldier-pile type with 8 ft chain-link fence on top would be constructed along the west side of the proposed bicycle/pedestrian pathway to provide a retained-fill bench of sufficient width for the proposed project. View-obscuring slats would be installed in the chain-link fabric to screen the industrial facility from the proposed project. The proposed project would pass over an existing pipeline, then turn northward along the shoreline, continuing to descend to the north at a profile grade of no more than 4 percent on fill retained by gabions (wirework containers filled with earth or rocks). No fence is planned to the north of the pipeline crossing, but either stainless steel or galvanized steel railings may be required to prevent falls.

Segment 3: Moss Landing Power Plant to Elkhorn Slough Bridge (Station 88 to Station 96). At the north end of the MLPP property, the proposed project would cross an existing drainage in a 30 in concrete culvert and pass into State right of way controlled by the California Department of Transportation (Caltrans). Approaching Elkhorn Slough from the south, the proposed project would

be constructed on the old embankment of SR-1. The profile grade would be at or above an elevation of 15 ft, and the slope would be less than 1 percent, except at the approach to the bridge abutment. Some fill retained by gabions would be required, and the failed broken concrete shore protection on the western shore would be replaced with rock slope protection that extends through the tidal zone. Either stainless steel or galvanized steel railings may be required to prevent falls along the edge of the gabions retaining the fill on which the proposed project is constructed. The area of new rock slope protection would be approximately 375 ft long and 20 to 25 ft wide. An existing concrete stormwater settling basin would remain in place and not be disturbed by construction of the proposed project.

Segment 4: Elkhorn Slough Bridge (Station 96 to Station 100). A new bicycle/pedestrian bridge, 386 ft in length, would be constructed parallel and adjacent to the existing vehicular bridge across Elkhorn Slough. The proposed bicycle/pedestrian bridge would be constructed entirely within existing Caltrans right of way along the alignment of the previous SR-1 bridge that was replaced by the current SR-1 bridge to the east. The new bridge abutments would be constructed inland of the old bridge abutments, requiring excavation of up to 3 ft below the existing grade. The bridge piers would be constructed of driven cast-in-steel-shell concrete piles to minimize impacts to marine life during construction by reducing vibration that results from driving solid piles. These pier piles would be driven into the slough bottom with a pile driver, and dewatering and excavation in the Elkhorn Slough channel would not be required. The bridge soffit elevation (i.e., the underside of the bridge) would be set at or above the soffit elevation of the existing SR-1 bridge and the span lengths would match so as to not impact marine navigation between Moss Landing Harbor and Elkhorn Slough. The piers supporting the bridge, each consisting of three piles, and each pile 3 ft in diameter, would be aligned with those of the adjacent SR-1 bridge to facilitate navigation by boats. The bridge deck would be constructed with pre-cast concrete slab elements, and would provide a clear deck width of 12 ft between railings. Additional deck width would be provided on either side of the bridge deck at each pier to create overlook areas. There would be a total of 12 overlook areas, six on either side of the bridge. Each overlook area would provide space for bicyclists and pedestrians to stop on the bridge without causing interference with other bicyclists and pedestrians. From the bridge, bicyclists and pedestrians would have an opportunity to observe the Moss Landing Harbor, the Pacific Ocean, and Elkhorn Slough, particularly the abundant marine wildlife that inhabits the immediate vicinity. Railings on the bridge would be either stainless steel or galvanized steel to minimize maintenance.

Segment 5: North Harbor (Station 100 to Station 101+50). North of the new bicycle/pedestrian bridge, approximately 100 ft of the proposed pathway would be built to meet the existing section of the MBSST, which was constructed in 2007 along the east side of the North Harbor facilities of the Moss Landing Harbor District. Minimal grading would be necessary, but some fill would be required to raise the proposed bicycle/pedestrian pathway to the grade of the new bridge. An existing temporary paved 5 ft wide trail connection to the shoulder of southbound SR-1, located mostly on imported fill for the current SR-1 approach to the Elkhorn Slough Bridge, would be removed. All of the work for this segment of the proposed bicycle/pedestrian pathway would be confined to the area of the old SR-1 alignment west of the current SR-1 and would be within existing Caltrans right of way.

Construction Staging Area. The precise locations of the construction staging areas have not yet been determined. However, all staging areas are proposed to be located primarily within disturbed areas of Caltrans right of way or in private property easements from adjacent property owners. Pending landowner permission, staging areas are currently proposed for the flat graveled area opposite Dolan Road near the south end of the proposed bicycle/pedestrian pathway alignment, and on the paved parking area just north of the proposed bicycle/pedestrian bridge over Elkhorn Slough. An additional staging area in the open water of Elkhorn Slough, west of the proposed bicycle/pedestrian bridge, would also be necessary since the pile-driving activities must be completed from the water. One or two barges, each estimated to be 60 ft by 150 ft (9,000 square feet [sf]) with a crane/pile driver, would be anchored within the staging area west of the existing SR-1 bridge during pile-driving activities and construction of the bridge. Elkhorn Slough will remain navigable throughout the duration of the project construction. The construction of the bicycle and pedestrian bridge is a staged construction (one pier or one span will be constructed at a time), which will allow boaters and recreational users to pass by the construction site. Safety measures such as buoys and directional signage will be required to direct boaters to the appropriate area to safely pass the construction activities.

Construction Program. Pending secured funding, construction is anticipated to begin no earlier than 2016 with a duration of about one year. The length of time required for pile-driving activities in Elkhorn Slough is anticipated to be approximately 1 month. The estimated construction cost of (only) the proposed project is approximately $6.7 million, and federal funds will be the primary source of funding. The proposed project is included in the 2008 Transportation Agency of Monterey County's (TAMC) Final Monterey Bay Sanctuary Scenic Trail Master Plan (Master Plan), the 2011 Transportation Agency for Monterey County Bicycle and Pedestrian Master Plan, adopted by the Board of Supervisors on July 16, 2013, and is consistent with projects contained in those plans. Upon completion, the Moss Landing segment of the MBSST would also become part of the California Coastal Trail and Pacific Coast Bikeway.

B. Surrounding Land Uses and Environmental Setting:

The proposed project is located within the Community of Moss Landing in the County of Monterey. Moss Landing is along the eastern boundary of Monterey Bay approximately half-way between the City of Monterey and the City of Santa Cruz. The proposed project area is entirely within the Coastal Zone. The proposed project area is a mix of industrial, commercial, and recreational uses and also includes land that was set aside for preservation. Land uses at and adjacent to the proposed project site include an existing scenic highway (SR-1), local streets (Moss Landing Road, Dolan Road, and Vierra Road), the Moss Landing Power Plant, the Moss Landing Harbor, commercial and retail development, the SR-1 bridge over Elkhorn Slough, and Elkhorn Slough Estuary, a defined National Estuarine Reserve in Monterey County's Local Coastal Program. According to the Monterey County Land Use Plan Map of Moss Landing (2007), the proposed project would cross through the following land uses: Heavy Coastal Dependent Industrial, Wetlands and Coastal Strand, Recreation and Visitor Serving, and Public/Quasi-Public-Harbor Facilities (refer to Figure 3, Land Use Map of Moss Landing).

C. Other Public Agencies Whose Approval is Required:

Implementation of the proposed project would require discretionary approvals by the following agencies:

- United States Army Corps of Engineers (Corps) Preconstruction Notification pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act.
- Authorization from the United States Fish and Wildlife Service (USFWS) would be necessary through formal Section 7 consultation with Caltrans.
- Authorization from the National Marine Fisheries Service (NMFS) would be necessary through Section 7 consultation with Caltrans for impacts to anadromous fishes.
- Authorization from the NMFS would be necessary under the Marine Mammal Protection Act for incidental harassment of marine mammals (i.e., seals and sea lions).
- Regional Water Quality Control Board (RWQCB) Water Quality Certification pursuant to Section 401 of the CWA.
- Caltrans Encroachment Permit
- California Coastal Commission (CCC) Coastal Development Permit/Coastal Zone Consistency Determination[1]
- Under the provisions of the General Bridge Act of 1946, as amended, a Coast Guard Bridge Permit, Eleventh Coast Guard District will be required.
- Moss Landing Harbor District Construction Permit

[1] The California Coastal Commission is claiming original jurisdiction for the entire proposed project area. Therefore, the California Coastal Commission is assuming full coastal zone permitting authority for the proposed project area.

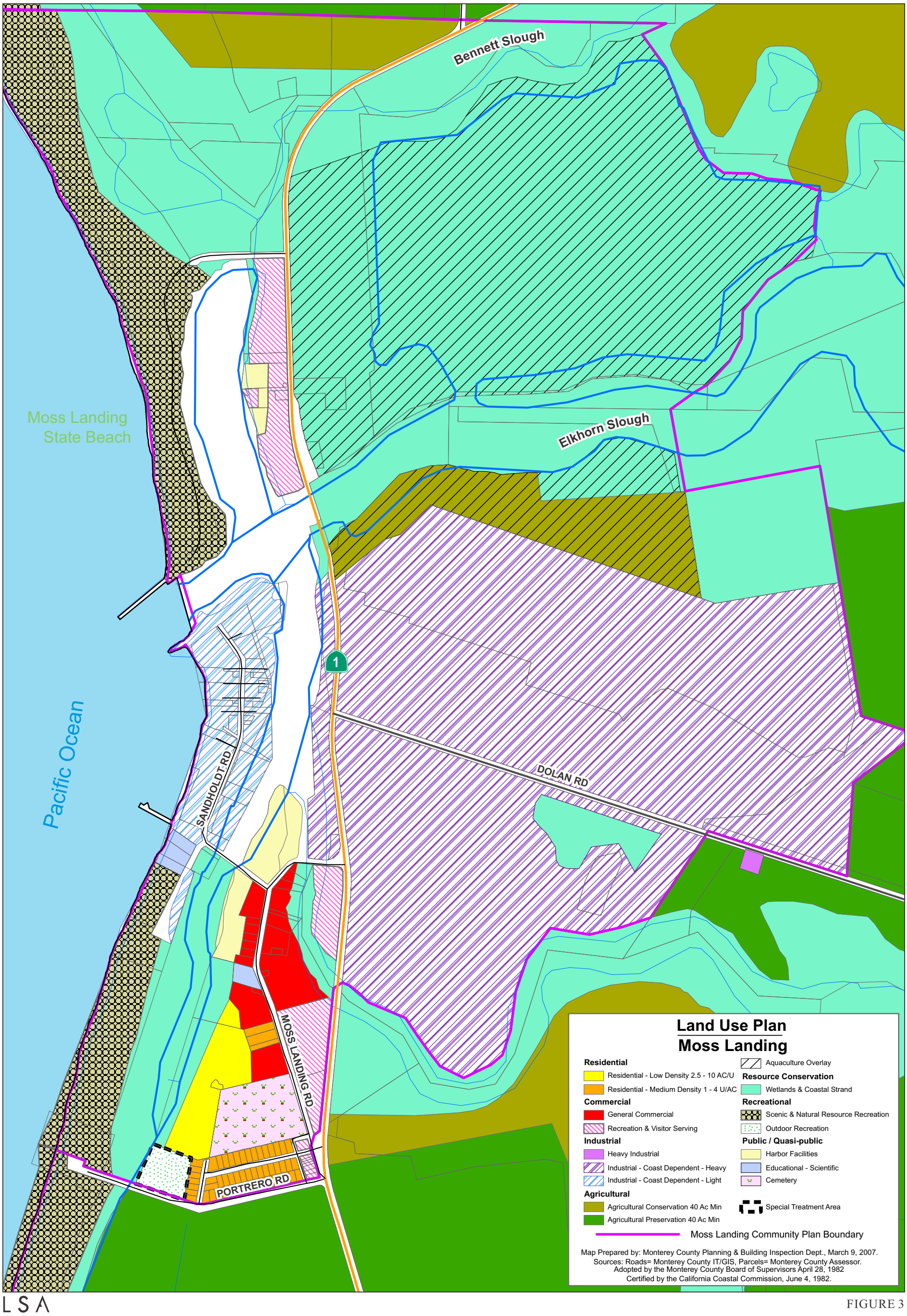

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FIGURE 3

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SOURCE: Monterey County Building & Inspection Dept.

Initial Study/Mitigated Negative Declaration
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Land Use Plan

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III. PROJECT CONSISTENCY WITH OTHER APPLICABLE LOCAL AND STATE PLANS AND MANDATED LAWS

The plans checked below are applicable to the proposed project. Their consistency or nonconsistency with project implementation is described below. Referenced documents are listed in Section VIII, References.

General Plan/Area Plan	☒		Air Quality Management Plan	☒
Specific Plan	☐		Airport Land Use Plan	☐
Water Quality Control Plan	☐		Local Coastal Program-LUP	☒

A. General Plan

The proposed project was reviewed for consistency with the 1982 County of Monterey (County) General Plan. The County's General Plan covers more than 3,300 square miles (sq mi) of diverse natural habitats and residential communities in the inland areas and the coastal zone. The coastal zone of Monterey County is divided into four areas governed by Land Use Plans (LUP) and a Coastal Implementation Plan (CIP), which together comprise the Local Coastal Program (LCP). The four LUPs include Big Sur Coast, Carmel Area, Del Monte Forest, and the North County Coastal area. The proposed project is within the North County Area Land Use Plan area, which contains the Moss Landing Community Plan. The Moss Landing Community Plan provides a comprehensive planning framework for developing and redeveloping the Moss Landing community consistent with coastal zone requirements.

The County of Monterey adopted an updated General Plan in 2010. This General Plan does not amend and is not intended to amend the existing Monterey County LCP. The County will review the LCP after adoption of the General Plan Update. If any of the goals, policies, and standards of the General Plan are to be incorporated into the LCP, such proposals would be subject to all appropriate public review procedures, including noticed public hearings, separate action by the County Board of Supervisors, and submission of major LCP amendments to the Coastal Commission for certification. This approach recognizes that the coastal zone is a distinct and valuable natural resource which requires unique planning considerations and may require different standards and policies than may apply in the non-coastal areas of the County. This approach also recognizes the unique procedural requirements for amending the LCP.

In the interim period between adoption of the General Plan and any necessary updates of the LCP LUPs, the certified LUPs will continue to govern in their respective areas within the coastal zone. The 2010 General Plan was crafted so as to not supersede the authority of the 1982 Monterey County General Plan in regards to the LCP. Accordingly, adoption of the 2010 General Plan does not rescind the 1982 General Plan as applied in the coastal zone until the LCP is amended and such amendments are certified. As a result, the policies contained in the 1982 Monterey County General Plan still have force and effect in the coastal zone of Monterey County.

The proposed project would be consistent with the following goals, objectives, and policies from the County's 1982 General Plan:

Goals: Natural Resources – Ocean Resources: Goal 10
Transportation: Goal 38
Transportation – Bicycle Transportation: Goal 45

Objectives: Natural Resources – Ocean Resources: Objective 10.3
Transportation: Objective 38.1
Transportation – Bicycle Transportation: Objective 45.2

Policies: Natural Resources – Ocean Resources: Policy 10.3.1 and 10.3.2
Natural Resources – Environmentally Sensitive Areas: Policy 11.1.5
Natural Resources – Archaeological Resources: Policy 12.1.7
Transportation: Policy 38.1.4
Transportation – Road and Highway Transportation: Policy 39.2.6
Transportation – Bicycle Transportation: Policy 45.1.3 and 45.1.4

The proposed project is located entirely within the coastal zone. Therefore, in addition to the General Plan, the proposed project must be reviewed for consistency with the certified Local Coastal Program (see below). **CONSISTENT.**

B. Air Quality Management Plan

The proposed project was reviewed for consistency with the North Central Coast Air Basin's (NCCAB) Air Quality Management Plan (AQMP). For a project in the NCCAB to be consistent with the AQMP, the pollutants emitted from the project must not exceed the Monterey Bay Unified Air Pollution Control District (MBUAPCD) significance thresholds or cause a significant impact on air quality. If feasible mitigation measures can be implemented to reduce the project's impact level from significant to less than significant under California Environmental Quality Act (CEQA), the project is considered to be consistent with the AQMP. Furthermore, since the AQMP is based on projections from local General Plans, projects that are consistent with the local General Plan are considered consistent with the AQMP. Since the proposed Class I bicycle/pedestrian pathway would not generate additional vehicular traffic or industrial use emissions, the proposed project would not significantly contribute to or cause deterioration of existing air quality; therefore, mitigation measures are not required for the long-term use of the proposed project. Furthermore, emissions from construction equipment, such as dump trucks, excavators, bulldozers, compactors, and front-end loaders are accommodated in the emissions inventories of State- and federally-required air quality plans and would not significantly contribute to or cause deterioration of existing air quality. Hence, the construction and operation of the proposed project is considered to be consistent with the County's General Plan and is, therefore, consistent with the AQMP. **CONSISTENT.**

C. Local Coastal Program-Land Use Plan/Community Plan/Monterey County Coastal Implementation Plan

The Moss Landing Community Plan is a part of the North County Land Use Plan/Local Coastal Program, which was adopted in June 1982. The North County Land Use Plan/Local Coastal Program is one of four documents that constitute the Local Coastal Program (LCP) of Monterey County. The other three documents are the Big Sur Land Use Plan, the Carmel Land Use Plan, and the Del Monte

Forest Land Use Plan. The Local Coastal Program of Monterey County—comprised of the four documents cited above—is itself a part of the Monterey County General Plan adopted in October 1982. The County of Monterey adopted an updated General Plan in 2010, and the 2010 General Plan was crafted so as to not supersede the authority of the 1982 Monterey County General Plan in regards to the Local Coastal Program of Monterey County. The intent was to update the LCP separate from, and subsequent to, the preparation of the 2010 Monterey County General Plan. As a result, the policies contained in the 1982 Monterey County General Plan still have force and effect in the North County Land Use Plan/Local Coastal Program and the Moss Landing Community Plan. To the degree that policies in any one of the documents—the Moss Landing Community Plan, the North County Land Use Plan/Local Coastal Program, and the 1982 Monterey County General Plan—conflict, the more restrictive policy applies. The one exception to this rule is the Moss Landing Community Plan Land Use Diagram, which supersedes any other land use diagram contained in any of the other cited documents. The 1982 Moss Landing Community Plan is currently being updated but has not yet been approved. Therefore, the proposed project is being reviewed for consistency with the existing 1982 Moss Landing Community Plan.

According to the Moss Landing Community Plan, "one of the principal goals of the Coastal Act of 1976 is to 'maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resource conservation principles and constitutionally protected rights of private property owners'" (page 107). The proposed project provides additional recreational and public access opportunities while conserving the visual, cultural, and natural resources of the Moss Landing Community.

The proposed project would be consistent with the following policies outlined in the Moss Landing Community Plan:

Key Policies: Recreation and Public Access – 5.4.1
Visual Resources and Community Character – 5.6.1

General Policies: Recreation and Public Access – 5.4.2
Visual Resources and Community Character – 5.6.2.4

Priorities: Recreation and Public Access – 5.4.3.2.6

Specific Policies: Visual Resources and Community Character – 5.6.3.4 and 5.6.3.6

Furthermore, the proposed project would be consistent with the following goals and policies outlined in the North County Land Use Plan:

Key Policies: Resource Management/Visual Resources – 2.2.1
Environmentally Sensitive Habitats – 2.3.1
Diking, Dredging, Filling and Shoreline Structures – 2.4.1
Water Resources – 2.5.1
Hazards – 2.8.1
Archaeological Resources – 2.9.1
Public Access – 6.2

General Policies: Resource Management – 2.2.2.2 and 2.2.2.5
Environmentally Sensitive – 2.3.2.9
Diking, Dredging, Filling and Shoreline Structures – 2.4.2.4
Water Resources – 2.5.2.2
Hazards – 2.8.2.1
Archaeological Resources – 2.9.2.1, 2.9.2.2, 2.9.2.4
Land Use Plan and Development Policies – 4.3.5.3, 4.3.5.8
Public Access – 6.3.3

Specific Policies: Resource Management – 2.2.3.6
Public Access – 6.4.F.8 and 6.4.G.2

Implementation of the proposed project would not significantly impact any of the adjacent land uses and none of these land uses preclude the construction of multiuse pathways. The proposed project would not impede coastal access and would improve existing recreation opportunities while being consistent with the North County Land Use Plan policies listed above.

The proposed project area is designated in the Monterey County Zoning Ordinance Title 20 as Heavy Industrial (Coastal Zone) "HI(CZ)," Visitor Serving Commercial (Coastal Zone) "VSC(CZ)," Resource Conservation (Coastal Zone) "RC(CZ)," and Public/Quasi-Public (Coastal Zone) "PQP(CZ)." The Monterey County Coastal Implementation Plan (MCCIP) Title 20 Zoning Ordinance allows for low-intensity recreational uses such as trails as a Conditional Use within Visitor Serving Commercial, Heavy Industrial, Agricultural Conservation, and Public/Quasi-Public, subject to a Coastal Development Permit (Sections 20.22.060, 20.28.060, 20.32.050, and 20.40.050). Additionally, the MCCIP allows for Principal Use of "low intensity day use recreation uses such as trails" within areas zoned as Resource Conservation, subject to a Coastal Administrative Permit (Section 20.36.040). As noted above, the proposed project does not impede coastal access, improves existing recreation opportunities, and does not result in significant environmental impacts after mitigation. The proposed project would improve existing conditions because it provides an accessible, safe, and alternative form of transportation. The proposed project would be consistent with existing Heavy Industrial (Coastal Zone) "HI(CZ)," Visitor Serving Commercial (Coastal Zone) "VSC(CZ)," Resource Conservation (Coastal Zone) "RC(CZ)," and Public/Quasi-Public (Coastal Zone) "PQP(CZ) land uses subject to the approval of a Coastal Development Permit.
CONSISTENT.

IV. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND DETERMINATION

A. Factors

The environmental factors checked below would be potentially affected by the proposed project, as discussed on the following pages.

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

Some proposed applications that are not exempt from California Environmental Quality Act (CEQA) review may have little or no potential for adverse environmental impacts related to most of the topics in the Environmental Checklist; and/or potential impacts may involve only a few limited subject areas. These types of projects are generally minor in scope, located in a nonsensitive environment, and are easily identifiable and without public controversy. For the environmental issue areas where there is no potential for significant environmental impact (and not checked above), the following findings can be made using the project description, environmental setting, or other information as supporting evidence.

☐	Check here if this finding is not applicable.

Finding: For the above referenced topics that are not checked off, there is no potential for significant environmental impact to occur from either construction, operation, or maintenance of the proposed project, and no further discussion in the Environmental Checklist is necessary.

Evidence:

1. **Agriculture and Forestry Resources:** There are no agricultural or forestry resources in the project impact area or vicinity. Therefore, implementation of the proposed project would not result in impacts to farmlands, agricultural soils, Williamson Act contract lands, or forest land.

2. **Land Use and Planning:** The proposed project would be constructed within the County of Monterey (County) right of way and State right of way and in private property easements. The proposed bicycle/pedestrian pathway and bridge would be located parallel to SR-1 and would provide continuity with the existing segments of the Monterey Bay Sanctuary Scenic Trail (MBSST). Therefore, the proposed project would not divide an established community.

   As discussed under Section III, Project Consistency with Other Applicable Local and State Plans and Mandated Laws, the proposed project would be consistent with policies contained within the County's 1982 General Plan, the North County Land Use Plan including the Moss Landing Community Plan, and the Monterey County Coastal Implementation Plan. The proposed project

would not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

There are no Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans (NCCPs) in the proposed project area. The Elkhorn Slough National Estuarine Research Reserve is approximately 1 mi directly east of the proposed project. Areas of Elkhorn Slough designated as State Ecological Reserves are located east of the proposed project along the south side of Elkhorn Slough, and areas designated as State Wildlife Management Areas are also located east of the proposed project along the north side of Elkhorn Slough. Both the State Ecological Reserves and the State Wildlife Management Areas are located outside of the proposed project impact area. Therefore, the proposed project does not conflict with any applicable HCP or NCCP.

3. **Mineral Resources:** No mineral resources have been identified in the proposed project area. Therefore, implementation of the proposed project would not result in the loss of availability of any known mineral resources.

4. **Population and Housing:** The proposed project includes construction of the Moss Landing segment of the MBSST. The proposed Class I bicycle and pedestrian pathway would provide bicycle and pedestrian access along SR-1 across Elkhorn Slough, and continuity with the other existing segments of the MBSST. As a recreational pathway, the proposed project would serve existing area residents and visitors to the Moss Landing area. The proposed project does not include the construction of new housing nor does it generate jobs and thereby increase the housing supply indirectly through increased demand for housing. Therefore, the proposed project would not cause an increase in the County's population. Furthermore, the proposed project would not displace existing housing or people because the project is located primarily within public rights of way and no habitable structures exist within the proposed project area.

   Therefore, the proposed project would not induce substantial population growth in the Moss Landing Community, either directly or indirectly, and would not induce demand in housing.

5. **Public Services:** Fire services for the proposed project and the surrounding area would be provided by the North County Fire Protection District, Station 1, which is located in Castroville (personal communication with Station 1 staff, August 13, 2013). Police services for the proposed project and the surrounding area would be provided by the Central Station of the Monterey County Sheriff's Department Patrol Division, which is located in Salinas (personal communication with Monterey County Sheriff's Department staff, August 13, 2013). The proposed project would provide safe and legal access for pedestrians and bicyclists along SR-1 from Moss Landing Road and across Elkhorn Slough on the proposed bicycle/pedestrian bridge. Implementation of the proposed project would result in an increase in recreational use of the proposed project area; therefore, the proposed project would increase demand for fire and police services. However, additional demand for fire and police would be nominal on a 0.85 mi stretch of pathway and would be adequately served by existing fire and police services.

   In addition, because the proposed project is an infrastructure project, it would not generate the need for additional schools, park space, or other public facilities in the project vicinity.

   Therefore, implementation of the proposed project would not have a significant impact on public services.

6. **Transportation/Traffic:** The proposed project would construct a new pathway and bridge for bicyclists and pedestrians and, therefore, would not generate demand for new facilities for

vehicular travel. The proposed project would not conflict with any congestion management program or result in a change in air traffic patterns. Furthermore, it would help decrease air quality emissions from traffic and transportation by providing an alternative form of transportation in the area. Additionally, the proposed project would not substantially increase hazards due to a design feature, nor result in inadequate emergency access or parking capacity.

The proposed project would improve recreational access and bicycle/pedestrian safety as compared to existing conditions. Currently the only option for bicycle and pedestrian traffic in this area is along the shoulders of SR-1, which has high traffic volumes at highway speeds. The proposed project would not conflict with any adopted polices or plans regarding public transit, bicycle, or pedestrian facilities. The proposed project would be consistent with the 2011 Transportation Agency for Monterey County Bicycle and Pedestrian Master Plan, adopted by the Board of Supervisors on July 16, 2013. The Transportation Agency for Monterey County Bicycle and Pedestrian Master Plan considers the MBSST- Moss Landing Bicycle/Pedestrian Path and Bridge Project a priority project.

Additionally, the proposed project would advance the following goals, objectives and policies in the County's 1982 General Plan:

a. **Transportation – Goal 38:** To minimize the negative impacts of transportation in the County.

b. **Transportation Objective 38.1:** 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 uses.

c. **Transportation – Policy 38.1.4:** The County shall encourage transportation alternatives such as bicycles, car pools, transit, and compact vehicles.

d. **Transportation – Road and Highway Transportation Policy 39.2.6:** Pedestrian and bicycle paths shall be separated from major roads and highways, where appropriate, and also shall be provided between adjacent communities, where appropriate.

e. **Transportation – Bicycle Transportation Goal 45:** To provide for a safe, convenient bicycle transportation system integrated with other transportation modes.

f. **Transportation – Bicycle Transportation Policy 45.1.3:** Bicycling shall be encouraged as a viable transportation mode for visitor-serving areas.

g. **Transportation – Bicycle Transportation Policy 45.1.4:** Bicycle routes in transportation corridors shall be improved, where feasible.

h. **Transportation – Bicycle Transportation Objective 45.2:** Promote a bicycle system integrated with other transportation modes.

Even though the County's 2010 General Plan is not yet applicable to the coastal zone, the proposed project would further the following goals, policies, and objectives of the County's 2010 General Plan, which are similar to the 1982 goals and policies outlined above:

i. **Open Space and Conservation Element – Bicycle Transportation Goal 9:** Promote a safe, convenient bicycle transportation system integrated as part of the public roadway system.

j. **Open Space and Conservation Element – Road Highway Transportation Policy C-3.5:** Transportation alternatives such as bicycles, car pools, public transit, and compact vehicles

shall be encouraged and accommodated within and outside the public right-of-way and may be included as part of an Area Plan (also in Policy OS-1.10).

k. **Open Space and Conservation Element – Marine and River Resources Policy C-4.7:** Where appropriate and sufficient public right-of-way is available, bicycle paths shall be separated from major roads and highways and be provided between adjacent communities.

l. **Open Space and Conservation Element – Air Quality OS-10.2:** Mass transit, bicycles, pedestrian modes of transportation, and other transportation alternatives to automobiles shall be encouraged.

The proposed project would promote a safe, accessible, and alternative form of transportation while conserving and protecting the natural resources and Moss Landing. Furthermore, the Moss Landing area is one of the few places along SR-1 between Santa Cruz and Monterey that motorists have a close-up view of Monterey Bay. Therefore, the Moss Landing area offers one of the best opportunities along the MBSST corridor to view coastal California marine life, a working commercial harbor and recreational fishing village, and the ecologically and recreationally valuable area of Elkhorn Slough.

Therefore, the proposed project would be consistent with adopted transportation policies, plans, and programs, would not impact existing or forecasted traffic or transportation in the Moss Landing Community; and would result in an overall benefit to the County with respect to transportation.

7. **Utilities and Service Systems:** The proposed project is a bicycle and pedestrian pathway that does not require wastewater treatment during project operations. Wastewater generated during construction of the proposed project would be disposed of properly by the project contractor pursuant to the Construction General Permit. The proposed project would not require or result in construction of new storm water drainage facilities or require the expansion of existing facilities. Refer to the Hydrology and Water Quality discussion under Section VI, Environmental Checklist, for information on drainage in the proposed project area.

   Use of the proposed bicycle/pedestrian pathway and bridge would generate a nominal amount of solid waste. The Monterey Regional Waste Management District operates the Monterey Peninsula Landfill (MPL), which would serve the proposed project site (personal communication with MPL staff, August 13, 2013). The MPL's maximum capacity is approximately 84 million cubic yards (cy). The remaining landfill waste capacity is approximately 71 million cy, or 48 million tons. The MPL is projected to be operating until the year 2161. Therefore, the nominal increase in waste from the recreational users of the proposed project would not exceed the capacity of the MPL.

   The proposed project does not include landscaping beyond revegetation associated with construction. Furthermore, the proposed project does not require irrigation. Therefore, the proposed project would not generate a new demand for water and would not affect long-term water supplies.

B. Determination (to be completed by the Lead Agency)

On the basis of this initial evaluation:

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

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

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

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

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

Signature

6/8/2015
Date

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V. EVALUATION OF ENVIRONMENTAL IMPACTS

1) A brief explanation is required for all answers, except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off site as well as on site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, a DEIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.

5) Earlier analyses may be used where, pursuant to the tiering, program DEIR or other CEQA process, an effect has been adequately analyzed in an earlier DEIR or negative declaration (Section 15063(c)(3)(D)). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Evaluated. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were evaluated by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) The explanation of each issue should identify:

   a) The significance criteria or threshold, if any, used to evaluate each question; and

   b) The mitigation measure identified, if any, to reduce the impact to less than significance.

VI. ENVIRONMENTAL CHECKLIST

SECTION I: AESTHETICS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Discussion/Conclusion/Mitigation:

The information in this section is based on the *Visual Impact Assessment Report* (LSA Associates, Inc. [LSA], July 2013).

I(a). Less than Significant Impact. The proposed project is located in an area that is primarily coastal and industrial. Scenic vistas of Moss Landing Harbor and Monterey Bay are visible from the proposed project area. The bicycle/pedestrian pathway is proposed to mostly follow the natural grade of the existing terrain and would be constructed parallel to existing State Route 1 (SR-1) and the existing bridge over Elkhorn Slough. Overlook areas will be provided on the new bridge. Proposed structures such as fences, guardrails, retaining walls, and bridges, would not obstruct the scenic vista of Moss Landing Harbor and/or Monterey Bay. Therefore, the proposed project would not have a substantial adverse effect on a scenic vista, and no mitigation is required.

I(b). No Impact. SR-1, in the proposed project area, is not an officially designated State scenic highway, and no historical buildings are located in the proposed project area. Additionally, the proposed project is not visible from any scenic highway designated under the Scenic Highway Act. The proposed project would not result in the removal or damage of any scenic resources. Therefore, implementation of the proposed project would not substantially damage any scenic resources, and no mitigation is required.

I(c). Less than Significant Impact. Key viewers of the proposed project area include motorists, bicyclists, and pedestrians traveling on SR-1, recreationalists using the marina and Elkhorn Slough,

businesses and recreationalists using Moss Landing and Sandholdt Roads, and diners at the restaurant on the north shore of Elkhorn Slough.

The proposed project would add a nominal amount of additional pavement for approximately 4,466 feet (ft) (0.85 mile [mi]) along a portion of the north side of Moss Landing Road and along the west side of the existing SR-1 corridor. The proposed project is designed to retain, as fully as possible, the aesthetic and visual quality of the project area. To most viewers, the proposed bicycle/pedestrian pathway would result in little or no overall visual change to the existing site; the proposed project area would remain a mix of coastal and industrial land uses with views of the surrounding marina, fishing village, commercial and industrial development, and surrounding estuary. The proposed bicycle/pedestrian pathway would only be partially visible by observers along Moss Landing Road and SR-1; in the areas where the pathway is visible, it would be in keeping with the existing visual character of the proposed project area. For example, the new bicycle/pedestrian bridge across Elkhorn would be constructed parallel to and aligned with the existing SR-1 vehicular bridge across Elkhorn Slough; the elevation of the underside of the new bicycle/pedestrian bridge would be set at or above the elevation of the underside of the existing SR-1 vehicular bridge and the span lengths would match. The piers supporting the new bicycle/pedestrian bridge would also be aligned with the existing bridge. Therefore, the location and design of the new bicycle/pedestrian bridge would make it barely visible next to the existing bridge. Nevertheless, the proposed project would result in a minor degree of change to the overall visual environment and to the visual experience for observers associated with the tree removal and the construction of barriers, guardrails, fences, retaining walls, or bridges. Therefore, Minimization Measures would be required to ameliorate the change in this highly sensitive coastal setting to the maximum extent practicable. These Minimization Measures are provided below. However, implementation of the proposed project is not anticipated to result in significant visual impacts within the project area.

Minimization Measure I(c)(1): **Concrete Roadside Barrier.** Aesthetic treatments and/or color shall be considered during the design of the concrete roadside barriers. Proposed aesthetic treatments and/or color shall be approved by the California Department of Transportation (Caltrans) in consultation with input from the local community prior to the County of Monterey's (County) approval of project plans.

Minimization Measure I(c)(2): **Bridge Design.** Prior to the approval of project plans, the County of Monterey shall ensure that the bicycle/pedestrian bridge over Elkhorn Slough is designed to complement the seaside character of the Moss Landing Harbor.

Minimization Measure I(c)(3): **Railing Design.** Prior to the approval of project plans, the County of Monterey shall ensure that all railings developed as part of the proposed project, including bridge and retaining wall railings, are designed to be as visually open as possible and complement the aesthetic treatments of the new bridge and retaining walls.

Minimization Measure I(c)(4): **End Treatments.** Prior to the approval of project plans, the County of Monterey shall ensure that end treatments associated with the proposed project are designed to appear similar to metal beam guardrails. Advanced Dynamic Impact Extension Module (ADIEM) end-treatments shall not be used for end treatments associated with the proposed project.

I(d). No Impact. The proposed project would add no new lighting. Therefore, no new light and glare impacts are anticipated to result from implementation of the proposed project.

SECTION II: AGRICULTURE AND FORESTRY RESOURCES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
In determining whether impact to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code 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))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion/Conclusion/Mitigation:

Refer to Section IV, Environmental Factors Potentially Affected and Determination. The proposed project would have no impact on agricultural and forestry resources.

SECTION III: AIR QUALITY	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or project air quality violation?	☐	☐	☒	☐
c) Result in 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)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Discussion/Conclusion/Mitigation:

The following section is based on air quality information obtained from the Monterey Bay Unified Air Pollution Control District (MBUAPCD) as described below and modeling and analysis conducted by LSA (February 2013). The air quality modeling worksheets are included in Appendix A.

Moss Landing is within the jurisdiction of the MBUAPCD, which regulates air quality in the North Central Coast Air Basin (NCCAB). Air quality in the planning area is not only affected by various emission sources (mobile, industry, etc.), but also by atmospheric conditions such as wind speed, wind direction, temperature, rainfall, etc.

Ozone. In 1997, a federal 8-hour ozone standard of 0.08 parts per million (ppm) was adopted by the Environmental Protection Agency (EPA). This standard replaced the prior federal 1-hour standard. In 2004, the NCCAB was designated as an attainment area for the federal 8-hour standard with an obligation to develop a maintenance plan. Maintenance of the federal standard is addressed in the District's 2007 Federal Maintenance Plan for the Monterey Bay Region, which was adopted in March of 2007.

In 2006, the Air Resources Board (ARB) revised the State ambient air quality standard (AAQS) for ozone to include an 8-hour average of 0.070 ppm, while retaining the existing 1-hour standard of 0.09 ppm. This standard is more stringent than the federal standard both in terms of concentration and

the level of precision. Both the 1- and 8-hour components of the State standard must be met in order for the standard to be achieved. The NCCAB is a nonattainment area for the State ozone standard.

The federal 8-hour standard is more protective of public health than both the prior federal 1-hour standard and the 8-hour standard. With natural background representing about half the level of the stringent 8-hour ozone standard, the introduction of the 8-hour average significantly increases the number of exceedances recorded at the MBUAPCD's monitoring stations and would make achieving the State AAQS much more difficult. This plan is the first to address this significant change to the State ozone standard.

Particulate Matter. PM_{10} and $PM_{2.5}$ are respirable particulate matter (PM) less than 10 and 2.5 microns in size, respectively. Because of their small size, they can be inhaled deep into the lungs and are, therefore, a health concern. They are classified as primary or secondary depending on their origin. Primary particles are unchanged after being directly emitted. Major sources of primary particles include fugitive dust from roads and agricultural operations. Secondary particulates are formed in the atmosphere largely by chemical reactions involving gases (e.g., sulfates from directly emitted sulfur oxides). Natural sources of particulates include sea spray, forest fires, and volcanic debris, etc. Man-made sources include fuel combustion, industrial processes and transportation.

The NCCAB does not meet the State PM_{10} standard although it does meet all other State and federal AAQS for particulate matter. Attainment of the State PM_{10} standard is addressed in the MBUAPCD's 2005 Senate Bill 656 Implementation Plan for the Monterey Bay Region.

Carbon Monoxide. The NCCAB is currently considered an attainment area for State and federal carbon monoxide (CO) standards.

III(a). Less Than Significant Impact. The main purpose of an air quality plan is to bring an area into compliance with the requirements of federal and State air quality standards. Such plans describe air pollution control strategies to be implemented by a city, county, or region. The most recent MBUAPCD plan for attaining California AAQS is the 2008 Air Quality Management Plan (AQMP). On April 17, 2013 the MBUAPCD Board of Directors adopted the 2012 Triennial Plan Revision. The 2012 Triennial Plan documents the MBUAPCD's progress toward attaining the state ozone standard and is the District's review and update to the 2008 AQMP. The AQMP is based on projections from local General Plans; projects that are consistent with the local General Plans are considered consistent with the AQMP. For a project in the NCCAB to be consistent with the AQMP, the pollutants emitted from the project must not exceed the MBUAPCD significance thresholds or cause a significant impact to air quality.

Emissions from construction equipment, such as dump trucks, excavators, bulldozers, compactors, and front-end loaders are accommodated in the emissions inventories of State- and federally-required air quality plans. Therefore, construction of the proposed project would be consistent with the AQMP, emissions from construction of the proposed project would not conflict with implementation of the applicable air quality plan, and no mitigation is required.

The proposed project is included in the 2008 Transportation Agency of Monterey County (TAMC) Final Monterey Bay Sanctuary Scenic Trail Master Plan (Master Plan) and the 2011 Transportation Agency for Monterey County Bicycle and Pedestrian Master Plan, adopted by the Board of Supervisors on July 16, 2013. Thus, as these plans are consistent with the AQMP, emissions from the proposed project would not conflict with implementation of the applicable air quality plan, and no mitigation is required.

III(b). Less Than Significant Impact. Development of the proposed project could affect air quality by: (1) the release of dust and exhaust during the project construction period (construction impacts); and (2) the release of exhaust associated with visitors driving to and from the proposed project (operational impacts).

Guidelines and emissions thresholds established by the MBUAPCD in its *2008 CEQA Air Quality Handbook* are used in this analysis. It should be noted that the emission thresholds were established based on the attainment status of the air basin in regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety (EPA), these emission thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

Thresholds for Construction and Operational Emissions That Have Regional Effects. Table III.A shows the construction California Environmental Quality Act (CEQA) significance thresholds that have been established for the NCCAB.

Table III.A: MBUAPCD Construction Significance Thresholds

Threshold of Significance – Construction Impacts Pollutant: PM_{10}	
Source	**Threshold of Significance**
Direct emissions	82 lbs/day[1]

Source: Monterey Bay Unified Air Pollution Control District 2008 CEQA Guidelines.

[1] District-approved dispersion modeling can be used to refute (or validate) this determination of significance if direct emissions would not cause an exceedance of State PM_{10} AAQS.

AAQS = ambient air quality standards
CEQA = California Environmental Quality Act
lbs/day = pounds per day
PM_{10} = particulate matter less than 10 microns in diameter

Based on this threshold, Table III.B identifies the level of construction activity that could result in significant temporary impacts if not mitigated. The threshold should be used for screening purposes and does not represent a definitive threshold.

Table III.C shows the operational CEQA significance thresholds that have been established for the NCCAB.

Table III.B: MBUAPCD Construction Activity with Potentially Significant Impacts

Activity	Potential Threshold[1]
Construction site with minimal earthmoving	8.1 acres per day
Construction site with earthmoving (grading, excavation)	2.2 acres per day

Source: Monterey Bay Unified Air Pollution Control District (2008).
Note: Construction projects below the screening level thresholds shown above are assumed to be below the 82 lbs/day threshold of significance, while projects with activity levels higher than those above may have a significant impact on air quality. Additional mitigation and analysis of the project impact may be necessary for those construction activities.

[1] Based on Midwest Research Institute, Improvement of Specific Emission Factors (1995). Assumes 21.75 working weekdays per month and daily watering of site.

lbs/day = pounds per day MBUAPCD = Monterey Bay Unified Air Pollution Control District

Table III.C: MBUAPCD Operational Significance Thresholds*

Pollutant Source	Threshold(s) of Significance
VOC	137 lbs/day (direct + indirect)
NO_X, as NO_2	137 lbs/day (direct + indirect)
PM_{10}	82 lbs/day (on site)**
	AAQS exceeded along unpaved roads (off-site)
CO	LOS at intersection/road segment degrades from D or better to E or F, or V/C ratio at intersection/road segment at LOS E or F increases by 0.05 or more, or delay at intersection at LOS E or F increases by 10 seconds or more, or reserve capacity at unsignalized intersection at LOS E or F decreases by 50 or more.***
	550 lbs/day (direct)***
SO_X, as SO_2	150 lbs/day (direct)**

Source: Monterey Bay Unified Air Pollution Control District.

* Projects that emit other criteria pollutant emissions would have a significant impact if emissions would cause or substantially contribute to the violation of State or national AAQS. Criteria pollutant emissions could also have a significant impact if they would alter air movement, moisture, temperature, climate, or create objectionable odors in substantial concentrations. When estimating project emissions, local or project-specific conditions should be considered.

** The District's 82 lbs/day operational phase threshold of significance applies only to on-site emissions and project-related exceedances along unpaved roads. These impacts are generally less than significant. On large development projects, almost all travel is on paved roads (0 percent) unpaved), and entrained road dust from vehicular travel can exceed the significance threshold. Please contact the MBUAPCD to discuss estimating emissions from vehicular travel on paved roads. District approved dispersion modeling can be used to refute (or validate) a determination of significance if modeling shows that emissions would not cause or substantially contribute to an exceedance of State and national AAQS.

*** Modeling should be undertaken to determine if the project would cause or substantially contribute (550 lbs/day) to an exceedance of CO AAQS. If not, the project would not have a significant impact.

AAQS = ambient air quality standards
CO = carbon monoxide
lbs/day = pounds per day
LOS = level(s) of service
MBUAPCD = Monterey Bay Unified Air Pollution Control District
NO_2 = nitrogen dioxide
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in diameter
SO_2 = sulfur dioxide
SO_X = sulfur oxides
V/C = volume-to-capacity
VOC = volatile organic compounds

Projects in the NCCAB with construction or operational-related emissions that exceed any of the emission thresholds would be considered to be significant under CEQA.

Short-Term (Construction) Emissions. Construction of the proposed project is anticipated to begin in 2016 with a duration of about one year. The beginning of construction is dependent on securing full funding. The proposed project is an approximately 4,466 ft (0.85 mi) segment of the Monterey Bay Sanctuary Scenic Trail (MBSST) and would be constructed within the County of Monterey (County) right of way, State right of way, and on private land. All construction staging areas are proposed to be located primarily within disturbed areas of California Department of Transportation (Caltrans) right of way or in private property easements from adjacent property owners. Construction equipment such as dump trucks, excavators, bulldozers, compactors and front-end loaders that temporarily emit precursors of ozone (i.e., volatile organic compounds [VOC] or oxides of nitrogen [NO_X]), are accommodated in the emission inventories of State and federally required air plans and would not have a significant impact on the attainment and maintenance of ozone AAQS.

The EPA estimates that each acre of soil disturbed creates about 50 kilograms [110 pounds (lbs)] of dust per workday during the construction of any project. About half of this dust is PM_{10}. The total area of disturbance (grading) for the proposed project is anticipated to be approximately 2 acres (ac) (4,466 ft long by 20 ft wide). During the one-year construction period, it is anticipated that this area would be graded four times during the first 3 months of construction and the average daily grading (assuming 5 workdays per week) would be 0.12 ac per day.

From this it can be estimated that average PM_{10} emissions would be 6 lbs per day at 50 lbs per acre. This level is well below the MBUAPCD threshold of significance for fine particulates (refer to Table III.A). Although soil disturbance during construction would be minor, MBUAPCD Rule 402 Nuisances applies to grading activities. Best Management Practices for limiting construction dust in compliance with Rule 402 should be applied where appropriate, including:

- Prohibit all grading activities during periods of high wind (over 15 mph)
- Water all active construction areas at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days)
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations, and hydro-seed area.
- Haul trucks shall maintain at least 2'0" of freeboard.
- Cover all trucks hauling dirt, sand, or loose materials.
- Plant vegetative ground cover in disturbed areas as soon as possible.
- Cover inactive storage piles.
- Install wheel washers at the entrance to construction sites for all exiting trucks.
- 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 Monterey Bay Unified Air Pollution Control District shall be visible to ensure compliance with Rule 402 (Nuisance).

Construction-related air impacts would be less than significant, and no mitigation is required.

Long-Term (Operational) Emissions. Long-term air emission impacts are associated with any change in permanent use of the project site by on-site stationary and off-site mobile sources that substantially increase emissions. The proposed project is a continuous 0.85 mi Class I bicycle and pedestrian pathway along Monterey Bay. Therefore, there are no area or energy source emissions associated with the proposed project; only light mobile source emissions would result from nominal vehicle trips associated with some of the pathway users driving to or from the proposed project. Since this segment of the trail is less than 1 mile, it is assumed that most of the users would not drive solely to utilize the 0.85-mile segment but would come from either the north or south on foot or by bicycle and would use this segment as part of a longer continuous recreational endeavor.

Using the trip rate of 1.59 daily trips per acre for a city park (the best match to the proposed project), and assuming 2 ac for the proposed project, the proposed project would generate 3.2 average daily trips (ADT). Using the default emission factors included in the California Emission Estimator Model (CalEEMod) (Version 2011.1.1), emissions associated with proposed project-related vehicular trips were calculated and are included in Table III.D. The total operational emissions are below all of the MBUAPCD thresholds of significance.

Table III.D: Operational Emissions

Source	Pollutants (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area source emissions	0	0	0	0	0	0
Energy emissions	0	0	0	0	0	0
Operational (vehicle) emissions	0.02	0.04	0.21	0	0.02	0
Total Emissions	**0.02**	**0.04**	**0.21**	**0**	**0.02**	**0**
MBUAPCD Threshold	**137**	**137**	**550**	**150**	**82**	**No**
Exceed MBUAPCD Threshold?	**No**	**No**	**No**	**No**	**No**	**Threshold**

Source: LSA Associates, Inc., February 2013.
CO = carbon monoxide
lbs/day = pounds per day
MBUAPCD = Monterey Bay Unified Air Pollution Control District
NO_X = nitrogen oxide
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SO_X = sulfur oxides
VOC = volatile organic compounds

III(c). Less Than Significant Impact. As stated previously, no exceedance of MBUAPCD criteria pollutant emission thresholds would be anticipated for the proposed project. The projected emissions of criteria pollutants as a result of the proposed project are expected to be below the emissions thresholds established for the region. As described in Section III(a), the emission inventory included in the AQMP take into account emissions described in the 2008 TAMC Final Monterey Bay Sanctuary Scenic Trail Master Plan (Master Plan) and the 2008 Monterey County General Bikeways Plan (Monterey County 2008) because both were included in the AQMP. Therefore the proposed project area is included in the emissions inventory that is included in the AQMP. Therefore, there would be no cumulatively considerable net increase of the criteria pollutants that are in nonattainment status in the NCCAB, and no mitigation is required.

III(d). Less Than Significant Impact. Construction of the proposed project may expose the surrounding sensitive receptors to airborne particulates and fugitive dust as well as a small quantity of construction equipment pollutants (i.e., diesel-fueled vehicles and equipment). The nearest sensitive receptor would be the boat uses located approximately 100 feet from the closest point of the proposed project site. However, as the emissions of construction pollutants would be temporary and of short duration and as described in III(b), impacts to the sensitive receptors would be less than significant. No mitigation is required.

III(e). Less Than Significant Impact. Odor complaints are most commonly associated with agricultural land uses, wastewater treatment plants, food processing plants, chemical plans, composting, refineries, and landfills, etc. Objectionable odors may be emitted during the operation of diesel-fueled equipment during construction of the proposed project. However, these odors would be limited to the proposed project area during construction and would disperse quickly. Objectionable odors would not be emitted during the operation of the proposed project. Therefore, project-related odors are not considered a significant impact, and no mitigation is required.

SECTION IV: BIOLOGICAL RESOURCES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☒	☐	☐
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?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion/Conclusion/Mitigation:

The information in this section is based on the *Natural Environment Study* (NES) (LSA 2013).

IV(a). Less Than Significant with Mitigation Incorporated. The project site, herein after referred to as the Biological Study Area (BSA) for the proposed project encompasses an approximately

0.85 mi long linear route parallel to SR-1 from Moss Landing Road in the south to a point approximately 100 ft north of Elkhorn Slough (Stations 55+00 to 101+00). The BSA encompasses an approximately 14.5 ac area consisting of the proposed project footprint, including cut/fill slopes, all potential access and staging areas, as well as the shoreline of Elkhorn Slough and Moss Landing Harbor near the proposed bicycle/pedestrian pathway alignment. The BSA includes lands beyond the proposed project footprint that could be permanently, temporarily, or indirectly affected by the proposed project.

The California Natural Diversity Database (CNDDB) (CDFW 2013) and the California Native Plant Society (CNPS) Inventory of Rare, Threatened, and Endangered Plants (CNPS 2013) were searched for records of special-status species occurrences in the project area (i.e., within a 5 mi radius of the proposed project area). A total of 37 species of special-status plants have the potential to occur within the vicinity of the BSA (refer to Table 4 of the NES, which is provided in Appendix A). Suitable habitat was absent in the BSA for 17 of these special-status plant species. Therefore, the NES prepared for the proposed project analyzed project impacts on the 20 plant species for which suitable habitat was present in the BSA.

Potentially suitable habitat occurs within or immediately adjacent to the BSA for 20 special-status wildlife species (refer to Table 4 of the NES, which is provided in Appendix A). Therefore the NES prepared for the proposed project analyzed project impacts on 20 special-status wildlife species.

Special Status Plants. Suitable habitat is present within the BSA for 11 federal- and/or State-listed special-status plant species including Monterey spineflower (*Chorizanthe pungens* var. *pungens*), robust spineflower (*Chorizanthe robusta* var. *robusta*), Seaside bird's beak (*Cordylanthus rigidus* subsp. *littoralis*), Menzies wallflower (*Erysimum menziesii* subsp. *menziesii*), Yadon's wallflower (*Erysimum menziesii* subsp. *yadonii*) , sand gilia (*Gilia tenuiflora* subsp. *arenaria*), Santa Cruz tarplant (*Holocarpha macradenia*), beach layia (*Layia carnosa*), Tidestorm's lupine (*Lupinus tidestromii*), Yadon's rein orchid (*Piperia yadonii*), and Hickman's potentilla (*Potentilla hickmanii*). Suitable habitat is also present within the BSA for nine other special-status plant species (including those listed by the CNPS as List 1B, 2, 3, and 4) including sandmat manzanita (*Arctostaphylos pumila*), Hutchinson's larkspur (*Delphinium hutchinsoniae*), Eastwood's goldenbush (*Ericameria fasciculata*), Coastal dunes milk vetch (*Astragalus tener* var. *titi*), sand-loving wallflower (*Erysimum ammophilum*), fragrant fritillary (*Fritillaria liliacea*), Kellogg's horkelia (*Horkelia cuneata* var. *sericea* [*syn. H. cuneata* subsp. *sericea*]), Choris' popcornflower (*Plagiobothrys chorisianus* var. *chorisianus*), and Santa Cruz clover (*Trifolium buckwestiorum*). Seven special-status plant surveys were conducted within the BSA. None of these 20 species were found to be present in the project BSA during the focused botanical surveys and therefore, are considered absent from the BSA. Therefore, implementation of the proposed project would not result in impacts to any special-status plant species, and no mitigation is required.

Special-Status Animals. Of the 20 special-status animal species evaluated for the proposed project, only three (the California brown pelican [*Pelecanus occidentalis californicus*], American peregrine falcon [*Falco peregrinus anatum*], and the southern sea otter [*Enhydra lutris nereis*]) were observed in the proposed project area during field surveys conducted for the proposed

project. The other 17 special-status species discussed are not expected to occur in or adjacent to the BSA due to the lack of suitable habitat.

California Brown Pelican. The California brown pelican has been delisted as a State and federal endangered species but is a Fully Protected Species by the State of California. California brown pelicans do not breed in the Elkhorn Slough/Moss Landing area; their breeding is restricted to southern California but small numbers of pelicans occur in Monterey County throughout the year. Although California brown pelicans were observed foraging within the BSA during field surveys, they are not known to nest in the County. The proposed project would not significantly impact brown pelicans because they have extensive areas of suitable roosting and foraging habitat available to them and have the ability to easily avoid construction areas. Although it is unlikely that the California brown pelican would be disturbed by construction activities associated with the proposed project, implementation of Mitigation Measure IV(a)(1) and Mitigation Measure IV(a)(2) would reduce any potential construction-related impacts to the California brown pelican to less than significant levels.

Mitigation Measure IV(a)(1): **Preconstruction Nesting Bird Surveys.** Prior to the issuance of a notice to proceed with project construction, the County of Monterey shall ensure that the project plans and special provisions specify that a qualified biologist shall be retained to complete preconstruction nesting birds surveys within 300 feet (ft) of all disturbance areas should construction be scheduled to occur within the nesting season (February 22 through August 21).

Mitigation Monitoring Action No. 1: *Prior to the issuance of a notice to proceed with project construction, if construction is scheduled to occur within the nesting season (February 22 through August 21), a qualified biologist shall complete preconstruction nesting birds surveys within 300 ft of all disturbance areas.*

Mitigation Measure IV(a)(2): **Qualified Biologist for Construction Monitoring.** Prior to the issuance of a notice to proceed with project construction, the County of Monterey shall ensure that the project plans and special provisions specify that a qualified biologist shall be retained to monitor the construction area for brown pelicans during construction. The biological monitor shall have the authority to stop or delay construction if it is determined that a given activity may pose a threat to brown pelicans.

Mitigation Monitoring Action No. 2: *During the course of construction, a qualified biologist shall monitor the construction area for California brown pelicans. If construction activities are determined to impact California brown pelicans, the biological monitor shall have the authority to stop or delay construction.*

American Peregrine Falcon. No suitable nesting habitat for the American peregrine falcon is located in or adjacent to the BSA. This species forages widely over a wide variety of open landscapes, including urban areas, agricultural lands, harbors, salt marshes, and grasslands and is expected to occur in the BSA only while foraging or dispersing. Implementation of the proposed project would not impact known nesting sites or nesting pairs of American peregrine falcon.

Southern Sea Otter. In the eastern north Pacific, sea otters historically ranged from Alaska to central Baja California, Mexico and in the western Pacific south to northern Japan. During the eighteenth and nineteenth centuries, sea otter populations were decimated by hunting. Currently, southern sea otters are found primarily along the central California coast. The southern sea otter was listed as a federally threatened species in 1977.

Southern sea otters were observed foraging and resting in and adjacent to the BSA during field surveys. Construction of the proposed bicycle/pedestrian bridge would involve pile driving and require that equipment and personnel be brought into areas within the proposed project area where sea otters occur. Construction of the proposed bicycle/pedestrian bridge would result in an incremental increase in activity in the harbor and the slough, in an area that typically host large numbers of people engaging in recreational and commercial activities. It is anticipated that most sea otters would avoid the proposed project area during construction activities, but it is possible that some individuals may be present in the work area at various times during construction. Loud airborne or underwater sounds, such as those produced by in-water pile driving, could have detrimental effects on sea otters. Therefore, before in-water construction begins, including moving work barges into the BSA, consultation with the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) under Section 7 of the Federal Endangered Species Act (FESA) would be required. Additionally, implementation of Mitigation Measures IV(a)(3) and IV(a)(4) would reduce potential impacts to southern sea otters and other marine mammals to less than significant levels.

Mitigation Measure IV(a)(3):

Marine Mammal Protection Plan. Prior to construction, a Marine Mammal Protection Plan shall be developed for the proposed project and approved by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). The Marine Mammal Protection Plan shall include, but may not be limited to, the following measures:

- A marine mammal impact zone shall be established by a qualified marine biologist, which shall require recording construction-related underwater sound pressure levels (SPL) by a qualified underwater acoustic monitor. The marine mammal impact zone is the area where marine mammals may be negatively affected by underwater noise generated by in-water construction such as pile driving.
- Based on the marine mammal impact zone, a buffer/safety zone to be monitored by a qualified

biologist shall be established and approved by USFWS. An acceptable buffer is anticipated to be 500 ft from work activities, as was required during the construction of the public wharf and floating dock located on the north side of the mouth of Elkhorn Slough. The approved biologist shall monitor the buffer/safety zone during all in-water construction activities. Once established, the marine mammal buffer/safety zone shall be clearly marked with buoys for easy monitoring. Pile driving shall not begin until the buffer/safety zone is clear of marine mammals.

- A "soft start" practice shall be implemented at the onset of pile-driving activities. Pile driving shall be initiated at an energy level less than full capacity (i.e., approximately 40–60 percent energy levels) for at least 5 minutes before gradually escalating to full capacity. The "soft start" practice would ensure that any pinnipeds that are undetected during monitoring of the buffer zone would not be injured.
- Limit construction activities, including pile driving, to the daylight hours (8:00 a.m. to 5:00 p.m.) when marine mammals can be most effectively observed. In-water construction (e.g., pile driving) shall be limited to June 15 through October 15.
- Construction monitoring by a qualified biologist shall be conducted during all work on the proposed bicycle/pedestrian bridge including over-water construction after the piles have been put in place. The biological monitor shall have the authority to stop or delay construction if it is determined that a given activity may pose a threat to a marine mammal that has entered the buffer/safety zone.
- Prior to the initiation of in-water construction, a qualified biological monitor approved by USFWS and NMFS shall conduct monitoring of marine mammals to update existing information on the animals' occurrence in and near the project area, their movement patterns, and their use of any haul-out sites. This preconstruction monitoring shall take place at least 5 days prior to the start of in-water construction and shall cover a period of at least 1 week.
- Prior to in-water construction, the approved biological monitor shall conduct environmental awareness training to instruct construction crews regarding the status and sensitivity of sensitive species and habitats (i.e., sea

otters and other marine mammals) in the area and the actions to be taken to avoid or minimize impacts to sensitive species in the event sensitive species enter the in-water work area. All construction personnel will be required to sign a log verifying that they received and understood the information presented during the training.

- The approved biological monitor shall be present during in-water construction activities to search for target marine mammal species and halt project activities that could result in injury or mortality to these species during the in-water activities and on-land pile driving. Each day, before pile driving (or other loud in-water construction activity) begins, the monitor shall survey the buffer zone for marine mammals. The monitor shall also scan for marine mammals throughout the aquatic portions of the project and vicinity.
- The commencement of pile driving activities shall be delayed if marine mammals are present within a buffer zone1 established in consultation with USFWS and NMFS around the new bridge work area. This buffer zone shall be based on pile-driving activities for similar projects and on the feasibility of monitoring the area for animals entering the project area from the open waters of Monterey Bay. The buffer radius shall be established based on a measurement of the distance the 160-decibel (dB) pressure travels in the underwater harbor waters and/or through the air. The radius shall be visibly flagged on the banks of the harbor during these activities. Each day, prior to the start of pile driving, the approved biological monitor shall survey the buffer zone for marine mammals. If a marine mammal is detected, pile driving shall be delayed until the marine mammal has moved beyond the buffer zone, which is verified by visual confirmation or lack of visual sighting with the next 15 minutes of the last sighting to assume that the animal has moved beyond the buffer zone. If the animal should move back into the buffer zone after the commencement of pile driving, no further work stoppage

[1] A 500 ft radius is intended to be an initial buffer, prior to tests that determine the actual distance at which pile driving noise is recorded to be 160 dBs. Such a buffer has been used on other projects in the vicinity and was selected based on estimates that underwater noise levels can be conservatively predicted to fall below 160 dB outside a radius of between 33 ft and 300 ft for driving steel piles as large as 30 inches in diameter (ICF Jones and Stokes 2010). In addition, an initial 500 ft buffer zone was used for a project of a similar scale (i.e., the Sandholdt Road Bridge Replacement Project) (LSA 2004).

shall be necessary unless the animal comes within an unsafe distance of the work area that may result in injury to the animal. At this point, work shall cease to avoid physical injury to the animal. This distance shall be determined by USFWS and/or NMFS. The biological monitor shall record the species and the numbers and behaviors of any animal(s) entering the buffer zone after the commencement of work, and shall notify the County of Monterey (County), the California Department of Transportation (Caltrans), and NMFS or USFWS via telephone and in writing within 48 hours. The biological monitor shall also submit a written description of the event to Caltrans (and in turn to NMFS and USFWS, as applicable) within 7 days.

- The buffer radius may be reduced or increased based on a measurement of the distance the 160 dB pressure travels in the underwater harbor waters and/or through the air. This would be determined using approved in-water and in-air acoustic monitoring devices. The County shall notify Caltrans in writing of the proposed change in buffer zone area, who in turn shall notify NMFS and/or USFWS. An approved biological monitor shall operate the monitoring devices during pile driving and any other loud construction activities (e.g., use of hydraulic tools). The devices, when placed at the determined buffer, shall produce acoustic data for the duration of noise-producing activities. An alarm would alert the biological monitor to sound levels approaching 160 dB.
- At least 7 days prior to the start of pile driving, the floating dock located at the north end of the Biological Study Area (BSA) west of the existing State Route 1 (SR-1) Bridge shall be excluded from use by seals and sea lions. The proximity (100–300 ft) of this artificial haul-out to the bridge work area would minimize the opportunities for sea lions and seals to be within the buffer zone and therefore cause delays in initiating pile-driving activities.
- No disturbance or noise shall be used to encourage the movement of sea otters and other marine mammals from the work area. The County shall contact USFWS and NMFS to determine the best approach for exclusion of the marine mammals from the in-water work area.
- Other in-water construction activities (e.g., the use of heavy equipment to place riprap) shall generate noise

levels equivalent to that of a diesel truck. For those activities, a 50 ft radius buffer zone shall be established. This buffer zone shall be clearly marked by highly visible stakes that are securely placed into the banks. Each day, before construction begins, the biological monitor shall search the 50 ft radius for marine mammals. If a marine mammal is sighted within the buffer zone, the biological monitor shall require the contractor to delay in-water construction activities until the biological monitor determines that no marine mammals are present within the buffer area.

- The biological monitor shall keep a record of all observations of the target species. The information on each observation shall include: (a) species identification and approximate number of animals observed; (b) age class and sex of each animal (if possible); (c) activity and direction of movement; (d) ongoing project activities at the time of observation; (e) responses of target species to project activities; (f) any unusual behavior or circumstances observed (either project- or non-project related); and (g) location, date, and time of each observation. Summary monitoring reports shall be submitted to Caltrans, which shall forward reports to NMFS and USFWS by December 31 of each year that in-water construction activities take place.
- In the event the biological monitor determines that a marine mammal has been injured by project activities, all work shall cease and Caltrans shall be notified. Caltrans shall consult with NMFS and/or USFWS to determine if additional measures are necessary. Work may resume upon notification by Caltrans.
- Post-construction monitoring shall be conducted to determine if marine mammals resume their use of haul-out sites. NMFS may require additional project conditions to be applied, depending on the outcome of post-construction monitoring.

Mitigation Monitoring Action No. 3: *Prior to issuance of a notice to proceed with project construction, the County of Monterey shall assure that a Marine Mammal Protection Plan has been developed and approved by the USFWS and the NMFS that includes, but is not limited to, the measures set forth in Mitigation Measure IV(a)(2). During the course of construction of the proposed bicycle/pedestrian bridge, a biological monitor shall conduct construction monitoring and shall have the authority to stop or delay construction if it is determined that a given activity*

may impact a marine mammal that has entered the buffer/ safety zone.

Mitigation Measure IV(a)(4): **Acoustic Monitoring of Pile Driving.** During pile driving activities, the project contractor shall ensure that sound levels from pile driving are limited to approved values stipulated by NMFS and USFWS in the conditions of approval for the project (typically 206 dB peak and 183–187 dB cumulative sound exposure levels [SEL], depending on the size of fish expected to be present). Acoustic monitoring as stipulated in the *Final Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effect of Pile Driving on Fish* (ICF Jones & Stokes and Illingworth and Rodkin 2009) shall be conducted during pile-driving activities. Attenuation methods such as those identified in the *Final Technical Guidance* (ICF Jones & Stokes and Illingworth and Rodkin 2009) under Best Management Practices (BMPs) (i.e., air bubble curtains) or other Caltrans, NMFS, and USFWS approved systems (i.e., AdBm Technologies sound attenuation system) shall be used to reduce sound levels to the maximum extent practicable.

Mitigation Monitoring Action No. 4: *During the course of construction, the project contractor shall ensure that peak sound levels from pile driving are limited to those values stipulated in the permits, Biological Opinion, concurrence letter, and conditions of approval from Caltrans, NMFS, and USFWS. Attenuation devices shall be used to reduce sound levels to the greatest extent practicable.*

Once pile driving is completed, the proposed bicycle/pedestrian bridge would not impede the movement of sea otters through the mouth of the slough or impact their other activities in the water. Furthermore, construction of the proposed bicycle/pedestrian pathway on dry land is not expected to impact sea otters provided that sediments and construction materials are retained on land (refer to Section IX in Chapter VI, Hydrology and Water Quality, for a list of Mitigation Measures related to construction activities).

Three other special-status wildlife species have the potential to occur within the BSA, including green sturgeon (*Acipsenser medirostris*), South/Central California Evolutionarily Significant Unit (ESU) of steelhead (*Oncorhynchus mykiss irideus*), and tidewater goby (*Eucyclogobius newberryi*). It is unlikely that these species would be present within the BSA due to lack of suitable habitat and few to no records of these species being present within Elkhorn Slough and/or Monterey Bay. However, in the unlikely event that these species are present within the BSA at the time of construction, implementation of Mitigation Measures IV(a)(5) through IV(a)(7) would reduce potential impacts to less than significant levels.

Mitigation Measure IV(a)(5):

Fish Monitoring During Pile Driving Activities. Prior to the issuance of a notice to proceed with project construction, the County of Monterey shall ensure that special provisions for the construction contract specify that in areas of strong current, pile driving shall occur when the current is reduced (i.e., centered around slack current), if feasible, in order to minimize the number of fish exposed to adverse levels of underwater sound. In addition, during pile-driving activities, the project contractor shall ensure that sound levels from pile driving are limited to approved values stipulated by NMFS and USFWS in the conditions of approval for the project (typically 206 dB peak and 183–187 dB cumulative SEL, depending on the size of fish expected to be present). Acoustic monitoring as stipulated in the *Final Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effect of Pile Driving on Fish* (ICF Jones & Stokes and Illingworth and Rodkin 2009) shall be conducted during pile-driving activities. Attenuation methods such as those identified in the *Final Technical Guidance* (ICF Jones & Stokes and Illingworth and Rodkin 2009) under BMPs (i.e., air bubble curtains) or other Caltrans, NMFS, and USFWS approved systems (i.e., AdBm Technologies sound attenuation system) shall be used to reduce sound levels to the maximum extent practicable.

- A qualified biological monitor shall be on site to monitor fish. If fish are observed to be injured or killed, pile driving shall cease immediately, Caltrans will notify NMFS, and the County will contact the California Department of Fish and Wildlife (CDFW) to determine appropriate steps to avoid additional damage to fish.
- Prior to the initiation of construction activities, the approved biological monitor shall conduct environmental awareness training for all construction crews and supervisors. This training shall include information on the status of the sensitive species and habitats in the vicinity of the work area, how and where the sensitive species and habitats may be encountered within the work area, and procedures to follow when the species and habitats are encountered. Measures being implemented to minimize and avoid impacts to sensitive species and habitats shall also be discussed. At the end of the training, construction personnel shall sign a training log stating they attended the worker awareness program and they understand the protection measures being implemented. If additional construction personnel are added after the initial training, the new workers must

be trained by the biological monitor prior to starting work.

- Results of monitoring shall be reported to the County and Caltrans within 2 weeks following the completion of pile-driving activities.
- The proposed project shall implement a slow start, thereby allowing fish in the vicinity of the pile driving to move away from the pile before the full force of the pile driver is achieved.
- Cast-in-steel shell (CISS) piles shall be set using a vibratory hammer rather than an impact hammer to help reduce overall sound and exposure levels in the slough and harbor. An impact hammer shall be used to drive the piles to final tip elevation.
- Pile driving shall be limited to the sound level values stipulated by NMFS and USFWS in the conditions of approval for the project. A qualified biological monitor with experience in acoustic monitoring will work with the contractor to ensure that approved values are not exceeded.
- In-water work shall be limited to the period of June 15 to October 15 during each construction season. Although steelhead are not likely to occur in the project area, the summer/fall in-water work window shall avoid in-water work when steelhead may be present.
- A sound attenuation system that is approved by Caltrans, NMFS, USFWS, and CDFW will be used during pile driving to reduce sound levels to the maximum extent practicable. Examples of the sound attenuation system include air bubble curtain systems and the passive sound attenuation system such as that developed by AdBm Technologies.
- All construction activities associated with construction of the new bridge and the removal and replacement of rock shore protection shall be conducted during daylight hours. Limiting work associated with these activities to these periods shall facilitate movement of workers between shore and barges, and monitoring of fish, marine mammals, and sound levels.
- A monitoring plan shall be prepared and implemented to monitor noise levels during pile driving and ensure that noise levels do not exceed authorized levels. The plan shall identify at least two monitoring locations (e.g., one

at 10 meters from the pile driving and one at the estimated cumulative SEL threshold distance).

Mitigation Monitoring Action No. 5: *During the course of construction, the project contractor shall ensure that sound levels from pile driving are limited to approved values stipulated by NMFS and USFWS in the conditions of approval for the project (typically 206 dB peak and 183–187 dB cumulative SEL, depending on the size of fish expected to be present). Attenuation devices shall be used to reduce sound levels to the maximum extent practicable. In addition, the County of Monterey shall assure that a qualified biological monitor is on site during pile-driving activities to monitor fish that may become injured or killed during pile-driving activities. If fish are observed to be injured or killed, the resident engineer or other responsible person at the project site shall immediately contact Caltrans, which in turn will immediately notify NMFS, USFWS, and the County, and the County will then notify CDFW, to determine appropriate steps to avoid additional damage to fish. Pile driving will be discontinued until the cause of the mortality is determined and measures approved by the agencies are implemented to avoid additional injury or mortality. The biological monitor shall report the results of the monitoring to the County and Caltrans within 2 weeks following completion of pile-driving activities for review.*

Mitigation Measure IV(a)(6): **Construction Hours.** All pile driving, bridge construction, and trail construction shall take place during daylight hours (8:00 a.m. to 5:00 p.m.). This information shall be specified in the special provisions for the construction contract.

Mitigation Monitoring Action No. 6: *The County of Monterey shall ensure that all construction activities occur during daylight hours (8:00 a.m. to 5:00 p.m.) by specifying those allowable working hours in the special provisions for the construction contract and enforcing that contract provision.*

The California sea lion (*Zalophus californianus*) and harbor seal (*Phoca vitulina richardsi*) are not considered special-status species, but are protected under the federal Marine Mammal Protection Act. Both of these species were observed in or adjacent to the BSA during field surveys conducted for the proposed project. It is anticipated that most California sea lions and harbor seals would avoid the proposed project area during construction activities, but it is possible that some individuals may be present in the work area at various times during construction activity. In addition, prior studies have shown that loud underwater sounds, such as

those produced by in-water pile driving, can have detrimental effects on marine mammals.[1] Additionally, construction of rock shore protection and a 30-inch pipe culvert would occur near a small haul out area just south of the southern abutment of the bridge (sandy beach) that is used by California sea lions and harbor seals. Construction activities would not directly impact the small sandy beach; however, seals and sea lions using the beach may be disturbed due to the close proximity of construction equipment. No direct impacts to sea lions or harbor seals that may be hauled out at this location are expected. Implementation of Mitigation Measure IV(a)(7) would reduce potential impacts to California sea lions and harbor seals resulting from in-water pile driving to less than significant levels.

Mitigation Measure IV(a)(7): **Incidental Harassment Authorization.** Prior to initiation of in-water construction, including moving work barges into the proposed project area, an Incidental Harassment Authorization (IHA) shall be obtained by the County of Monterey from the USFWS and NMFS for the proposed project under the authority of Section 101(a)(5)(D) of the Marine Mammal Protection Act.

Mitigation Monitoring Action No. 7: *Prior to initiation of in-water construction activities, the County of Monterey shall obtain an IHA under the authority of Section 101(a)(5)(D) of the Marine Mammal Protection Act. The County shall assure that construction activities are conducted in accordance with the provisions of the IHA.*

IV(b). Less Than Significant with Mitigation Incorporated. Implementation of the proposed project would not result in direct or indirect impacts to riparian habitat because there is no riparian habitat within the proposed project area.

Two sensitive natural habitats/plant communities of special concern were identified within the BSA: estuarine/open water associated with Elkhorn Slough and Moss Landing Harbor and dune scrub.

Estuarine/Open Water. Approximately 3.8 ac of estuarine/open water habitat has been identified in the BSA. The proposed project would result in direct permanent impacts to a total of approximately 0.232 ac of estuarine/open water habitat in the following three locations: (1) the piers required for the proposed bicycle/pedestrian bridge (approximately 240 square feet [sf] [0.0055 ac]); (2) shoreline protection measures to be implemented along Moss Landing Harbor south of the Elkhorn Slough Bridge (0.18 ac); and (3) shoreline protection measures to be implemented along Moss Landing Harbor adjacent to Moss Landing Road (0.046 ac). Permanent direct impacts to approximately 0.232 ac of estuarine/open water habitat would not likely result in a significant disruption to habitat or species.

[1] Annalisa Berta, James L. Sumich, and Kim M. Kovacs. 2006. Marine Mammals: Evolutionary Biology, 2nd edition. Elsevier, Burlington, San Diego, and London.

The estuarine/open water habitat at the location of the piers has relatively low habitat quality. Areas along the shoreline to be protected are not currently high quality habitat due to existing disturbance. Furthermore, implementing shoreline protection measures would constitute a beneficial impact to estuarine/open water habitat because further erosion and sedimentation of the shoreline would be precluded once the shoreline protection measures are implemented. The proposed project is expected to result in approximately 0.11 ac of permanent indirect impacts to estuarine/open water habitat of Elkhorn Slough from the proposed bicycle/pedestrian bridge through the shading of estuarine habitat beneath the proposed bicycle/pedestrian bridge. These permanent indirect impacts would not result in a significant disruption to habitat or species, as the proposed bicycle/pedestrian bridge is not expected to inhibit wildlife use in the slough or to further degrade the habitat value of the estuarine habitat.

The proposed project would result in approximately 0.706 ac of construction-related temporary direct impacts to estuarine/open water habitat. Temporary direct impacts would be associated with the barges that would be used for construction of the slope protection and the bridge. The barges required for the removal of the rock slope protection south of the Elkhorn Slough Bridge would result in approximately 0.2 ac of temporary shading impacts to the harbor bottom. The shaded area would vary depending on the size of the barge and the time of the day. The barges are expected to be in place for approximately 90 days; however, the barges would mostly likely be continuously moving as the rock slope protection work progresses. Based on the relatively short time the barges would be in place, fish would not be significantly impacted by the temporary shading associated with barges. In addition, the barges would generally be in relatively deep water (about 25 ft in the channel) and thus are not expected to disturb the harbor substrate because they would be floating clear of the bottom. However, if the barges are working close to shore during low tides, they could touch bottom and disturb the substrate, which may result in some disturbances to the bottom. Such disturbances would likely be temporary in nature because the work area is located in a dynamic tidal environment. Therefore, any disturbance to the harbor bottom is expected to be naturally repaired through tidal action. The County would require that the contractor submit a barge plan describing the details of barge work and procedures to implement should the barge bottom out.

Construction-related temporary direct impacts to estuarine/open water habitat would also include areas temporarily affected during construction of the shoreline protection areas south of the Elkhorn Slough Bridge and along Moss Landing Road. Removing existing concrete along the shoreline would temporarily disturb fish and benthic invertebrate assemblages in the area of the work being done. However, the concrete would be removed piece by piece, which would allow time for the fish to swim away from the area of disturbance. Once the new rock slope protection is in place, a similar assemblage of fish and invertebrates is expected to recolonize the area with the new slope protection. Additional construction-related temporary impacts would include dust, potential fuel spills from construction equipment, unauthorized activities of equipment or personnel outside designated construction areas, and operation effects such as those on adjacent habitats caused by storm water runoff, traffic, and litter. Implementation of Mitigation Measures IV(b)(1)–IV(b)(7) in Section IV, Biology, and Mitigation Measure IX(a)(1) in Section IX, Hydrology and Water Quality, would reduce potential impacts to estuarine/open water habitat within the BSA to less than significant levels.

Mitigation Measure IV(b)(1): **Environmentally Sensitive Area Fencing for Estuarine Wetland/Open Water Habitat.** Prior to vegetation clearing, ground disturbance, or construction, highly visible barriers (such as orange construction fencing) shall be installed by the contractor around sensitive habitats adjacent to the proposed project footprint within 100 ft of estuarine wetland/open water habitat. The biological monitor will work with the contractor to identify the location of the fence and monitor its proper installation. No grading or fill activity of any type shall be permitted within these designated environmentally sensitive areas (ESAs). Heavy equipment, including motor vehicles, shall not be allowed to operate within the ESAs. All construction equipment shall be operated in a manner so as to prevent accidental damage to nearby preserved areas. All equipment maintenance, staging, and dispensing of fuel, oil, or any other such activities shall occur in developed or designated nonsensitive, upland, habitat areas. The designated upland areas shall be located in such a manner as to prevent the runoff from any spills from entering aquatic habitats. The ESAs shall be denoted on project construction plans and adjusted in the field as necessary prior to construction.

Mitigation Monitoring Action No. 8: *Prior to vegetation clearing, ground disturbance, or construction, highly visible barriers shall be installed by the contractor within 100 ft of estuarine wetland/open water around sensitive habitats adjacent to the proposed project. The biological monitor will monitor the installation and make adjustments in the field as needed. No grading or fill activity or the operation of heavy equipment shall be permitted in ESAs and all activities shall occur in developed or designated nonsensitive, upland, habitat areas. The ESAs shall be denoted on project construction plans and adjusted in the field as necessary prior to construction.*

Mitigation Measure IV(b)(2): **Estuarine/Open Water Areas Construction Monitoring.** During all phases of project construction, the monitoring biologist shall monitor construction activities within the vicinity of estuarine wetland/open water to ensure that wildlife species are not affected during construction and that avoidance and minimization measures are properly implemented.

Mitigation Monitoring Action No. 9: *During the course of construction, the monitoring biologist shall monitor estuarine wetland/open water to ensure that no wildlife species are affected and that proper mitigation and avoidance measures are implemented correctly.*

Mitigation Measure IV(b)(3): **Construction Employee Environmental Awareness Training.** Prior to the initiation of construction activities, environmental awareness training shall be implemented for all construction personnel. This training shall be developed and implemented by the biological monitor. At a minimum, the training shall include the following topics: (1) biology conservation, and legal status of the sea otter, marine mammals, fisheries and nesting birds; (2) responsibilities of the biological monitor; (3) delineation and flagging of adjacent habitat; (4) limitations on all movement of those employed on site, including ingress and egress of equipment and personnel, to designated construction zones (e.g., personnel shall not be allowed access to adjacent sensitive habitats); (5) on-site pet prohibitions; (6) use of trash containers for disposal and removal of trash; and (7) project features designed to reduce the impacts to listed species and habitat and promote continued successful occupation of adjacent habitat areas. Training shall be repeated for any new construction personnel during the project construction period as needed.

Mitigation Monitoring Action No. 10: *Prior to the initiation of grading activities, environmental awareness training shall be conducted by a biological monitor. The training shall be provided to all construction workers involved in the proposed project that includes, but is not limited to, the measures set forth in Mitigation Measure IV(b)(3).*

Mitigation Measure IV(b)(4): **Prohibition of Chemicals Harmful to Biological Resources.** During the construction and operation of the proposed project, the use of rodenticides, herbicides, insecticides, or other chemicals that could harm estuarine wetland/open water shall be prohibited. This measure will be specified on the project construction plans or special provisions and monitored by the project biological monitor.

Mitigation Monitoring Action No. 11: *During the construction and operation of the proposed project, the use of rodenticides, herbicides, insecticides, or any other potentially harmful chemicals to estuarine wetland/open water habitat shall be prohibited.*

Mitigation Measure IV(b)(5): **Barge Plan.** Prior to initiation of construction activities, the County of Monterey shall review and approve a barge plan, which shall be prepared by the contractor, that provides: (a) detailed procedures to be taken to avoid disturbing the harbor bottom during construction activities and procedures

to be followed if the barge bottoms out; and (b) detailed methods and procedures to prevent invasive species from entering Elkhorn Slough during the use of barges. The specific methods and procedures to prevent movement of invasive aquatic species shall follow regulations current at the time of project construction and the measures shall be approved by the appropriate agencies prior to the temporary transport of the barges into Elkhorn Slough. At a minimum, the barge plan shall include the following measures if barges are being transported from areas with invasive aquatic species (i.e., San Francisco Bay):

- Emptying of ballast tanks outside the boundaries of the National Marine Sanctuary and prior to entrance into Monterey Bay;
- Flush ballast tanks with freshwater, which shall be held in the tanks for at least two days and maintained in the ballast during the length of the project, if possible;
- Flush raw water cooling systems and clean sea strainers appropriately prior to moving the barges into Elkhorn Slough;
- Prior to departure from San Francisco Bay, the hull shall be inspected for non-native invasive species above and below water-line by divers. If a species is found that closely resembles one of the least wanted invaders, an expert shall be consulted to determine correct identification. If determined to be an invasive non-native species, a report shall be filed with the Elkhorn Slough Natural Estuarine Research Reserve (ESNERR) at (831) 728-2822. Should the expert be unavailable, the material shall be removed by hand and disposed of properly in garbage receptacles on land. The barges shall be transported to Elkhorn Slough within 3 days of completing removal of invasives in order to prevent inoculation. Upon arrival to and prior to entering the Elkhorn Slough, the hull shall be inspected again.

This barge plan shall be specified on the project construction plans or special provisions and the terms of the plan shall be monitored by the project biological monitor.

Mitigation Monitoring Action No. 12: *Prior to the initiation of construction activities, a barge plan shall be prepared and included on the project construction plans or special provisions that provides detailed procedures to ensure the harbor bottom is not disturbed during construction activities and detailed methodologies to prevent*

invasive species from entering Elkhorn Slough during the use of barges.

Mitigation Measure IV(b)(6): **Storm Water Pollution Prevention Plan.** Prior to the issuance of a notice to proceed with project construction, the County of Monterey shall review and approve a site-specific Storm Water Pollution Prevention Plan (SWPPP) that will identify specific BMPs for each construction activity to eliminate or minimize the potential for the discharge of polluted storm water or unauthorized non-storm water. Specific BMPs shall be implemented during proposed project construction so as not to cause or contribute to an exceedance of any water quality standard. In addition, changes to the BMPs such as alternative mechanisms, if necessary, during proposed project design and/or construction shall be implemented in order to achieve the stated goals and performance standards. These may include silt curtains or turbidity curtains that would contain resuspended sediment on site until it settles.

Mitigation Monitoring Action No. 13: *Prior to the issuance of a notice to proceed with project construction, the County of Monterey shall review and approve a site-specific SWPPP prepared by the project contractor that will identify specific BMPs to eliminate or minimize the potential for the discharge of polluted storm water or unauthorized non-storm water for each construction activity. Specific BMPs shall be implemented during project construction and any necessary changes to the BMPs during project design and/or construction shall be implemented immediately to achieve the stated goals and performance standards.*

Mitigation Measure IV(b)(7): **Habitat Mitigation and Monitoring Plan.** Prior to the issuance of a notice to proceed with project construction, the County of Monterey shall assure that a Habitat Mitigation and Monitoring Plan (HMMP) has been developed for the proposed project in coordination with the United States Army Corps of Engineers (Corps), the Regional Water Quality Control Board (RWQCB), and the California Coastal Commission (CCC) to ensure no net loss of estuarine habitat value or acreage. Final details for compensatory mitigation shall be evaluated through coordination among the County, Caltrans, and the resource agencies, including the CCC. The HMMP shall comply with all terms and conditions set forth in the permits (401 and 404) and conditions issued by the resource agencies

(USFWS, NMFS, and CDFW) and shall typically include the following provisions:

Estuarine habitat will be restored in-kind and on site at a minimum 1:1 ratio within the BSA, if feasible. If off-site restoration is required, it will be done within the same watershed as the proposed project.

An establishment period for the replacement habitat, regular trash removal, and regular maintenance and monitoring activities to ensure the success of the mitigation plan until the replacement habitat is deemed satisfactory by the resources agencies (USFWS, NMFS, and CDFW).

Mitigation Monitoring Action No. 14: *Prior to the issuance of a notice to proceed with project construction, the County of Monterey shall coordinate with the Corps, the RWQCB, and the CCC to develop an HMMP to ensure no net loss of estuarine habitat value or acreage. Caltrans and the resource agencies, including the CCC, shall evaluate the final details for compensatory mitigation. The HMMP shall comply with all terms and conditions set forth in permits and opinions issued by the resource agencies.*

Dune Scrub. Approximately 0.4 ac of native dune scrub habitat has been identified in the BSA near the Moss Landing Harbor north of Moss Landing Road. At its nearest location, the proposed project would be constructed approximately 15 ft east of this habitat. The proposed project would not result in direct permanent impacts or temporary impacts to dune scrub habitat through disturbance and/or removal of existing vegetation within the BSA. Construction of the proposed project would result in indirect impacts to this habitat, such as dust and potential fuel spills from construction equipment. Implementation of Mitigation Measure IV(b)(8) would reduce these potential impacts to less than significant levels.

Mitigation Measure IV(b)(8): **ESA Fencing for Dune Scrub Habitat.** Prior to vegetation clearing, ground disturbance, or construction, highly visible barriers (such as orange construction fencing) shall be installed around dune scrub habitat adjacent to the proposed project footprint to designate ESAs to be preserved. No grading or construction activity or staging shall be permitted within this habitat. In addition, heavy equipment, including motor vehicles, shall not be allowed to operate within the ESAs. All construction equipment shall be operated in a manner so as to prevent accidental damage to nearby preserved areas. All equipment maintenance, staging, and dispensing of fuel, oil, or any other such activities shall occur in developed or designated nonsensitive, upland,

habitat areas. This measure shall be specified on the project construction plans and monitored by the project biological monitor.

Mitigation Monitoring Action No. 15: *Prior to vegetation clearing, ground disturbance, or construction, the County of Monterey shall ensure that highly visible barriers are built around dune scrub habitat adjacent to the proposed project to identify ESAs to be preserved. The biological monitor will work with the contractor to locate the fence in the designated location. No grading or construction activity, or the operation of heavy equipment shall be permitted in ESAs, and all activities shall occur in developed or designated nonsensitive upland habitat areas.*

IV(c). Less Than Significant with Mitigation Incorporated. Implementation of the proposed project would result in approximately 0.489 ac of impacts to waters of the United States regulated by the United States Army Corps of Engineers (Corps), the Regional Water Quality Control Board (RWQCB), and the California Coastal Commission (CCC). Areas below the mean high water level are jurisdictional under Section 10 of the Rivers and Harbors Act. Areas between the mean high water level and high tide are jurisdictional under Section 404 and 401 of the Clean Water Act (CWA).

As noted above under Threshold IV(b), the proposed project would result in approximately 0.232 ac of *direct permanent impacts* from: (1) the piers required for the proposed bicycle/pedestrian bridge; (2) the shoreline protection measures to be implemented along Moss Landing Harbor south of the Elkhorn Slough Bridge; and (3) the shoreline protection measures to be implemented along Moss Landing Harbor adjacent to Moss Landing Road. Approximately 0.11 ac of *permanent indirect effects* to jurisdictional waters could result from the project from shading related to the proposed bicycle/pedestrian bridge.

Approximately 0.706 ac of *temporary* effects are expected. Temporary effects include: shading and other disturbances associated with the barges, rock slope protection, and bridge construction; areas temporarily affected during construction of the shoreline protection areas south of the Elkhorn Slough Bridge and along Moss Landing Road; dust and potential fuel spills from construction equipment; and unauthorized activities of equipment or personnel outside designated construction areas, as well as operation effects such as effects on adjacent habitats caused by storm water runoff, traffic, and litter. Temporary effects associated with the barges required for the rock slope protection south of the Elkhorn Slough Bridge are estimated to result in approximately 0.2 ac of shading impacts for approximately 90 calendar days. Temporary effects associated with the barges required for the bridge construction are estimated to result in approximately 0.4 ac of shading impacts for approximately 40 to 50 calendar days

As discussed above under IV(b), the permanent direct impacts to waters of the United States regulated by the Corps per Section 10 of the Rivers and Harbors Act and Section 404 of the CWA are primarily the result of the proposed shoreline protection efforts, which would better protect the shoreline from erosion and siltation once the protection measures are implemented. The indirect and

temporary effects to Waters of the United States regulated by the Corps per Section 10 of the Rivers and Harbors Act and Section 404 of the CWA are primarily from shading from the proposed bicycle/pedestrian bridge and the temporary use of barges during construction. Shading would not result in a significant disruption to habitat or species, as the proposed bicycle/pedestrian bridge is not expected to inhibit wildlife use in Elkhorn Slough or to further degrade the habitat value of the estuarine habitat. Implementation of Mitigation Measure IV(b)(7) would reduce potential impacts to estuarine/open water habitat within the BSA to less than significant levels.

IV(d). Less Than Significant With Mitigation Incorporated. Implementation of the proposed project, particularly the placement of the new bicycle/pedestrian bridge across Elkhorn Slough, would not result in permanent impacts to migratory fish or wildlife. The piers for the new bicycle/pedestrian bridge would be aligned with the existing piers of the SR-1 bridge across Elkhorn Slough, allowing fish and other marine animals to navigate through the channel without additional obstruction. Furthermore, the channel across which the new bicycle/pedestrian bridge would be constructed is a large expanse of open water. The footprint of the piers for the new bicycle/pedestrian bridge would be negligible compared to the surrounding open water available for fish and wildlife movement. The proposed project would parallel SR-1 on its western edge and, therefore, the terrestrial portion of the proposed project would not result in any permanent impacts on wildlife movement or result in further fragmentation of habitat.

Construction-related activities would also not impede fish and wildlife movement. Construction activities associated with the proposed project have the potential to result in a temporary disturbance to wildlife movement. Implementation of Mitigation Measure IV(d)(1) limiting construction activities to daylight hours would reduce potential impacts to wildlife movement to a less than significant level.

Mitigation Measure IV(d)(1): **Construction Hours.** County of Monterey shall specify in the construction plans or special provisions that construction activities are limited to daylight hours (8:00 a.m. to 5:00 p.m.).

Mitigation Monitoring Action No. 16: *During the course of construction, the County of Monterey shall ensure that construction activities are limited to daylight hours (8:00 a.m. to 5:00 p.m.) to avoid and minimize the potential impacts to wildlife movement. The project biological monitor will monitor compliance.*

IV(e). Less than Significant With Mitigation Incorporated. The terrestrial habitats within the proposed project area consist of a mosaic of vegetation communities/land uses, including planted eucalyptus/cypress woodland. Eucalyptus and Monterey cypress trees that are defined as landmark

trees and which are located within the coastal zone[1] are protected by the Monterey County Coastal Implementation Plan, Part 2, Regulations for Development in the North County Land Use Plan Area (Chapter 20.144)). Chapter 20.144 states that a Coastal Development Permit must be obtained for the removal of trees and other major vegetation, but provides for specific exceptions. Chapter 20.144.050 C1 specifies that the following exceptions from a Coastal Development Permit requirement for removing native and non-native landmark trees within the coastal zone can be granted by the decision-making body:

> *An exception may be granted by the decision-making body for removal of a tree that is 24 inches or greater in diameter (measured at breast height) and not also visually or historically significant, exemplary of its species or more than 1000 years old. To grant the exception, the decision-making body must find that no alternatives to development (such as resiting, relocation, or reduction in development area) exists whereby the tree removal can be avoided or that the tree removal is for the purpose of maintaining existing agricultural operations where not resulting in the enlargement of those operations.*
>
> *An exception may be granted by the decision-making body for removal of a landmark tree within the public right-of-way or area to be purchased for the public right-of-way where no feasible and prudent alternatives to such removal are available, subject to obtaining a coastal development permit.*

Implementation of the proposed project would require removal of a maximum of 27 eucalyptus trees that are 24 inches or greater when measured at breast height and 5 Monterey cypress trees that are 24 inches or greater when measured at breast height from within the coastal zone. The trees proposed for removal are not visually or historically significant (refer to the Visual Impact Assessment and Historic Property Survey Report) and are less than 100 years old. A majority of the trees to be removed are currently within the public right of way. While some of the trees to be removed are currently on private land, the County would acquire public easements across all private land prior to construction of the proposed project. Therefore, prior to project construction, all trees proposed for removal would be within the public right of way. Furthermore, there are currently no feasible alternatives to the proposed bicycle/pedestrian pathway alignment because of existing physical and natural resource constraints. The proposed project is located within a narrow corridor between the Moss Landing Harbor and SR-1, which includes buildings and structures associated with the Moss Landing Power Plant and highly sensitive cultural and biological resources. The proposed project alignment was the outgrowth of an extensive constraints analysis that sought to avoid sensitive cultural and biological resources while adhering to the security requirements of the existing Moss Landing Power Plant.

For the reasons noted above, the County would seek an exception to Chapter 20.144.050 for the removal of landmark eucalyptus and Monterey cypress trees within the coastal zone. Therefore, the

[1] A landmark tree per Monterey County Coastal Implementation Plan, Part 2, Regulations for Development in the North County Land Use Plan Area (Chapter 20.144) is defined as a eucalyptus or Monterey pine that is 36 inches or more in diameter at breast height (DBH), or any other type of tree that is 24 inches or more DBH, or a tree that is visually significant, historically significant, exemplary of its species, or significant as part of a wildlife habitat.

permanent removal of eucalyptus and Monterey cypress trees associated with the proposed project would result in a less than significant impact with respect to a County regulation that seeks to protect the County's forest resources.

Construction-related activities have the potential to result in harm to eucalyptus and Monterey cypress trees that need not be removed as part of the proposed project. Implementation of Mitigation Measures IV(e)(2) and IV(e)(3) would reduce potential construction-related impacts to existing eucalyptus and Monterey cypress trees within the BSA to a less than significant level.

Mitigation Measure IV(e)(2): **Tree and Root Protection.** Trees that are located close to the construction site(s) shall be protected from inadvertent damage from construction equipment by fencing off the canopy drip-lines and/or critical root zones (whichever is greater) with protective materials, wrapping trunks with protective materials, avoiding fill of any type against the base of the trunks and avoiding an increase in soil depth at the feeding zone or drip-line of the retained trees. Said protection, approved by a certified arborist, shall be demonstrated prior to issuance of building permits subject to the approval of the Resource Management Agency (RMA) – Director of Planning. If there is any potential for damage, all work must stop in the area and a report, with mitigation measures, shall be submitted by a certified arborist. Should any additional trees not included in this permit be harmed, during grading or construction activities, in such a way where removal is required, the County of Monterey shall obtain required permits.

Mitigation Monitoring Action No. 17: *During the course of construction, the project contractor shall ensure that trees that are located close to the construction site shall be protected from damage by fencing off the canopy and/or critical root zones with protective materials, wrapping trunks with protective materials, avoiding fill of any type against the base of trunks, and avoiding an increase in soil depth at the feeding zone or drip-line of the retained trees. These protection measures shall be approved by a certified arborist.*

Mitigation Measure IV(e)(3): **Tree and Root Protection.** Prior to beginning any tree removal, trees which are located close to trees approved for removal shall be protected from inadvertent damage from equipment or tree removal activity by fencing off the canopy drip-lines and/or critical root zones (whichever is greater) with protective materials. Any tree protection measures recommended by a County-approved tree consultant, in addition to the mitigation measure, shall be implemented.

Mitigation Monitoring Action No. 18: *Prior to any tree removal, the County of Monterey shall hire an arborist to conduct on-site monitoring services. The on-site monitoring services shall include ensuring that protection measures are in place and that trees to be retained are not damaged.*

IV(f). No Impact. Several conservation areas are located within the vicinity of the BSA including Elkhorn Slough State Marine Conservation Area, Elkhorn Slough State Marine Reserve, and Moro Cojo Slough State Marine Reserve. The portion of Elkhorn Slough in the project BSA is west of the Elkhorn Slough State Marine Conservation Area and Marine Reserve. The Moro Cojo Estuary State Marine Reserve is east of the southern end of the BSA and not included in the BSA. Therefore, the proposed project would not conflict with the provisions of any adopted habitat conservation plans or natural community conservation plans, and no mitigation is required.

SECTION V: CULTURAL RESOURCES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resources as defined in §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resources pursuant to §15064.5?	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site of unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion/Conclusion/Mitigation:

The information in this section is based on the *Historic Property Survey Report (HPSR)* (LSA, September 2013), the *Archaeological Evaluation Report* (LSA, October 2010), and the *Historical Resources Evaluation Report* (LSA, October 2009). The Technical Reports cited above are not included in Appendix A because they contain confidential site location information.

V(a). Less Than Significant Impact With Mitigation Incorporated. The 4,466 ft (0.85 mi) long Area of Potential Effects (APE) established for the proposed project includes the project area surveyed in 2008, which encompasses the maximum extent of construction effects including staging areas (refer to Figures 4a and 4b, Area of Potential Effects). The background research and the field survey identified two historic-period cultural resources within the APE:

- **CA-MNT-2051H/P-27-002350.** A historic-period abandoned segment of SR-1 and associated bridge remains, west of the current alignment of SR-1, on the north and south banks of Elkhorn Slough.
- **Pajaro Valley Consolidated Railroad Roadbed.** This resource is located within and adjacent to the APE on the south bank of Elkhorn Slough and west of CA-MNT-2051H. The abandoned PVCRR segment in this area consists of a segment of earthen railroad bed that has been altered or covered by subsequent activities.

LEGEND

- Area of Potential Effects
- Area of Direct Impact
- Trail Alignment
- Caltrans Right-of-Way

0 100 200
FEET

Source: Wood Rodgers 2009

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FIGURE 4a

Initial Study/Mitigated Negative Declaration
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Area of Potential Effects

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LEGEND

- Area of Potential Effects
- Area of Direct Impact
- Trail Alignment
- Caltrans Right-of-Way

0 100 200
FEET

Source: Wood Rodgers 2009; USDA NAIP 2005.

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FIGURE 4b

Initial Study/Mitigated Negative Declaration
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Area of Potential Effects

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CA-MNT-2051H and the abandoned segment of the Pajaro Valley Consolidated Railroad are more than 50 years old; however, neither resource is eligible for listing in the National Register of Historic Places (National Register) or California Register of Historical Resources (California Register) due to a lack of integrity necessary to convey their historical significance, and are not historical resources for the purposes of CEQA.

A portion of one prehistoric archaeological Site (CA-MNT-229) was identified within the proposed project area through background research; the field survey confirmed the findings of the background research. This prehistoric archaeological site has already been determined eligible for inclusion in the National Register of Historic Places (National Register). An Archaeological Evaluation Report was prepared for the proposed project to determine if the portion of this site within the project's Area of Direct Impact (ADI) contributes to the site's eligibility in the National Register. LSA conducted excavations on July 6-9, 2010, July 12-13, 2010, and February 10, 2012. Based on the site deposit's constituents and state of preservation, LSA concluded that this portion of the site is not eligible for inclusion in the National Register. The conclusion was supported by (1) the minor amount of prehistoric material identified; (2) the redundancy of information yielded by deposit's constituents; and (3) previous ground disturbance within the ADI. Therefore, the portion of the prehistoric archaeological site within the ADI does not qualify as a historical or unique archaeological resource as defined by the California Public Resources Code §21083.2(g) and §21084.1, respectively.

No other cultural resources were identified within or adjacent to the APE. Therefore, the proposed project would not result in significant impacts to historical resources, and no mitigation is required.

If previously unidentified cultural materials are unearthed during construction, the following Mitigation Measure V(a)(1) would be implemented to reduce potential impacts to a less than significant level.

Mitigation Measure V(a)(1): **Cultural Resources Negative Archaeological Report.** If, during the course of construction, cultural, archaeological, historical, or paleontological resources are uncovered at the site (surface or subsurface resources), work shall be halted immediately within 50 meters (165 feet) of the find until a qualified professional archaeologist can evaluate it. The County of Monterey Resource Management Agency (RMA) – Planning and a qualified archaeologist (i.e., an archaeologist registered with the Register of Professional Archaeologists) shall be immediately contacted by the responsible individual present on site. When contacted, the project planner and the archaeologist shall immediately visit the site to determine the extent of the resources and to develop proper mitigation measures required for the discovery.

Mitigation Monitoring Action No. 19: *During the course of construction, if cultural, archaeological, historical or paleontological resources are uncovered at the project site, work shall be halted immediately until a qualified professional archaeologist can evaluate it. The*

resident engineer or other responsible person at the proposed project site shall immediately contact the County of Monterey RMA – Planning and a qualified archaeologist. The project planner and the archaeologist shall immediately visit the site to determine the extent of the resources and to develop proper mitigation measures required for the discovery.

V(b). Less Than Significant Impact. The portion of the prehistoric archaeological site identified within the project's ADI does not qualify as a unique archeological resource as defined by Section 21083.2 of the California PRC based on the deposit's constituents and state of preservation. This conclusion was supported by (1) the minor amount of prehistoric material identified; (2) the redundancy of information yielded by the deposit's constituents; and (3) previous ground disturbance within the ADI.

As stated above under V(a), the portion of this prehistoric archaeological site within the project's ADI does not qualify as a historical resource. Therefore, because this archaeological site does not qualify as a historical resource or a unique archeological resource, the effects of the proposed project on this resource are considered to be less than significant, and no mitigation is required.

V(c). Less Than Significant Impact With Mitigation Incorporated. No paleontological resources or unique geologic features were observed within the project APE during the archaeological surveys. The proposed project would involve excavation predominantly within the well-developed soil layer, which is unlikely to contain fossils and therefore, it is not anticipated that any fossils would be found during construction activities. Therefore, the proposed project would not directly or indirectly destroy any known unique paleontological resources or sites with unique geologic features. However, in the unlikely event that paleontological resources are found during construction activities, implementation of Mitigation Measure V(a)(1) would reduce potential impacts to a less than significant level.

V(d). Less Than Significant Impact With Mitigation Incorporated. No human remains were observed within the proposed project's APE during the archaeological field survey. However, several human bone fragments were recovered during excavations conducted in July 2010 in an area at the base of the knoll where prehistoric archaeological Site CA-MNT-229 is recorded. Based on the acute difference in topography, it was determined that the location of the bone fragments was not their point of origin (i.e., the bone fragments had migrated downslope from the top of the knoll through erosion), and the fragments were repatriated with the Most Likely Descendent in February 2012. It is unlikely that additional human remains would be encountered during construction activities in the proposed bicycle/pedestrian pathway alignment because of the difference in topography between the alignment and the location where confirmed archaeological deposits and human remains are recorded. However, California Health and Safety Code (HSC) Section 7050.5 requires that, should this unlikely event occur, actions described in Mitigation Measure V(d)(1) be undertaken to reduce this potential impact to a less-than-significant level. Section 7050.5 of the California HSC states that if human remains are discovered on site, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98, including coordination with

local Native American Indians, if the remains are prehistoric. Specifically, should any human remains be uncovered, the on-site monitor or other representative of the project contractor must inform the County and the contracting archaeologist immediately. The County Coroner must be notified within 24 hours and, if the remains are identified as being of Native American origin, the Coroner will notify the Native American Heritage Commission (NAHC). The NAHC will identify the most likely descendant, and through consultation, the disposition of the remains will be coordinated. In consultation with all stakeholders, the County will make the final determination as to the disposition of the remains. Adherence to State regulations is required for all project development/infrastructure. Therefore, the proposed project would adhere to all applicable California HSC and PRC requirements and Mitigation Measures V(a)(1) and V(d)(1) during project construction.

Mitigation Measure V(d)(1): **Cultural Resources Positive Archaeological Report.** If human remains are accidentally discovered during construction, the following steps will be taken.

There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and if the coroner determines the remains to be Native American:
    - The coroner shall contact the Native American Heritage Commission and the RMA – Planning within 24 hours.
    - The Native American Heritage Commission shall identify the person or persons from a recognized local tribe of the Esselen, Salinan, Costonoans/ Ohlone and Chumash tribal groups, as appropriate, to be the most likely descendent.
    - The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.9 and 5097.993, or
        - Where the following conditions occur, the landowner or his authorized representatives shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance:

- The Native American Heritage Commission is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the commission.
- The descendent identified fails to make a recommendation; or
- The landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.

Mitigation Monitoring Action No. 20: *During the course of construction, if human remains are uncovered at the project site, work shall be halted immediately until the coroner of Monterey County can evaluate them. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of identification. Pursuant to Section 5097.9 and 5097.993 of the Public Resources Code, the Native American Heritage Commission shall identify a "Native American Most Likely Descendent" to inspect the site and provide recommendations for the proper treatment of the remains and any associated grave goods.*

SECTION VI: GEOLOGY AND SOILS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Discussion/Conclusion/Mitigation:

VI(a)(i)(ii)(iii) and (iv). Less Than Significant Impact. According to the County's General Plan (2010), no regional faults run through the proposed project area and the proposed project is not located within an Alquist-Priolo Fault Zone. The nearest Alquist-Priolo Fault Zone is located approximately 9.5 miles (mi) from the proposed project (refer to Figure 5, Fault Map). The nearest

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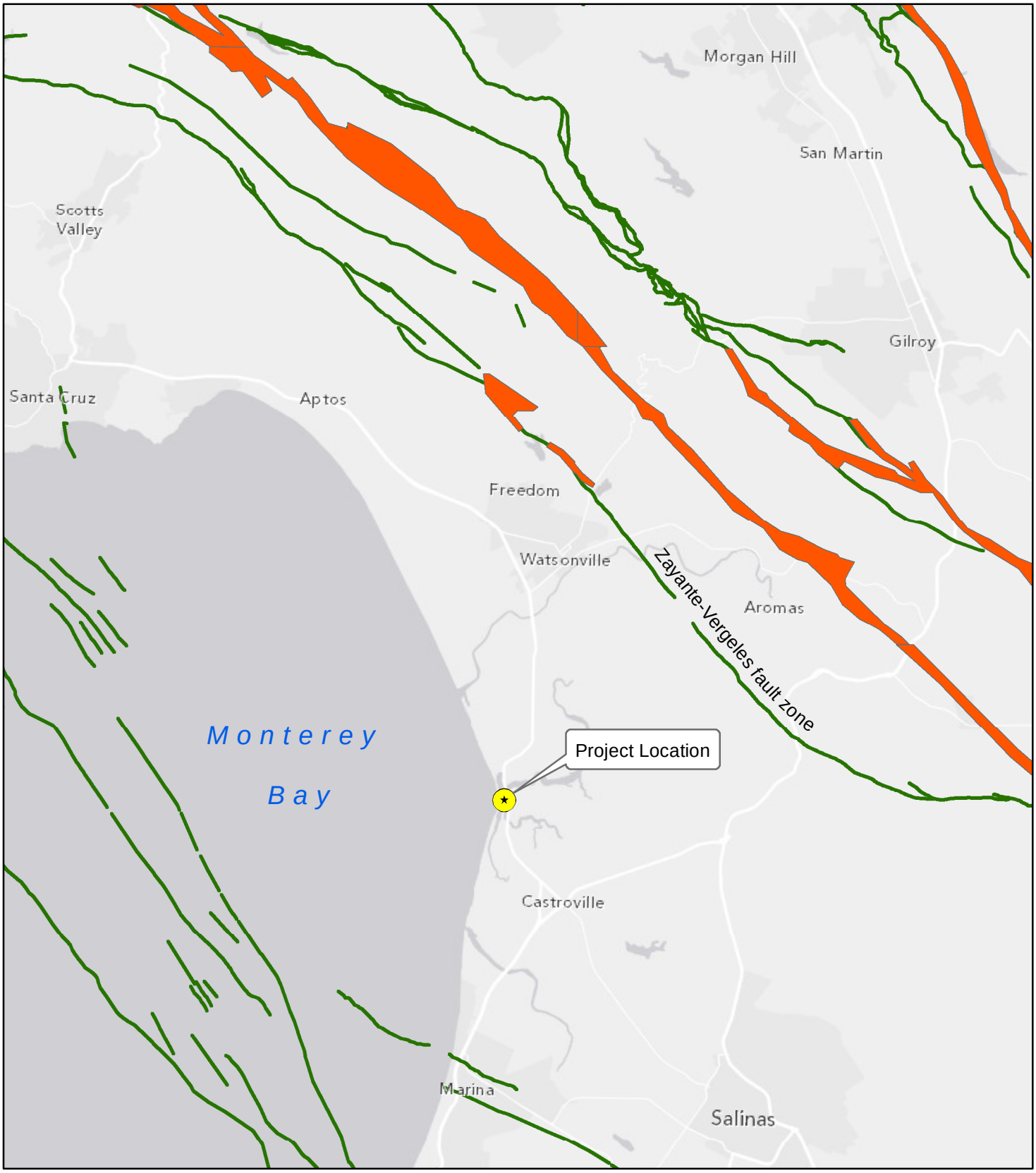

LSA

LEGEND

Alquist-Priolo Earthquake Fault Zones

Quaternary Faults (>6 Magnitude in Last 1.6 Million Years)

N

0 2 4

MILES

FIGURE 5

Initial Study/Mitigated Negative Declaration
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Earthquake Faults

SOURCE: California Division of Mines and Geology (2001); U.S. Geological Survey (2006)

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quaternary fault zone, the Zayante-Vergales Fault Zone, is located approximately 7.3 mi from the proposed project. Therefore, the proposed project would not expose people or structures (i.e., recreational pathway and new bridge) to significant impacts associated with earthquakes.

VI(a) (ii). Should an earthquake occur along the Zayante-Vergales Fault Zone, seismically induced ground shaking could occur within the proposed project area. The proposed project site could experience moderate to high ground shaking from active faults in the vicinity. The proposed project would be required to comply with all applicable sections of Caltrans' Seismic Design Criteria, the County's Seismic Design Standards, and other applicable manuals. Therefore, the proposed project would result in a less than significant impact associated with seismic ground shaking, and no mitigation is required.

VI(a) (iii). Based on the "Maps Showing Geology and Liquefaction Potential of Northern Monterey and Southern Santa Cruz Counties, California" by Dupre and Tinsley, the northern portion of the proposed project (north of Elkhorn Slough) is generally underlain by Artificial Fill. The southern portion of the proposed project is generally underlain by Eolian Deposits of Maresa Beach. Based on borings taken for the proposed project, the liquefaction potential of the proposed project is considered high. Consequently, the effect of liquefaction was considered in evaluation of both vertical and lateral pile capacity during a seismic event. Because the liquefaction potential is considered high, the proposed bicycle/pedestrian bridge piles would be constructed of driven cast-in-steel-shell concrete piles that would be driven relatively deep. Furthermore, the geotechnical engineering and structural design of the transportation structures prepared for the proposed project would conform with Caltrans' Seismic Design Criteria, and ensure that the potential for liquefaction has been addressed in the proposed project design. Therefore, the proposed project would result in a less than significant impact associated with liquefaction, and no mitigation is required.

VI(a) (iv). Refer to threshold VI(c) and (d), below, for a discussion of landslides.

VI(b). Less than Significant Impact. The proposed project would require minor grading, including for the construction of the proposed bicycle/pedestrian bridge approach embankments and where retaining walls will be constructed. Erosion control measures as identified in the required SWPPP would be implemented during construction activities to reduce potential erosion and loss of topsoil (refer to Section IX(a) for a discussion of the SWPPP required for the proposed project pursuant to the requirements of the National Pollution Discharge Elimination System [NPDES] General Permit). All areas disturbed during construction of the proposed project would be stabilized with appropriate erosion control methods (such as seeding with native species) after completion of construction activities to reduce potential long-term impacts associated with erosion.

The proposed project would result in a permanent increase of impervious surface of 1.0 ac, which would result in a permanent increase in the volume of runoff during a storm. During operation of the proposed project, there is a potential for increased erosion due to increased runoff. To reduce erosion from increased runoff, storm water would sheet flow into the vegetated areas adjacent to the proposed project and in areas where the water would concentrate, erosion control measures would be

implemented. Additionally, where vegetation must be disturbed, it would be reestablished with erosion control seeding. There is no current or proposed irrigation for the proposed project. The proposed project impacts associated with erosion would be less than significant, and no mitigation is required.

VI(c). Less than Significant Impact. Slopes within the proposed project area vary between 5-30 percent. Construction of the proposed project would not create any steep slopes. The proposed project would construct retaining walls to stabilize any significant changes in grade adjacent to the proposed project in order to prevent landslides. Natural soils at the proposed project site consist of fine sandy loam in the Elkhorn and Santa Ynez series (United States Department of Agriculture [USDA], 1978). Man-made fill is also present at several points along the proposed project in conjunction with grading for SR-1. According to the Geotechnical Engineering Investigation Report prepared by Parikh Consultants Inc., the northern portion of the proposed project site (to the south of Elkhorn Slough) is Artificial Fill (Qfl) and the southern portion of the proposed project site is Eolian Deposits of Maresa Beach (Qem). The silty-sandy soil layer has a high potential for soil liquefaction. Additionally, the proposed project site could experience moderate to high ground shaking from active faults in the vicinity of the proposed project. However, since no active faults pass through the proposed project site and the potential for fault rupture is relatively low, it is unlikely that the soil would become unstable and result in landslides, lateral spreading, subsidence, liquefaction, or collapse.

Furthermore, the County would be required to prepare a geotechnical engineering report to ensure that all soil and geologic conditions at the proposed project site are adequately addressed in the design of the proposed project. Therefore, the proposed project impacts associated with unstable soils would be less than significant, and no mitigation is required.

VI(d). Less than Significant Impact. Soils within the proposed project area consist primarily of fine sandy loam; however, man-made fill placed in conjunction with grading for SR-1 is also present at several points along the proposed project. The soils within the proposed project area, which are primarily well drained with slow to rapid runoff, are not expected to have a high shrink-swell potential. The proposed project would be constructed on fill; therefore, regardless of the soil's inherent shrink-swell potential, the underlying soil would not pose a significant risk to the proposed project, or bicyclists or pedestrians utilizing the proposed project. Implementation of the proposed project would result in less than significant impacts associated with expansive soils, and no mitigation is required.

VI(e). No Impact. The proposed project is a recreational pathway and, therefore, does not involve the use of septic tanks. Additionally, the proposed project would not generate wastewater or require a wastewater disposal system. Therefore the proposed project would not result in impacts associated with the use of septic tanks or alternative wastewater disposal systems, and no mitigation is required.

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

Discussion/Conclusion/Mitigation:

VII(a). Less Than Significant Impact. 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 greenhouse gases (GHGs), 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 related to human activity that include CO_2, methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, hydrofluorocarbon (HFC)-23 (fluoroform), HFC-134a (s,s,s,2 –tetrafluoroethane), and HFC-152a (difluoroethane).

In the United States, the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles) make up the largest source of GHG emitting sources. The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. "Adaptation" refers to the effort of planning for and adapting to impacts due to climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).

Greenhouse Gas Emissions Reduction. There are four primary strategies for reducing GHG emissions from transportation sources: (1) improve system and operation efficiencies, (2) reduce growth of vehicle miles traveled (VMT), (3) transition to lower GHG fuels, and (4) improve vehicle technologies. To be most effective, all four strategies should be pursued collectively. The

following regulatory setting section outlines State and federal efforts to comprehensively reduce GHG emissions from transportation sources.

State. With the passage of several pieces of legislation including State Senate and Assembly Bills and Executive Orders, California launched an innovative and pro-active approach to dealing with GHG emissions and climate change.

- **Assembly Bill (AB) 1493, Pavley, Vehicular Emissions: Greenhouse Gases, 2002:** The California Air Resources Board (ARB) submitted a request to the United States Environmental Protection Agency (EPA) to implement this regulation in December 2005. After several years of requests to the federal government, and accompanying litigation, this waiver request was granted on June 30, 2009. The ARB has since combined the control of smog-causing pollutants and greenhouse gas emissions to develop a single coordinated package of standards known as Low Emission Vehicles III. It is expected that these regulations will reduce greenhouse gas emissions from California passenger vehicles by about 30 percent in 2016, all while improving fuel efficiency and reducing motorists' costs. Assembly Bill 1493 also directed the California Climate Action Registry to adopt protocols for reporting reductions in greenhouse emissions from mobile sources prior to the operative date of the regulations.
- **Executive Order (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 the 2020, and (3) 80 percent below the year 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of AB 32.
- **AB 32, Núñez and Pavley, The Global Warming Solutions Act of 2006:** AB 32 set the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."
- **EO S-20-06 (October 18, 2006):** This order established the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.
- **EO S-01-07 (January 18, 2007):** This order set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.
- **Senate Bill (SB) 97, Chapter 185, 2007, Greenhouse Gas Emissions:** Required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the 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 the ARB to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization (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.

Federal. The United States has historically had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the United States Supreme Court ruled that the EPA has the authority to regulate CO_2 emissions under the Clean Air Act (CAA). While there currently are no adopted federal regulations for the control or reduction of GHG emissions, the EPA commenced several actions in 2009 that are required to implement a regulatory approach to Global Climate Change (GCC). The EPA is finalizing the first-ever national GHG emissions standards under the CAA, and National Highway Traffic Safety Administration is finalizing Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. The EPA GHG standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile in model year 2016, equivalent to 35.5 miles per gallon (mpg).

Thresholds of Significance. As part of the process of developing the State CEQA Guidelines pertaining to GHG emissions analysis, OPR asked the ARB technical staff to recommend statewide interim thresholds of significance for GHGs. The ARB released a preliminary draft staff proposal in October 2008 that included initial suggestions for significance criteria related to industrial, commercial, and residential projects. Although the ARB anticipated adopting the significance criteria in 2009 to allow coordination with OPR's efforts on GCC, no formal announcement of adoption has been made.[1] While in draft form, the ARB's *Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases Under the California Environmental Quality Act* does provide some assistance to the County of Monterey in evaluating whether this project would impede the State's mandatory requirements under AB 32 to reduce statewide GHG emissions to 1990 levels by 2020.

ARB's guidance does not specifically identify pathway projects, only generally describes three classes of common projects: industrial, commercial, and residential projects. For each type of project, the guidance recommends that a two-pronged threshold be employed, one performance based and one numerical. For performance standards, the draft guidance suggests that operations and construction of the project be evaluated for their consistency with applicable performance standards contained in plans designed to reduce GHG emissions and/or help meet the State's emission reduction objectives in Assembly Bill (AB) 32. The guidance contains two numerical standards that will guide the County of Monterey's analysis of the impacts of this proposed project to a degree. First, the guidance states that small residential and commercial projects, emitting 1,600 metric tons of carbon dioxide equivalent (CO_2e) per year or less, would clearly not interfere with achieving the State's emission reduction objectives in AB 32 (and EO S-03-05) and, thus, may be deemed categorically exempt from CEQA. The guidance does not state or imply that projects emitting more than 1,600 metric tons of CO_2e per year will necessarily result

[1] California, State of, 2008. California Air Resources Board (ARB). *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases Under the California Environmental Quality Act*. October 24.

in a significant impact, although at this point the guidance has no precise numerical threshold for commercial and residential projects. For industrial projects, the guidance proposes that projects that emit less than 7,000 metric tons of CO_2e per year may be considered less than significant, recognizing that AB 32 will continue to reduce or mitigate emissions from these sorts of projects over time. While this proposed project is not industrial, commercial, or residential, the following analysis uses the 1,600 metric tons of CO_2e per year threshold of significance as the more conservative and only available option.

Until more guidance is provided from the expert agencies assigned with the responsibility of addressing air quality, for the purpose of this greenhouse gas analysis, projects emitting 1,600 metric tons of CO_2e per year or less are considered to be less than significant, and no further analysis is required. It is recognized that this standard is interim and will likely change over time as further guidance is provided by these regulatory agencies.

For the purpose of this technical analysis, the concept of CO_2e is used to describe how much global warming a given type and amount of GHG may cause, using the functionally equivalent amount or concentration of CO_2 as the reference. Individual GHGs have varying global warming potentials and atmospheric lifetimes. The CO_2e is a consistent methodology for comparing GHG emissions since it normalizes various GHG to the same metric. The reference gas is CO_2, which has a global warming potential equal to 1.

The equation below provides the basic calculation required to determine CO_2e from the total mass of a given GHG using the global warming potentials published by the Intergovernmental Panel on Climate Change (IPCC).

Tonnes (Metric Tons) of CO_2e = Tonnes (Metric Tons) of GHG x GWP

Where: CO_2e = carbon dioxide equivalent
GHG = greenhouse gases
GWP = global warming potential

This method was used to evaluate GHG emissions during construction and operation of the proposed project. For this analysis, only CO_2, CH_4, and N_2O are considered. This is due to the relatively large contribution of these gases in comparison to other GHGs expected to be produced during the proposed project construction and operation phases.

The GHG emission estimates were calculated using CalEEMod (Version 2011.1.1). CalEEMod stands for "California Emissions Estimator Model," and is an air quality modeling program that estimates air pollution emissions in pounds per day (lbs/day) or tons/year for various land uses, area sources, construction projects, and project operations. Mitigation measures can also be specified to analyze the effects of mitigation on project emissions. CalEEMod estimates a project's CO_2, N_2O, and CH_4 emissions from area and mobile sources, energy and water consumption, and waste generation.

An individual project cannot generate enough GHG emissions to significantly influence climate change, but individual projects can incrementally contribute toward the potential for the

cumulative emissions driving GCC. The following paragraphs analyze whether the project's contribution is "cumulatively considerable."

Construction and operation of the proposed project would generate GHG emissions, with the following activities associated with the proposed project directly or indirectly resulting in GHG emissions:

- **Removal of Vegetation:** The removal of vegetation for construction results in a loss of the carbon sequestration in plants. However, in the case of the proposed project, generally vacant areas would be replaced with landscaping and the planting of vegetation, resulting in additional carbon sequestration that would reduce the GHG emissions of the proposed project.
- **Construction Activities:** During proposed project construction, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O.
- **Gas, Electricity, and Water Use:** Natural gas use results in the emissions of two GHGs: CH_4 (the major component of natural gas) and CO_2 (from the combustion of natural gas). Electricity use can result in GHG production if the electricity is generated using fossil fuel.
- **Solid Waste Disposal:** Solid waste generated by construction of the proposed project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and they produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH_4 from the anaerobic decomposition of organic materials. However, landfill CH_4 can also be a source of energy. In addition, many materials in landfills do not decompose fully, and the carbon that remains is sequestered in the landfill and not released into the atmosphere.
- **Motor Vehicle Use:** Transportation associated with the proposed project would result in GHG emissions from fuel combustion in daily automobile and truck trips associated with proposed project construction. CO_2 is the most significant GHG emitted by vehicles, but lesser amounts of CH_4 and N_2O are also emitted in vehicle exhaust.

Construction GHG Emissions. GHG emissions associated with the proposed project would occur over the short-term from construction activities, consisting primarily of emissions from equipment exhaust. Construction activities produce combustion emissions from various sources such as site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, asphalt paving, and motor vehicles transporting the construction crew to and from the proposed project. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change. The CalEEMod modeling performed for the construction analysis (see Appendix A) shows that emissions of CO_2e would be as high as 180 metric tons per year during project construction.

Therefore, construction emissions would be below the screening threshold of 1,600 metric tons of CO_2e per year, and construction of the proposed project would be considered to have

a less than significant impact related to GHG emissions and would not impede or interfere with achieving the State's emission reduction objectives in AB 32 (and EO S-03-05). No mitigation is required.

Operational GHG Emissions. In that the proposed project is a Class I bicycle and pedestrian pathway along Monterey Bay, there are not expected to be any operational-related source emissions. There might be long-term regional emissions associated with project-related vehicular trips as well as waste emissions, albeit nominal amounts. Nevertheless, using a conservative approach, some emissions associated with vehicle travel to the site and waste emissions from trash generated at the site were assumed for the purpose of calculating GHG emission estimates associated with the proposed project. The GHG emission estimates presented in Table VII.A show that operations of the proposed project would result in annual emissions of 15 metric tons of CO_2e per year. Appendix A includes the annual CalEEMod worksheets for the GHG emissions.

Table VII.A: Long-Term Operational Greenhouse Gas Emissions

Category	Pollutant Emissions (MT/year)					
	Bio-CO_2	**NBio-CO_2**	**Total CO_2**	**CH_4**	**N_2O**	**CO_2e**
Construction emissions amortized over 30 years	0	9.3	9.3	0.001	0	9.4
Area	0	0	0	0	0	0
Energy	0	0	0	0	0	0
Mobile	0	3.3	3.3	0	0	3.3
Waste	0.03	0	0.03	0	0	0.08
Water	0	2.4	2.4	0	0	2.4
Total Project Emissions	0.03	15	15	0.001	0	15

Source: LSA Associates, Inc., February 2013.
Note: Numbers in table may not appear to add up correctly due to rounding of all numbers to two significant digits.
Bio-CO_2 = biologically generated CO_2
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
MT/year = metric tons per year
N_2O = nitrous oxide
NBio-CO_2 = non-biologically generated CO_2

Operational emissions would be below the screening threshold of 1,600 metric tons of CO_2e per year, and operations of the proposed project would be considered to have a less than significant impact related to GHG emissions and would not impede or interfere with achieving the State's emission reduction objectives in AB 32 (and EO S-03-05). No mitigation is required.

Adaptation. "Adaptation strategies" refer to how agencies can plan for the effects of climate change and strengthen or protect projects from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, increased storm surges and intensity, and the increased frequency and intensity of wildfires. These changes may affect the development projects in various ways, such as damaging roadbeds by 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 an existing facility be relocated or redesigned.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality, the Office of Science and Technology Policy, and the National Oceanographic and Atmospheric Administration, released its interagency report October 14, 2010, outlining recommendations to President Obama for how federal agency policies and programs can better prepare the United States to respond to the impacts of climate change. The Progress Report of the Interagency Climate Change Adaptation Task Force recommends that the federal government implement actions to expand and strengthen the nation's capacity to better understand, prepare for, and respond to climate change.

Climate change adaption must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, Governor 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 Executive Order set in motion several agencies and actions to address the concern of sea level rise.

The California Natural Resources Agency was directed to coordinate with local, regional, state, and federal public and private entities to develop the California Climate Adaptation Strategy (December 2009), which summarized the best known science on climate change impacts to California, assessed California's vulnerability to the identified impacts, and then outlined 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 California Natural 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 Environmental Protection; 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 continue to be developed and collected, the State's adaptation strategy will be updated to reflect current findings.

The National Academy of Science (NAS) prepared a Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future (2012)to advise how California should plan for future sea level rise. The report includes:

- Tide gauges show that global sea level has risen about 7 inches during the 20th century, and recent satellite data show that the rate of sea-level rise is accelerating;

- Sea level rise rates for 1993–2003 were 3.1 ± 0.7 mm per year, based on precise satellite altimetry measurements and confirmed by tide gage;
- 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
- An estimate that global sea level will rise 8–23 cm by 2030 relative to 2000, 18–48 cm by 2050, and 50–140 cm by 2100.

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academies Study.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to 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, storm surge and storm wave data.

Furthermore, EO S-13-08 directed the Business, Transportation, and Housing Agency to prepare a report to assess the vulnerability of transportation systems to sea level affecting safety, maintenance, and operational improvements of the system, and the economy of the State. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of a rise in sea level.

While estimates vary, sea level is expected to rise an additional 22 to 35 inches by the year 2100. Although these projections are on a global scale, the rate of sea level rise along California's coast is relatively consistent with the worldwide average rate observed over the past century. Therefore, it is reasonable to assume that changes in worldwide sea level rise will also be experienced along California's coast.

The majority of the proposed project alignment, including the proposed pedestrian/bicycle bridge over Elkhorn Slough, is designed to address sea level rise scenarios for the 50 to 75 year sea level rise projections, accounting for both storm surge and wave runup elevations (Refer to Appendix A: Monterey Bay Sanctuary Scenic Trail Shore Protection-Response to California Coastal Commission Comments, February 27, 2014, addressing proposed shoreline protection measures and sea level rise). However, there are two locations where the existing infrastructure does not allow for crest or deck elevations that are in keeping with the sea level rise analysis for the 100 year scenario. The first location is the north landing of the proposed pedestrian/bicycle bridge over Elkhorn Slough, where the elevations of the surrounding land and nearby structures are well below the 50, 75 and 100 year projected sea level rise crest elevations. The second location is the planned revetment at the south end of the Moss Landing Harbor near Moss landing road where the existing elevations of the road and adjacent land are also well below the 50, 75 and 100 year projected sea level rise crest elevations. Because the proposed trail ties into both the north landing and Moss Landing Road, unless the existing structures at these locations are increased

substantially, including the North Harbor Wharf, parking lot, SR-1, and Moss Landing Road, the proposed trail cannot be designed for the 75 to 100 year sea level rise projection in these locations.

The design service-life of a typical structure such as the proposed bicycle/pedestrian pathway is in the range of 25 to 50 years. In addition, while the proposed bicycle/pedestrian pathway is being designed and developed to last for at least a 50 year planning horizon, significant changes in related local infrastructure (e.g., SR- 1, Elkhorn Bridge, and the land & structures surrounding Moss Landing Harbor) will likely be required for adaptation to sea level rise, for this to be the case. The proposed project is being designed to incorporate planning requirements for sea level rise to the greatest extent practicable at this time.

VII(b). Less Than Significant Impact. Monterey County adopted a new General Plan on October 26, 2010. The environmental impact report prepared for the 2010 General Plan contains a discussion of potential GHG emissions impacts. Policies were added to the General Plan as mitigation for these potential GHG impacts related to build-out of the General Plan. The goal of the GHG emissions policies included in the 2010 General Plan is to reduce GHG emissions associated with County Operations by at least 15% less than 2005 emission levels. General Plan policy OS-10.10 includes sustainable land use strategies to reduce energy consumption and minimize greenhouse gas emissions. The proposed project is consistent with all strategies. Thus, the proposed development would not substantially conflict with GHG reduction planning. GHG sources targeted in the County plans generally involve vehicle miles traveled reductions, waste diversions, technologies such as electric vehicles, and renewable energy sources. The proposed project is a bicycle/pedestrian pathway and, therefore, is considered less than significant in regards to GHGs as explained in checklist question VII(a).

SECTION VIII: HAZARDS AND HAZARDOUS MATERIALS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 67962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☒	☐	☐
e) For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
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?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury of death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Discussion/Conclusion/Mitigation:

The information in this section is based on the *Phase I Environmental Site Assessment* (Earth Systems Pacific, January 2013).

VIII(a) and (b). Less than Significant Impact. Minor amounts of fuels, motor oils, paints, and other hazardous materials would be used during construction of the proposed project. The small quantities of hazardous materials that would be transported, used, or disposed of are well below reportable quantities. Although fuels, motor oils, and paints have hazardous properties (fuels, for example, are flammable), they would be handled in small quantities that would not create a substantial hazard for construction workers and/or the public. Compliance with federal, State, and local hazardous materials laws and regulations would minimize the risk to the public presented by these potential hazards during construction of the proposed project. Operation of the proposed project (i.e., use of the proposed pathway and bridge by bicyclists and pedestrians) would not involve routine transport, use, or disposal of hazardous materials or involve potential releases of hazardous materials into the environment. Therefore, construction and operation of the proposed project would result in less than significant impacts associated with hazardous materials, and no mitigation is required.

VIII(c). No Impact. No schools are located within 0.25 mi of the proposed project. The nearest school to the proposed project is Faith Christian School, a private school located 1.91 mi north of the proposed project. North Monterey County Middle School, located 2.37 mi south of the proposed project, is the nearest public school. Operation of the proposed project (i.e., use of the proposed pathway and bridge by bicyclists and pedestrians) would not involve handling of hazardous materials or emit hazardous emissions. Therefore, implementation of the proposed project would not result in impacts associated with the handling of hazardous materials or the production or release of hazardous emissions within 0.25 mi of an existing or proposed school.

VIII(d). Less than Significant with Mitigation Incorporated. The Environmental Data Resources, Inc. database search of several federal and State regulatory databases identified 13 sites that generate, store, use, or have released hazardous substances within 0.75 mi of the proposed project (refer to Table VIII.A).

The Moss Landing Power Plant (MLPP) and National Refractories site listings are related to operating permits and release incidents for process areas of the facilities, which are located on the east side of SR-1, outside of the proposed project area. The database listings for the MLPP and National Refractories sites do not present a significant environmental concern to the proposed project based on their regulatory status or location relative to the proposed project.

Several dozen listings are shown for 7881 Sandholdt Road, which is the address for the Moss Landing Harbor District. These listings are related to releases of petroleum products from vessels. Based on the report descriptions, the releases were either contained or allowed to dissipate, and there is no potential for them to impact the land beneath the proposed project.

Table VIII.A: Nearby Reported Hazardous Materials Sites

Facility	Address	Distance or Direction From the Proposed Project
Moss Landing Power Plant	SR-1/Dolan Road	Project Site, north end
National Refractories	SR-1/Dolan Road	Project Site, south end
Moss Landing Commercial Park	7969 Hwy 1	Project Site, south end
Moss Landing Harbor	7539 Sandholdt Road	0.10 mile, west
Multiple sites, Moss Landing Harbor	7881 Sandholdt Road	0.10 mile, west
Woodward Marine	10930 Clam Way	0.14 mile, west
Peninsula Diesel	7501 Sandholdt Road	0.15 mile, west
Gravelle's Boatyard	7501 Sandholdt Road	0.15 mile, west
No name listed	7454 Sandholdt Road	0.15 mile, west
Monterey Bay Aquarium Research Institute	7700 Sandholdt Road	0.15 mile, west
Moonglow Dairy	Dolan Road, east of SR-1	0.45 mile, east
Moss Landing Marine Lab	7722 Sandholdt Road	0.65 mile, south
The Whole Enchilada (Restaurant)	7990 Hwy 1	Southwest corner of SR-1 and Moss Landing Road, south

SR-1 = State Route 1

The remaining recorded sites are located on the opposite side of the harbor, and are more than 0.6 mi away from the proposed project. Based on their regulatory status and locations relative to the proposed project, there is no potential for these sites to impact the proposed project.

A groundwater monitoring report for the MLPP prepared in July 2008 identified low levels of several halogenated hydrocarbon compounds present in the groundwater west of SR-1. Several of the wells have also been found to contain low levels of total chromium and hexavalent chromium. The source of these compounds is believed to be due to plant operations on the east side of SR-1. According to the report, the concentrations of these compounds are low, have remained stable for the past 3 years, and do not appear to be increasing. Groundwater elevations in the wells west of SR-1 were approximately 3 ft above mean sea level (amsl). The proposed project would cross this area; however, the proposed project would be at an elevation approximately 12 ft to 30 ft above the average groundwater level and contaminated groundwater would not be encountered during construction of the proposed project.

In addition to the Environmental Data Resources, Inc. database search, the proposed project area was surveyed and aerial photographs and the historical stewardship of the proposed project were reviewed to identify any Recognized Environmental Conditions (RECs). The American Society for Testing and Materials (ASTM) defines RECs as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with the laws." The following RECs were identified for the proposed project between Stations 86+50 and 92+00:

- A 24-inch-diameter petroleum pipeline, currently idle, that provided fuel to the MLPP, and
- The presence of fill material behind the riprap along the shore of Moss Landing Harbor.

The petroleum pipeline was identified as an REC due to its potential for a release. No releases have been reported from the pipeline. Basic construction practices would be followed to ensure that construction of the proposed project would not damage the pipeline. Therefore, no mitigation is required.

The fill material behind the riprap along the shore of Moss Landing Harbor is of unknown origin. The potential for soil contaminants to be present in excavated soil would result in potentially significant construction-related impacts. Therefore, the nature of the fill would need to be determined prior to construction to evaluate whether special disposal measures would be needed. Implementation of Mitigation Measure VIII(d)(1) would reduce potential construction-related impacts associated with potential soil contaminants in excavated soil to less than significant levels.

Mitigation Measure VIII(d)(1): **Soil/Fill Contaminant Testing.** Prior to construction, the project contractor shall test the fill material behind the riprap along the shore of Moss Landing Harbor and the man-made fill associated with the former Pajaro Valley Consolidated Railroad railroad bed south of Elkhorn Slough for the presence of soil contaminants. The results of the soil/fill testing will determine the handling and disposal of potentially contaminated soils within the proposed project area.

Mitigation Monitoring Action No. 21: *Prior to the issuance of a notice to proceed with project construction, the County of Monterey shall test the fill material behind the riprap along the shore of Moss Landing Harbor and the man-made fill associated with the former Pajaro Valley Consolidated Railroad railroad bed south of Elkhorn Slough, if and where it is planned to be excavated during project construction, for the presence of soil contaminants. The results of the soil/fill testing will determine the handling and disposal of potentially contaminated soils within the proposed project area.*

The following potential concerns were also identified for the proposed project; however, they do not comprise an REC:

- The proximity of Stations 68+00 to 86+30 to the SR-1 right of way indicates a potential for aerially deposited lead (ADL) from vehicle traffic to be present.
- The former Pajaro Valley Consolidated Railroad railroad bed south of Elkhorn Slough between Stations 92+00 and 95+50 appears to have been built on man-made fill. The source of the fill is not known, and therefore, excavation in that area could encounter buried remains of the railroad works (track ballast and ties, etc.), if excavation in that area will be required during construction of the proposed project.

Since several sections of the proposed project lie within or immediately adjacent to the SR-1 right of way, there is a potential for ADL from vehicle traffic to be present. The potential for ADL and/or the buried remains of the railroad works to be present in excavated soil would result in potentially significant construction-related impacts. Implementation of Mitigation Measure VIII(d)(2) would reduce potential construction-related impacts to less than significant levels.

Mitigation Measure VIII(d)(2): **Aerially Deposited Lead Testing.** Prior to construction, the County of Monterey shall test the portion of the proposed project between Stations 68+00 and 86+30 for the presence of aerially deposited lead (ADL) in accordance with California Department of Transportation guidelines. Results of the ADL testing will determine the handling, reuse, and disposal of potentially ADL contaminated soils within the proposed project area.

Mitigation Monitoring Action No. 22: *Prior to the approval of a the project construction plans and special provisions, the County of Monterey shall test the portion of the proposed project between Stations 68+00 and 86+30 for the presence of aerially deposited lead (ADL) in accordance with California Department of Transportation guidelines. The results of the ADL testing will determine the disposal, reuse, and handling of potentially ADL-contaminated soils in the proposed project area.*

Similar to the fill material behind the riprap along the shore of Moss Landing Harbor, the man-made fill associated with the former Pajaro Valley Consolidated Railroad railroad bed south of Elkhorn Slough is of unknown origin. Therefore, the nature of any of that fill planned to be excavated would need to be determined prior to construction to evaluate whether special disposal measures would be needed. Implementation of Mitigation Measure VIII(d)(1) would reduce potential construction-related impacts of the man-made fill associated with the former Pajaro Valley Consolidated Railroad railroad bed south of Elkhorn Slough to less than significant levels.

VIII(e) and (f). No Impact. The proposed project is not located within an airport land use plan or located within 2 mi of a public or private airstrip. The nearest airstrip is the Monterey Bay Academy Airport located 7.3 mi north of the proposed project. Therefore, the proposed project would not result in a safety hazard related to its proximity to an airstrip, and no mitigation is required.

VIII(g). No Impact. The proposed project runs parallel to a major road (SR-1) but never bisects any evacuation routes or poses an excessive demand for emergency response personnel. It would not impact an emergency response or emergency evacuation plan either physically or by using personnel that would otherwise be needed to implement an emergency plan. The proposed project would not impair implementation or physically interfere with an adopted emergency response plan or emergency evacuation plan, and no mitigation is required.

VIII(h). No Impact. According to California Department of Forestry and Fire Protection's Fire Hazard Severity Zone Map for Monterey County, the proposed project is not located in a Fire Hazard Severity Zone. Therefore, the proposed project would not expose people or structures to a significant risk of loss or injury of death involving wildland fires, and no mitigation is required.

SECTION IX: HYDROLOGY AND WATER QUALITY	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
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)?	☐	☐	☒	☐
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?	☐	☒	☐	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
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?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
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?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

Discussion/Conclusion/Mitigation:

The information in this section is based on the *Water Quality Study* (LSA, November 2012).

IX(a). Less than Significant with Mitigation Incorporated. There is a potential for water quality impacts to occur in Moss Landing Harbor and Elkhorn Slough during construction of the proposed project, such as equipment spills and leaks, discharge of construction debris and waste, and sediment from erosion during ground-disturbing activities. All construction-related impacts would cease upon completion of the proposed project. Implementation of Mitigation Measure IX(a)(1) would reduce construction-related impacts to water quality to a less than significant level.

Mitigation Measure IX(a)(1): **Construction General Permit Requirements.** The County of Monterey (County) shall ensure that the proposed project complies with the requirements of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (Order No. 2009-009-DWQ, as amended by 2010-0014- DWQ and 2012-0006-DWQ); NPDES No. CAS000002 and any subsequent permits as they relate to construction activities. This will include submission of the Permit Registration Documents, including a Notice of Intent, risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and signed certification statement to the State Water Resources Control Board via the Storm Water Multi-Application and Report Tracking System at least 30 days prior to the start of construction. Construction activities will not commence until a Waste Discharger Identification number is received from the Storm Water Multi-Application and Report Tracking System. The SWPPP will be prepared by a Qualified SWPPP Developer; will meet the requirements of the Construction General Permit; and will identify potential pollutant sources associated with construction activities, including potential pollutants from in-water construction work, such as barge work, identify non-storm water discharges, develop a water quality monitoring and sampling plan, and identify, implement, and maintain Best Management Practices (BMPs), including protection of slough waters from barge activity, to reduce or eliminate pollutants associated with the construction site. BMPs will include, but not be limited to, Good Housekeeping, Erosion Control, and Sediment Control BMPs. The BMPs identified in the SWPPP will be implemented during project construction. The County will comply with the sampling and reporting requirements of the Construction General Permit, as applicable. If required, a Rain Event Action Plan will be prepared and implemented by a Qualified SWPPP Developer within 48 hours prior to a

rain event of 50 percent or greater probability of precipitation according to the National Oceanic and Atmospheric Administration. The County or their contractor shall also prepare and submit an Annual Report no later than September 1 of each year using the Storm Water Multi-Application and Report Tracking System. A Notice of Termination shall be submitted to the State Water Resources Control Board within 90 days of completion of construction and stabilization of the site.

Mitigation Monitoring Action No. 23: *Prior to the issuance of a notice to proceed with project construction, the County of Monterey shall comply with the requirements of the National Pollution Discharge Elimination System (NPDES Construction General Permit, (Order No. 2009-009-DWQ, as amended by 2010-0014-DWG and 2012-0006-DWQ; NPDES No. CAS000002) and any subsequent permits as they relate to construction activities. This will include submission of the Permit Registration Documents, including a Notice of Intent, risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and signed certification statement to the State Water Resources Control Board via the Storm Water Multi-Application and Report Tracking System. The construction phase SWPPP shall be designed to identify potential pollutant sources associated with construction activities; identify non-storm water discharges; develop a water quality monitoring and sampling plan; and identify, implement, and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants associated with the construction site.*

The northern portion of Segment 3 of the proposed project alignment (an approximately 350-feet reach) is on a small peninsula adjacent to the existing SR-1 vehicular bridge over Elkhorn Slough. The peninsula is bounded on the channel side by remnants of the old bridge abutment for the demolished SR-1 bridge and on the Moss Landing Harbor side by deteriorated non-engineered riprap shore protection constructed of concrete debris from the old demolished SR-1 road and bridge. Ocean waves entering the slough from the Moss Landing entrance channel are eroding the bluff landward of the riprap (Sea Engineering, Inc., March 2011). The eroding shoreline is putting the planned bicycle/pedestrian pathway and existing infrastructure (i.e., SR-1) at risk. The proposed project design includes the construction of a revetment (riprap) to replace the non-engineered rubble/debris along the approximately 350-feet reach of the peninsula south of the Moss Landing Harbor Channel in order to mitigate further erosion of the shoreline and to protect the existing and planned infrastructure at this location. Alternative forms of shoreline protection, such as seawalls, bulkheads, and soft structures were considered but rejected because they resulted in more significant environmental and aesthetic impacts than the proposed revetment option (Sea Engineering, Inc., March 2011). A no shoreline armoring alternative was also considered but was rejected because it would allow the existing shoreline to erode over time and thereby put the proposed project and

existing infrastructure, including SR-1, at risk because of proximity to the shoreline. The proposed revetment: 1) would not alter sediment transport beyond what occurs under existing conditions; 2) would not inhibit tidal exchange; 3) would be in keeping with the aesthetic appearance of the existing shoreline; and 4) would allow a greater degree of public access because it would protect the shoreline in the immediate vicinity of the proposed bicycle/pedestrian pathway. Therefore, the proposed shoreline revetment within the northern portion of Segment 3 of the proposed project alignment would not result in significant hydrology or water quality impacts, and no mitigation is required.

Revetment is also proposed along the north side of Moss Landing Road between Sandholt Road and State Route 1. The close proximity of the edge of the trail to the water's edge makes a typical embankment slope infeasible, since it would fill into the harbor. A retaining wall was considered for this area to avoid the need for an embankment slope. However, there is a seawater intake pipeline that runs along the unpaved area between Moss Landing Road and the harbor, and the top of the pipe is near the surface of the existing ground and would conflict with the retaining wall footing in key locations. Additionally, there are two cross culverts under the road with headwall structures that would also conflict with the retaining wall. Because of the conflicts with existing underground infrastructure, it was determined that a retaining wall was not feasible in this location. Therefore, shoreline revetment would be constructed at this location in order to support the proposed project without interfering with the existing underground infrastructure. The shoreline revetment proposed within the southern portion of Segment 1 of the trail would not result in significant hydrology or water quality impacts, and no mitigation is required.

Operation of the proposed project also has the potential to generate pollutants of concern (e.g., pet waste and litter), which could potentially result in impacts to water quality in Moss Landing Harbor and Elkhorn Slough. Implementation of Mitigation Measures IX(a)(2) and IX(a)(3) would ensure that the proposed project incorporates project-specific source control, site design, and treatment control BMPs which would reduce the proposed project's long-term impacts to water quality to a less than significant level.

Mitigation Measure IX(a)(2): **Source Control and Site Design BMPs.** During development of plans, specifications, and estimates (PS&E), the County of Monterey shall incorporate source control and site design Best Management Practices (BMPs). The BMPs shall be properly designed and maintained to target pollutants of concern. These Source Control and Site Design BMPs shall include, but not be limited to, the following:

- **Site Design and Landscape Planning.** Existing vegetation shall be preserved to the extent possible during proposed project construction. Where vegetation must be disturbed, it shall be reestablished with erosion control seeding. Only plant species that do not require irrigation or maintenance shall be incorporated into the replanting plans.

Mitigation Monitoring Action No. 24: *The County of Monterey Public Works shall provide a copy of the proposed project plans and special provisions to the*

County of Monterey RMA Planning for verification of water quality provisions prior to issuance of a notice to proceed with project construction. These plans shall include details about the proposed project-specific source control and site design Best Management Practices (BMPs) to target pollutants of concern during project construction and operation.

Mitigation Measure IX(a)(3): **Operational BMPs.** The County of Monterey shall incorporate operational Best Management Practices (BMPs). The BMPs shall be properly designed and maintained to target pollutants of concern. These operational BMPs shall include, but not be limited to, the following:

- **Pet Waste Control.** Signs notifying the public to pick up and properly dispose of pet waste shall be placed in landscaped areas adjacent to the proposed project.
- **Trail Sweeping Program.** A sweeping program shall be implemented to periodically sweep the proposed project in order to minimize the potential for pollutant loads from these areas in storm water and dry weather flows.
- **Litter Control Program.** The litter control program shall focus on litter control removal along the proposed project and landscaped areas.
- **Drainage Facility Inspection.** On-site drainage facilities shall be inspected and cleaned/maintained as necessary, at a minimum annually, prior to October 1.

Mitigation Monitoring Action No. 25: *The County of Monterey – Resource Management Agency (RMA) Planning shall implement Best Management Practices (BMPs) during project operation to target pollutants of concern in the proposed project area.*

IX(b). Less than Significant Impact. The proposed project does not include the use of groundwater, and the nominal increase in runoff from the proposed project is not anticipated to affect groundwater quality. As required in Mitigation Measure (IX)(a)(2), new landscape planting would include native species and little or no landscape maintenance is anticipated. Revegetation will be with plants that do not require irrigation water after establishment. Therefore, there would be no new demand of groundwater that would affect long-term water supplies. Implementation of the proposed project would result in less than significant impacts to groundwater supplies, and no mitigation is required.

IX(c). Less than Significant with Mitigation Incorporated. The proposed project would require minimal grading and underwater excavation in order to repair and construct rock slope protection along Moss Landing Road, along the Moss Landing Harbor shoreline south of Elkhorn Slough, and

the proposed bicycle/pedestrian bridge over Elkhorn Slough. These grading and excavation activities have the potential to result in temporary impacts to water quality. To reduce the erosion from increased runoff, storm water would sheet flow into the vegetated areas adjacent to the proposed project. In areas where water would concentrate, water conveyance and erosion control measures would be implemented. The proposed project would not substantially alter the existing drainage pattern. Once the proposed project has been constructed and the project has been vegetated, the risk of erosion and consequent sediment impacts would be less than significant. However during construction, the implementation of Mitigation Measure IX(c)(4) would reduce constructed-related erosion impacts to water quality to a less than significant level.

Mitigation Measure IX(c)(4): **Erosion Control Plan.** The County of Monterey (County) shall ensure that the proposed project complies with the County Municipal Code, Chapter 16.12. During the plans, specifications, and estimates (PS&E) phase, an Erosion Control Plan shall be prepared to indicate the proposed methods for the control of runoff, erosion, and sediment movement.

Mitigation Monitoring Action No. 26: *Prior to the issuance of a notice to proceed with project construction, the County of Monterey's (County) Director of Public Works shall ensure that the Erosion Control Plan for the proposed project is consistent with the County Municipal Code, Chapter 16.12.*

IX(d). Less than Significant Impact. The proposed 10 ft wide Class I bicycle/pedestrian pathway would be paved and include a 2 ft wide decomposed granite shoulder along each side. The proposed bicycle/pedestrian bridge across Elkhorn Slough would be 386 ft in length across Elkhorn Slough. The new bridge abutments would be constructed inland of the old bridge abutments, requiring excavation of up to 3 ft below the existing grade. The proposed project would result in a permanent increase of impervious surface of 1.0 ac, which would result in a permanent increase in the volume of runoff. By increasing the amount of on-site development and the amount of impervious surface, the proposed project would result in a nominal increase in the amount of surface runoff that would infiltrate into the ground. Implementation of source control, site design, and other BMPs during the operation of the proposed project (refer to Mitigation Measure IX[a][2] and IX[a][3]) would reduce impacts associated with additional runoff and potential flooding to a less than significant level.

IX(e). Less than Significant Impact. As discussed above under IX(d), the proposed project would result in a permanent increase of impervious surface of 1.0 ac, which would result in a permanent increase in the volume of runoff. Runoff associated with the proposed project would sheet flow into vegetated areas adjacent to the proposed project. Project runoff would not exceed the capacity of the existing drainage facilities. Furthermore, implementation of construction and operational BMPs (refer to Mitigation Measures IX[a][1], IX[a][2] and IX[a][3]) would reduce potential contaminants associated with runoff during the construction and operation of the proposed project.

IX(f). No Impact. There are no additional water quality impacts, other than those discussed in IX(a) above, associated with implementation of the proposed project.

IX(g). No Impact. The proposed project does not include a housing component and, therefore, would not place housing within a 100-year flood hazard area as mapped on the federal Flood Hazard Boundary or Flood Insurance Rate Map.

IX(h). Less than Significant Impact. According to the County's General Plan (2010), the proposed project is located within or near a 100-year flood zone area[1]. The proposed project is intended to connect a Class I bicycle/pedestrian pathway from Pacific Grove to Santa Cruz and according to the County's General Plan, "passive to low intensity recreation[al]" uses are "most acceptable" land uses in the 100-year flood zone to reduce the risk to life and property and damage to the natural environment. All filing, grading, and construction associated with the proposed project would follow the FEMA and National Flood Insurance Program and ordinances set by the County Board of Supervisors. Therefore, since the proposed project's land use is considered "acceptable" in a 100-year flood zone, the proposed project would result in less than significant impacts, and no mitigation is required.

IX(i) Less than Significant Impact. Dam failure is defined as the structural collapse of a dam that releases the water stored in a reservoir behind the dam. A dam failure is usually the result of the age of the structure, inadequate spillway capacity, or structural damage caused by an earthquake or flood. According to Monterey County Multi-Jurisdictional Hazard Mitigation Plan (2007), the proposed project is located within the Salinas River Valley, which is within the Salinas Dam Inundation Area[2]. Two dams pose a risk of inundation to the proposed project: the Nacimiento Dam and the Anderson Dam. These dams are regulated by the California Division of Safety of Dams and inspected annually to ensure that they are in good operating condition.

Nacimiento Dam. The Nacimiento Dam is approximately 90 mi south from the proposed project area. After recent inspections by the California Division of Safety of Dams, the Nacimiento Dam was deemed safe. However, in the rare occurrence that the Nacimiento Dam were to collapse, under the worst-case scenario (i.e., dam failure when Salinas River and reservoir are full during winter storm), it is estimated that it would take 22 hours until it would reach Moss Landing and Elkhorn Slough (personal communication with Sidney Reade on March 8, 2003, and August 19, 2003). Monterey County has a mass transportation and evacuation plan[3] that would immediately

1 Figure 8B, Federal Emergency Management Agency 100-Year Flood Map. Monterey County 2010 General Plan. 2010. Website: http://www.co.monterey.ca.us/planning/gpu/GPU_2007/2010_Mo_Co_General_Plan_Adopted_102610/Figures/Fig8bFEMA_100Year_Flood.pdf.

2 Figure E-4, Dam Failure Hazard Area. Monterey County Multi-Jurisdictional Hazard Mitigation Plan. 2007. Website: http://www.co.monterey.ca.us/oes/LHMP/Final-Draft-Plan-and-Figures/Final-Draft-MJHMP-Sept-2007.pdf.

3 Monterey County Catastrophic Earthquake Mass Transportation/Evacuation Plan. 2010. Website: http://www.co.monterey.ca.us/oes/pdf/emergency-planning/Monterey_Mass_Transportation_and_Evacuation-August_2010.pdf.

notify and evacuate people in the area in the case of an emergency to ensure their safety from a dam failure.

Anderson Dam. The Anderson Dam is approximately 44 mi northeast from the proposed project. In 2011, a seismic study of Anderson Dam showed that the base of the dam would weaken significantly during a large earthquake and could result in the uncontrolled release of the reservoir water. The Anderson Dam Seismic Retrofit Project is a proposed project to strengthen the Anderson Dam so it can withstand any probable earthquakes; however, construction of the dam retrofit is not expected to start until 2016.[1] According to the Anderson Dam Emergency Action Plan (EAP) 2009 Flood Inundation Maps Sheet 12 from the Santa Clara Valley Water District, the proposed project is approximately 44 mi southwest downstream of the dam, and under the worst-case scenario (i.e., dam failure during a storm event when the reservoir is full), the maximum flood elevation at the proposed project site would be approximately 7.54 ft, which is lower than the ground surface. The proposed project elevation is 15 ft to 33 ft amsl, but along Moss Landing Road is as low as 9 ft amsl. Furthermore, it would take approximately 13 hours and 30 minutes until a flood from a dam break would reach Moss Landing and Elkhorn Slough.

Therefore, even under the worst-case scenario for both the Nacimiento and Anderson Dams, the proposed project would not be at risk of inundation from the failure of a dam, and the emergency evacuation plan would assist in the evacuation of all people in the immediate area. Therefore, the proposed project would not expose people or structures to a significant risk of injury as a result of failure of a dam, and no mitigation is required.

IX(j). Less than Significant Impact. Seiches are standing waves created by seismically-induced ground shaking (or volcanic eruptions or explosions) that occur in large, freestanding bodies of water. The proposed project is on the coast of the Pacific Ocean in Monterey Bay and crosses over Elkhorn Slough. These bodies of water are potentially subject to seiches pending a significant seismic event (i.e., an earthquake).

The entire coastal area of Monterey County is susceptible to a tsunami. The County has experienced eight tsunamis over the past 100 years and has been impacted significantly by one. Out of the eight tsunamis that the County has experienced, three have hit Moss Landing[2]. Furthermore, the proposed project is located in a Tsunami Inundation Area.[3] Therefore, the proposed project, which ranges in elevation from 9 to 33 ft amsl, would be at risk of inundation from a tsunami. In the case of a tsunami, the Monterey County Tsunami Incident Response Plan (January 2007), issued by the Monterey County Office of Emergency Services, would be followed in order to evacuate all areas in

1 Santa Clara Valley Water District. 2013. Website: http://www.valleywater.org/services/AndersonDamAndReservoir.aspx.

2 Monterey County Multi-Jurisdictional Hazard Mitigation Plan. September 2007. Website: http://www.co.monterey.ca.us/oes/LHMP/Final-Draft-Plan-and-Figures/Final-Draft-MJHMP-Sept-2007.pdf.

3 State of California Tsunami Inundation Map for Emergency Planning. July 2009. Website: http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/Monterey/Pages/Monterey.aspx.

the tsunami inundation zone including Moss Landing Harbor. Because Monterey County currently has a Tsunami Incident Response Plan that includes the proposed project area, in the event of a tsunami, the County would have plans to protect people within the proposed project area. There is no separate plan in the case of a seiche, but seiches would be treated with the same guidelines as set by the tsunami evacuation and response plan.

Therefore, implementation of the proposed project would result in less than significant impacts associated with tsunamis and seiches through implementation of guidelines in the Tsunami Incident Response Plan; no mitigation is required.

Mud or debris flows are created when surface soil on steep slopes becomes totally saturated with water. The proposed project crosses level to moderately sloping terrain. The ground surface in the proposed project area varies between 5 to 30 percent slope. The mouth of Elkhorn Slough is 0 ft amsl. Overall surface drainage is by sheet flow to the west toward Moss Landing Harbor. The proposed project is located in a low hazard landslide area according to the County's Local Hazard Mitigation Plan (September 2007). Soils within the proposed project are primarily fine sandy loam, and man-made fill is also present at several points along the pathway, which was placed in conjunction with grading for SR-1. The soils are primarily well drained with slow to rapid runoff and a moderate to high erosion hazard. Although the soils in the proposed project area have a high to moderate erosion potential, the susceptibility of mud or debris flows on the proposed project site has a low degree of hazard, and no mitigation is required.

SECTION X: LAND USE AND PLANNING	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
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?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion/Conclusion/Mitigation:

Refer to Section IV, Environmental Factors Potentially Affected and Determination.

SECTION XI: MINERAL RESOURCES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Discussion/Conclusion/Mitigation:

Refer to Section IV, Environmental Factors Potentially Affected and Determination.

SECTION XII: NOISE	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Discussion/Conclusion/Mitigation:

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Several noise measurement scales exist that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative intensity of a sound. The 0 point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of 3 dB or less are only perceptible in laboratory environments. Audible increases in noise levels generally refer to a change of 3 dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a 10-fold increase in acoustic energy, while 20 dB is 100 times more intense, and 30 dB is 1,000 times more intense. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness.

Sound intensity is normally measured through the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. The A-weighted sound level is the basis for a number of various sound level metrics, including the day/night sound level (L_{dn}) and the Community Noise Equivalent Level (CNEL), both of which represent how humans are more sensitive to sound at night.[1] In addition, the equivalent continuous sound level (L_{eq}) is the average sound energy of time-varying noise over a sample period, and the L_{max} is the maximum instantaneous noise level occurring over a sample period. The percentile-exceeded sound level (L_{xx}) is the sound level exceeded "x" percent of a specific time period. For example, L_{10} is the sound level exceeded 10 percent of the time.

XII(a). Less Than Significant with Mitigation Incorporated.

Long-Term Operation. The County of Monterey addresses noise in the goals and policies of the General Plan (2010) and in the noise ordinances of the Municipal Code (2012).

Operation of the proposed project would involve pedestrian and bicyclists use of the Class I bicycle/pedestrian pathway. Noise associated with the pedestrians and bicyclists is relatively minimal and may include the intermittent raising of voices, which would not increase noise levels above the existing noises generated by activities in the harbor and from traffic on SR-1. Operation of the proposed project would not result in any significant long-term increase to the existing ambient noise levels in the proposed project area. Therefore, the proposed project would not expose persons to or generate noise levels in excess of standards established in the General Plan or Municipal Code, and no mitigation is required.

Construction. Construction of the proposed project would comply with the Safety Element of the County's General Plan Policy S-7.10 which states:

> "Construction projects shall include the following standard noise protection measures:
>
> - Construction shall occur only during times allowed by ordinance/code unless such limits are waived for public convenience;
> - All equipment shall have properly operating mufflers; and
> - Lay-down yards and semi-stationary equipment such as pumps or generators shall be located as far from noise-sensitive land uses as practical."

[1] L_{dn} is the 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 decibels (dB) to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m. CNEL is the 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dB to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 dB to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m. Source: Harris, Cyril M. 1998. *Handbook of Acoustical Measurement and Noise Control.*

The Noise Ordinance in Chapter 10.60 of the Municipal Code states:

> "No person shall, within the unincorporated limits of the County of Monterey, operate any machine, mechanism, device, or contrivance which produces a noise level exceeding eighty-five (85) dbA measured fifty (50) feet therefrom. The prohibition in this Section shall not apply to aircraft nor to any such machine, mechanism, device or contrivance which is operated in excess of two thousand five hundred (2,500) feet from any occupied dwelling unit."

The proposed project site is not adjacent to any residential areas or other noise-sensitive land uses.

Short-term noise impacts would be associated with grading and site preparation during construction of the proposed project. Construction-related short-term noise levels would be higher than existing ambient noise levels in the proposed project area, but noise levels would return to the existing ambient conditions once construction of the proposed project is completed. Construction of the proposed project is expected to require the use of excavators, bulldozers, water trucks, and dump trucks. As shown in Table XII.A, the maximum noise level generated by each excavator on the proposed project site is assumed to be 86 dBA L_{max} at up to 50 ft from the excavator. Each bulldozer would also generate 85 dBA L_{max} at up to 50 ft. The maximum noise level generated by water and dump trucks would be approximately 86 dBA L_{max} at 50 ft from these vehicles. Each doubling of the sound source with equal strength increases the noise level by 3 dBA. Each piece of construction equipment operates as an individual point source. The worst-case composite noise level during this phase of construction would be 91 dBA L_{max} (at a distance of 50 ft from an active construction area).

In addition to the standard construction equipment, the proposed project would require the use of pile drivers for the construction of the Elkhorn Slough bridge foundations in the northern end of the project. As shown in Table XII.A, pile-driving generates noise levels of approximately 93 dBA L_{max} at 50 ft. If pile-driving is conducted concurrently with site preparation, the construction site could potentially generate noise levels of 95 dBA L_{max} at a distance of 50 ft.

The County's noise standard is 85 dBA L_{max} as measured at 50 ft from the equipment in operation. Therefore, construction activities would generate noise levels that would exceed the County's noise standard. A single isolated residence is located on Vierra Road, approximately 500 ft east of the project construction area and, therefore, might be subjected to temporary noise that exceeds the County's noise standards. However, implementation of Mitigation Measures XII(a)(1) through XII(a)(4) would reduce potential temporary construction-related noise impacts to less than significant levels.

Table XII.A: Typical Maximum Construction Equipment Noise Levels (L_{max})

Type of Equipment	Range of Maximum Sound Levels Measured (dBA at 50 ft)	Suggested Maximum Sound Levels for Analysis (dBA at 50 ft)
Pile Drivers, 12,000 to 18,000 ft-lb/blow	81 – 96	93
Rock Drills	83 – 99	96
Jack Hammers	75 – 85	82
Pneumatic Tools	78 – 88	85
Pumps	74 – 84	80
Dozers	77 – 90	85
Scrapers	83 – 91	87
Haul Trucks	83 – 94	88
Cranes	79 – 86	82
Portable Generators	71 – 87	80
Rollers	75 – 82	80
Tractors	77 – 82	80
Front-End Loaders	77 – 90	86
Hydraulic Backhoe	81 – 90	86
Hydraulic Excavators	81 – 90	86
Graders	79 – 89	86
Air Compressors	76 – 89	86
Trucks	81 – 87	86

Source: Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman 1987.
dBA = A-weighted decibel
ft = feet
L_{max} = maximum instantaneous noise level
lb/blow = pounds per blow

Mitigation Measure XII(a)(1): **Muffling Devices.** During construction, the contractor shall ensure that all construction equipment is fitted with appropriate sound muffling devices, which shall be properly maintained and used at all times such equipment is in operation.

Mitigation Measure XII(a)(2): **Placement of Stationary Construction Equipment.** During construction, the project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.

Mitigation Measure XII(a)(3): **Placement of Construction Staging Areas.** During construction, the contractor shall locate on-site equipment staging areas so as to maximize the distance between construction-related noise sources and noise-sensitive receptors nearest the project site during construction activities.

Mitigation Measure XII(a)(4): **Construction Hours.** Except as otherwise permitted, construction activities shall be restricted to the hours of 8:00 a.m. to 5:00 p.m. weekdays; noise-producing construction activities shall be prohibited on Saturdays, Sundays, and legal holidays within 500 feet of a noise-sensitive land use.

Mitigation Monitoring Action No. 27: *Prior to the issuance of a notice to proceed with project construction, the County of Monterey shall incorporate noise reduction measures into the project plans and special provisions as set forth in Mitigation Measures XII(a)(1) through XII(a)(4), which shall be adhered to during construction activities.*

XII(b). Less Than Significant with Mitigation Incorporated. Vibration generated by construction equipment can result in varying degrees of ground vibration, depending on the equipment. The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings situated on soil near the active construction area respond to these vibrations, which range from imperceptible to low rumbling sounds with perceptible vibrations and slight damage at the highest vibration levels. Typically, construction-related vibrations do not reach vibration levels that would result in damage to nearby structures. However, old and fragile structures would require special consideration to avoid damage.

The Caltrans Transportation- and Construction-Induced Vibration Guidance Manual (June 2004) shows that the vibration damage threshold for continuous/frequent intermittent sources is 0.25 peak particle velocity (PPV) (inches per second [in/sec]) for historic and old buildings, 0.3 PPV (in/sec) for old residential structures, and 0.5 PPV (in/sec) for new residential structures. The same manual shows the vibration annoyance potential criteria to be barely perceptible at 0.01 PPV (in/sec) and distinctly perceptible at 0.04 PPV (in/sec). Both of these thresholds were used to evaluate short-term, construction-related groundborne vibration from the proposed project.

Construction of the proposed project would utilize heavy equipment such as bulldozers and pile drivers. The use of this equipment would result in temporary or periodic increase in groundborne vibration or groundborne noise levels in the proposed project area. Construction is anticipated to last approximately one year. The length of time required for pile-driving activities in Elkhorn Slough is anticipated to be no more than 1 week. Based on the May 2006 Federal Transit Administration – Transit Noise and Vibration Impact Assessment, a large bulldozer and a typical pile driver would generate a vibration level of 0.089 PPV and 0.644 PPV at a distance of 25 ft, respectively. The closest residence is located more than 500 ft from construction activities associated with a large bulldozer and proposed pile-driving activities. Therefore, the closest residence would experience a vibration level of 0.003 PPV from construction activities associated with a large bulldozer and 0.024 PPV from proposed pile-driving activities. These vibration levels from the large bulldozer would not be perceptible and proposed pile-driving activities would be barely perceptible. Because the closest residence is located more than 500 ft away, construction activities associated with the large bulldozer and pile driver would not have the potential to damage nearby residential structures.

Vibration levels generated by construction activities associated with pile driving could result in community annoyance because these levels would just be barely perceptible. However, pile driving is only anticipated to last 1 week. Furthermore, implementation of Mitigation Measure XII(a)(4) would restrict the hours of construction to daytime hours (8:00 a.m. to 5:00 p.m.), which would ensure that any construction-related groundborne vibration levels would not result in community annoyance. Therefore, no significant groundborne noise impact associated with construction of the proposed project would occur.

Operations of the proposed project would also not be a source of substantial groundborne vibration. Bicycle riding and pedestrian use of the proposed project are not activities that typically generate groundborne vibration. Therefore, the proposed project would not expose persons to or generate excessive groundborne vibration or groundborne noise levels. No mitigation is required.

XII(c). Less Than Significant Impact. Refer to Section XII (a). Operation of the proposed project would not substantially increase ambient noise levels above existing noise levels. There are no noise-sensitive land uses directly adjacent to the proposed project or within a distance that would be subjected to substantial long-term noise levels; therefore, no sensitive land uses would be impacted by the proposed project. Operation of the proposed project would not result in any substantial permanent increase in ambient noise levels in the project area above levels existing without the proposed project, and no mitigation is required.

XII(d). Less Than Significant with Mitigation Incorporated. Construction of the proposed project would utilize heavy equipment such as bulldozers and pile drivers. The use of this equipment would result in a temporary or periodic increase in ambient noise levels in the proposed project area above levels existing without the proposed project. However, construction noise would cease to occur once the construction of the proposed project is completed. With implementation of the Mitigation Measures XII(a)(1) through XII(a)(4) and due to the intermittent nature of the proposed construction activities, construction noise levels would not be expected to significantly exceed the existing ambient noise levels. In addition, the proposed project is not adjacent to any noise-sensitive land uses. Therefore, with implementation of Mitigation Measures XII(a)(1) through XII(a)(4), the proposed project would result in a less than significant impact associated with temporary ambient noise levels.

XII(e) and (f). No Impact. The proposed project is not located within an airport land use plan or within 2 mi of a public airport, public use airport, or private airstrip. The closest airport to the proposed project area is the Monterey Bay Academy Airport, which is approximately seven mi north of the proposed project area. The proposed project does not propose residential or commercial land uses, and the proposed project is not adjacent to any residential uses. Therefore, the proposed project would not expose people to excessive noise levels, and no mitigation is required.

SECTION XIII: POPULATION AND HOUSING	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion/Conclusion/Mitigation:

Refer to Section IV, Environmental Factors Potentially Affected and Determination.

SECTION XIV: PUBLIC SERVICES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered 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?	☐	☐	☐	☒
b) Police protection?	☐	☐	☐	☒
c) Schools?	☐	☐	☐	☒
d) Parks?	☐	☐	☐	☒
e) Other public facilities?	☐	☐	☐	☒

Discussion/Conclusion/Mitigation:

Refer to Section IV, Environmental Factors Potentially Affected and Determination.

SECTION XV: RECREATION	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) 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?	☐	☐	☒	☐

Discussion/Conclusion/Mitigation:

XV(a). No Impact. The proposed Class I bicycle/pedestrian pathway is a segment of the longer MBSST from Lovers Point in Pacific Grove to Wilder Ranch north of Santa Cruz. The proposed project may create and draw more people to visit and recreate and take advantage of the recreational opportunities the harbor provides. However, because this segment of the pathway is relatively short (i.e., 0.85 mi), it is more likely that most of the users would either be traveling through Moss Landing on their way to Pacific Grove or Santa Cruz or would be people who live in the area. Therefore, there would be a minimal increase in recreational use in the proposed project area but it would not significantly impact the existing facilities. Additionally, the closest regional parks to the proposed project are Royal Oaks Park, located approximately 11 mi east, and Salinas River State Beach, located approximately 3 mi south. It is unlikely that users of the proposed project would significantly increase the use of the existing parks and beaches because they are either passing through the proposed project area and, therefore, would not use the nearby recreational areas or they are from the area and their use of the recreational areas is already accounted for. Therefore, the proposed project would not increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of these facilities would occur or be accelerated.

XV(b). Less Than Significant Impact. The proposed project includes construction of a Class I bicycle/pedestrian pathway and bridge to provide access and continuity of the bicycle and pedestrian pathway along Monterey Bay from Pacific Grove to Santa Cruz. The proposed project would provide safety improvements for bicyclists and pedestrians and enhance appreciation, understanding, and protection of the Monterey Bay National Marine Sanctuary as compared to existing conditions. Implementation of the proposed project would not result in a significant adverse physical effect on the environment as discussed in this Initial Study/Mitigated Negative Declaration (IS/MND), with implementation of mitigation measures prescribed herein.

SECTION XVI: TRANSPORTATION/ TRAFFIC	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Discussion/Conclusion/Mitigation:

Refer to Section IV, Environmental Factors Potentially Affected and Determination.

SECTION XVII: UTILITIES AND SERVICE SYSTEMS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion/Conclusion/Mitigation:

Refer to Section IV, Environmental Factors Potentially Affected and Determination.

SECTION XVIII: MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant 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, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Discussion/Conclusion/Mitigation:

XVIII(a). Less Than Significant Impact. The proposed project would not substantially reduce the habitat of a fish or wildlife species, cause fish or wildlife populations to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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. However, based on the discussions provided above in Chapter VI, Environmental Checklist, the proposed project has the potential to result in impacts to Aesthetics (Section I), Biological Resources (Section IV), Hazards and Hazardous Materials (Section VIII), Hydrology and Water Quality (Section IX), and Noise (Section XII). With implementation of the mitigation measures identified in these sections, potentially significant impacts associated with the proposed project would be reduced to a less than significant level.

XVIII(b). Less than Significant Impact. Section 15065(a)(3) of CEQA states that a project's cumulative impacts are the possible environmental effects that may be cumulatively considerable when considered with other reasonable foreseeable projects. Cumulatively considerable impacts occur when the incremental effects of a particular project or program are significant when viewed in connection with the effects of other past, current, or reasonably foreseeable future projects or programs that are not incorporated into baseline or existing conditions. Section 15355 of the CEQA Guidelines defines a cumulative impact as an impact which is created as a result of the combination

of the project evaluated in the CEQA document together with other projects causing related impacts. The projects identified in Table XVIII.A below were reviewed to evaluate the potential cumulative impacts associated with implementation of the proposed project. As shown in the discussion above, environmental impacts associated with the proposed project can be reduced to less than significant through standard or project-specific mitigation measures. When the impacts associated with the proposed project were evaluated in conjunction with the projected impacts from the Cumulative Project List provided below (refer to Table XVIII.A), it was determined that the proposed project's cumulative contribution to impacts in the proposed project area would be negligible; therefore, cumulative impacts associated with the proposed project would be less than significant, and no mitigation is required.

Table XVIII.A: Cumulative Projects List

Project Title	Project Description	Current Status
Monterey Bay Aquarium Research Institute (MBARI) Master Plan		
Research Facility	Construction of a 58,655 sf research facility at 7700 Sandholdt Road.	Currently planned. Development will occur in three phases.
Research Support Facility	Demolition of an existing building currently housing Phil's Fish Market and in its place construct a 16,246 sf building and a 30 ft dock extension at 7600 Sandholdt Road.	
Field Program Staging Building	Construction of a 5,700 sf building at 7500 Sandholdt Road.	
Dock House	Construction of a 7,500 sf dock house.	
Moss Landing Marine Laboratories Expansion Project		
Multi-Use Facility	Construction of a 36,000 sf multi-use facility with a 15,000 sf dock/wharf area at 7539 Sandholdt Road. This facility would house a warehouse, offices, retail shops, and off-loading facilities.	Currently planned.
Multi-Use Facility	Construction of a 2,600 sf multi-use facility at 7544 Sandholdt Road. This facility would house an office and warehouse facility.	
Research Facility	Construction of a 7,400 sf research building, a 8,520 sf slab for aquiculture, and 300 ft pier at 7722 Sandholdt Road. This facility would provide research space, aquaculture space, and commercial pier space.	
Mixed Use Facility	Construction of a 30,000 sf mixed-use building adjacent to its main campus. This facility would contain residential units, office space, and a conference facility.	
Gregg Drilling		
	Construction of a three-story 11,000 sf building with 22 parking spaces. This facility would house corporate headquarters and maintenance yard, with remote drilling, data collection, and fabrication activities.	Currently planned.
Moss Landing Storm Drain and Street Improvements		
	Installation of storm drain facilities along Sandholdt Road and Moss Landing Road. The new facilities would collect storm water and release it into the harbor and Moro Cojo Slough. In addition to reconstructing Moss Landing Road with new curb, gutters, and sidewalks, this project also includes the undergrounding of utilities by Pacific Gas & Electric.	Currently planned.

ft = foot/feet
sf = square foot/feet

XVIII(c). No Impact. The proposed project includes construction of a Class I bicycle/pedestrian pathway and bridge to provide access and continuity with the MBSST from Pacific Grove to Santa Cruz. The proposed project would provide safety improvements for bicyclists and pedestrians and enhance appreciation, understanding, and protection of the Monterey Bay National Marine Sanctuary as compared to existing conditions. The proposed project would not result in environmental effects that would cause adverse effects on human beings, either directly or indirectly.

VII. Fish and Wildlife Environmental Document Fees

A. Assessment of Fee:

The State Legislature, through the enactment of Senate Bill (SB) 1535, revoked the authority of lead agencies to determine that a project subject to California Environmental Quality Act (CEQA) review had a "de minimus" (minimal) effect on fish and wildlife resources under the jurisdiction of the California Department of Fish and Wildlife (CDFW). Projects that were determined to have a "de minimus" effect were exempt from payment of the filing fees.

SB 1535 has eliminated the provision for a determination of "de minimus" effect by the lead agency; consequently, all land development projects that are subject to environmental review are now subject to the filing fees, unless the CDFW determines that the project will have no effect on fish and wildlife resources.

To be considered for determination of "no effect" on fish and wildlife resources, project proponents must submit a form requesting such determination to the CDFW. Forms may be obtained by contacting the department by telephone at (916) 631-0606 or through the CDFW's website at www.dfg.ca.gov.

B. Conclusion:

The County of Monterey Department of Public Works will be required to pay the fee.

C. Evidence:

Based on the record as a whole as embodied in the attached Initial Study/Proposed Mitigated Negative Declaration.

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VIII. Mitigation Monitoring and Reporting Program

Project Applicant: County of Monterey, through RMA-Public Works ***Condition Compliance & Mitigation Monitoring and/or Reporting Plan***	***Project Name*:** Monterey Bay Sanctuary Scenic Trail- Moss Landing Bicycle/Pedestrian Path and Bridge Project ***File No***: N/A ***APNs:*** 133-181-009, 133-173-005, 133-173-002 ***Approval by:*** _____ ***Date:*** _____

****Monitoring or Reporting refers to projects with an EIR or adopted Mitigated Negative Declaration per Section 21081.6 of the Public Resources Code.***

Permit Cond. Number	*Mitig. Number*	*Conditions of Approval and/or Minimization/Mitigation Measures and Responsible Land Use Department*	*Compliance or Monitoring Actions to be performed. Where applicable, a certified professional is required for action to be accepted.*	*Responsible Party for Compliance*	*Timing*	*Verification of Compliance (name/date)*
	I(c)(1)	**Concrete Roadside Barrier.** Aesthetic treatments and/or color shall be considered during the design of the concrete roadside barriers. Proposed aesthetic treatments and/or color shall be approved by the California Department of Transportation (Caltrans) in consultation with input from the local community prior to the County of Monterey's (County) approval of project plans.	Aesthetic treatments and/or color shall be approved by Caltrans in consultation with input from the local community.	Project Applicant	Prior to the approval of project plans	
	I(c)(2)	**Bridge Design.** Prior to the approval of project plans, the County of Monterey shall ensure that the bicycle/pedestrian bridge over Elkhorn Slough is designed to complement the seaside character of the Moss Landing Harbor.	The County of Monterey shall ensure that the bicycle/pedestrian bridge over Elkhorn Slough shall be designed to complement the seaside character of the Moss Landing Harbor.	Project Applicant	Prior to the approval of project plans	
	I(c)(3)	**Railing Design.** Prior to the approval of project plans, the County of Monterey shall ensure that all railings developed as part of the proposed project, including bridge and retaining wall railings, are designed to be as visually open as possible and complement the aesthetic treatments of the new bridge and retaining walls.	The County of Monterey shall ensure that all railings developed as part of the proposed project are designed to be as visually open as possible and complement the new bridge and retaining walls.	Project Applicant	Prior to the approval of project plans	
	I(c)(4)	**End Treatments.** Prior to the approval of project plans, the County of Monterey shall ensure that end treatments associated with the proposed project are designed to	The County of Monterey shall ensure that end treatments are designed to appear similar to metal beam guardrails.	Project Applicant	Prior to the approval of project plans	

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		appear similar to metal beam guardrails. Advanced Dynamic Impact Extension Module (ADIEM) end-treatments shall not be used for end treatments associated with the proposed project.				
	IV(a)(1)	**Preconstruction Nesting Bird Surveys.** Prior to the issuance of a notice to proceed with project construction, the County of Monterey shall ensure that the project plans and special provisions specify that a qualified biologist shall be retained to complete preconstruction nesting birds surveys within 300 feet (ft) of all disturbance areas should construction be scheduled to occur within the nesting season (February 22 through August 21).	The County of Monterey shall ensure that project plans and special provisions specify that a qualified biologist shall be retained to complete preconstruction nesting bird surveys should construction be scheduled to occur within nesting bird season.	Project Applicant	Prior to construction	
	IV(a)(2)	**Qualified Biologist for Construction Monitoring.** Prior to the issuance of a notice to proceed with project construction, the County of Monterey shall ensure that the project plans and special provisions specify that a qualified biologist shall be retained to monitor the construction area for brown pelicans during construction. The biological monitor shall have the authority to stop or delay construction if it is determined that a given activity may pose a threat to brown pelicans.	The County of Monterey shall ensure that project plans and special provisions specify that a qualified biologist shall be retained to monitor the construction area for brown pelicans during construction.	Project Applicant	Prior to/ during construction	
	IV(a)(3)	**Marine Mammal Protection Plan.** Prior to construction, a Marine Mammal Protection Plan shall be developed for the proposed project and approved by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). The Marine Mammal Protection Plan shall include, but may not be limited to, the following measures: • A marine mammal impact zone shall be established by a qualified marine biologist, which shall require recording construction-related underwater sound pressure levels (SPL) by a qualified underwater acoustic monitor. The marine mammal impact zone is the area where marine mammals may be negatively	The County of Monterey shall ensure that a Marine Mammal Protection Plan has been approved by the USFWS that includes, but is not limited to, the measures set forth in Mitigation Measure IV(a)(3).	Project Applicant	Prior to construction/ during construction	

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		affected by underwater noise generated by in-water construction such as pile driving. • Based on the marine mammal impact zone, a buffer/safety zone to be monitored by a qualified biologist shall be established and approved by USFWS. An acceptable buffer is anticipated to be 500 ft from work activities, as was required during the construction of the public wharf and floating dock located on the north side of the mouth of Elkhorn Slough. The approved biologist shall monitor the buffer/safety zone during all in-water construction activities. Once established, the marine mammal buffer/safety zone shall be clearly marked with buoys for easy monitoring. Pile driving shall not begin until the buffer/safety zone is clear of marine mammals. • A "soft start" practice shall be implemented at the onset of pile-driving activities. Pile driving shall be initiated at an energy level less than full capacity (i.e., approximately 40–60 percent energy levels) for at least 5 minutes before gradually escalating to full capacity. The "soft start" practice would ensure that any pinnipeds that are undetected during monitoring of the buffer zone would not be injured. • Limit construction activities, including pile driving, to the daylight hours (8:00 a.m. to 5:00 p.m.) when marine mammals can be most effectively observed. In-water construction (e.g., pile driving) shall be limited to June 15 through October 15. • Construction monitoring by a qualified biologist shall be conducted during all work on the proposed bicycle/pedestrian bridge including over-water construction after the piles have been put in place. The biological monitor shall have the authority to stop or delay construction if it is determined that a given				

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		activity may pose a threat to a marine mammal that has entered the buffer/safety zone. • Prior to the initiation of in-water construction, a qualified biological monitor approved by USFWS and NMFS shall conduct monitoring of marine mammals to update existing information on the animals' occurrence in and near the project area, their movement patterns, and their use of any haul-out sites. This preconstruction monitoring shall take place at least 5 days prior to the start of in-water construction and shall cover a period of at least 1 week. • Prior to in-water construction, the approved biological monitor shall conduct environmental awareness training to instruct construction crews regarding the status and sensitivity of sensitive species and habitats (i.e., sea otters and other marine mammals) in the area and the actions to be taken to avoid or minimize impacts to sensitive species in the event sensitive species enter the in-water work area. All construction personnel will be required to sign a log verifying that they received and understood the information presented during the training. • The approved biological monitor shall be present during in-water construction activities to search for target marine mammal species and halt project activities that could result in injury or mortality to these species during the in-water activities and on-land pile driving. Each day, before pile driving (or other loud in-water construction activity) begins, the monitor shall survey the buffer zone for marine mammals. The monitor shall also scan for marine mammals throughout the aquatic portions of the project and vicinity. • The commencement of pile driving activities shall be				

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		delayed if marine mammals are present within a buffer zone[1] established in consultation with USFWS and NMFS around the new bridge work area. This buffer zone shall be based on pile-driving activities for similar projects and on the feasibility of monitoring the area for animals entering the project area from the open waters of Monterey Bay. The buffer radius shall be established based on a measurement of the distance the 160-decibel (dB) pressure travels in the underwater harbor waters and/or through the air. The radius shall be visibly flagged on the banks of the harbor during these activities. Each day, prior to the start of pile driving, the approved biological monitor shall survey the buffer zone for marine mammals. If a marine mammal is detected, pile driving shall be delayed until the marine mammal has moved beyond the buffer zone, which is verified by visual confirmation or lack of visual sighting with the next 15 minutes of the last sighting to assume that the animal has moved beyond the buffer zone. If the animal should move back into the buffer zone after the commencement of pile driving, no further work stoppage shall be necessary unless the animal comes within an unsafe distance of the work area that may result in injury to the animal. At this point, work shall cease to avoid physical injury to the animal. This distance shall be determined by USFWS and/or NMFS. The biological monitor shall				

[1] A 500 ft radius is intended to be an initial buffer, prior to tests that determine the actual distance at which pile driving noise is recorded to be 160 dBs. Such a buffer has been used on other projects in the vicinity and was selected based on estimates that underwater noise levels can be conservatively predicted to fall below 160 dB outside a radius of between 33 ft and 300 ft for driving steel piles as large as 30 inches in diameter (ICF Jones and Stokes 2010). In addition, an initial 500 ft buffer zone was used for a project of a similar scale (i.e., the Sandholdt Road Bridge Replacement Project) (LSA 2004).

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		record the species and the numbers and behaviors of any animal(s) entering the buffer zone after the commencement of work, and shall notify the County of Monterey (County), the California Department of Transportation (Caltrans), and NMFS or USFWS via telephone and in writing within 48 hours. The biological monitor shall also submit a written description of the event to Caltrans (and in turn to NMFS and USFWS, as applicable) within 7 days. • The buffer radius may be reduced or increased based on a measurement of the distance the 160 dB pressure travels in the underwater harbor waters and/or through the air. This would be determined using approved in-water and in-air acoustic monitoring devices. The County shall notify Caltrans in writing of the proposed change in buffer zone area, who in turn shall notify NMFS and/or USFWS. An approved biological monitor shall operate the monitoring devices during pile driving and any other loud construction activities (e.g., use of hydraulic tools). The devices, when placed at the determined buffer, shall produce acoustic data for the duration of noise-producing activities. An alarm would alert the biological monitor to sound levels approaching 160 dB. • At least 7 days prior to the start of pile driving, the floating dock located at the north end of the Biological Study Area (BSA) west of the existing State Route 1 (SR-1) Bridge shall be excluded from use by seals and sea lions. The proximity (100–300 ft) of this artificial haul-out to the bridge work area would minimize the opportunities for sea lions and seals to be within the buffer zone and therefore cause delays in initiating pile-driving activities. • No disturbance or noise shall be used to encourage the				

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		movement of sea otters and other marine mammals from the work area. The County shall contact USFWS and NMFS to determine the best approach for exclusion of the marine mammals from the in-water work area. • Other in-water construction activities (e.g., the use of heavy equipment to place riprap) shall generate noise levels equivalent to that of a diesel truck. For those activities, a 50 ft radius buffer zone shall be established. This buffer zone shall be clearly marked by highly visible stakes that are securely placed into the banks. Each day, before construction begins, the biological monitor shall search the 50 ft radius for marine mammals. If a marine mammal is sighted within the buffer zone, the biological monitor shall require the contractor to delay in-water construction activities until the biological monitor determines that no marine mammals are present within the buffer area. • The biological monitor shall keep a record of all observations of the target species. The information on each observation shall include: (a) species identification and approximate number of animals observed; (b) age class and sex of each animal (if possible); (c) activity and direction of movement; (d) ongoing project activities at the time of observation; (e) responses of target species to project activities; (f) any unusual behavior or circumstances observed (either project- or non-project related); and (g) location, date, and time of each observation. Summary monitoring reports shall be submitted to Caltrans, which shall forward reports to NMFS and USFWS by December 31 of each year that in-water construction activities take place. • In the event the biological monitor determines that a				

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		marine mammal has been injured by project activities, all work shall cease and Caltrans shall be notified. Caltrans shall consult with NMFS and/or USFWS to determine if additional measures are necessary. Work may resume upon notification by Caltrans. • Post-construction monitoring shall be conducted to determine if marine mammals resume their use of haul-out sites. NMFS may require additional project conditions to be applied, depending on the outcome of post-construction monitoring.				
	IV(a)(4)	**Acoustic Monitoring of Pile Driving.** During pile driving activities, the project contractor shall ensure that sound levels from pile driving are limited to approved values stipulated by NMFS and USFWS in the conditions of approval for the project (typically 206 dB peak and 183–187 dB cumulative sound exposure levels [SEL], depending on the size of fish expected to be present). Acoustic monitoring as stipulated in the Final Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effect of Pile Driving on Fish (ICF Jones & Stokes and Illingworth and Rodkin 2009) shall be conducted during pile-driving activities. Attenuation methods such as those identified in the Final Technical Guidance (ICF Jones & Stokes and Illingworth and Rodkin 2009) under Best Management Practices (BMPs) (i.e., air bubble curtains) or other Caltrans, NMFS, and USFWS approved systems (i.e., AdBm Technologies sound attenuation system) shall be used to reduce sound levels to the maximum extent practicable.	The project contractor shall ensure that acoustic monitoring is conducted during pile driving activities and that peak sound levels from pile driving are limited to approved values stipulated by NMFS and USFWS in the project's conditions and approval. Attenuation methods such as air bubble curtains, shall be used to reduce sound levels to the maximum extent practicable.	Project Contractor	During pile driving activities	
	IV(a)(5)	**Fish Monitoring During Pile Driving Activities.** Prior to the issuance of a notice to proceed with project construction, the County of Monterey shall ensure that special provisions for the construction contract specify that in areas of strong current, pile driving shall occur when the	The County of Monterey shall ensure that special provisions for the construction contract include specifications that in areas of strong current, pile driving shall occur when the current is reduced, if	Project Applicant	Prior to construction/ during pile driving activities	

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		current is reduced (i.e., centered around slack current), if feasible, in order to minimize the number of fish exposed to adverse levels of underwater sound. In addition, during pile-driving activities, the project contractor shall ensure that sound levels from pile driving are limited to approved values stipulated by NMFS and USFWS in the conditions of approval for the project (typically 206 dB peak and 183–187 dB cumulative SEL, depending on the size of fish expected to be present). Acoustic monitoring as stipulated in the Final Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effect of Pile Driving on Fish (ICF Jones & Stokes and Illingworth and Rodkin 2009) shall be conducted during pile-driving activities. Attenuation methods such as those identified in the Final Technical Guidance (ICF Jones & Stokes and Illingworth and Rodkin 2009) under BMPs (i.e., air bubble curtains) or other Caltrans, NMFS, and USFWS approved systems (i.e., AdBm Technologies sound attenuation system) shall be used to reduce sound levels to the maximum extent practicable. • A qualified biological monitor shall be on site to monitor fish. If fish are observed to be injured or killed, pile driving shall cease immediately, Caltrans will notify NMFS, and the County will contact the California Department of Fish and Wildlife (CDFW) to determine appropriate steps to avoid additional damage to fish. • Prior to the initiation of construction activities, the approved biological monitor shall conduct environmental awareness training for all construction crews and supervisors. This training shall include information on the status of the sensitive species and habitats in the vicinity of the work area, how and where the sensitive species and habitats may be encountered	feasible to minimize the number of fish exposed to adverse levels of underwater sound. In addition, pile driving activities shall follow but not be limited to, the measures set forth in Mitigation Measure IV(a)(5).			

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		within the work area, and procedures to follow when the species and habitats are encountered. Measures being implemented to minimize and avoid impacts to sensitive species and habitats shall also be discussed. At the end of the training, construction personnel shall sign a training log stating they attended the worker awareness program and they understand the protection measures being implemented. If additional construction personnel are added after the initial training, the new workers must be trained by the biological monitor prior to starting work. • Results of monitoring shall be reported to the County and Caltrans within 2 weeks following the completion of pile-driving activities. • The proposed project shall implement a slow start, thereby allowing fish in the vicinity of the pile driving to move away from the pile before the full force of the pile driver is achieved. • Cast-in-steel shell (CISS) piles shall be set using a vibratory hammer rather than an impact hammer to help reduce overall sound and exposure levels in the slough and harbor. An impact hammer shall be used to drive the piles to final tip elevation. • Pile driving shall be limited to the sound level values stipulated by NMFS and USFWS in the conditions of approval for the project. A qualified biological monitor with experience in acoustic monitoring will work with the contractor to ensure that approved values are not exceeded. • In-water work shall be limited to the period of June 15 to October 15 during each construction season. Although steelhead are not likely to occur in the project area, the summer/fall in-water work window shall avoid in-water work when steelhead may be present.				

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		• A sound attenuation system that is approved by Caltrans, NMFS, USFWS, and CDFW will be used during pile driving to reduce sound levels to the maximum extent practicable. Examples of the sound attenuation system include air bubble curtain systems and the passive sound attenuation system such as that developed by AdBm Technologies. • All construction activities associated with construction of the new bridge and the removal and replacement of rock shore protection shall be conducted during daylight hours. Limiting work associated with these activities to these periods shall facilitate movement of workers between shore and barges, and monitoring of fish, marine mammals, and sound levels. • A monitoring plan shall be prepared and implemented to monitor noise levels during pile driving and ensure that noise levels do not exceed authorized levels. The plan shall identify at least two monitoring locations (e.g., one at 10 meters from the pile driving and one at the estimated cumulative SEL threshold distance).				
	IV(a)(6)	**Construction Hours.** All pile driving, bridge construction, and trail construction shall take place during daylight hours (8:00 a.m. to 5:00 p.m.). This information shall be specified in the special provisions for the construction contract.	The County of Monterey shall ensure and enforce that all construction activities occur during daylight hours by specifying those allowable working hours in the construction contract.	Project Applicant	Prior to/ during construction	
	IV(a)(7)	**Incidental Harassment Authorization.** Prior to initiation of in-water construction, including moving work barges into the proposed project area, an Incidental Harassment Authorization (IHA) shall be obtained by the County of Monterey from the USFWS and NMFS for the proposed project under the authority of Section 101(a)(5)(D) of the Marine Mammal Protection Act.	The County of Monterey shall obtain an Incidental Harassment Authorization (IHA) from the USFWS and NMFS under the authority of Section 101(a)(5)(D) of the Marine Mammal Protection Act.	Project Applicant	Prior to construction	
	IV(b)(1)	**Environmentally Sensitive Area Fencing for Estuarine Wetland/Open Water Habitat.** Prior to vegetation	Prior to construction, highly visible barriers shall be installed within 100 feet	Project Contractor	Prior to construction	

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		clearing, ground disturbance, or construction, highly visible barriers (such as orange construction fencing) shall be installed by the contractor around sensitive habitats adjacent to the proposed project footprint within 100 ft of estuarine wetland/open water habitat. The biological monitor will work with the contractor to identify the location of the fence and monitor its proper installation. No grading or fill activity of any type shall be permitted within these designated environmentally sensitive areas (ESAs). Heavy equipment, including motor vehicles, shall not be allowed to operate within the ESAs. All construction equipment shall be operated in a manner so as to prevent accidental damage to nearby preserved areas. All equipment maintenance, staging, and dispensing of fuel, oil, or any other such activities shall occur in developed or designated nonsensitive, upland, habitat areas. The designated upland areas shall be located in such a manner as to prevent the runoff from any spills from entering aquatic habitats. The ESAs shall be denoted on project construction plans and adjusted in the field as necessary prior to construction.	of estuarine wetland/open water and around sensitive habitats. No grading or fill activity or operation of heavy equipment shall be permitted in environmentally sensitive areas (ESAs) and all activities shall occur in developed or designated nonsensitive, upland, habitat areas. The ESAs shall be denoted on project construction plans and adjusted in the field as necessary prior to construction.			
	IV(b)(2)	**Estuarine/Open Water Areas Construction Monitoring.** During all phases of project construction, the monitoring biologist shall monitor construction activities within the vicinity of estuarine wetland/open water to ensure that wildlife species are not affected during construction and that avoidance and minimization measures are properly implemented.	The monitoring biologist shall monitor construction activities within the vicinity of estuarine wetland/open water to ensure that no wildlife species are affected and that specified mitigation and avoidance measures are implemented properly.	Project Contractor	During construction	
	IV(b)(3)	**Construction Employee Environmental Awareness Training.** Prior to the initiation of construction activities, environmental awareness training shall be implemented for all construction personnel. This training shall be developed and implemented by the biological monitor. At a minimum, the training shall include the following topics:	A preconstruction environmental awareness training, developed and implemented by the biological monitor, shall be provided to all construction personnel involved in the proposed project that includes, but is not limited to,	Project Contractor	Prior to construction	

Permit Cond. Number	*Mitig. Number*	*Conditions of Approval and/or Minimization/Mitigation Measures and Responsible Land Use Department*	*Compliance or Monitoring Actions to be performed. Where applicable, a certified professional is required for action to be accepted.*	*Responsible Party for Compliance*	*Timing*	*Verification of Compliance (name/date)*
		(1) biology conservation, and legal status of the sea otter, marine mammals, fisheries and nesting birds; (2) responsibilities of the biological monitor; (3) delineation and flagging of adjacent habitat; (4) limitations on all movement of those employed on site, including ingress and egress of equipment and personnel, to designated construction zones (e.g., personnel shall not be allowed access to adjacent sensitive habitats); (5) on-site pet prohibitions; (6) use of trash containers for disposal and removal of trash; and (7) project features designed to reduce the impacts to listed species and habitat and promote continued successful occupation of adjacent habitat areas. Training shall be repeated for any new construction personnel during the project construction period as needed.	the measures set forth in Mitigation Measure IV(b)(3).			
	IV(b)(4)	**Prohibition of Chemicals Harmful to Biological Resources.** During the construction and operation of the proposed project, the use of rodenticides, herbicides, insecticides, or other chemicals that could harm estuarine wetland/open water shall be prohibited. This measure will be specified on the project construction plans or special provisions and monitored by the project biological monitor.	The use of rodenticides, herbicides, insecticides, or any other chemicals potentially harmful to estuarine wetland/open water habitat shall be prohibited. This measure shall be specified on construction plan and monitored by the biological monitor.	Project Applicant, Project Contractor	Prior to/ during construction and operation	
	IV(b)(5)	**Barge Plan.** Prior to initiation of construction activities, the County of Monterey shall review and approve a barge plan, which shall be prepared by the contractor, that provides: (a) detailed procedures to be taken to avoid disturbing the harbor bottom during construction activities and procedures to be followed if the barge bottoms out; and (b) detailed methods and procedures to prevent invasive species from entering Elkhorn Slough during the use of barges. The specific methods and procedures to prevent movement of invasive aquatic species shall follow regulations current at the time of project construction and	The County of Monterey shall review and approve a barge plan prepared by the project contractor that details procedures to be taken to avoid disturbing the harbor bottom during construction activities and methods to prevent invasive species from entering Elkhorn Slough during the transport of barges into Elkhorn Slough during construction.	Project Applicant, Project Contractor	Prior to/ during construction	

Permit Cond. Number	*Mitig. Number*	*Conditions of Approval and/or Minimization/Mitigation Measures and Responsible Land Use Department*	*Compliance or Monitoring Actions to be performed. Where applicable, a certified professional is required for action to be accepted.*	*Responsible Party for Compliance*	*Timing*	*Verification of Compliance (name/date)*
		the measures shall be approved by the appropriate agencies prior to the temporary transport of the barges into Elkhorn Slough. At a minimum, the barge plan shall include the following measures if barges are being transported from areas with invasive aquatic species (i.e., San Francisco Bay): • Emptying of ballast tanks outside the boundaries of the National Marine Sanctuary and prior to entrance into Monterey Bay; • Flush ballast tanks with freshwater, which shall be held in the tanks for at least two days and maintained in the ballast during the length of the project, if possible; • Flush raw water cooling systems and clean sea strainers appropriately prior to moving the barges into Elkhorn Slough; • Prior to departure from San Francisco Bay, the hull shall be inspected for non-native invasive species above and below water-line by divers. If a species is found that closely resembles one of the least wanted invaders, an expert shall be consulted to determine correct identification. If determined to be an invasive non-native species, a report shall be filed with the Elkhorn Slough Natural Estuarine Research Reserve (ESNERR) at (831) 728-2822. Should the expert be unavailable, the material shall be removed by hand and disposed of properly in garbage receptacles on land. The barges shall be transported to Elkhorn Slough within 3 days of completing removal of invasives in order to prevent inoculation. Upon arrival to and prior to entering the Elkhorn Slough, the hull shall be inspected again.				

Permit Cond. Number	*Mitig. Number*	*Conditions of Approval and/or Minimization/Mitigation Measures and Responsible Land Use Department*	*Compliance or Monitoring Actions to be performed. Where applicable, a certified professional is required for action to be accepted.*	*Responsible Party for Compliance*	*Timing*	*Verification of Compliance (name/date)*
		This barge plan shall be specified on the project construction plans or special provisions and the terms of the plan shall be monitored by the project biological monitor.				
	IV(b)(6)	**Storm Water Pollution Prevention Plan.** Prior to the issuance of a notice to proceed with project construction, the County of Monterey shall review and approve a site-specific Storm Water Pollution Prevention Plan (SWPPP) that will identify specific BMPs for each construction activity to eliminate or minimize the potential for the discharge of polluted storm water or unauthorized non-storm water. Specific BMPs shall be implemented during proposed project construction so as not to cause or contribute to an exceedance of any water quality standard. In addition, changes to the BMPs such as alternative mechanisms, if necessary, during proposed project design and/or construction shall be implemented in order to achieve the stated goals and performance standards. These may include silt curtains or turbidity curtains that would contain resuspended sediment on site until it settles.	The County of Monterey shall review and approve a site-specific Storm Water Pollution Prevention Plan (SWPPP) prepared by the project contractor that will identify specific best management practices (BMPs) to eliminate or minimize the potential for the discharge of polluted storm water or unauthorized non-storm water during construction.	Project Applicant, Project Contractor	Prior to/ during construction	
	IV(b)(7)	**Habitat Mitigation and Monitoring Plan.** Prior to the issuance of a notice to proceed with project construction, the County of Monterey shall assure that a Habitat Mitigation and Monitoring Plan (HMMP) has been developed for the proposed project in coordination with the United States Army Corps of Engineers (Corps), the Regional Water Quality Control Board (RWQCB), and the California Coastal Commission (CCC) to ensure no net loss of estuarine habitat value or acreage. Final details for compensatory mitigation shall be evaluated through coordination among the County, Caltrans, and the resource agencies, including the CCC. The HMMP shall comply with all terms and conditions set forth in the permits (401 and 404) and conditions issued by the resource agencies	The County of Monterey shall coordinate with the United States Army Corps of Engineers (Corps), the Regional Water Quality Control Board (RWQCB), and the California Coastal Commission (CCC) to develop a Habitat Mitigation and Monitoring Plan (HMMP) to ensure no net loss of estuarine habitat value or acreage. Caltrans and the resource agencies shall evaluate the final details for compensatory mitigation. The HMMP shall comply with all terms and conditions set forth in permits and opinions issued by the resource agencies	Project Applicant, Caltrans Resource Agencies	Prior to construction	

Permit Cond. Number	*Mitig. Number*	*Conditions of Approval and/or Minimization/Mitigation Measures and Responsible Land Use Department*	*Compliance or Monitoring Actions to be performed. Where applicable, a certified professional is required for action to be accepted.*	*Responsible Party for Compliance*	*Timing*	*Verification of Compliance (name/date)*
		(USFWS, NMFS, and CDFW) and shall typically include the following provisions: Estuarine habitat will be restored in-kind and on site at a minimum 1:1 ratio within the BSA, if feasible. If off-site restoration is required, it will be done within the same watershed as the proposed project. An establishment period for the replacement habitat, regular trash removal, and regular maintenance and monitoring activities to ensure the success of the mitigation plan until the replacement habitat is deemed satisfactory by the resources agencies (USFWS, NMFS, and CDFW).	and shall include, but not be limited to, the provisions set forth in Mitigation Measure IV(b)(7).			
	IV(b)(8)	**ESA Fencing for Dune Scrub Habitat.** Prior to vegetation clearing, ground disturbance, or construction, highly visible barriers (such as orange construction fencing) shall be installed around dune scrub habitat adjacent to the proposed project footprint to designate ESAs to be preserved. No grading or construction activity or staging shall be permitted within this habitat. In addition, heavy equipment, including motor vehicles, shall not be allowed to operate within the ESAs. All construction equipment shall be operated in a manner so as to prevent accidental damage to nearby preserved areas. All equipment maintenance, staging, and dispensing of fuel, oil, or any other such activities shall occur in developed or designated nonsensitive, upland, habitat areas. This measure shall be specified on the project construction plans and monitored by the project biological monitor.	The County of Monterey shall assure that highly visible barriers are built around dune scrub habitat adjacent to the proposed project to identify environmentally sensitive areas (ESAs) to be preserved. No grading or construction activity, or the operation of heavy equipment, shall be permitted in ESAs and all activities shall occur in developed or designated nonsensitive, upland, habitat areas.	Project Applicant, Project Contractor	Prior to construction	
	IV(d)(1)	**Construction Hours.** County of Monterey shall specify in the construction plans or special provisions that construction activities are limited to daylight hours (8:00	The County of Monterey shall ensure that construction activities are limited to daylight hours to avoid and minimize the	Project Applicant, Project	Prior to/ during construction	

Permit Cond. Number	*Mitig. Number*	*Conditions of Approval and/or Minimization/Mitigation Measures and Responsible Land Use Department*	*Compliance or Monitoring Actions to be performed. Where applicable, a certified professional is required for action to be accepted.*	*Responsible Party for Compliance*	*Timing*	*Verification of Compliance (name/date)*
		a.m. to 5:00 p.m.).	potential impacts to wildlife movement.	Contractor		
	IV(e)(2)	**Tree and Root Protection.** Trees that are located close to the construction site(s) shall be protected from inadvertent damage from construction equipment by fencing off the canopy drip-lines and/or critical root zones (whichever is greater) with protective materials, wrapping trunks with protective materials, avoiding fill of any type against the base of the trunks and avoiding an increase in soil depth at the feeding zone or drip-line of the retained trees. Said protection, approved by a certified arborist, shall be demonstrated prior to issuance of building permits subject to the approval of the Resource Management Agency (RMA) – Director of Planning. If there is any potential for damage, all work must stop in the area and a report, with mitigation measures, shall be submitted by a certified arborist. Should any additional trees not included in this permit be harmed, during grading or construction activities, in such a way where removal is required, the County of Monterey shall obtain required permits.	The project contractor shall ensure that trees that are located close to the construction site shall be protected from damage by fencing off the canopy and/or critical root zones with protective materials, wrapping trunks with protective materials, avoiding fill of any type against the base of trunks, and avoiding an increase in soil depth at the feeding zone or drip-line of the retained trees. These protection measures shall be approved by a certified arborist.	Project Contractor, RMA-Planning Department	Prior to the issuance of building permits and during construction	
	IV(e)(3)	**Tree and Root Protection.** Prior to beginning any tree removal, trees which are located close to trees approved for removal shall be protected from inadvertent damage from equipment or tree removal activity by fencing off the canopy drip-lines and/or critical root zones (whichever is greater) with protective materials. Any tree protection measures recommended by a County-approved tree consultant, in addition to the mitigation measure, shall be implemented.	The County of Monterey shall hire an arborist to conduct on-site monitoring services that include ensuring that tree protection measures are in place and that trees to be retained are not damaged.	Project Applicant	Prior to tree removal	

Permit Cond. Number	*Mitig. Number*	*Conditions of Approval and/or Minimization/Mitigation Measures and Responsible Land Use Department*	*Compliance or Monitoring Actions to be performed. Where applicable, a certified professional is required for action to be accepted.*	*Responsible Party for Compliance*	*Timing*	*Verification of Compliance (name/date)*
	V(a)(1)	**Cultural Resources Negative Archaeological Report.** If, during the course of construction, cultural, archaeological, historical, or paleontological resources are uncovered at the site (surface or subsurface resources), work shall be halted immediately within 50 meters (165 feet) of the find until a qualified professional archaeologist can evaluate it. The County of Monterey Resource Management Agency (RMA) – Planning and a qualified archaeologist (i.e., an archaeologist registered with the Register of Professional Archaeologists) shall be immediately contacted by the responsible individual present on site. When contacted, the project planner and the archaeologist shall immediately visit the site to determine the extent of the resources and to develop proper mitigation measures required for the discovery.	If cultural, historical, or paleontological resources are uncovered during construction, work shall be stopped within 50 meters (165 feet) of the resource. In addition, the construction contractor shall contact the County of Monterey RMA- Planning and a qualified archaeologist immediately. When contacted, the project planner and the archaeologist shall immediately visit the site to determine the extent of the resources and to develop proper mitigation measures required for the discovery.	Project Contractor, Project Applicant	During construction	
	V(d)(1)	**Cultural Resources Positive Archaeological Report.** If human remains are accidentally discovered during construction, the following steps will be taken. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until: • The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and if the coroner determines the remains to be Native American: o The coroner shall contact the Native American Heritage Commission and the RMA – Planning within 24 hours. o The Native American Heritage Commission shall identify the person or persons from a recognized local tribe of the Esselen, Salinan, Costonoans/Ohlone	If human remains are uncovered at the project site, work shall be halted immediately until the coroner of Monterey County can evaluate them. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of identification. Pursuant to Section 5097.9 and 5097.993 of the Public Resources Code, the Native American Heritage Commission shall identify a "Native American Most Likely Descendent" to inspect the site and provide recommendations for the proper treatment of the remains and any associated grave goods.	Project Applicant, Project Contractor	During construction	

Permit Cond. Number	*Mitig. Number*	*Conditions of Approval and/or Minimization/Mitigation Measures and Responsible Land Use Department*	*Compliance or Monitoring Actions to be performed. Where applicable, a certified professional is required for action to be accepted.*	*Responsible Party for Compliance*	*Timing*	*Verification of Compliance (name/date)*
		and Chumash tribal groups, as appropriate, to be the most likely descendent. o The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.9 and 5097.993, or ▪ Where the following conditions occur, the landowner or his authorized representatives shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance: ▪ The Native American Heritage Commission is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the commission. ▪ The descendent identified fails to make a recommendation; or ▪ The landowner or his authorized representative rejects the recommendation of the				

Permit Cond. Number	*Mitig. Number*	*Conditions of Approval and/or Minimization/Mitigation Measures and Responsible Land Use Department*	*Compliance or Monitoring Actions to be performed. Where applicable, a certified professional is required for action to be accepted.*	*Responsible Party for Compliance*	*Timing*	*Verification of Compliance (name/date)*
		descendent, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.				
	VIII(d)(1)	**Soil/Fill Contaminant Testing.** Prior to construction, the project contractor shall test the fill material behind the riprap along the shore of Moss Landing Harbor and the man-made fill associated with the former Pajaro Valley Consolidated Railroad railroad bed south of Elkhorn Slough for the presence of soil contaminants. The results of the soil/fill testing will determine the handling and disposal of potentially contaminated soils within the proposed project area.	The project contractor shall test the fill material behind the riprap along the shore of Moss Landing Harbor and the man-made fill associated with the former Pajaro Valley Consolidated Railroad railroad bed south of Elkhorn Slough to determine the proper handling of any contaminated soils.	Project Contractor	Prior to construction	
	VIII(d)(2)	**Aerially Deposited Lead Testing.** Prior to construction, the County of Monterey shall test the portion of the proposed project between Stations 68+00 and 86+30 for the presence of aerially deposited lead (ADL) in accordance with California Department of Transportation guidelines. Results of the ADL testing will determine the handling, reuse, and disposal of potentially ADL contaminated soils within the proposed project area.	The County of Monterey shall test the portion of the proposed bicycle/pedestrian pathway between Stations 68+00 and 86+30 for the presence of aerially deposited lead (ADL) in accordance with Caltrans guidelines, and then properly dispose of any contaminated soils.	Project Applicant	Prior to construction	
	IX(a)(1)	**Construction General Permit Requirements.** The County of Monterey (County) shall ensure that the proposed project complies with the requirements of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (Order No. 2009-009-DWQ, as amended by 2010-0014- DWQ and 2012-0006-DWQ); NPDES No. CAS000002 and any subsequent permits as they relate to construction activities. This will include submission of the Permit Registration Documents, including a Notice of Intent, risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and signed certification statement to the State Water	The County of Monterey shall comply with the requirements of the National Pollution Discharge Elimination System (NPDES Construction General Permit, (Order No. 2009-009-DWQ, as amended by 2010-0014-DWG and 2012-0006-DWQ; NPDES No. CAS000002) and any subsequent permits as they relate to construction activities. This will include submission of the Permit Registration Documents, including a Notice of Intent, risk assessment, site map, Storm Water	Project Applicant	Prior to construction	

Permit Cond. Number	*Mitig. Number*	*Conditions of Approval and/or Minimization/Mitigation Measures and Responsible Land Use Department*	*Compliance or Monitoring Actions to be performed. Where applicable, a certified professional is required for action to be accepted.*	*Responsible Party for Compliance*	*Timing*	*Verification of Compliance (name/date)*
		Resources Control Board via the Storm Water Multi-Application and Report Tracking System at least 30 days prior to the start of construction. Construction activities will not commence until a Waste Discharger Identification number is received from the Storm Water Multi-Application and Report Tracking System. The SWPPP will be prepared by a Qualified SWPPP Developer; will meet the requirements of the Construction General Permit; and will identify potential pollutant sources associated with construction activities, including potential pollutants from in-water construction work, such as barge work, identify non-storm water discharges, develop a water quality monitoring and sampling plan, and identify, implement, and maintain Best Management Practices (BMPs), including protection of slough waters from barge activity, to reduce or eliminate pollutants associated with the construction site. BMPs will include, but not be limited to, Good Housekeeping, Erosion Control, and Sediment Control BMPs. The BMPs identified in the SWPPP will be implemented during project construction. The County will comply with the sampling and reporting requirements of the Construction General Permit, as applicable. If required, a Rain Event Action Plan will be prepared and implemented by a Qualified SWPPP Developer within 48 hours prior to a rain event of 50 percent or greater probability of precipitation according to the National Oceanic and Atmospheric Administration. The County or their contractor shall also prepare and submit an Annual Report no later than September 1 of each year using the Storm Water Multi-Application and Report Tracking System. A Notice of Termination shall be submitted to the State Water Resources Control Board within 90 days of completion of construction and stabilization of the site.	Pollution Prevention Plan (SWPPP), annual fee, and signed certification statement to the State Water Resources Control Board via the Storm Water Multi-Application and Report Tracking System. In addition, the SWPPP shall be designed to identify potential pollutant sources associated with construction activities; identify non-storm water discharges; develop a water quality monitoring and sampling plan; and identify, implement, and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants associated with the construction site.			
	IX(a)(2)	**Source Control and Site Design BMPs.** During	The County of Monterey shall include	Project	Prior to	

Permit Cond. Number	*Mitig. Number*	*Conditions of Approval and/or Minimization/Mitigation Measures and Responsible Land Use Department*	*Compliance or Monitoring Actions to be performed. Where applicable, a certified professional is required for action to be accepted.*	*Responsible Party for Compliance*	*Timing*	*Verification of Compliance (name/date)*
		development of plans, specifications, and estimates (PS&E), the County of Monterey shall incorporate source control and site design Best Management Practices (BMPs). The BMPs shall be properly designed and maintained to target pollutants of concern. These Source Control and Site Design BMPs shall include, but not be limited to, the following: • **Site Design and Landscape Planning.** Existing vegetation shall be preserved to the extent possible during proposed project construction. Where vegetation must be disturbed, it shall be reestablished with erosion control seeding. Only plant species that do not require irrigation or maintenance shall be incorporated into the replanting plans.	details about the proposed project-specific source control and site design Best Management Practices (BMPs) to target pollutants of concern during project construction and operation as part of the development plans, specifications, and estimates.	Applicant	construction	
	IX(a)(3)	**Operational BMPs.** The County of Monterey shall incorporate operational Best Management Practices (BMPs). The BMPs shall be properly designed and maintained to target pollutants of concern. These operational BMPs shall include, but not be limited to, the following: • **Pet Waste Control.** Signs notifying the public to pick up and properly dispose of pet waste shall be placed in landscaped areas adjacent to the proposed project. • **Trail Sweeping Program.** A sweeping program shall be implemented to periodically sweep the proposed project in order to minimize the potential for pollutant loads from these areas in storm water and dry weather flows. • **Litter Control Program.** The litter control program shall focus on litter control removal along the proposed project and landscaped areas. • **Drainage Facility Inspection.** On-site drainage facilities shall be inspected and cleaned/maintained as necessary, at a minimum annually, prior to October 1.	The County of Monterey shall implement Best Management Practices (BMPs) during project operation to target pollutants of concern in the proposed project area.	Project Applicant	During operation	

Permit Cond. Number	*Mitig. Number*	*Conditions of Approval and/or Minimization/Mitigation Measures and Responsible Land Use Department*	*Compliance or Monitoring Actions to be performed. Where applicable, a certified professional is required for action to be accepted.*	*Responsible Party for Compliance*	*Timing*	*Verification of Compliance (name/date)*
	IX(c)(4)	**Erosion Control Plan.** The County of Monterey (County) shall ensure that the proposed project complies with the County Municipal Code, Chapter 16.12. During the plans, specifications, and estimates (PS&E) phase, an Erosion Control Plan shall be prepared to indicate the proposed methods for the control of runoff, erosion, and sediment movement.	The County of Monterey shall ensure that the Erosion Control Plan for the proposed project is consistent with the County Municipal Code, Chapter 16.12 and that the proposed methods for erosion control are provided on the plans, specifications, and estimates.	Project Applicant	Prior to construction	
	XII(a)(1)	**Muffling Devices.** During construction, the contractor shall ensure that all construction equipment is fitted with appropriate sound muffling devices, which shall be properly maintained and used at all times such equipment is in operation.	The County of Monterey shall ensure that all construction equipment is fitted with appropriate sound muffling devices, which shall be properly maintained and used at all times.	Project Contractor	During construction	
	XII(a)(2)	**Placement of Stationary Construction Equipment.** During construction, the project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.	The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.	Project Contractor	During construction	
	XII(a)(3)	**Placement of Construction Staging Areas.** During construction, the contractor shall locate on-site equipment staging areas so as to maximize the distance between construction-related noise sources and noise-sensitive receptors nearest the project site during construction activities.	The project contractor shall locate on-site equipment staging areas so as to maximize the distance between construction-related noise sources and noise-sensitive receptors nearest the project site.	Project Contractor	During construction	
	XII(a)(4)	**Construction Hours.** Except as otherwise permitted, construction activities shall be restricted to the hours of 8:00 a.m. to 5:00 p.m. weekdays; noise-producing construction activities shall be prohibited on Saturdays, Sundays, and legal holidays within 500 feet of a noise-sensitive land use.	The project contractor shall ensure that all construction activities are restricted to the hours of 8:00 a.m. to 5:00 p.m.	Project Contractor	During construction	

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IX. Response to Comments

The Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) was made available for public review and comment from December 22, 2014 through February 4, 2015. The Draft IS/MND was then recirculated to correct some errors provided in the Notice of Intent (NOI) and the introductory page of the Draft IS/MND, and was again made available for public review and comment from March 6, 2015 through April 6, 2015.

The list of comments received is shown below in Table 1. A copy of each written comment precedes the corresponding responses.

Table 1: List of Comments Received

Comment Letter	Commenter
Agencies	
Comment 1	Caltrans
Comment 2a	California State Lands Commission
Comment 2b	California State Lands Commission
Comment 3	Monterey Bay Air Pollution Control District
Organizations and Individuals	
Comment 4	Native American Heritage Commission, Katy Sanchez
Comment 5	Ohlone/Costanoan-Esselen Nation, Louise J. Miranda Ramirez, Chairperson
Comment 6	Molly Erickson on behalf of STAMP ERICKSON
Comment 7	Moss Landing Harbor District
Comment 8a	Kathy Jones
Comment 8b	Kathy Jones
Comment 9	Linda McIntyre

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1. COMMENTS FROM THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS)

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Letter 1

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
50 HIGUERA STREET
SAN LUIS OBISPO, CA 93401-5415
PHONE (805) 549-3101
FAX (805) 549-3329
TTY 711
http://www.dot.ca.gov/dist05/

Serious drought
Help save water!

January 13, 2015

MON-001-96.42
SCH# 2014121057

Patricia Lopez
Monterey County Department of Public Works
168 West Alisal Street, 2nd Floor
Salinas, CA 93901

Dear Ms. Lopez:

COMMENTS TO MONTEREY BAY SANCTUARY SCENIC TRAIL-MOSS LANDING

The California Department of Transportation (Caltrans), District 5, has reviewed the above referenced project; we have appreciated working with you up to this point and look forward the continued partnership. We offer the following comments to your Mitigated Negative Declaration.

1. As design features are being considered, Caltrans wishes to stress the importance of including a positive barrier between the trail and vehicles to ensure the safety of bicyclists and pedestrians. **1-1**

2. Any work within the State right-of-way will require an encroachment permit issued from Caltrans. Detailed information such as complete drawings, biological and cultural resource findings, hydraulic calculations, environmental reports, traffic study, etc., may need to be submitted as part of the encroachment permit process. **1-2**

If you have any questions, or need further clarification on items discussed above, please don't hesitate to call me at (805) 542-4751.

Sincerely,

JOHN J. OLEJNIK
Associate Transportation Planner
District 5 Development Review Coordinator
john.olejnik@dot.ca.gov

cc: Reinie Jones (D5 Local Assistance)

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1. RESPONSE TO COMMENTS FROM CALTRANS

Response 1-1: The comment states that it is important to include a positive barrier between the trail and vehicles to ensure the safety of bicyclists and pedestrians.

The County of Monterey (County) concurs with the importance of a positive barrier between the trail and vehicles to ensure safety along the trail. To separate the proposed project from the adjacent southbound State Route 1 (SR-1), a concrete barrier will be constructed from approximately Station 75 to approximately Station 86, with breaks and Caltrans approved endtreatments for accesspoints, such as driveways. Aesthetic treatments and/or color of the concrete barrier require approval by Caltrans in consultation with input from the local community prior to the County's approval of the final project plans. Two public meetings have already been held to solicit the public's input on the aesthetic treatments and colors of the concrete barriers along SR-1, one on March 4, 2015 and the other on April 23, 2015. No changes to the Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) are necessary.

Response 1-2: The comment states that any work within the State right-of-way will require an encroachment permit from Caltrans that is supported by detailed project information.

The County will pursue an encroachment permit and submit supporting technical documents as applicable/necessary for any work that is planned within the Caltrans' right-of-way. The comment has been noted and no changes to the Draft IS/MND are necessary.

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2a. COMMENTS FROM THE STATE OF CALIFORNIA STATE LANDS COMMISSION

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Letter 2a

STATE OF CALIFORNIA — EDMUND G. BROWN JR., *Governor*

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

JENNIFER LUCCHESI, *Executive Officer*
(916) 574-1800 *Fax* (916) 574-1810
California Relay Service TDD Phone 1-800-735-2929
from Voice Phone 1-800-735-2922

Contact Phone: **(916) 574-1890**
Contact FAX: **(916) 574-1885**

Established in 1938

January 8, 2015

File Ref: SCH #2014121057

Patricia A. Lopez
County of Monterey
168 W. Alisal Street, 2nd Floor
Salinas, CA 93901

Subject: Mitigated Negative Declaration (MND) for the Monterey Bay Sanctuary Scenic Trail-Moss Landing Bicycle/Pedestrian Path and Bridge Project, Monterey County

Dear Ms. Lopez:

The California State Lands Commission (CSLC) staff has reviewed the subject MND for the Monterey Bay Sanctuary Scenic Trail-Moss Landing Bicycle/Pedestrian Path Project (Project), which is being prepared by the County of Monterey (County). The County, as a public agency proposing to carry out a project, is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The CSLC is a trustee agency for projects that could directly or indirectly affect sovereign lands and their accompanying Public Trust resources or uses, as described below.

CSLC Jurisdiction and Public Trust Lands

The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6301, 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

2a-1

It appears a portion of the Project will involve lands that have been legislatively granted to Moss Landing Harbor District (District), pursuant to Chapter 1190, Statutes of 1947, as amended by Chapter 131, Statutes of 1967, with minerals reserved to the State. As such, a lease from the CSLC is not required for the Project, as these lands have been granted to the District. The District, as grantee, will have jurisdiction over the Project and should be consulted to determine any necessary requirements or approvals. Please contact Reid Boggiano, Public Land Management Specialist, (see contact information below) for more information regarding the legislative grant. While the CSLC does not have jurisdiction over the Project as a responsible agency, CSLC staff provides the below comments in its capacity as a trustee agency (see State CEQA Guidelines, § 15386, subd. (b)). 2a-1

Project Description

The County proposes to construct the Moss Landing segment of the Monterey Bay Sanctuary Scenic Trail to meet its objective to construct a continuous Class I bicycle and pedestrian pathway along Monterey Bay. From the Project Description, CSLC staff understands that the Project would include the following components:

- Trail Construction. Most segments of the trail would include a 10-foot-wide paved portion with a 2-foot-wide decomposed granite shoulder; some portions would require retaining walls, tree removal, fence replacement, and riprap installation. 2a-2
- Bridge Construction. The trail would require construction of a new 386-foot-long bicycle/pedestrian bridge adjacent to the existing vehicular bridge across Elkhorn Slough. Bridge construction would include driving cast-in-steel-shell concrete piles. One or two barges, each estimated to be 60 feet by 150 feet with a crane/pile driver would be used for pile driving. The length of pile driving activities in Elkhorn Slough is estimated to be no more than one week.

Environmental Review

CSLC staff requests that the County consider the following comments on the Project's MND.

Biological Resources

1. Invasive Species: Although the MND considers impacts of pile driving on marine species, the MND does not consider the Project's potential to introduce or spread aquatic invasive species in the area. The use of barges and in-water construction equipment in Elkhorn Slough could facilitate the spread or introduction of aquatic invasive species. The MND should consider a range of options to slow the introduction of invasive species into sensitive habitats, including hiring construction vessels from nearby, or requiring hull cleaning from contractors prior to Project construction. Please update the Barge Plan, Mitigation Measure (MM) IV(b)(5), to include invasive species prevention measures for barge operators. Please consider current and proposed aquatic invasive species prevention programs in the area as models for invasive species prevention during the Project. 2a-3

Hydrology and Water Quality

2. Spill Prevention: Although the MND analyzes the impacts of accidental spills, and mitigates this impact using MM IX(a)(1) (see p. 93), the mitigation measure as currently written does not explicitly cover accidental spills from in-water construction equipment. Please include specific best management practices on preventing and containing spills from in-water construction equipment, including pile drivers, in MM IX(a)(1). **2a-4**

Recreation

3. Water-Based Recreation: Construction of the bicycle/pedestrian trail bridge over Elkhorn Slough may temporarily impact recreational users of the slough, particularly recreational boaters. Kayak shops that rent to recreational users are located in Moss Landing Harbor and recreational boaters launching from the harbor would have to pass through the bridge construction area to access Elkhorn Slough. Please include an analysis of whether construction of the bridge would temporarily impact recreational boaters' ability to access Elkhorn Slough. If impacts are found to be significant, provide mitigation measures to reduce impacts to recreational users of the area. Mitigation measures could include providing information on alternate launch locations in Elkhorn Slough or signage directing recreational boaters around active construction areas. **2a-5**

Other Comments

4. Mitigation Monitoring Program: Please include a Mitigation Monitoring Program (MMP) table of final MMs in the final MND. Providing a MMP table allows responsible agencies to easily review the MMs required for the Project and adopt the MMs appropriate to their authorization. **2a-6**

Thank you for the opportunity to comment on the MND for the Project. As a trustee agency, we request that you consider our comments prior to adoption of the MND.

Please refer questions concerning environmental review to Holly Wyer, Environmental Scientist, at (916) 574-2399 or via e-mail at Holly.Wyer@slc.ca.gov. For questions concerning granted lands, please contact Reid Boggiano, Public Land Management Specialist, at (916) 574-0450, or via email at Reid.Boggiano@slc.ca.gov.

Sincerely,

Cy R. Oggins, Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
H. Wyer, CSLC
R. Boggiano, CSLC

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2a. RESPONSE TO COMMENTS FROM THE STATE OF CALIFORNIA STATE LANDS COMMISSION

Response 2a-1: The comment states that although the State of California (State) has sovereign ownership of many of the State's tidelands and submerged lands and beds of navigable lakes and waterways, it appears that a portion of the Project will involve lands that have been legislatively granted to Moss Landing Harbor District (MLHD), pursuant to Chapter 1190, Statutes of 1947, as amended by Chapter 131, Statutes of 1967, with minerals reserved to the State. As such, a lease from California State Lands Commission (CSLC) is not required for the Project, as these lands have been granted to the MLHD. The MLHD, as grantee, will have jurisdiction over the Project and should be consulted to determine any necessary requirements or approvals.

It is noted that a lease from CSLC is not required for the proposed project. However, as is stated in the comment, the proposed project does involve lands that are under the jurisdiction of the MLHD. As part of the project's design process, the MLHD was consulted, specifically regarding the number of piles and the height of the bridge over Elkhorn Slough. Further, the MLHD was consulted regarding approval/permitting requirements; the requirement that the County of Monterey (County) secure a MLHD construction permit is included in Section II.C, Other Public Agencies Whose Approval is Required, of the Initial Study/Mitigated Negative Declaration (IS/MND). No changes to the Draft IS/MND are necessary.

Response 2a-2: The comment states that it is CSLC's understanding that the County is proposing to construct the Moss Landing segment of the Monterey Bay Sanctuary Scenic Trail to meet its objective to construct a continuous Class I bicycle and pedestrian pathway along Monterey Bay, which includes a 10-foot wide paved trail with a 2-foot wide decomposed granite shoulder and a new 386-foot-long bicycle/pedestrian bridge adjacent to the existing vehicular bridge across Elkhorn Slough. Bridge construction would include driving cast-in-steel-shell concrete piles. The length of the pile driving activities in Elkhorn Slough is estimated to be no more than one week.

The CSLC's comment is correct with the exception of the estimated length of time for pile driving activities. In order to reduce the effects of noise on the marine environment from pile driving, the number of piles being driven per day was reduced from six piles to one pile per day, which has extended the length of time for pile driving from one week to one month. No additional or new environmental impacts will occur as a result of this change in the construction schedule. This change has been noted in the IS/MND.

Response 2a-3:The comment states that use of barges and in-water construction equipment in Elkhorn Slough could facilitate the spread or introduction of aquatic invasive species and that

Mitigation Measure IV(b)(5) should be revised to include invasive species prevention measures for barge operators as part of the Final IS/MND.

The Natural Environment Study (NES) did consider the potential for aquatic invasive species to be introduced through the use of barges during in-water construction. Please refer to the Final NES, which is an attached to the Draft IS/MND, Section 2.1.9, page 16, Section 2.4, page 28, and Section 5.5, page 109 through 112 for a discussion regarding invasive species relative to the use of barges during construction. Mitigation Measure IV(b)(5) has been revised as follows (additions are underlined):

Mitigation Measure IV(b)(5): Barge Plan. Prior to initiation of construction activities, the County of Monterey shall review and approve a barge plan, which shall be prepared by the contractor, that provides: (a) detailed procedures to be taken to avoid disturbing the harbor bottom during construction activities and procedures to be followed if the barge bottoms out; and (b) detailed methods and procedures to prevent invasive species from entering Elkhorn Slough during the use of barges. The specific methods and procedures to prevent movement of invasive aquatic species shall follow regulations current at the time of project construction and the measures shall be approved by the appropriate agencies prior to the temporary transport of the barges into Elkhorn Slough. At a minimum, the barge plan shall include the following measures if barges are being transported from areas with invasive aquatic species (i.e., San Francisco Bay):

- *Emptying of ballast tanks outside the boundaries of the National Marine Sanctuary and prior to entrance into Monterey Bay;*
- *Flush ballast tanks with freshwater, which shall be held in the tanks for at least two days and maintained in the ballast during the length of the project, if possible;*
- *Flush raw water cooling systems and clean sea strainers appropriately prior to moving the barges into Elkhorn Slough;*
- *Prior to departure from San Francisco Bay, the hull shall be inspected for non-native invasive species above and below water-line by divers. If a species is found that closely resembles one of the least wanted invaders, an expert shall be consulted to determine correct identification. If determined to be an invasive non-native species, a report shall be filed with the Elkhorn Slough Natural Estuarine Research Reserve (ESNERR) at (831) 728-2822. Should the expert be unavailable, the material shall be removed by hand and disposed of properly in garbage receptacles on land. The barges shall be transported to Elkhorn Slough within 3 days of completing removal of invasives in order to*

prevent inoculation. Upon arrival to and prior to entering the Elkhorn Slough, the hull shall be inspected again.

This barge plan shall be specified on the project construction plans or special provisions and the terms of the plan shall be monitored by the project biological monitor.

Response 2a-4: The comment states that Mitigation Measure IX(a)(1) should be revised to explicitly cover accidental spills from in-water construction equipment. Mitigation Measure IX(a)(1) has been revised as follows (additions are underlined):

Mitigation Measure IX(a)(1): Construction General Permit Requirements. The County of Monterey (County) shall ensure that the proposed project complies with the requirements of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (Order No. 2009-009-DWQ, as amended by 2010-0014- DWQ and 2012-0006-DWQ); NPDES No. CAS000002 and any subsequent permits as they relate to construction activities. This will include submission of the Permit Registration Documents, including a Notice of Intent, risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and signed certification statement to the State Water Resources Control Board via the Storm Water Multi-Application and Report Tracking System at least 30 days prior to the start of construction. Construction activities will not commence until a Waste Discharger Identification number is received from the Storm Water Multi-Application and Report Tracking System. The SWPPP will be prepared by a Qualified SWPPP Developer; will meet the requirements of the Construction General Permit; and will identify potential pollutant sources associated with construction activities, including potential pollutants from in-water construction work, such as barge work, identify non-storm water discharges, develop a water quality monitoring and sampling plan, and identify, implement, and maintain Best Management Practices (BMPs), including protection of slough waters from barge activity, to reduce or eliminate pollutants associated with the construction site. BMPs will include, but not be limited to, Good Housekeeping, Erosion Control, and Sediment Control BMPs. The BMPs identified in the SWPPP will be implemented during project construction. The County will comply with the sampling and reporting requirements of the Construction General Permit, as applicable. If required, a Rain Event Action Plan will be prepared and implemented by a Qualified SWPPP Developer within 48 hours prior to a rain event of 50 percent or greater probability of precipitation according to the National Oceanic and Atmospheric Administration. The County or their contractor shall also prepare and submit an Annual Report no later than September 1 of each year using the Storm Water Multi-Application and Report Tracking System. A Notice of Termination shall be submitted to the State Water

Resources Control Board within 90 days of completion of construction and stabilization of the site.

Response 2a-5: The comment questions whether construction of the bicycle/pedestrian trail bridge over Elkhorn Slough may temporarily impact recreational users of the slough, particularly recreational boaters' ability to access Elkhorn Slough.

Elkhorn Slough will remain navigable throughout the duration of project construction. The construction of the bicycle and pedestrian bridge is staged (one pier or one span will be constructed at a time), which will allow boaters and recreational users to pass by the construction site. Safety measures such as buoys and directional signage will be required to direct boaters to the appropriate area to safely pass the construction activities. This information has been added to the section of the construction information provided as part of the Project Description.

Response 2a-6: The comment requests that a Mitigation Monitoring Program (MMP) table of final Mitigation Measures be included as part of final Mitigated Negative Declaration (MND) document.

A Mitigation Monitoring and Reporting Program (MMRP) is being provided as part of the Final IS/MND. No changes to the Draft IS/MND are necessary.

2b. COMMENTS FROM THE STATE OF CALIFORNIA STATE LANDS COMMISSION

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Letter 2b

STATE OF CALIFORNIA — EDMUND G. BROWN JR., *Governor*

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

JENNIFER LUCCHESI, *Executive Officer*
(916) 574-1800 *Fax* **(916) 574-1810**
California Relay Service TDD Phone **1-800-735-2929**
from Voice Phone **1-800-735-2922**

Contact Phone: **(916) 574-1890**
Contact FAX: **(916) 574-1885**

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ADMINISTRATION

Established in 1938

March 25, 2015

File Ref: SCH #2014121057

Patricia A. Lopez
County of Monterey
168 W. Alisal Street, 2nd Floor
Salinas, CA 93901

Subject: Recirculated Mitigated Negative Declaration (MND) for the Monterey Bay Sanctuary Scenic Trail – Moss Landing Bicycle/Pedestrian Path and Bridge Project, Monterey County

Dear Ms. Lopez:

The California State Lands Commission (CSLC) staff has reviewed the subject recirculated MND for the Monterey Bay Sanctuary Scenic Trail – Moss Landing Bicycle/Pedestrian Path and Bridge Project (Project), which is being prepared by the County of Monterey (County). Although the recirculated MND includes new analysis and information on cultural resources and local policies, the recirculated MND did not include any revisions in response to CSLC staff's comment letter from January 8, 2015. Please consider our comments made in the January 8, 2015 letter, and revise or clarify the recirculated MND, as appropriate. A copy of CSLC staff's comment letter is enclosed for your reference.

Thank you for the opportunity to comment on the recirculated MND for the Project. As a trustee agency, we request that you consider our comments prior to adoption of the MND. Please refer questions concerning environmental review to Holly Wyer, Environmental Scientist, at (916) 574-2399 or via e-mail at Holly.Wyer@slc.ca.gov. For questions concerning granted lands, please contact Reid Boggiano, Public Land Management Specialist, at (916) 574-0450, or via email at Reid.Boggiano@slc.ca.gov.

Sincerely,

Cy R. Oggins, Chief
Division of Environmental Planning
and Management

Enclosure

cc: Office of Planning and Research
H. Wyer, CSLC
R. Boggiano, CSLC
J. Rader, CSLC

Letter 2b

STATE OF CALIFORNIA — EDMUND G. BROWN JR., *Governor*

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

JENNIFER LUCCHESI, *Executive Officer*
(916) 574-1800 *Fax* (916) 574-1810
California Relay Service TDD Phone 1-800-735-2929
from Voice Phone 1-800-735-2922

Contact Phone: **(916) 574-1890**
Contact FAX: **(916) 574-1885**

Established in 1938

January 8, 2015

File Ref: SCH #2014121057

Patricia A. Lopez
County of Monterey
168 W. Alisal Street, 2nd Floor
Salinas, CA 93901

Subject: Mitigated Negative Declaration (MND) for the Monterey Bay Sanctuary Scenic Trail-Moss Landing Bicycle/Pedestrian Path and Bridge Project, Monterey County

Dear Ms. Lopez:

The California State Lands Commission (CSLC) staff has reviewed the subject MND for the Monterey Bay Sanctuary Scenic Trail-Moss Landing Bicycle/Pedestrian Path Project (Project), which is being prepared by the County of Monterey (County). The County, as a public agency proposing to carry out a project, is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The CSLC is a trustee agency for projects that could directly or indirectly affect sovereign lands and their accompanying Public Trust resources or uses, as described below.

CSLC Jurisdiction and Public Trust Lands

The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6301, 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

2b-1

It appears a portion of the Project will involve lands that have been legislatively granted to Moss Landing Harbor District (District), pursuant to Chapter 1190, Statutes of 1947, as amended by Chapter 131, Statutes of 1967, with minerals reserved to the State. As such, a lease from the CSLC is not required for the Project, as these lands have been granted to the District. The District, as grantee, will have jurisdiction over the Project and should be consulted to determine any necessary requirements or approvals. Please contact Reid Boggiano, Public Land Management Specialist, (see contact information below) for more information regarding the legislative grant. While the CSLC does not have jurisdiction over the Project as a responsible agency, CSLC staff provides the below comments in its capacity as a trustee agency (see State CEQA Guidelines, § 15386, subd. (b)). **2b-1**

Project Description

The County proposes to construct the Moss Landing segment of the Monterey Bay Sanctuary Scenic Trail to meet its objective to construct a continuous Class I bicycle and pedestrian pathway along Monterey Bay. From the Project Description, CSLC staff understands that the Project would include the following components:

- Trail Construction. Most segments of the trail would include a 10-foot-wide paved portion with a 2-foot-wide decomposed granite shoulder; some portions would require retaining walls, tree removal, fence replacement, and riprap installation. **2b-2**
- Bridge Construction. The trail would require construction of a new 386-foot-long bicycle/pedestrian bridge adjacent to the existing vehicular bridge across Elkhorn Slough. Bridge construction would include driving cast-in-steel-shell concrete piles. One or two barges, each estimated to be 60 feet by 150 feet with a crane/pile driver would be used for pile driving. The length of pile driving activities in Elkhorn Slough is estimated to be no more than one week.

Environmental Review

CSLC staff requests that the County consider the following comments on the Project's MND.

Biological Resources

1. Invasive Species: Although the MND considers impacts of pile driving on marine species, the MND does not consider the Project's potential to introduce or spread aquatic invasive species in the area. The use of barges and in-water construction equipment in Elkhorn Slough could facilitate the spread or introduction of aquatic invasive species. The MND should consider a range of options to slow the introduction of invasive species into sensitive habitats, including hiring construction vessels from nearby, or requiring hull cleaning from contractors prior to Project construction. Please update the Barge Plan, Mitigation Measure (MM) IV(b)(5), to include invasive species prevention measures for barge operators. Please consider current and proposed aquatic invasive species prevention programs in the area as models for invasive species prevention during the Project. **2b-3**

Hydrology and Water Quality

2. Spill Prevention: Although the MND analyzes the impacts of accidental spills, and mitigates this impact using MM IX(a)(1) (see p. 93), the mitigation measure as currently written does not explicitly cover accidental spills from in-water construction equipment. Please include specific best management practices on preventing and containing spills from in-water construction equipment, including pile drivers, in MM IX(a)(1). **2b-4**

Recreation

3. Water-Based Recreation: Construction of the bicycle/pedestrian trail bridge over Elkhorn Slough may temporarily impact recreational users of the slough, particularly recreational boaters. Kayak shops that rent to recreational users are located in Moss Landing Harbor and recreational boaters launching from the harbor would have to pass through the bridge construction area to access Elkhorn Slough. Please include an analysis of whether construction of the bridge would temporarily impact recreational boaters' ability to access Elkhorn Slough. If impacts are found to be significant, provide mitigation measures to reduce impacts to recreational users of the area. Mitigation measures could include providing information on alternate launch locations in Elkhorn Slough or signage directing recreational boaters around active construction areas. **2b-5**

Other Comments

4. Mitigation Monitoring Program: Please include a Mitigation Monitoring Program (MMP) table of final MMs in the final MND. Providing a MMP table allows responsible agencies to easily review the MMs required for the Project and adopt the MMs appropriate to their authorization. **2b-6**

Thank you for the opportunity to comment on the MND for the Project. As a trustee agency, we request that you consider our comments prior to adoption of the MND.

Please refer questions concerning environmental review to Holly Wyer, Environmental Scientist, at (916) 574-2399 or via e-mail at Holly.Wyer@slc.ca.gov. For questions concerning granted lands, please contact Reid Boggiano, Public Land Management Specialist, at (916) 574-0450, or via email at Reid.Boggiano@slc.ca.gov.

Sincerely,

Cy R. Oggins, Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
H. Wyer, CSLC
R. Boggiano, CSLC

2b. RESPONSE TO COMMENTS FROM THE STATE OF CALIFORNIA STATE LANDS COMMISSION

Response 2b-1: Please see response to comment 2a-1

Response 2b-2: Please see response to comment 2a-2

Response 2b-3: Please see response to comment 2a-3

Response 2b-4: Please see response to comment 2a-4

Response 2b-5: Please see response to comment 2a-5

Response 2b-6: Please see response to comment 2a-6

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3. COMMENTS FROM THE MONTEREY BAY UNIFIED AIR POLLUTION CONTROL DISTRICT (MPUAPCD)

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Letter 3

MBUAPCD
Monterey Bay Unified Air Pollution Control District
Serving Monterey, San Benito, and Santa Cruz Counties

24580 Silver Cloud Court
Monterey, CA 93940
PHONE: (831) 647-9411 • FAX: (831) 647-8501

February 3, 2015

County of Monterey
Resource Management Agency – Public Works
Attn: Patricia A. Lopez, Project Manager
168 West Alisal St., 2nd Floor
Salinas, CA 93901

Re: Comments on IS/MND for Monterey Bay Sanctuary Scenic Trail – Moss Landing Segment Bicycle/Pedestrian Path and Bridge Project (PLN13066)

Dear Ms. Lopez:

Thank you for providing the Monterey Bay Unified Air Pollution Control District (Air District) with the opportunity to comment on the above-referenced document. The Air District has reviewed the document and has the following comments:

1. II. Description of Project and Environmental Setting, Pg. 3 – The Air District commends the County of Monterey for their commitment to move forward with this project. Although the emission benefits of this particular segment will likely be nominal, this represents an important step in creating the overall Monterey Bay Sanctuary Scenic Trail which will eventually allow an alternative mode of non-vehicular transportation across the entire Bay. **3-1**

2. Air Quality Section III(a), Pg. 34- Please note that the most recent MBUAPCD plan for attaining the California AAQS for ozone is the 2012 Triennial Plan Revision which is available at the District's web site. **3-2**

3. Air Quality, Section III (b), Short-Term Construction Emissions, Pg. 37 – Although PM10 emissions associated with the minor amount of soil being disturbed by the construction will likely be well within the District's 82 lb/day PM10 threshold, no specific dust control measures are described to minimize offsite nuisance. District Rule 402 Nuisances applies to the grading activities. In order to minimize offsite drift of fugitive dust and maintain compliance with Rule 402, the District suggests that the following Best Management Practices for limiting construction dust be applied where appropriate: **3-3**

   Prohibit all grading activities during periods of high wind (over 15 mph)
   Water all active construction areas at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.
   Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days)
   Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations, and hydro-seed area.
   Haul trucks shall maintain at least 2'0" of freeboard.
   Cover all trucks hauling dirt, sand, or loose materials.
   Plant vegetative ground cover in disturbed areas as soon as possible.
   Cover inactive storage piles.

Install wheel washers at the entrance to construction sites for all exiting trucks.
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 Monterey Bay Unified Air Pollution Control District shall be visible to ensure compliance with Rule 402 (Nuisance).

3-3

4. Air Quality Section III (d), Less than Significant Impact, Sensitive Receptors, Pg. 38 – This section states that the nearest sensitive receptor would be among the residences that are at least 500 feet from the closest point of the construction project. However, Figure 2 on page 7 shows boat docks closer than 500 feet from some of the project segments. The Moss Landing Harbor District Ordinance Code does allow for persons to live aboard the vessels. Please review this statement to consider the closer distance and revisit the conclusion to make sure the closer distance does not affect the finding.

3-4

Please let me know if you have any questions. I can be reached at (831) 647-9418 ext. 227.

Best regards,

Amy Clymo
Supervising Air Quality Planner

cc: Bob Nunes/MBUAPCD Planning

3. RESEPONSE TO COMMENTS FROM THE MPUAPCD

Response 3-1: The comment commends the County of Monterey (County) for its commitment to move forward with the proposed project. The MBUAPCD states that although the emission benefits of this particular segment will likely be nominal, the project represents an important step in creating the overall Monterey Bay Sanctuary Scenic Trail, which will eventually allow an alternative mode of non-vehicular transportation across the entire Bay.

The comment has been noted. No changes to the Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) are necessary.

Response 3-2: The comment states that the most recent MBUAPCD plan for attaining the California Ambient Air Quality Standards (AAQS) for ozone is the 2012 Triennial Plan Revision which is available at the MBUAPCD website.

The first paragraph under threshold III(a) which pertains to air quality management plans has been revised to include the information about the 2012 Triennial Plan Revision. The first paragraph under threshold III(a) now reads as follows (additions are underlined):

The main purpose of an air quality plan is to bring an area into compliance with the requirements of federal and State air quality standards. Such plans describe air pollution control strategies to be implemented by a city, county, or region. The most recent MBUAPCD plan for attaining California AAQS is the 2008 Air Quality Management Plan (AQMP). On April 17, 2013 the MBUAPCD Board of Directors adopted the 2012 Triennial Plan Revision. The 2012 Triennial Plan documents the MBUAPCD's progress toward attaining the state ozone standard and is the District's review and update to the 2008 AQMP. The AQMP is based on projections from local General Plans; projects that are consistent with the local General Plans are considered consistent with the AQMP. For a project in the NCCAB to be consistent with the AQMP, the pollutants emitted from the project must not exceed the MBUAPCD significance thresholds or cause a significant impact to air quality.

Response 3-3: The comment states that although PM10 emissions associated with the minor amount of soil being disturbed by the construction will likely be well within the District's 82 lb/day PM10 threshold, it suggests including a list of Best Management Practices (BMPs) for limiting construction dust consistent with the requirements of Rule 402.

The following list of BMPs for limiting construction dust in compliance with Rule 402 have been added to Section III(b) Short-Term (Construction) Emissions:

- Prohibit all grading activities during periods of high wind (over 15 mph)

- Water all active construction areas at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days)
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations, and hydro-seed area.
- Haul trucks shall maintain at least 2'0" of freeboard.
- Cover all trucks hauling dirt, sand, or loose materials.
- Plant vegetative ground cover in disturbed areas as soon as possible.
- Cover inactive storage piles.
- Install wheel washers at the entrance to construction sites for all exiting trucks.
- 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 Monterey Bay Unified Air Pollution Control District shall be visible to ensure compliance with Rule 402 (Nuisance).

Response 3-4: This comment states that the Moss Landing Harbor District (MLHD) Ordinance Code does allow for persons to live aboard the vessels and to assess whether these sensitive receptors could be impacted during construction activities.

The discussion under Threshold III(d) in the section on Air Quality has been revised to address the fact that the nearest sensitive receptors to the proposed project site would be boat uses in the Harbor. The discussion under Threshold III(d) has been revised as follows (additions are underlined):

III(d). Less Than Significant Impact. Construction of the proposed project may expose the surrounding sensitive receptors to airborne particulates and fugitive dust as well as a small quantity of construction equipment pollutants (i.e., diesel-fueled vehicles and equipment). The nearest sensitive receptor would be the boat uses located approximately 100 feet from the closest point of the proposed project site. However, as the emissions of construction pollutants would be temporary and of short duration and as described in III(b), impacts to the sensitive receptors would be less than significant. No mitigation is required.

4. COMMENTS FROM KATY SANCHEZ

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Letter 4

From: Sanchez, Katy@NAHC
Sent: Thursday, February 05, 2015 7:53 AM
To: lopez@co.monterey.ca.us
Cc: ramirez.louise@yahoo.com
Subject: Project No. 8668 Monterey Bay Sanctuary Scenic Trail-Moss Landing

Hello Ms. Lopez,

This project was brought to my attention by a member of the Ohlone/Costanoan-Esselen Nation (OCEN) and this being the last day to comment, I wanted to make sure that you are aware of important facts. **4-1**

1. Native American remains have been found on this project, in Moss Landing, in January 2001 and again in June 2003. The Most Likely Descendant for both of these finds, were the OCEN tribal group.
2. The remains that were discovered in June 2003 are still in the possession of the OCEN group as they were not informed as to the finalization of the project in which to perform the reburial of the remains. **4-2**
3. It appears that the EIR was finalized on November 7, 2013, without consultation with the appropriate Native American tribes. **4-3**
4. The Mitigation Monitoring and Reporting Program does not make any mention of the prior Native American remains or consultation and goes strictly to covering with sterile soil, without an appropriate treatment plan discussed. **4-4**
5. This is also a known archaeological site, CA-MNT-229, in which it's boundaries have not been investigated, and may still contain Native American remains in the soil, which is not respectful to the ancestors. **4-5**

I would appear to me that we need further discussion on this project and definitely have to include consultation, especially with OCEN as they still retain ancestors that should be reburied in a place of no further disturbance.
Please call me at the number listed below. Thank you for your consideration.

Katy Sanchez
Native American Heritage Commission
(916) 373-3712

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4. RESPONSE TO COMMENTS FROM KATY SANCHEZ

Response 4-1: The comment wants to be sure it is known that Native American remains have been found at the proposed project site, in January 2001 and again in June 2003. The Most Likely Descendant (MLD) for both of these finds were the Ohlone/Costanoan-Esselen Nation (OCEN) tribal group.

LSA's initial excavations occurred on July 6-9 and July 12-13, 2010. LSA recovered a small amount of human remains from two different auger units during these excavations. LSA returned the human remains to the MLD's husband, Ernest Ramirez, on February 6, 2012. On the same day, LSA conducted further excavations along a new alignment that was proposed to avoid the site. No human remains were recovered from those excavations. The remains to which Ms. Sanchez is referring did not come from LSA's excavations. LSA did not begin excavations until July 2010.

This information is documented in the Historic Property Survey Report (HPSR), which is one of the technical documents used to support the conclusions provided in the environmental documentation for the project. The HPSR was not circulated as an attachment to the environmental document circulated to the public as part of the public review process because of the confidential nature of some of the information provided within it. The comment has been noted. No changes to the Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) are necessary.

Response 4-2: The comment states that remains were discovered in 2003 and are still in the possession of the OCEN group as they were not informed as to the finalization of the project in order to perform the reburial of the remains.

Remains recovered in 2003 are not the result of LSA's excavations. LSA did not begin excavations until July 2010. The project is in the review phase and has not been finalized. LSA is presently in contact with the MLD, Louise Miranda Ramirez, regarding the time and place for the reburial of the human remains.

Response 4-3: The comment states that it appears as if an Environmental Impact Report (EIR) was finalized on November 7, 2013, without consultation with the appropriate Native American tribes.

It is not clear where the information for this comment originated. An EIR was not prepared for the project. The project is being reviewed under an IS/MND. An IS/MND was prepared for the proposed project and was released in December 2014 for a 45-day public review period, and then again in March 2015 for a 30-day public review period. The County of Monterey (County) is reviewing and considering all comments submitted during the two public review periods before finalizing the environmental document. Appropriate Native American members and the MLD were

first consulted on November 5, 2008 and have been consulted by telephone, mail and email throughout the environmental analysis and documentation process.

Response 4-4: The comment states that the Mitigation Monitoring and Reporting Program (MMRP) does not make any mention of the prior Native American remains or consultation and goes strictly to covering with sterile soil, without an appropriate treatment plan discussed.

The MMRP prepared for the proposed project has not been released to the public yet. The MMRP will be released as part of the Final IS/MND.

Response 4-5: The comment states that the area where human remains were found during field investigations associated with the proposed project is also a known archaeological site, CA-MNT-229, the boundaries of which have not been investigated, and may still contain Native American remains in the soil, which is not respectful to the ancestors.

Information from subsurface investigations at CA-MNT-229 between the mid-1980s and 2002 was used to establish the currently understood boundaries of CA-MNT-229. The site consists of three loci: (1) the eastern locus on the east side of State Route1 (SR-1), north of Vierra Road to Elkhorn Slough, outside the current Area of Potential Effects (APE); (2) the northern locus is the knoll on the west side of SR-1 across the highway from Vierra Road – with sub-locus A (northern portion of the locus) and sub-locus B (southern portion of locus), within the current APE; and (3) the southern locus approximately 165 feet south of the southern extent of the northern locus on the west side of SR-1, also within the current APE.

As part of the proposed project, LSA conducted multiple rounds of subsurface investigation within the area that would be impacted by the proposed project in the APE. The purpose of the subsurface investigations was to identify potentially intact archaeological deposits and/or human remains (in any condition). Human remains recovered during LSA's excavations in July 2010 from two different auger units consisted of one thoracic vertebra and several small cranial fragments totaling 12 grams. In an effort to address Native American concerns and to avoid disturbing the area where human remains were identified, the trail alignment was shifted west to an area along the shore that had already been disturbed by the construction of a railroad bed and the installation of a 36-inch pipeline. This alignment revision minimizes the likelihood of encountering human remains during construction.

5. COMMENTS FROM THE OHLONE/COSTANOAN-ESSELEN NATION (OCEN)

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Letter 5

Ohlone/Costanoan-Esselen Nation

Previously acknowledged as
The San Carlos Band of
Mission Indians
The Monterey Band
And also known as
O.C.E.N. or Esselen Nation
P.O. Box 1301
Monterey, CA 93942

www.ohlonecostanoanesselennation.org.

February 3, 2015

Cynthia Gomez
Executive Secretary
Native American Heritage Commission
1550 Harbor Blvd., Room 100
West Sacramento, CA 95691

Katy Sanchez
Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691

Patricia A. Lopez
Project Manager, Monterey County
Resource Management Agency
168 West Alisal, 2nd Floor
Salinas, CA 93901

Re: Monterey Bay Sanctuary Scenic Trail - Moss Landing Segment Bicycle-Pedestrian Path and Bridge Project - CA-MNT-229

Saleki Atsa,

Ohlone/Costanoan-Esselen Nation (OCEN) is the legal tribal government representative for over 600 enrolled BIA documented members of Esselen, Carmeleno, Monterey Band, Rumsen, Chalon, Soledad Mission, San Carlos Mission and/or Costanoan Carmel/Soledad Mission Indian descent. Though other individuals may have claimed that their ancestors may have lived in the area the greater Monterey Bay region is the indigenous and historic homeland of our people. Included with this letter please find a territorial map that is derived by the following scholars that includes: Taylor 1856; Levy 1973; and Milliken 1990 that supports the clear identification of our historic Tribal villages, districts, and areas. **5-1**

The proposed Monterey Bay Sanctuary Scenic Trail project is not new to our tribal leadership, LSA began meeting with OCEN on August 5, 2009. As a result, OCEN has provided qualified and trained OCEN monitors for numerous testing on our ancestral heritage sites. Relative to the Monterey Bay Sanctuary Scenic Trail project, on July 28, 2010, I was assigned as the Most Likely Descendant by the Native American Heritage Commission. At that time our recommendations were as follows: (copy attached - July 29, 2010 revised).

1. It is my recommendation that the remains of our Ancestor be reburied by OCEN where they were discovered and there be no further disturbance, and /if:

2. Additional construction is planned on the site of this cemetery, my recommendation is; that a complete site assessment by LSA be completed with OCEN to reunite the disturbed remains of our Ancestor with those undisturbed and all remains be relocated to a site where they will be protected and undisturbed.

3. It is also my recommendation that a Native American Monitor, approved by the OCEN Tribal Council be hired and paid by LSA for the complete site assessment. **5-2**

Furthermore, I requested to be provided with documentation of: 1) surveys, 2) subsurface testing, 3) presence/absence testing, 4) mitigation and recovery programs, 5) reburial of any of our ancestral remains, and 6) placement of all cultural items.

On August 10, 2010 I wrote to Karin Goetter, Archaeologist for LSA, about our meeting on August 23, 2010 to review the area where OCEN's Ancestral remains were found during site testing for the Monterey Bay Sanctuary Scenic Trail.

I was advised at that time that additional disturbance would continue to the burial site. Those plans included a wall approximately 25-30 feet long and 3-4 feet deep and several large, deep support columns. We agreed that all soil excavated be monitored and screened. We also agreed that soil loosened by these disturbances be screened for fragments of human remains before additional soil be brought into the site due to movement because of this sandy soil. (Copy of letter attached - August 30, 2010)

5-2

Please note that **none** of the above requests were honored as the project was listed on hold. On August 31, 2010, I received an email from Karin (Goetter) Beck thanking me for the letter and stating that, "At the moment, we do not have a start date for construction. We will be in touch with plenty of time to plan for monitors, etc." As the assigned MLD, I was to be notified when the project would continue so that our Ancestral remains could be united with those left in the ground because of this disturbance. The remains of our Ancestor were disturbed from auguring, which means that the bone fragments were dislodged from our Ancestor. When I visited the site after the remains were found with the archaeologist and other officials present, I stated that we wanted all remains to be joined for reburial and we would not allow a support column to be placed on top of our Ancestor's grave. It was then we agreed to move our Ancestor to an upper section within the trees of the project area that had previously been used to rebury our remains. Please also take note that it is both unprofessional and unethical that LSA did not contact OCEN to rebury our Ancestor's remains together.

5-3

5-4

Currently I am in possession of our Ancestral remains along with two (2) boxes of artifacts recovered on **July 6-9**, **July 12-13, 2010** and **March 8, 2012**, delivered on to me **July 8, 2012** by John Kelly of LSA Associates. I also requested a catalog of all cultural items and received that catalog on **July 30, 2013**. Contact continued and each time I asked John Kelly about any progress on the project, I was never informed that the project was being reviewed or was ever asked about the reburial of our Ancestor.

5-5

More recently I received a package dated December 20, 2014, addressed as:

"Notice of Intent To Adopt A Mitigated Negative Declaration, Monterey County." *Page 67 reads, A portion of one prehistoric archaeological Site (**CA-MNT-229**) was identified within the proposed project area through background research; the field survey confirmed the findings of the background research. This prehistoric archaeological site has already been determined eligible for inclusion in the National Register of Historic Places (National Register). An Archaeological Evaluation Report was prepared for the proposed project to determine if the portion of this site within the project's Area of Direct Impact (ADI) contributes to the site's eligibility in the National Register. LSA conducted excavations on July 6-9, 2010 July 12-13, 2010 and February 10, 2012. Based on the site deposit's constituents and state preservation LSA concluded that this portion of the site is not eligible for inclusion in the National Register. The conclusion was supported by (1) the minor amount of prehistoric material identified; (2) the redundancy of information yielded by deposit's constituents; and (3) previous ground disturbance within the ADI. Therefore, the portion of the prehistoric archaeological site within the ADI does not qualify as a historical or unique archaeological resource as defined by the California Public Resources Code §21083.2(g) and §21084.1, respectively. No other cultural resources were identified within or adjacent to the APE. Therefore the proposed project would not result in significant impacts to historical resources, and no mitigation is required.*

5-6

CA-MNT-229 was nominated for inclusion in the National Register of Historic Places due to the unique significance of the site scientifically. However, none of that significance was shared with members of our tribe. The NAHC MLD then was Mr. Patrick Orozco who is not Esselen or Costanoan or Ohlone but is now claiming his ancestry from southern California from Mission San Juan Capistrano in Orange County.

Although denied any information or copies of the report from CA-MNT-229 is **SIGNICANT TO OCEN** as one of our ancestral cemetery and village sites. LSA fails to make any such connection because they function within a good-old-boy colonial framework that seeks to continue to disenfranchise documented tribal communities from their ancestral heritage sites. Therefore OCEN's leadership questions and opposes the "***Notice of Intent To Adopt A Mitigated Negative Declaration, Monterey County.***"

As clearly expressed in the past, Ohlone/Costanoan-Esselen Nation **objects** to all excavation in known cultural lands, even when they are described as previously disturbed, and of **no significant archaeological value**. Please be advised that it is our first priority that our ancestor's remains be protected and undisturbed. We desire that all cultural and sacred items be left with our ancestors on site or where they are discovered. We ask for the respect that is afforded all of our current day deceased, by no other word these burial sites are our ancestral cemeteries, respect for our ancestors as you would expect respect for your deceased family members in today's cemeteries. However, we note that these words of respect go unheeded and remain fleeting within those agencies and business from the dominant society. **Our definition of respect means no disturbance**. I ask since when are human remains as defined in the extant environment laws and statutes (though they are fragments) to be considered **not significant**? Apparently to

5-7

inept and incompetent CRM firms to see $ signs (as a way of business) relative to our ancestral cemetery sites, while we as Native people desire to be the stewards of our ancestral heritage sites and ancestral remains. 5-7

As a result I am formally stating in writing that:

1) As the **assigned MLD** by the Native American Heritage Commission, I continue to request that the remains of our Ancestor be reburied in the original area where they were disturbed and there be no continued disturbance; 5-8

2) that the reburial area is recorded with GPS coordinates and mapped and those reburial forms sent to the NAHC Sacred Lands files and to the Northwest Information Center with a copy to OCEN for our archives; 5-9

3) If the path is to be placed over our Ancestral remains then I request that all remains be removed and reburied in a protected area where there will be no future disturbance. The area agreed upon for the reburial was very close to where other remains were reburied. 5-10

We request that Ohlone/Costanoan-Esselen Nation be consulted as to any planned projects as they adversely impact known cultural resources and ancestral heritage sacred sites within our aboriginal territory. The OCEN Tribal leadership desires to be contacted and notified of any: 1) surveys, 2) subsurface testing, 3) presence/absence testing, 4) mitigation and recovery programs, 5) reburial of any of our ancestral remains, 6) placement of all cultural items, and 7) that a Native American Monitor of Ohlone/Costanoan-Esselen Nation, approved by the OCEN Tribal Council be used within our aboriginal territory. OCEN also formally requests that copies of final CRM reports be sent to the tribe, we should not have to plead for copies of these site reports, we desire to add to our archive especially about the history and heritage of our people as interpreted through the lens of these so-called scientists. 5-11 5-12

We look forward to hearing more information about this project; please feel free to contact me at (408) 629-5189. Nimasianexelpasaleki. Thank you for your attention to this matter.

Sincerely and Respectfully Yours,

Louise J. Miranda Ramirez, Chairperson
Ohlone/Costanoan-Esselen Nation

Cc: OCEN Tribal Council
CA-MNT-229 project files

Distribution of Ohlone/Costanoan-Esselen Nation Tribal Rancherias, Districts, Landgrants and Historic Landmarks

OCEN DIRECT LINEAL DESCENT

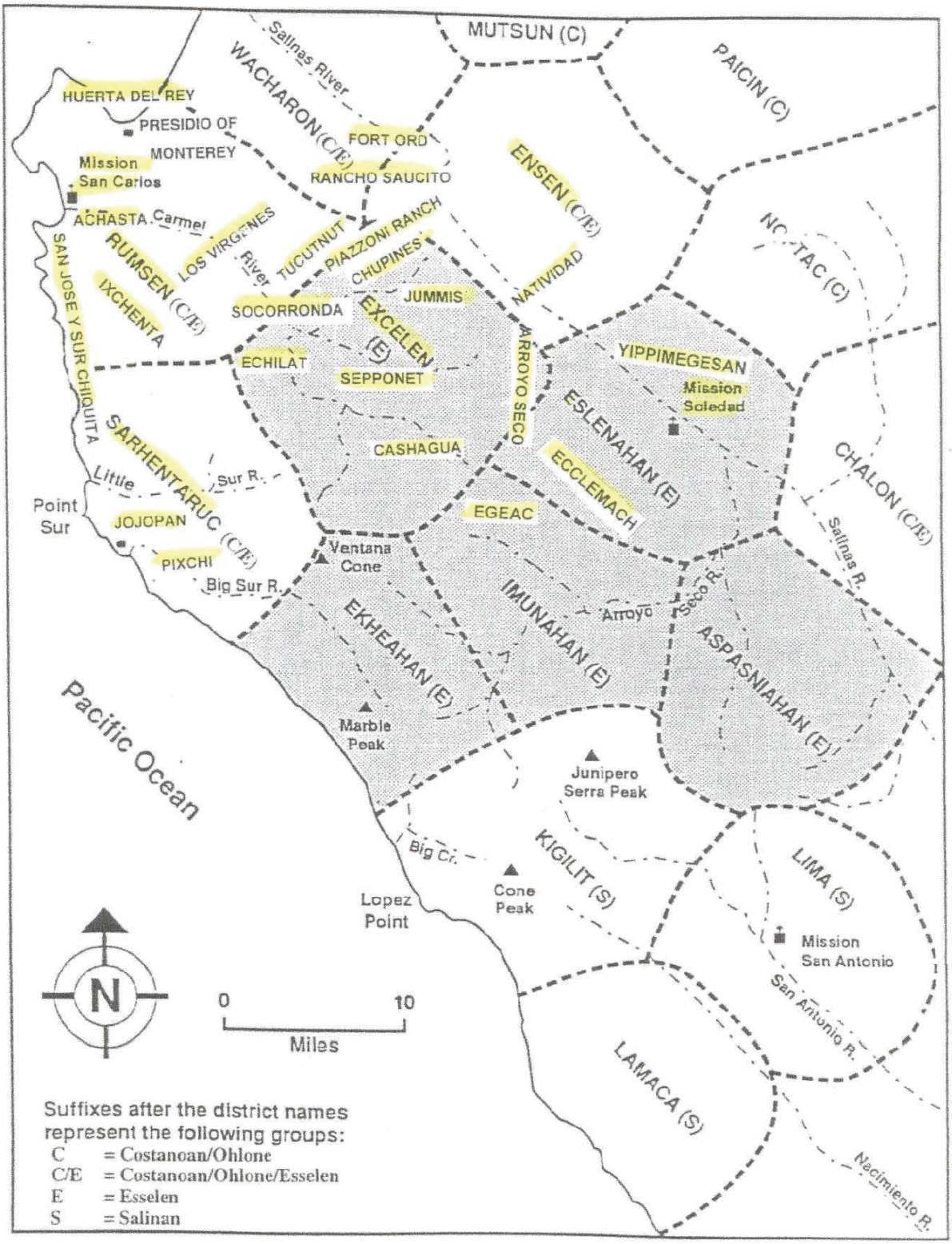

Figure 2:

Map after Taylor 1856; Levy 1973; Hester 1978; Milliken 1990

5. RESPONSE TO COMMENTS FROM THE OCEN

Response 5-1: The comment notes that the Ohlone/Costanoan-Esselen Nation (OCEN) is the legal tribal government representative for over 600 enrolled Bureau of Indian Affairs documented members of Esselen, Carmeleno, Monterey Band, Rumsen, Chalon, Soledad Mission, San Carlos Mission and/or Costanoan Carmel/Soledad Mission Indian descent. Though other individuals may have claimed that their ancestors may have lived in the area the greater Monterey Bay region is the indigenous and historic homeland of our people. A territorial map was included with the comment letter that supports the clear identification of our historic Tribal villages, districts, and areas.

The comment does not contain any substantive statements about the analysis provided in Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) and no changes to the Draft IS/MND are necessary.

Response 5-2: The comment states that the proposed Monterey Bay Sanctuary Scenic Trail project is not new to OCEN tribal leadership and that meetings with OCEN began on August 5, 2009. The comment states that on July 28, 2010, the commentator was assigned as the Most Likely Descendant (MLD) for Monterey Bay Sanctuary Scenic Trail project by the Native American Heritage Commission (NAHC). The comment letter includes a list of recommendations that were provided by the MLD in a July 29, 2010 letter relative to any cultural investigations and documentation related to the proposed project. The recommendations were as follows:

1. Ensure that the remains of the Ancestor will be reburied by OCEN where they were discovered;

2. LSA and OCEN should conduct a complete site assessment to reunite the remains of the disturbed Ancestor with those undisturbed and all remains should be relocated to a site where they will be protected and undisturbed (i.e., on top of the knoll);

3. Provide a Native American Monitor approved by OCEN to be hired and paid by LSA for the site assessment; and

4. Provide the MLD with documentation of: 1) surveys, 2) subsurface testing, 3) presence/absence testing, 4) mitigation and recovery programs, 5) reburial of any of our ancestral remains, and 6) placement of all cultural items.

Contact with Ms. Ramirez was initiated by LSA with a letter mailed on November 6, 2008. Ms. Ramirez responded on January 23, 2009, and stated that CA-MNT-229 was an important and sacred cemetery site and requested OCEN be informed and invited to attend any planning meetings regarding the project, that the final report

include an ethnographic section on their tribe, and that they receive a copy of the report. The first face-to-face meeting occurred on August 5, 2009 at the Monterey County Department of Public Works office in Salinas, California. Another on-site meeting was held on November 18, 2009, to discuss the proposed alignment, previous construction disturbances to CA-MNT-229, and the previous and proposed excavations at CA-MNT-229. At the meeting, attendees were given maps, photographs, and aerial photographs of CA-MNT-229 to show the history of land use at the site and previous disturbances.

Because several of the invited Native Americans could not attend the November 18, 2009 meeting, another meeting was held on March 10, 2010.

After another alignment was proposed in 2011 that would avoid the site, Native Americans and the MLD were contacted by letter to inform them of the new alignment and to solicit any concerns they might have.

LSA's responses to the recommendations included in Comment 5-2 are presented below.

Response to recommendation 1: The MLD's preference is for the remains to be reburied in the original locations from which they were recovered. LSA contacted Native American interested parties after a new alignment was proposed in an area that was previously inaccessible. This new alignment would avoid previously established site boundaries. The new alignment is approximately 7 feet west of the locations where human remains were recovered; this will enable the MLD to rebury the ancestral remains in the original excavation unit locations.

Response to recommendation 2: No site assessment is required because a new alignment avoids the locations where human remains were recovered. Due to the new alignment of the trail, as described above, the human remains recovered during LSA's July 2010 excavations can be reburied in the locations of their discovery, rather than up on the knoll.

A reasonable level of effort was expended to identify archaeological deposits or human remains in the proximity of the alignment, in consultation with the Tribe and the California Department of Transportation (Caltrans) Professionally Qualified Staff. The location of the revised alignment has already been heavily disturbed by the construction of the Pajaro Valley Consolidated Railroad bed, the installation of a 36-inch pipeline, and the construction of the Moss Landing Power Plant water intake facility.

Response to recommendation 3: No site assessment was required, but because a portion of the new alignment had not been evaluated for cultural resources, LSA proposed a New Alignment Excavation Plan to ensure that CA-MNT-229 did not extend into the new alignment. The plan consisted of the excavation of four 4-inch auger holes. Louise Ramirez, the MLD, and Val Lopez of the Amah Mutsun Tribal Band were asked to provide monitors for the excavation. When the excavation took

place in on February 6, 2012, the MLD's husband, Ernest Ramirez, and Al Lopez of the Amah Mutsun Tribal Band were present for monitoring and also provided assistance during the augering. There were no cultural resources recovered during the auger excavation. Both monitors were compensated by LSA for their work.

Response to recommendation 4: The MLD was provided with the artifact catalogue from the July 2010 excavations on July 30, 2013. Because no cultural resources recovered during the auger excavation in February 2013, the MLD was notified of the results by telephone. LSA returned the human remains from the July 2010 excavations to Mr. Ramirez on February 6, 2012, and all of the artifacts recovered during the 2010 excavations were returned to the MLD on July 8, 2013. LSA mailed a copy of the Historic Property Survey Report (HPSR) to the MLD on April 21, 2015.

The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 5-3: The comment states that none of the recommendations in the July 29, 2010 letter were honored because the project was put on hold. The comment states that as the assigned MLD, the commenter was supposed to be notified when the project would continue so that our Ancestral remains could be united with those left in the ground because of this disturbance that occurred during project investigations. The remains of the Native American Ancestor were disturbed from auguring, which means that the bone fragments were dislodged from their Ancestor. When the MLD visited the site with the archaeologist after the remains were found, the MLD stated that all remains should be joined for reburial and would not allow a support column to be placed on top of Ancestor's grave. It was then that the MLD, on behalf of the Native Americans agreed to move our Ancestor to an upper section within the trees of the project area that had previously been used to rebury our remains.

The current trail alignment is west of and avoids the two auger units where the remains were recovered. The environmental consultant and the MLD have agreed to meet at the location of the two auger holes where the remains were recovered. During the meeting, the environmental consultant will show the MLD that the trail alignment is now west of the auger unit locations in an area that has already been heavily disturbed by the construction of the Pajaro Valley Consolidated Railroad bed and the installation of a 36-inch pipeline. If the MLD agrees that trail construction will not further affect the area where the remains were recovered, then the environmental consultant and the MLD will arrange a time to rebury the remains back in the original auger-hole locations.

The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 5-4: The comment states that it is both unprofessional and unethical that LSA did not contact OCEN to rebury our Ancestor's remains together.

LSA exchanged several emails and had several telephone conversations with the MLD from 2012 to the present regarding reburial of the Ancestor's remains. LSA intended to contact OCEN regarding reburial of the remains but was waiting for the final environmental documents to be completed and reviewed to ensure that no changes to the project would develop that might impact the alignment or the location for the reburial. If the project does not change and the MLD agrees that the alignment will not further affect the area where the human remains were recovered, then LSA and the MLD have agreed to meet at the site to rebury the remains in their original locations at the appropriate time.

The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 5-5: The comment states that the MLD has the Ancestral remains along with two (2) boxes of artifacts recovered on July 6-9, July 12-13, 2010 and March 8, 2012 recovered during project field investigations and that were delivered on July 8, 2012 by John Kelly of LSA Associates. The comment also states that the MLD requested a catalog of all cultural items and received that catalog on July 30, 2013. The comment states that the MLD had regular contact with the environmental consultant but was never informed that the project was being reviewed or was ever asked about reburial of our Ancestor.

On May 6, 2013, LSA sent the MLD an email in which she was informed that the HPSR, the primary cultural resources document for the project, was under Caltrans review and that LSA would send her a copy of the report as soon as Caltrans finished its review. An HPSR documents Caltrans's efforts to identify historic and prehistoric properties; evaluates the National Register of Historic Places (National Register) eligibility of cultural resources; when there are resources that need to be evaluated; and documents a finding of No Historical Properties Affected, if applicable. The HPSR also contains a record of all Native American consultation. The Monterey Bay Sanctuary Scenic Trail Moss-Landing HPSR contains an Archaeological Survey Report, a Historical Resources Evaluation Report (HRER), an Archaeological Evaluation Report, and an Extended Phase I Report that documented the results of an excavation within an alignment that was proposed to avoid impacts to CA-MNT-229. LSA mailed Ms. Ramirez a copy of the artifact catalogue on July 30, 2013. LSA spoke to Ms. Ramirez on April 6, 2015, to inquire whether she had received a copy of the HPSR. Ms. Ramirez stated that she had perhaps received it, but she could not find the copy. LSA sent Ms. Ramirez another copy of the HPSR April 21, 2015. Information pertaining to the requested reburial of the OCEN Ancestor is provided in the response to comments 5-2 and 5-3 above.

The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 5-6: The comment states that the IS/MND states that a portion of one prehistoric archaeological Site (CA-MNT-229) was identified within the proposed project area

through background research and that the field survey confirmed the findings of the background research. This prehistoric archaeological site has already been determined eligible for inclusion in the National Register. The comment goes on to say that none of the information that led to the determination that CA-MNT-229 was significant was shared with members of the tribe and that the NAHC MLD at that time was Mr. Patrick Orozco who is not Esselen or Costanoan or Ohlone but is now claiming his ancestry from southern California from Mission San Juan Capistrano in Orange County.

It is assumed that this comment is stating that after the site was determined eligible under National Register Criterion D, the Tribe was never informed. Dondero et al. (1984) were the authors of the study that provided the basis for the determination of the site's eligibility. LSA did not participate or contribute to that study. On August 5, 2009, LSA attended a meeting with Ms. Ramirez and several other tribal groups and County representatives at which DPR 523 series site record forms for CA-MNT-229 were provided to Ms. Ramirez and others for consideration. These forms document the significance of the site.

The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 5-7: The comment states that OCEN was denied any information or copies of the report from CA-MNT-229 and that CA-MNT-229 is significant to OCEN as one of its ancestral cemetery and village sites. The comment states that the environmental document fails to make such a connection and therefore OCEN's leadership questions and opposes the "Notice of Intent To Adopt A Mitigated Negative Declaration, Monterey County."

Further, the comment states that the OCEN objects to all excavation in known cultural lands, even when they are described as previously disturbed, and of no significant archaeological value; it is the OCEN's first priority that their ancestor's remains be protected and undisturbed and desire that all cultural and sacred items be left with their ancestors on site or where they are discovered. The OCEN asks for the respect that is afforded all of our current day deceased in today's cemeteries. However, the comment notes that these words of respect go unheeded and remain fleeting within those agencies and business from the dominant society. The OCEN's definition of respect means no disturbance. The comment states, "since when are human remains defined in the extant environmental laws and statutes (though they are fragments) to be considered not significant?" Further, the comment states that we as Native people desire to be the stewards of our ancestral heritage sites and ancestral remains.

It is assumed that the report referenced in the letter is the current HPSR. LSA sent the MLD another copy of the HPSR in April 2015 for review. The report did not intend to suggest that CA-MNT-229 is not significant. It has already been documented that this prehistoric archaeological site is significant and eligible for inclusion in the National Register. However, the HPSR concluded that the portion of the site that will

be impacted by the proposed project does not contribute to the eligibility of CA-MNT-229. CA-MNT-229 was determined eligible for listing on the National Register under Criterion D for its potential to yield or likely yield information important in history or prehistory. Through excavation, it was determined that the portion of the site within the proposed alignment did not yield information important in history or prehistory. This determination was based on the minor amount of prehistoric material identified during excavations, the redundancy of information provided by the material identified, and historical disturbances to the site.

It was never LSA's intent to be disrespectful. In fact, when it was clear that the trail could impact the site, alternative alignments were proposed to avoid the site. The latest route will be constructed in an area that has already been heavily disturbed by the construction of a railroad bed, the installation of a 36-inch pipeline, and the construction of the water intake facility for the Moss Landing Power Plant. This alignment revision minimizes the likelihood of encountering human remains during construction.

The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 5-8: The comment requests that the remains of the OCEN Ancestor be reburied in the original area where they were disturbed and there be no continued disturbance.

By virtue of the location of the trail alignment and the two auger holes that yielded human remains, this request can be accommodated.

The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 5-9: The comment requests that the reburial area be recorded with GPS coordinates and mapped and those reburial forms sent to the NAHC Sacred Land files and to the Northwest Information Center with a copy to OCEN for its archives.

This request can be accommodated.

The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 5-10: The comment states that if the path is to be placed over Ancestral remains then it is requested that all remains be removed and reburied in a protected area where there will be no future disturbance.

In an effort to address Native American concerns and to avoid disturbing the area where human remains were identified, the trail alignment was shifted west to an area along the shore that had already been disturbed by the construction of a railroad bed and the installation of a 36-inch pipeline. This alignment revision minimizes the likelihood of encountering human remains during construction.

The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 5-11: The comment requests that the OCEN be consulted regarding any planned projects as they adversely impact known cultural resources and ancestral heritage sacred sites within their aboriginal territory. The OCEN Tribal leadership desires to be contacted and notified of any: 1) surveys, 2) subsurface testing, 3) presence/absence testing, 4) mitigation and recovery programs, 5) reburial of any of ancestral remains, 6) placement of all cultural items, and 7) that a Native American Monitor of OCEN, approved by the OCEN Tribal Council, be used within our aboriginal territory.

When the environmental consultant meets Ms. Ramirez at the site to show her that the trail will not impact the area where the human remains were recovered, we will arrange a date for the reburial.

The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 5-12: The comment formally requests that copies of the final Cultural Resource Management reports be sent to the tribe.

A copy of the Final HPSR was sent to the MLD for the OCEN Nation on April 21, 2015.

The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

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6. COMMENTS FROM MOLLY ERICKSON ON BEHALF OF STAMP ERICKSON

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Letter 6

From: Molly Erickson [mailto:erickson@stamplaw.us]
Sent: Friday, January 16, 2015 11:00 AM
To: Ford, John H. x5158
Cc: Lopez, Patricia Ext.8998; Mack, David x5096
Subject: Re: proposed bike/pedestrian trail, Moss Landing -- County notice of intent to adopt MND - circulation period in process

John:

Thank you for your responses. My comments are in italics below. I am including Patricia and David on this email, so everyone is in the loop.

Please understand that at this point my clients are concerned solely with the processing of this project. These concerns are reasonable, and include:
1. The County should provide accurate information in the County's Notice of Intent and IS/MND, so the public is adequately informed. **6-1**

2. The County Planning Department should be aware of what the County Public Works Department is doing on planning projects, especially when issuing an IS/MND that purports to come from the Planning Department. **6-2**

3. The Planning Department should ensure that all permits for properties are in compliance with existing permits before issuing new permits for those properties. It would be wise for the County to avoid unintended consequences by first addressing these issues, given the County records' confusion over past County permits issued to Duke/Dynegy. **6-3**

4. The County's Initial Study refers to construction of the project as taking nine months and as intended to being completed "in 2014." These dates indicate that perhaps the Initial Study was prepared some time ago and is not current. **6-4**

This current project happens to be immediately adjacent to a project recently considered by the County on the Vierra site. That project was supposed to be a remediation for code violations, but the proposed plans did not match the site, or address all the violations. The County pulled the proposed approvals and has been reviewing the situation. **6-5**

I ask the County to respond promptly to these concerns over the process. The County's comment deadline is fast approaching. Thank you.

Regards,

Molly

Molly Erickson
STAMP | ERICKSON

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6. RESPONSE TO COMMENTS FROM MOLLY ERICKSON ON BEHALF OF STAMP ERICKSON

Response 6-1: The comment states that the County of Monterey (County) should provide accurate information in the County's Notice of Intent (NOI) and Initial Study/Mitigated Negative Declaration (IS/MND) so the public is adequately informed.

It is assumed that this comment refers to an error in the PLN number provided in the NOI. The NOI accidentally left a "0" off the end of the PLN number such that it read PLN13066 rather than PLN130660. The correct PLN number was provided in the Draft IS/MND. The Draft IS/MND was recirculated and the PLN number was removed from all documents as the PLN number is no longer relevant; the California Coastal Commission (CCC) is taking full jurisdiction for permitting.

The comment was addressed in the recirculated Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 6-2: The comment states that the County Planning Department should be aware of what the County Public Works Department is doing on planning projects, especially when issuing an IS/MND that purports to come from the Planning Department.

The comment has been noted. The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 6-3: The comment states that the County Planning Department should ensure that all permits for properties are in compliance with existing permits before issuing new permits for those properties. The comment states that it would be wise for the County to avoid unintended consequences by first addressing these issues, given the County records' confusion over past County permits issued to Duke/Dynegy.

The comment has been noted. The comment is outside the scope of the proposed project. Furthermore, the comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 6-4: The comment states that the County's Initial Study (IS) refers to construction of the project as taking nine months and as intended to being completed "in 2014." These dates indicate that perhaps the IS was prepared some time ago and is not current.

Reference to the date 2014 in the IS/MND as the year in which construction would be completed was a typographical error. The construction date in the Final IS/MND has been revised to 2016 with the qualification that construction would only begin at this

time if project funding has been secured. No additional or new environmental impacts will occur as a result of this change in the projected start date for construction.

Response 6-5: The comment states that the current project happens to be immediately adjacent to a project recently considered by the County on the Vierra site and that the project on the Vierra site was supposed to be a remediation for code violations, but the proposed plans did not match the site, or address all the violations. The County pulled the proposed approvals and has been reviewing the situation. The comment requests that the County respond promptly to these concerns noted in the comment letter regarding the process.

The comment has been noted. The comment is outside the scope of the proposed project. Further, the comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

7. COMMENTS FROM MOSS LANDING HARBOR DISTRICT (MLHD)

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Letter 7

From: Lopez, Patricia Ext.8998 [mailto:lopezp@co.monterey.ca.us]
Sent: Wednesday, February 04, 2015 11:53 AM
To: Ali Hemmati; Luke Fuson; Pam Reading
Cc: Carranza, Ogarita x5174
Subject: MBSST - Harbor District Meeting

All:

We met with the Moss Landing Harbor District yesterday. They had the following questions/comments:

Questions/Comments:

1. Along their property we are placing Gabion baskets. They wanted to see the details. I could not find a detail in the plan set. **7-1**
2. They are concerned that the new bridge will be lower than the existing Hwy 1 bridge. I told them that the bottom of the new bridge will be the same height or higher than the Hwy 1 Bridge. What is it? They are concerned that during high tide kayakers will not be able to navigate under the new bridge. They claim the Hwy 1 Bridge is difficult and sometimes impossible to navigate. **7-2**
3. They wanted to know if we had contacted the Coast Guard. To my knowledge we have not. We will need to send them an NOI during re-circulation. **7-3**
4. They mentioned we will need a permit from them. **7-4**
5. They are also concerned with the piles for the new bridge and how they are going to affect siltation. The Hwy 1 Bridge is causing siltation. **7-5**
6. They would like a copy of the plan sheets for review by their engineer. Are the attached the latest? Luke, I will be giving them your contact information. **7-6**
7. Our plans show us connecting to the existing pier at north end of the Harbor (approx. Station 100+23). I told them we would conform to existing. They may or may not want it connected. **7-7**

Patricia A. Lopez
Management Analyst III / Project Manager
County of Monterey
Department of Public Works

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7. RESPONSE TO COMMENTS FROM MLHD

Response 7-1: The comment states that the Moss Landing Harbor District (MLDH) would like to see the details of the Gabion baskets being placed along the MLHD property.

The details for the gabion baskets will follow the California Department of Transportation (Caltrans) Standard Plans D100A and D100B and Standard Specification 72-16 "Gabions". Other minor details may be incorporated into the plan for the hand railing and trail. The MLDH was provided with the plan sheets that provide the details and specifications regarding the proposed gabions on February 11, 2015. The comment does not contain any substantive statements about the analysis provided in the Draft Initial Study/Mitigated Negative Declaration (IS/MND) and no changes to the Draft IS/MND are necessary.

Response 7-2: The comment states that the MLDH is concerned that the new pathway bridge over Elkhorn Slough will be lower than the existing State Route 1 (SR-1) bridge over Elkhorn Slough. The MLDH also raises concerns that kayakers will not be able to navigate under the new bridge during high tide.

The soffit (bottom) of the new pathway bridge is higher than the soffit of the existing SR-1 bridge, providing more clearance for kayakers. The clearance is more than 5' 10" clear above the Mean Higher High Water (MHHW) at all locations. The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 7-3: The comment questions whether the Coast Guard was contacted during the design of the proposed project.

As part of the project's design process, the engineer corresponded multiple times with David Sulouff, the Bridge Section Chief of the Eleventh Coast District. Mr. Sulouff was consulted with regard to the vertical clearance of the bridge and required the new bridge to be no lower than the existing SR-1 bridge and the new piers to be exactly aligned with the existing piers. The new pathway bridge over Elkhorn Slough meets both of these conditions. The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 7-4: The comment states that the proposed project will require a permit. It is assumed that the comment is referring to the required construction permit from the MLHD. However, it could also be in reference to a Coast Guard Permit. Regardless, the IS/MND notes that the proposed project will be required to obtain a construction permit from the MLHD as well as a permit from the Coast Guard (refer to Section II.C. Page 12 of the IS/MND). No changes to the Draft IS/MND are necessary.

Response 7-5: The comment raises concerns regarding the placement of piles for the new bridge and how they will affect siltation. The comment states that the SR-1 bridge is causing siltation.

It is the County of Monterey's (County) understanding that MLHD performs maintenance dredging in the dock areas and the Army Corps of Engineers dredges the entrance and passage channels within the harbor. At this time, it is not known whether there has been recent dredging in the immediate vicinity (within 100') of the proposed location of the Monterey Bay Sanctuary Scenic Trail pathway bridge. The new piles at the new bridge bents may cause some change in water flow at the location of the proposed bents and possibly result in some minor change in sediment movement and deposition. The new bridge bents have been located in line with the existing SR-1 bridge bents to minimize any changes to flow and sediment movement and deposition. Therefore, there should be minimal if any changes to future dredging operations from the proposed bridge. No changes to the Draft IS/MND are necessary.

Response 7-6: The comment states that the MLHD would like a copy of the latest project plans so that the MLHD engineer can review them.

On February 11, 2015, the MLHD was provided with a copy of the most recent set of project plans (2015) for their review and comment. The comment does not contain any substantive statements about the analysis provided in the IS/MND and no changes to the Draft IS/MND are necessary.

Response 7-7: The comment states that the current plans show the proposed project connecting to the existing pathway on the north side of Elkhorn Slough at approximately Station 100 +23. The comment states that the MLHD is not sure whether or not they want the proposed project to connect to the existing pathway.

The proposed project can be designed to include the connection or to remove it depending on the preference of the MLHD. The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

8a. COMMENTS FROM KATHY JONES

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Letter 8a

From: Kathy Jones [mailto:katocjones@aol.com]
Sent: Monday, February 23, 2015 4:57 PM
To: Lopez, Patricia Ext.8998
Subject: ML Bicycle trail

Hello,

I've reviewed the map and wonder what is planned after the path turns the corner onto ML road? I hope to see you at the meeting. **8a-1**

Kathy Jones, resident

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8a. RESPONSE TO COMMENTS FROM KATHY JONES

Response 8a-1: The comment requests information about the route for Moss Landing Segment of the Monterey Bay Sanctuary Scenic Trail after it turns the corner onto Moss Landing Road.

The Moss Landing Segment of the Monterey Bay Sanctuary Scenic Trail will connect to the proposed future Moss Landing Storm Drain and Street Improvement Project (MLSDST), which includes roadway and storm drain improvements, in addition to sidewalks along both sides of Moss Landing Road. In the event that the Moss Landing Segment of the Monterey Bay Sanctuary Scenic Trail is constructed before the MLSDST project, the Moss Landing Segment of the Monterey Bay Sanctuary Scenic Trail will end as shown on the maps and figures provided in the Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND). Cyclist/pedestrians traveling south will continue along Moss Landing Road as they do now. For cyclist/pedestrians wanting to access destinations south and parallel to State Route 1, such as the Whole Enchilada, there will be a crosswalk provided across Moss Landing Road.

The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

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8b. COMMENTS FROM KATHY JONES

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Letter 8b

From: Kathy Jones [mailto:katocjones@aol.com]
Sent: Tuesday, February 24, 2015 11:00 AM
To: Lopez, Patricia Ext.8998
Subject: Re: MBSST - Moss Landing Segment

Thank you, Patricia, for your prompt reply. I think a special bike trail / bridge over the water on RT. 1 will be a wonderful addition. We are all looking forward to improvements on ML road through town (parallel to Rt 1). As it is now, there is barely room to accommodate a walker and the opposing traffic, much less cyclists, especially, when the speed limit is ignored.... I don't even think there is sign posted. It's a very dangerous situation. A neighbor and I went and spoke directly to the planning group and expressed our concern several months back, but nothing has changed. I think this should be addressed, perhaps with one of the flashing type lights which indicates a driver's speed or some sort of reminder that drivers need to slow down! I would encourage you or a staff member to come and observe this personally before designating ML Road as a designated bike path. As it exists now, there isn't enough room and I doubt that the new 3' boundary needed to pass a cyclist will be sufficient. Having a safe route will encourage more bike traffic, likely the cyclist clubs that enjoy group rides. Let's try and make it safe for all. **8b-1**

Thank you. I look forward to meeting you at the meeting.

Sincerely,

Kathy Jones

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8b. RESPONSE TO COMMENTS FROM KATHY JONES

Response 8b-1: The comment thanks the County of Monterey (County) for replying to a previous email and states that the special bike trail / bridge over the water on State Route 1 (SR-1) will be a wonderful addition. The comment states that people are looking forward to improvements on Moss Landing Road through town (parallel to SR-1). However, because there is barely room to accommodate pedestrians, much less cyclists, the current situation is very dangerous. The comment states that perhaps a flashing light could be added in this area or some other sort of reminder to get drivers to slow down. The comment recommends that a County employee come observe traffic along Moss Landing Road to ensure there is enough room for a bike path. The commenter thinks there is not. The commenter states that having a safe route will encourage more bike traffic, likely the cyclist clubs that enjoy group rides and every effort should be made to make this area safe for all.

The comment has been noted. The comment does not contain any substantive statements about the analysis provided in the Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) and no changes to the Draft IS/MND are necessary.

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9. COMMENTS FROM LINDA MCINTYRE

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Letter 9

From: Linda G. McIntyre [mailto:mcintyre@mosslandingharbor.dst.ca.us]
Sent: Thursday, February 12, 2015 4:35 PM
To: Lopez, Patricia Ext.8998
Cc: Carranza, Ogarita x5174
Subject: RE: MBSST - Moss Landing Segment

It was nice to meet you and Ogarita last week, Trish. Thank you for the design plans; this will be very helpful in orienting us and our Board to the pending proposed trail.

The USCG contact is David H. Sulouff, Chief, Bridge Section, Eleventh Coast Guard District, 50-2 Coast Guard Island, Alameda, CA; 94501; email David.H.Sulouff@USCG.Mil. I am told he is no longer the chief; that he now works for the Bridge Section as a civilian but he will still be the contact for this issue. **9-1**

I am attaching a letter we wrote to him in 2010 regarding the height of the trail which is still a concern; however, I will be writing another letter to him regarding the proposed number of piles. We are concerned that there are so many piles and we are concerned that the alignment of the trail veers so far away from the existing highway bridge at the point where it meets the land at North Harbor. In previous meetings and throughout the process we had been told that it would be adjacent to and "hug" the existing Highway 1 alignment, which would enable the Harbor District to acquire the excess CalTrans right of way remaining adjacent to the District's property. We are still interested in making that happen. We are willing to ensure that there is still access from the trail to our pedestrian wharf whether the access is on CalTrans property or District property. **9-2** **9-3** **9-4**

Some other concerns raised by the Real property Committee during our recent meeting were: **9-5**

Trash receptacles and removal
Trail maintenance **9-6**
Construction Permit required from Moss Landing Harbor District **9-7**
Bank erosion/prevention **9-8**
Viewing platform near MLHD's pedestrian wharf **9-9**

There may be additional concerns or comments once the design drawings are reviewed by our engineer, and after you send out the second opportunity for public comment.

We are excited about the trail and hope we can work together to resolve any issues, Trish. Thanks again for coming over the Harbor to meet with me and my Real property Committee! **9-10**

- Linda G.

Linda G. McIntyre, Esq.
General Manager/Harbor Master
Moss Landing Harbor District

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9. RESPONSE TO COMMENTS FROM LINDA MCINTYRE

Response 9-1: The comment thanks the County of Monterey (County) for providing design plans and provides the name and information for the Coast Guard contact for the proposed project.

The comment has been noted. The comment does not contain any substantive statements about the analysis provided in the Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) and no changes to the Draft IS/MND are necessary.

Response 9-2: The comment states that attached to the comment letter is a 2010 letter that the Moss Landing Harbor District (MLHD) wrote to the Coast Guard regarding concerns about the height of the proposed bridge over Elkhorn Slough.

The comment has been noted. The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

Response 9-3: The comment states that the MLHD is concerned about the number of piles for the proposed bridge over Elkhorn Slough.

The new bridge piles will be located directly in line with the existing State Route 1 (SR-1) bridge piles and will not affect the use of this area by boaters and other recreational users. No changes to the Draft IS/MND are necessary.

Response 9-4: The comment states that the MLHD is concerned about the current trail alignment and the fact that it veers away from the existing SR-1 bridge at the point where it meets the land at North Harbor. It was the MLHD's understanding that the trail would be developed immediately adjacent to the existing SR-1 alignment, which would enable the MLHD to acquire the excess California Department of Transportation (Caltrans) right of way adjacent to the MLHD's property The comment states that the MLHD is willing to ensure that there is still access from the trail to its pedestrian wharf regardless of whether or not the access is on Caltrans property or MLHD property.

The trail was designed to be developed as near to SR-1 as feasible. The trail was designed to shift to the west where it meets the land at North Harbor to conform with the existing section of trail at Station 101+00. Since there is only 100 feet between the end of the proposed bridge and the start of the existing section of trail, in order to shift the proposed trail to the east, it would be necessary to reconstruct the existing trail. No changes to the Draft IS/MND are necessary.

Response 9-5: The comment states that the MLHD is also concerned about provisions for trash receptacles and trash removal.

Mitigation Measure IX(a)(3) provides a list of required operational Best Management Practices (BMPs) that the County must implement as part of the project. The list of BMPs, while not exhaustive, does include a litter control and pet waste control program. No changes to the Draft IS/MND are necessary.

Response 9-6: The comment states that the MLHD is also concerned about trail maintenance.

Mitigation Measure IX(a)(3) provides a list of required operational BMPs that the County must implement as part of the project. The list of BMPs, while not exhaustive, does include a pet waste and litter control program, trail sweeping, and drainage inspection requirements. No changes to the Draft IS/MND are necessary.

Response 9-7: The comment states that the MLHD is also concerned that the County is aware that the trail will require a construction Permit from MLHD.

The IS/MND notes that the proposed project will be required to obtain a construction permit from the MLHD (refer to Section II.C. Page 12 of the IS/MND). No changes to the Draft IS/MND are necessary.

Response 9-8: The comment states that the MLHD is also concerned about preventing bank erosion.

Shoreline protection measures are part of the proposed project and will be implemented along Moss Landing Harbor south of the Elkhorn Slough and along Moss Landing Harbor adjacent to Moss Landing Road. The shoreline will have a greater degree of protection from erosion once the shoreline protection measures are implemented. No changes to the Draft IS/MND are necessary.

Response 9-9: The comment states that the MLHD is concerned about a viewing platform near the MLHD's pedestrian wharf and that fishing might be permitted off the viewing platform and elsewhere along the bicycle/pedestrian bridge. The MLHD is also concerned about who will be responsible for maintaining the bicycle/pedestrian bridge.

Fishing will not be allowed at the viewing platform or anywhere else along the bicycle/pedestrian bridge. The County will post signs on the bridge and at the viewing platform explicitly prohibiting fishing. Once construction of the bridge is complete, the State will take over the responsibility and maintaining the bridge, including keeping it clean and free of litter. The County will oversee the maintenance of the on-land portion of the bicycle/pedestrian trail. No changes to the Draft IS/MND are necessary.

Response 9-10: The comment notes that the MLHD may have additional concerns or comments once the design drawings are reviewed by their engineer and after it reviews the Draft IS/MND.

The comment has been noted. The comment does not contain any substantive statements about the analysis provided in the Draft IS/MND and no changes to the Draft IS/MND are necessary.

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APPENDIX A

TECHNICAL REPORTS

1. **Basis of Design for Shoreline Protection at Moss Landing Harbor**
2. **Geotechnical Engineering Investigation Report**
3. **Natural Environment Study/ Jurisdictional Delineation Report**
4. **Phase I Environmental Site Assessment (ISA)**
5. **Section 4(f) Memorandum**
6. **Shoreline Protection and Sea Level Rise**
7. **Visual Impact Assessment Report**
8. **Water Quality Assessment Report**

BASIS OF DESIGN FOR SHORELINE PROTECTION AT MOSS LANDING HARBOR

MARCH 2011

BASIS OF DESIGN FOR SHORE PROTECTION AT MOSS LANDING HARBOR, MOSS LANDING, CA

Monterey Bay Sanctuary Scenic Trail Project

March, 2011

Prepared for:
Wood Rodgers, Inc.
3301 C Street, Bldg. 100-B
Sacramento, CA 95816

Prepared by:
Sea Engineering, Inc.
200 Washington Street, Suite 210
Santa Cruz, CA 95060

SEI Job No. 25245

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1. INTRODUCTION

1.1 Introduction and Project Location

The Monterey County Department of Public Works is designing a pedestrian and bicycle trail between the cities of Santa Cruz and Monterey to be known as the Monterey Bay Sanctuary Scenic Trail (MBSST). The Moss Landing segment runs from the north shore of Elkhorn Slough, across a proposed new bridge along the west side of California State Highway 1 (Hwy-1), through the Moss Landing Power Plant and south to Moss Landing Road. A 350-ft reach of shoreline immediately south of the new bridge is subject to erosion by ocean waves entering the slough from the Moss Landing entrance channel, and is in need of new shore protection. The proposed bridge and section of shoreline to be protected are within the California State Highway Right of Way.

The project site is located at the center of the Monterey Bay shoreline, in Central California (Figure 1-1). Moss Landing is small boat harbor used by both fishing and recreational vessels. Access to open waters of the Pacific Ocean is through a 400 ft-wide entrance channel protected by jetties on both sides. The jetties trend southwest, and offer some protection from large ocean waves and locally generated seas from the west and northwest. Monterey Bay is bisected by a large submarine canyon (Monterey Canyon) that is a dominant morphological feature in the region's bathymetry. The head of the canyon is located just offshore of the Moss Landing jetties (See Figure 1-1).

Figure 1-2 shows the project location inside the Moss Landing entrance channel in Elkhorn Slough.

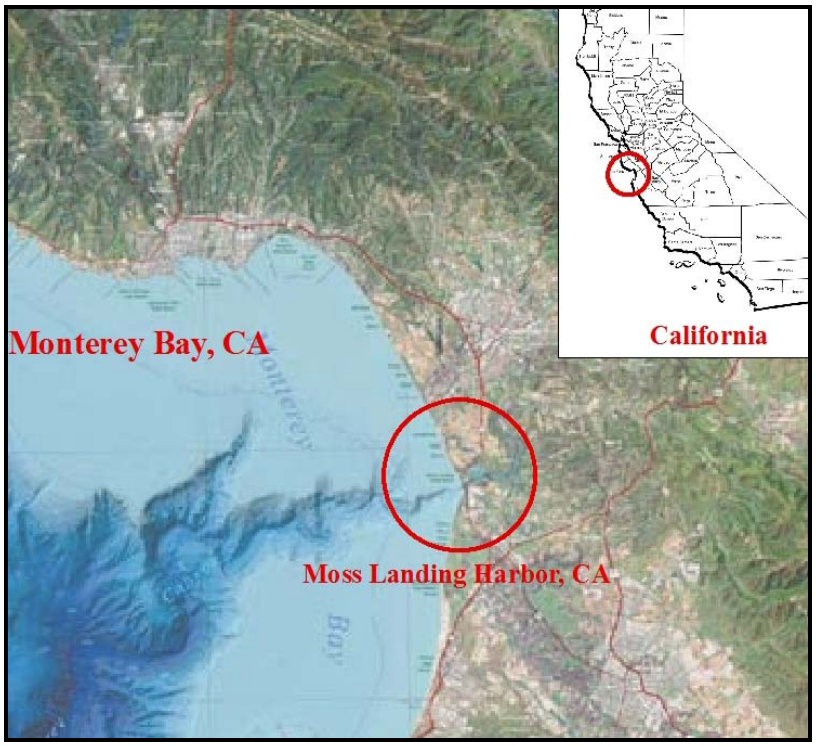

Figure 1-1. Project location in Central California

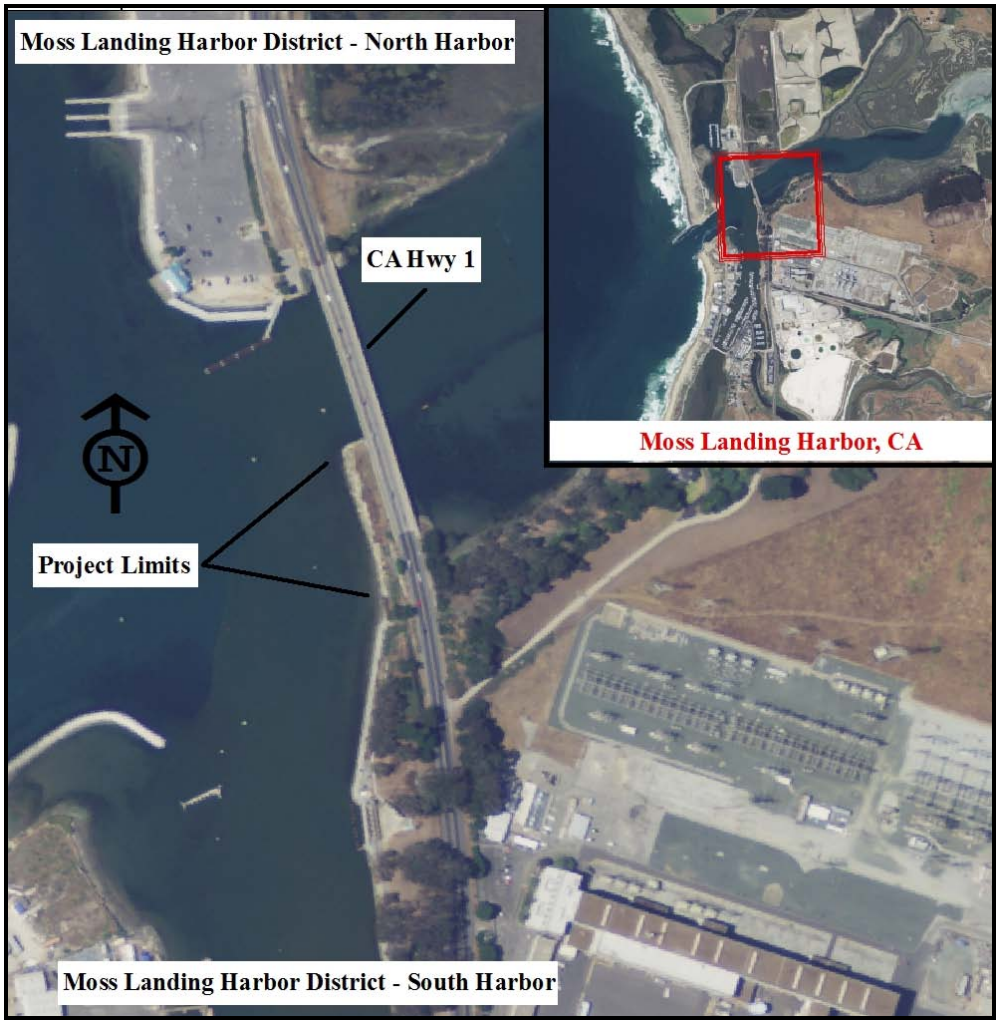

Figure 1-2. Project vicinity

1.2 Existing Site Condition and Characteristics

The project area is a small peninsula adjacent to the new Hwy-1 bridge (see Figure 1-2) and bounded on the channel side by the remnants of the the bridge abutment for the old (demolished) Hwy-1 bridge. Figure 1-3 is a photograph of the end of the peninsula showing the steel sheetpile abutment of the abandoned bridge. The curved steel sheetpile wingwalls of the abutment are concrete capped. The concrete piles and pile-supported beam in front of steel sheetpile were probably a support for the old bridge. Cement Rubble Masonry (CRM) facing between the piles has deteriorated to expose the steel sheepile behind.

There are two concrete bollard structures along the project reach, and one of these is shown in Figure 1-3. The purpose of these bollards is not clear.

The project shoreline south of the abutment is characterized by deteriorated non-engineered riprap shore protection constructed of concrete debris. Wave overtopping has eroded an approximate 3-ft scarp in the bluff landward of the riprap, and has contributed to the deposition of a sand, gravel, and cobble beach perched above the concrete riprap. These features are shown in Figure 1-4, a photograph illustrating typical conditions along the project reach.

There are no known buried utilities along the project reach. Abandoned 10-inch and 5-inch pipes have been exposed by erosion - the 5-inch pipe is visible in Figure 1-4. A 12-inch corrugated steel drain pipe (Figure 1-5) extends from a catchment basin adjacent to the Hwy-1 embankment and into the project area.

The project reach terminates to the South at a steel sheet pile retaining wall that protects a 20-inch steel oil delivery pipeline. (Figure 1-6). Although no longer in use, the pipeline is in a state of preservation in case of future need. The pipeline alignment appears to angle down to the seabed on the channel side, and bends to be sub-parallel to the shoreline on the landward side of the retaining wall. The alignment is such that construction of a sloping revetment in the vicinity of the pipe would be difficult, and might put the pipeline at risk.

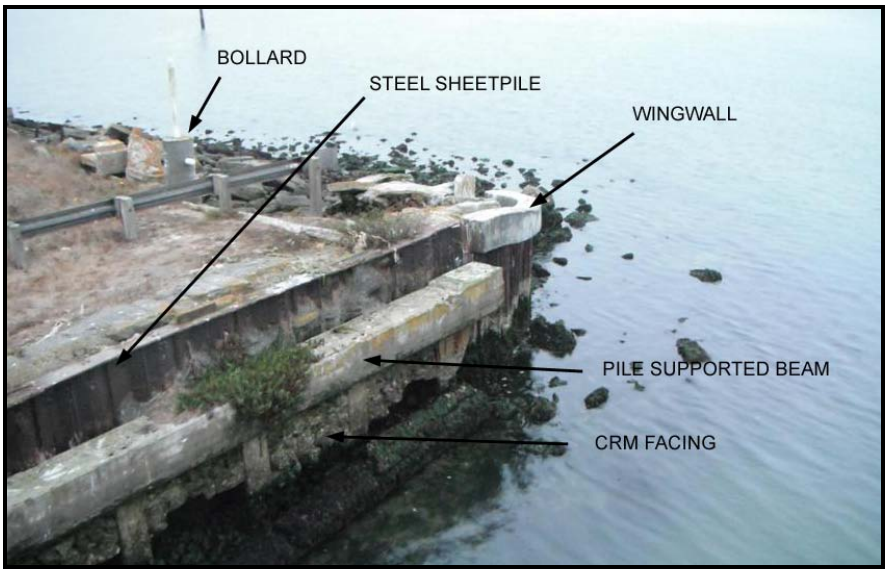

Figure 1-3. Abandoned abutment at the north end of the project reach

Figure 1-4. Typical site conditions

Figure 1-5. 12-inch corrugated steel drainage pipe

Figure 1-6. 20-inch oil delivery pipeline at the south end of project reach (view looking north).

2. OCEANOGRAPHIC CONDITIONS

2.1 Introduction

Monterey Bay experiences a Mediterranean type climate with cool summers and moderate winters. Rainfall averages 19 inches per year and falls almost exclusively between October and May. The seasonal shift between the dry spring/summer period and the wet fall/winter period is governed by the position of the northern hemisphere storm track and of the North Pacific High high pressure system.

This seasonal shift also governs the prevailing winds. In the winter, frequent storms pass through the area resulting in strong winds with variable direction. The spring transition, in March or April, marks the beginning of several months of predominantly strong winds from the northwest associated with the Pacific High. These are intermittently interrupted by periods of several days duration when the wind slackens and may come out of the west or south. In particular, a phenomenon known as a southerly surge will suddenly reverse the wind direction from blowing out of the northwest to coming out of the south, as it propagates northward along the coast.

The fall transition typically occurs in September and is a time of calm winds and sunny weather before the onset of the winter storms, usually in November. There can be significant year-to-year differences in the "typical" annual cycle.

2.2 Tide

The tides at Moss Landing are mixed semi-diurnal with two high tides and two low tides daily. The nearest NOAA tide gauge is located in Monterey, CA, approximately 15 miles to the south (Sta. 9413450). The mean tide range is 3.54 feet and the diurnal range is 5.34 feet. Tidal data are listed in Table 2-1.

Table 2-1. Tide elevations at Monterey, CA

Tide Datum	Height (ft) MLLW	Height (ft) NAVD 88
Mean higher high water	5.33	5.20
Mean high water	4.63	4.50
Mean sea level	2.83	2.70
Mean low water	1.09	0.96
Mean lower low water	0.00	-0.13
Highest water level (1/27/1983)	7.88	7.75

The project elevation datum is NAVD 88. Although the mean diurnal range is 5.34 ft, the range during spring tide conditions can be greater, and predicted high tide levels over 6 ft are not uncommon.

2.3 Wave Conditions

2.3.1 Deepwater Wave Data

The project site is sheltered within a harbor at the eastern edge of Central Monterey Bay. Because of the location within Monterey Bay, waves will only approach the harbor from a westerly direction. The National Oceanographic and Atmospheric Association (NOAA) National Data Buoy Center (NDBC) operates and maintains several offshore buoys in the vicinity of Monterey Bay which are exposed to deepwater waves generated south, west and north of Monterey Bay. Two of these, Sta. 46042 and Sta. 46236 are considered representative of the Monterey Bay region, due to their proximity, and are used in this analysis.

Sta. 46042 is located 27 nautical miles west of Monterey Bay. It is an NDBC moored 3-meter discus buoy located in greater than 1500 meters (5000 feet) water depth. Meteorological and oceanographic data have been collected with this buoy since 1987. Its water depth and long period of record makes it a suitable data source for deepwater wave conditions.

Sta. 46236 is located within Monterey Bay, over outer Monterey Canyon. It is a Coastal Data Information Program (CDIP) Waverider buoy (CDIP buoy #156) located in 168 meters (550 feet) of water depth. Data have been collected with this buoy since 2007. Both buoys record significant wave height (Hs), peak period (Tp) and mean wave direction (MWD).

Table 2-2, Table 2-3, and Table 2-4 show, respectively, wave height versus wave direction, wave period versus wave direction and wave height versus wave period joint frequency distributions that were generated data from NOAA NDBC buoy 46042. Only records from 1992-2009 were used in the analysis because the mean wave direction paramenter was not measured prior to 1992. A few of the noteworthy observations from the datasets are:

- On a yearly average, less than 2% of the wave heights measured at buoy 46042 are larger than 4.5 meters (15.0 feet).
- The most frequent wave directions are from the directional sector of 270-330 degrees; eighty-three percent (83%) of the recorded waves approached from these directions.

Table 2-2. Percent Frequency of Deepwater Wave Heights vs. Wave Directions
(Period: 1992-2009; Source: NOAA NDBC)

Wave Height (ft)	Mean Wave Direction (deg from True North)												
	0-30	**30-60**	**60-90**	**90-120**	**120-150**	**150-180**	**180-210**	**210-240**	**240-270**	**270-300**	**300-330**	**330-360**	**TOTAL**
0	0.00	0.00	0.00	0.00	0.00	0.09	0.63	0.31	0.19	0.35	0.27	0.00	**1.85**
3	0.00	0.00	0.00	0.01	0.02	1.21	5.09	1.91	2.27	11.08	16.55	0.26	**38.39**
6	0.00	0.00	0.00	0.00	0.01	0.37	0.63	0.25	1.34	13.22	20.10	0.19	**36.11**
9	0.00	0.00	0.00	0.00	0.00	0.26	0.15	0.09	0.58	6.48	8.24	0.02	**15.82**
12	0.00	0.00	0.00	0.00	0.00	0.15	0.06	0.03	0.26	2.43	2.80	0.01	**5.74**
15	0.00	0.00	0.00	0.00	0.00	0.06	0.02	0.01	0.08	0.64	0.73	0.00	**1.54**
18	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.03	0.17	0.16	0.00	**0.38**
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.03	0.00	**0.13**
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	**0.03**
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	**0.01**
30	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**
TOTAL	**0.00**	**0.00**	**0.00**	**0.01**	**0.03**	**2.15**	**6.57**	**2.61**	**4.79**	**34.47**	**48.88**	**0.49**	***100.00***

Table 2-3. Percent Frequency of Deepwater Wave Periods vs. Wave Directions
(Period: 1992-2009; Source: NOAA NDBC)

Wave Period (s)	Mean Wave Direction (deg from True North)												
	0-30	30-60	60-90	90-120	120-150	150-180	180-210	210-240	240-270	270-300	300-330	330-360	TOTAL
0-2	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**
2-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	**0.03**
4-6	0.00	0.00	0.00	0.01	0.01	0.23	0.08	0.01	0.01	0.12	1.29	0.08	**1.84**
6-8	0.00	0.00	0.00	0.00	0.01	0.34	0.17	0.05	0.11	0.70	7.64	0.11	**9.12**
8-10	0.00	0.00	0.00	0.00	0.00	0.19	0.12	0.15	0.36	2.07	13.62	0.18	**16.68**
10-12	0.00	0.00	0.00	0.00	0.00	0.13	0.14	0.17	0.94	7.59	13.43	0.09	**22.49**
12-14	0.00	0.00	0.00	0.00	0.00	0.22	0.87	0.45	1.49	10.15	6.87	0.01	**20.06**
14-16	0.00	0.00	0.00	0.00	0.01	0.53	2.62	0.92	1.41	8.03	3.39	0.00	**16.89**
16-18	0.00	0.00	0.00	0.00	0.00	0.47	2.33	0.77	0.45	4.73	2.08	0.01	**10.83**
18-20	0.00	0.00	0.00	0.00	0.00	0.02	0.10	0.03	0.01	0.25	0.15	0.00	**0.56**
20-22	0.00	0.00	0.00	0.00	0.00	0.02	0.14	0.08	0.03	0.80	0.38	0.00	**1.45**
22-24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	**0.02**
>24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	**0.03**
TOTAL	**0.00**	**0.00**	**0.00**	**0.01**	**0.03**	**2.15**	**6.57**	**2.61**	**4.79**	**34.47**	**48.88**	**0.49**	***100.00***

Table 2-4. Percent Frequency of Deepwater Wave Heights vs. Wave Periods
(Period: 1992-2009; Source: NOAA NDBC)

Wave Height (ft)	Wave Period (seconds)													
	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	22-24	>24	Total
0	0.00	0.01	0.04	0.08	0.19	0.29	0.51	0.51	0.20	0.01	0.01	0.00	0.00	**1.85**
3	0.00	0.03	1.44	5.03	7.04	8.07	5.80	6.20	4.22	0.19	0.36	0.00	0.00	**38.39**
6	0.00	0.00	0.35	3.40	7.17	9.29	7.68	4.41	3.04	0.21	0.54	0.01	0.01	**36.11**
9	0.00	0.00	0.01	0.50	1.84	3.47	4.41	3.38	1.73	0.09	0.37	0.01	0.01	**15.82**
12	0.00	0.00	0.00	0.09	0.37	1.07	1.29	1.75	1.02	0.05	0.11	0.00	0.00	**5.74**
15	0.00	0.00	0.00	0.01	0.05	0.24	0.30	0.48	0.39	0.01	0.04	0.00	0.00	**1.54**
18	0.00	0.00	0.00	0.00	0.01	0.06	0.05	0.11	0.13	0.01	0.01	0.00	0.00	**0.38**
21	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.07	0.00	0.00	0.00	0.00	**0.13**
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	**0.03**
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	**0.01**
30	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**
Total	**0.00**	**0.03**	**1.84**	**9.12**	**16.68**	**22.49**	**20.06**	**16.89**	**10.83**	**0.56**	**1.45**	**0.02**	**0.03**	***100.00***

2.3.2 Extreme Wave Heights

Data from NOAA NDBC Sta. 46042 were used to generate a return period distributions of extreme wave height events at the buoy location. Results are listed in Table 2-5. The analysis indicates a yearly return period significant wave height (Hs) of 21.6 ft, and a 50-year return period wave height of 32.4 ft.

Table 2-5. Return Period Wave Heights for Buoy 46042

Return Period (years)	Offshore Significant Wave Height (Hs) (ft)
1	21.6
5	25.6
10	27.5
25	30.2
50	32.4

2.3.3 Nearshore Wave Heights

Wave Transformations in Shallow Water

As deepwater waves propagate toward shore, they begin to encounter and be transformed by the ocean bottom. In shallow water, the wave speed becomes related to the water depth. As waves slow down with decreasing depth, the process of *wave shoaling* steepens the wave and increases the wave height. *Wave breaking* occurs when the wave profile shape becomes too steep to be maintained. This typically occurs when the ratio of wave height to water depth is about 0.78, and is a mechanism for dissipating the wave energy. Wave energy is also dissipated due to bottom friction. The phenomenon of *wave refraction* is caused by differential wave speed along a wave crest as the wave passes over varying bottom contours, and will cause wave crests to converge or diverge and may locally increase or decrease wave heights. Not strictly a shallow water phenomenon, *wave diffraction* is the lateral transmission of wave energy along the wave crest, and will cause the spreading of waves in a shadow zone, such as occurs behind a breakwater or other barrier.

The seafloor bathymetry of Monterey Bay is dominated by a system of submarine canyons known as the Monterey Canyon System. Monterey Canyon itself begins directly offshore of Moss Landing Harbor. The varied offshore bathymetry causes wide differences in nearshore wave heights along the Monterey Bay shoreline as the process of wave refraction causes waves to converge or diverge at various locations.

Two numerical wave models were used to analyze the transition of waves from deepwater to the project site. The SWAN (Simulating Waves Nearshore) model was used to calculate the propagation of waves from the Buoy 46042 to nearshore sites offshore of Moss Landing Harbor. The numerical wave model CGWave was then used to model the refraction, diffraction, and shoaling characteristics of waves as they enter and pass through the harbor jetties and move to the project site.

Figure 2-1 is an example of the SWAN modeling, and shows the effects of deepwater waves approaching the Montery Bay shoreline from the West. The color contours show the variation in nearshore wave height. The model indicates that a divergent zone – a zone of relatively smaller wave heights - exists at the mouth of Moss Landing Harbor, with wave energy essentially diverted to the north and south.

Figure 2-2 shows results from the CGWave analysis super-imposed on an aerial image from *Google-Earth*. The model boundary is a semi-circle offshore of the harbor. The crest lines diverge near the harbor mouth, and waves that enter the jetties are locally high adjacent to both the north and south jetties. Significant diffraction occurs inside the harbor. The flare geometry at the end of each jetty helps to spread and diffuse the wave energy into the harbor and away from the project site. Wave heights at the project site are approximately 10-percent of the wave height at the model boundary.

Design Wave Conditions

Based on the buoy statistics and wave modeling, a signifcant wave height of 3 ft and wave period of 16 seconds is used for the project site 50-year design condition, and a 2-ft wave height is used for an annual design condition.

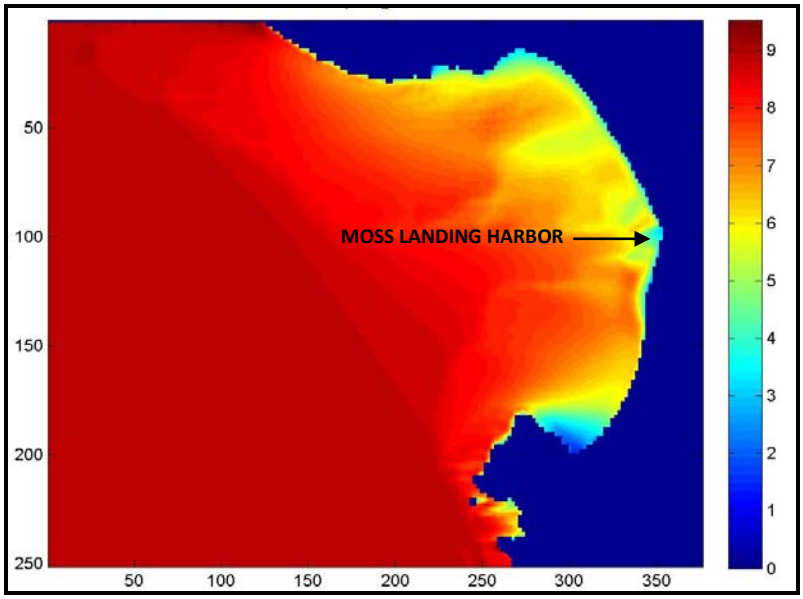

Figure 2-1. SWAN model showing the variation of wave heights in Monterey Bay

Figure 2-2. CGWave model for Moss Landing Harbor

2.4 Water Level Rise: Storm Surge and Wave Setup

During extreme storm events the water level at the shoreline will generally rise due to the combination of storm surge and wave setup.

Storm surge is an elevation of the coastal water level caused by the combined effects of strong wind stresses on the water surface and the reduction in atmospheric pressure within a storm that causes a rise in the water surface beneath the low pressure area.

Large waves breaking nearshore cause a significant water elevation rise known as wave setup. Wave setup is typically 10% to 15% of the average breaking wave height.

A water level rise analysis was conducted using the data from NOAA NDBC buoy Sta. 46042 and the tide gauge station in Monterey, CA. The months in which the 5 largest storms on record occurred were determined from the NOAA buoy records. Water level data records from the corresponding months were extracted from the tide gauge records. The water level data included both predicted tide levels and measured tide levels. The measured tide offsets are empirical data for the combined effect of storm surge and wave setup.

The differences between the measured and predicted tide levels were found to vary between 1.0 ft and 1.5 ft in during the largest storms on record. An example plot showing the difference between verified and predicted tides for the month of January, 2008 is shown in Figure 2-3. Data were smoothed using a 12-point (approximately 1 hour) running average filter. A combined storm surge and wave setup value of 1.5 ft is used for a 50-year design condition, and a 1-ft rise is used for an annual design condtion.

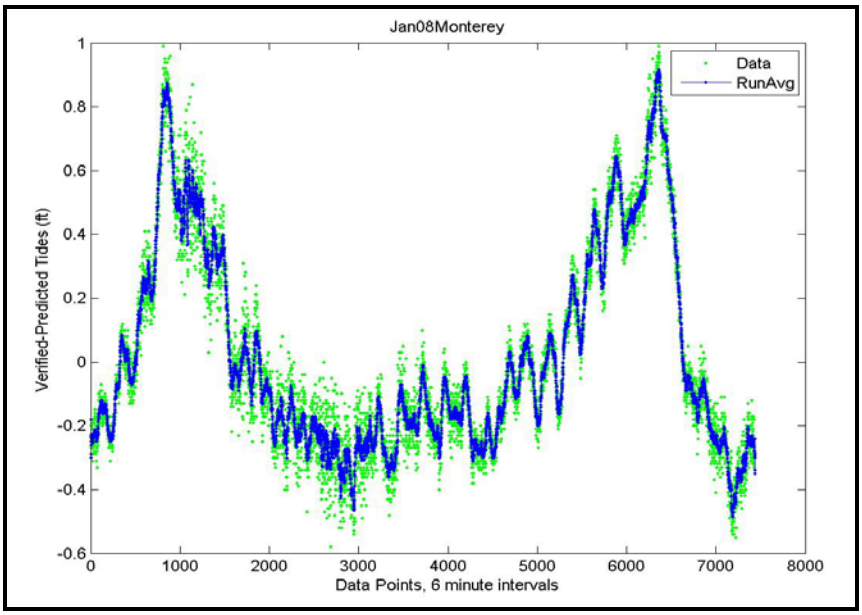

Figure 2-3. Differences between real and predicted water levels, January 2008

2.5 Global Sea Level Rise

It is widely recognized that global warming has caused a world-wide acceleration in sea level rise. Sea level rise predictions are not clear, and the state-of-the-science is in early stages.

Estimates vary, but a 3-foot rise by the end of the present century is in use as a reasonable figure (Fletcher, 2009). Given the uncertainties in stillwater elevation due to long-term phenomena, and the need for a long term coastal engineering design, an extra 1 ft of stillwater level rise has been added for the project design.

2.6 Design Still Water Level

Table 2-6 shows a 50-year design stillwater level of 8.5 ft to be a combination of astronomical tide (6.0 ft), combined storm surge and wave setup (1.5 ft), and an extra 1.0 ft to account for miscellaneous oceanographic phenomena including global warming induced sea level rise. A stillwater level of 7.0 ft is used for an annual design condition.

Table 2-6. Combined Stillwater Level for Design Conditions

Parameter	Stillwater Rise (ft – NAVD 88)
Tide	6.0
Storm Surge and Wave Setup	1.5
Other Phenomena	1.0
Design Stillwater Level	8.5

2.7 Wave Runup

In the design of shore protection structures, wave runup is the level to which the wash from breaking waves will rise on a structure, usually considered a rough planar slope (as in this case). Wave overtopping occurs when the structure is not sufficiently elevated and the wave will spill over the crest. Wave runup was calculated using the U.S. Army Corps of Engineers design program ACES based on methods by Ahrens and McCartney (1975).

The calculated runup value is 5.8 ft, and is added to the design stillwater elevation (8.5 ft) to give the non-overtopping elevation of 14.45 feet in Table 2-7.

Table 2-7. Wave runup for 50-year design conditions

Structure Slope	Design Wave Height (ft)	Wave Runup (ft)	Stillwater Level (ft)	Runup Elevation (ft)
1V :1.75H	3.0	5.95	8.5	14.45

The design wave and design stillwater level reflect relatively extreme conditions. Table 2-8 lists wave runup values using somewhat milder conditions based on a yearly return period wave height at the site of 2 ft, and a combined stillwater level of 7 ft:

Table 2-8. Wave runup for yearly design conditions

Structure Slope	Design Wave Height (ft)	Wave Runup (ft)	Stillwater Level (ft)	Runup Elevation (ft)
1V :1.75H	2.0	4.1	7.0	11.1

3. RIPRAP REVETMENT DESIGN

3.1 Stone Gradation – USACE SPM Method

The following riprap stone gradation calculations are slightly modified from methods found in the *USACE Shore Protection Manual*.

A 50-year design wave height of 3.0 ft is used for stone sizing and gradation. As the design wave height is less than 5 ft, a riprap, or graded stone size revetment is used.

The median weight (W_{50}) of armor stone required is determined by the Hudson formulation:

$$W_{50} = w_r H^3 / K(S_r - 1)^3 \cot\theta$$

Where,

- w_r = unit weight of stone (use 160 lbs/cu ft for basalt quarrystone)
- H = design wave height (H = 3.0 ft)
- K = stability coefficient (use 2.2 rip rap)
- S_r = specific gravity of the stone relative to sea water (2.5)
- θ = side slope (use 1V to 1.75H)

W_{50} = 330 lbs
W_{50} (min) = 0.75 W_{50} = 250 lbs
W_{50} (max) = 1.25 W_{50} = 412 lbs

A riprap revetment consists of a gradation of stone sizes based on the following 15th and 100th percentile mix of sizes:

W_{15} (min) = 0.4 W_{50} (min) = 100 lbs, W_{15} (max) = W_{50} (min) = 250 lbs
W_{100} (min) = 2 W_{50} (min) = 500 lbs, W_{100} (max) = 4 W_{50} (min) = 1,000 lbs

In summary, the armor stone gradation is as follows:

Table 3-1. SPM Riprap Stone Gradation (H = 3 ft)

Percentile	Minimum Weight	Maximum Weight
15	100 lbs	250 lbs
50	250 lbs	412 lbs
100	450 lbs	1,000 lbs

The graded riprap thickness (T) is twice the nominal diameter of a W50 stone (D50):

D50 = $(W_{50} / w_r)^{1/3}$ = 1.273 ft

T = 2 x D50 = 2.55 ft (use 2.5 ft)

The riprap should be underlain by a bedding layer that is nominally 10% of the riprap W_{50} stone size, say 10 lb to 50 lb stone with a layer thickness of 1.25 ft.

3.2 Stone Gradation – CABS (Caltrans) Method

The following stone gradation method uses guidelines presented in *California Bank and Shore Rock Slope Protection Design*, (Caltrans Study No. F90TL03, October 2000) and known as the California Bank and Shore (CABS) layered Rock Slope Protection (RSP) design method. The method uses standard classes between 1 lb and 16 tons. Figure 3-1, a table of rock classes from the study, is derived from Section 72-2.02 of the State of California, Department of Transportion, Standard Specifications.

GRADING OF ROCK SLOPE PROTECTION **PERCENTAGE LARGER THAN**

STANDARD Rock SIZE or Rock MASS or Rock WEIGHT		RSP-Classes [A]											
		Method A Placement					Method B Placement						
		RSP-Classes other than Backing									Backing No.		
US unit		8 ton	4 ton	2 ton	1 ton	1/2 ton	1 ton	1/2 ton	1/4 ton	Light	1 [B]	2	3
SI unit		8 T	4 T	2 T	1 T	1/2 T	1 T	1/2 T	1/4 T	Light	1 [B]	2	3
16 ton	14.5 tonne	0-5											
8 ton	7.25 tonne	50-100	0-5										
4 ton	3.6 tonne	95-100	50-100	0-5									
2 ton	1.8 tonne		95-100	50-100	0-5		0-5						
1 ton	900 kg			95-100	50-100	0-5	50-100	0-5					
1/2 ton	450 kg				95-100	50-100	-----	50-100	0-5				
1/4 ton	220 kg					95-100	95-100	-----	50-100	0-5			
200 lb	90 kg							95-100	-----	50-100	0-5		
75 lb	34 kg								95-100	-----	50-100	0-5	
25 lb	11 kg									95-100	90-100	25-75	0-5
5 lb	2.2 kg											90-100	25-75
1 lb	0.4 kg												90-100

[A] US customary names (units) of RSP-Classes listed above SI names, example US is "2 ton" metric is "2 T".
[B] "Facing" has same gradation as "Backing No. 1". To conserve space "Facing" is not shown .

Example for determining RSP-Class of outside layer. By using Equation 1, if the calculated W=135 kg (minimum stable rock size):
1. Enter table at left and select closest value of STANDARD Rock SIZE which is greater than calculated W, in this case 220 kg
2. Trace to right and locate "50-100" entry 3. Trace upward and read column heading "1/4 T", then 1/4 T is first trial RSP-Class.

Figure 3-1. RSP classes for CABS method

The standard RSP class is the next heavier standard rock weight from the W_{50} stone size as calculated in Section 3.1. For a W_{50} of 330 lbs, the standard RSP class is 1/4 Ton using Method B placement. Method A placement is individually placed stone and is used for the heavier RSP classes. In Method B placement multiple stones are "dumped" and final placement is spread by machinery.

The 1/4 Ton RSP class gradation is summarized in Table 3-2. The graded riprap thickness (T) is twice the nominal diameter of a W_{50} stone (D_{50}):

$D_{50} = (W_{50} / w_r)^{1/3} =$ 1.46 ft (note: W_{50} is 500 lbs)

$T = 2 \times D_{50} = 2.9$ ft (use 3.0 ft)

Table 3-2. CABS Riprap Stone Gradation for ¼ Ton RSP Class

Percent Larger Than	Weight
95-100	75 lbs
50-100	500 lbs
0-5	1,000 lbs

According to the Caltrans study, both Backing No. 1 and Backing No. 2 (Figure 3-1) are appropriate underlayer material for the 1/4 ton RSP class. Backing No. 2 is closer to the SPM criteria, with most of the material in the 25 lb to 75 lb stone range, and is preferable for this shore protection design.

3.3 Revetment Crest

The overtopping elevation for 50-year design conditions is 14.45 ft (see Section 2.4). Pursuant to discussions with the design team concerning the desired level of protection, the revetment crest is set at 15 ft, and the revetment is designed as a non-overtopping structure.

3.4 Revetment Toe

The top of the revetment toe is set at -2 ft (NAVD 88). The elevation is approximately one annual design wave height below the MLLW tidal datum. This is considered a reasonable scour depth in the event of erosion of the nearshore substrate at the project reach. The toe has an apron that is 4 x D_{50} in width and designed for the soft sediment bottom conditions at the site.

3.5 Revetment Cross-Sections and Stone Size Discussion

Figure 3-2 is a section view of the revetment design using the SPM method (Section 3.1), with stone sizing and gradation from Table 3-1. Figure 3-3 is a section using the CABS method, with stone sizing and gradation for RSP Class 1/4 T from Table 3-2.

Although both stone sizing methods are similar, the CABS method is inherently more conservative as the "next size up" stone class is used, i.e. 500-lb stone is essentially substituted for 330-lb stone specified by the Hudson formulation, with a consequent increase in revetment dimensions. The CABS method stone size and gradation is recommended for a robust and conservatively designed structure. However the SPM structure is also conservatively designed, and can be substituted without reservation if the difference in cost becomes a significant issue.

3.6 Revetment Alignment

The revetment layout is shown on Figure 3-4 (north end) and Figure 3-5 (south end). The revetment is aligned so that the top of the revetment slope approximately follows the project

hinge line. Some departures from the hinge line were used to straighten the revetment crest and to provide a 5-ft minimum clearance to the edge of the bike path.

The north end of the revetment stops short of the old bridge abutment. An alternative alignment was considered that would have wrapped the revetment around the abutment into the channel. However, this alternative was abandoned as armor protection for the channel is essentially a very different project scope:

- High flow velocities can scour the channel walls and substrate. These are independent of the site wave conditions and require a different set of design parameters
- Proper channel protection might require a different design cross-section, and may result in extending the rock protection to the bottom of the channel

Care must be taken not to excavate near the abutment in order not to de-stabilize the existing sheetpile.

The south end of the alignment stops short of the 20-inch oil delivery pipeline. As the geometery of the site does not allow a significant return to be constructed, the revetment will grade into the existing armor rock on the shoreline.

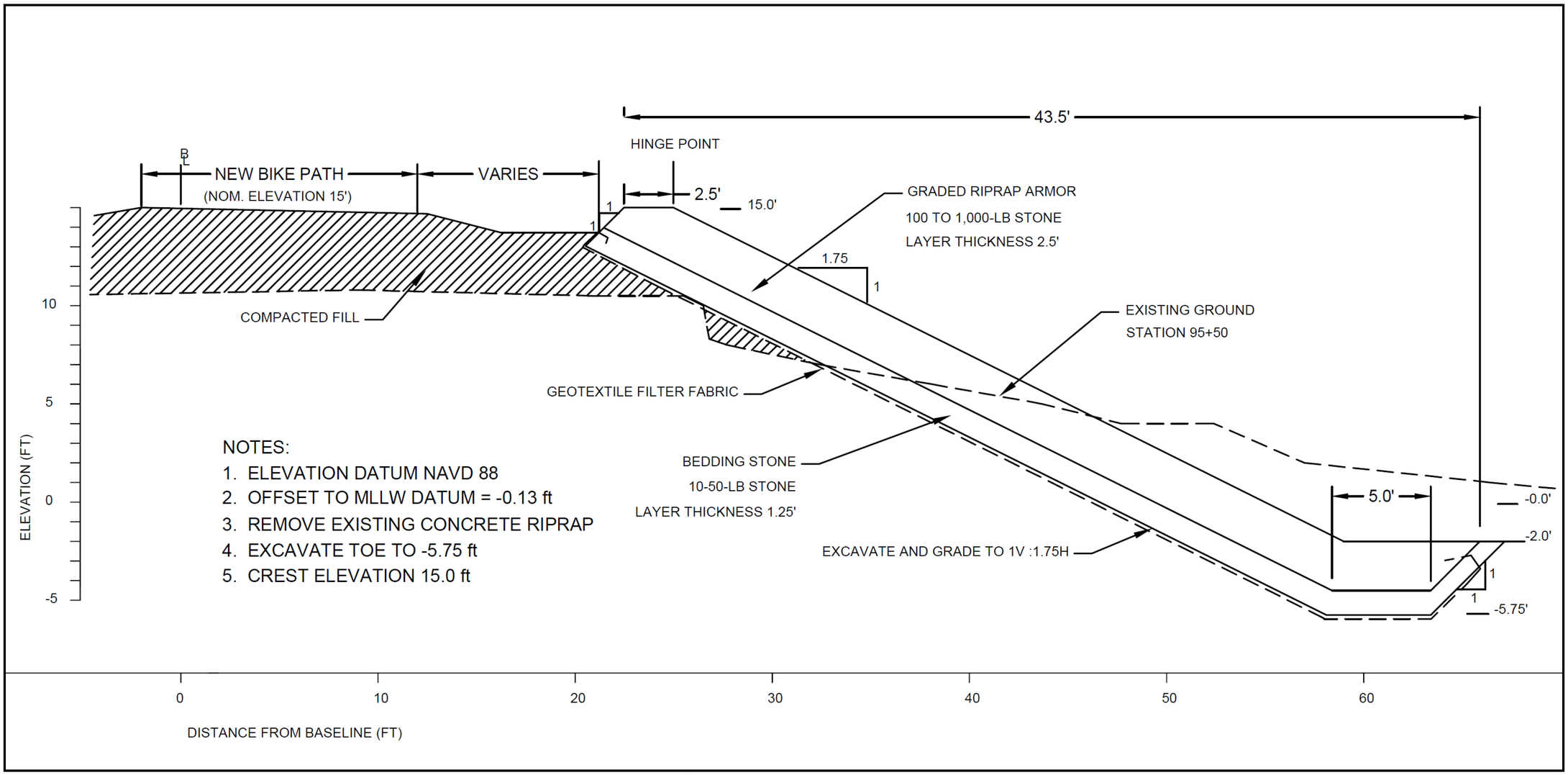

Figure 3-2. Design section for SPM method stone size and grading (see Section 3.1)

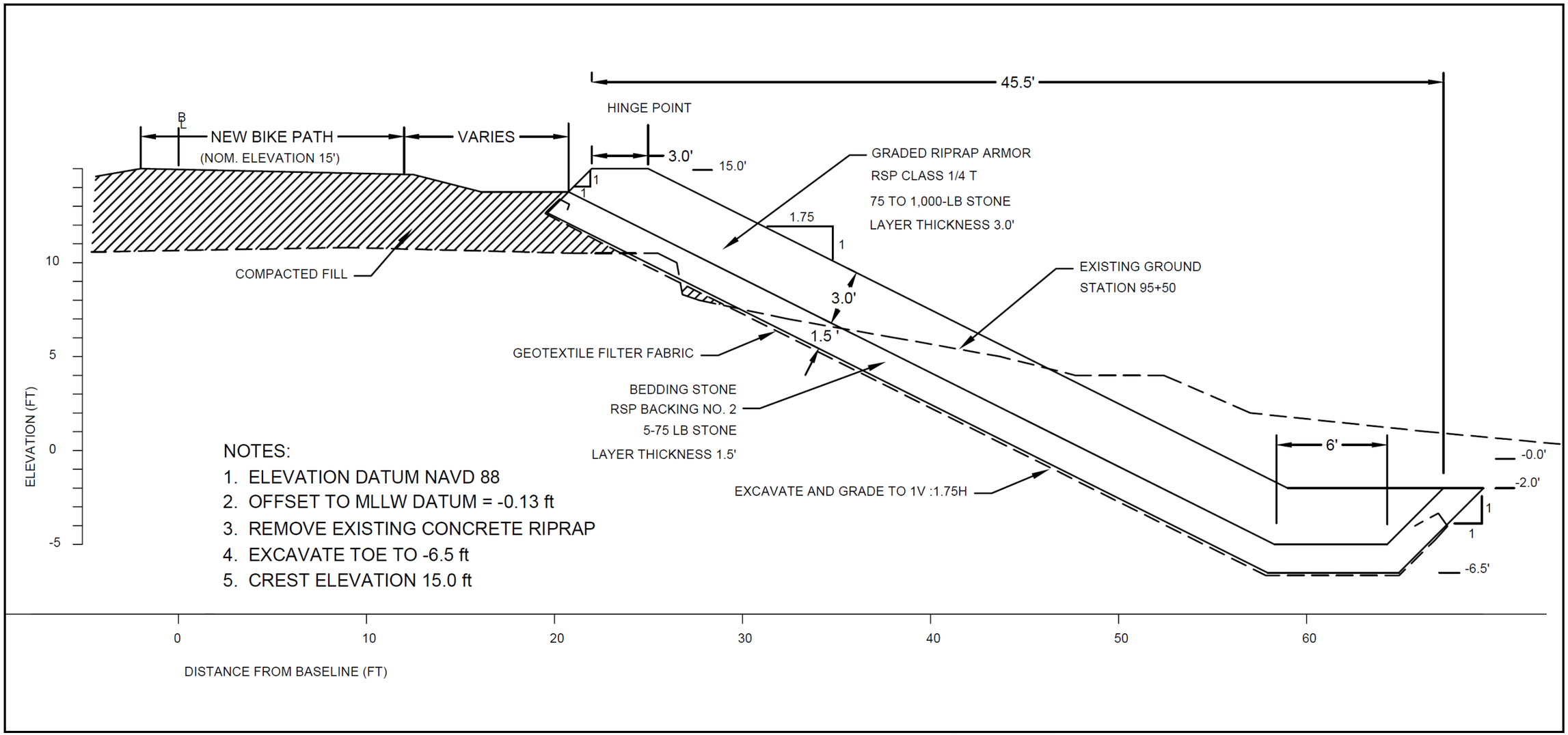

Figure 3-3. Design section for CABS method stone size and grading (see Section 3.2)

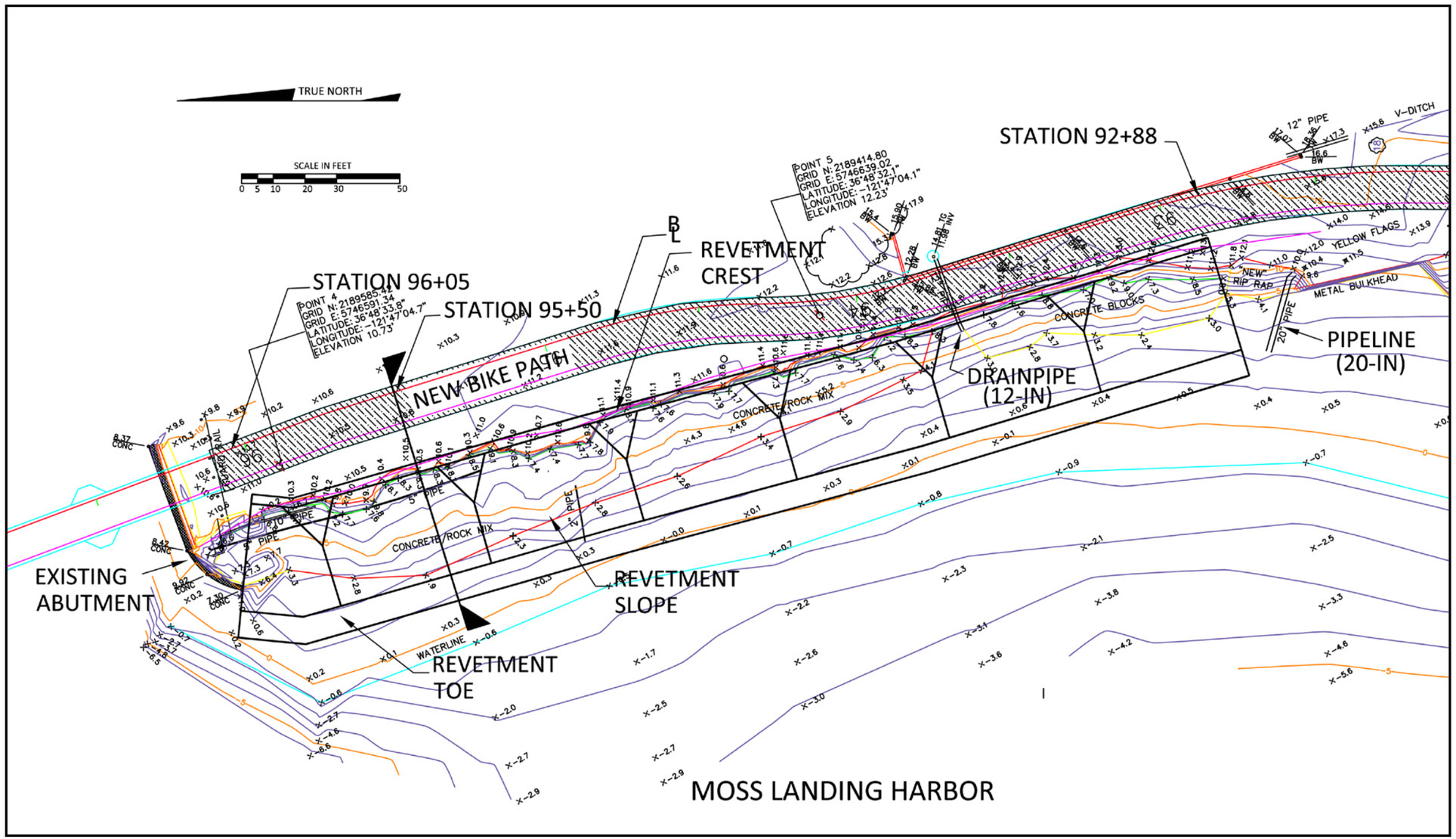

Figure 3-4. Revetment layout (CABS method stone size)

4. REFERENCES

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GEOTECHNICAL ENGINEERING INVESTIGATION REPORT
AUGUST 2010

GEOTECHNICAL ENGINEERING INVESTIGATION REPORT
MONTEREY BAY SANCTUARY SCENIC TRAIL PROJECT
MOSS LANDING SEGMENT
MONTEREY COUNTY, CALIFORNIA

For

WOOD RODGERS, INC.
3301 C Street, Bldg 100-B
Sacramento, CA 95816

PARIKH CONSULTANTS, INC.
2360 Qume Drive, Suite A, San Jose, CA 95131
(408) 452-9000

August 30, 2010

Job No.: 208137.10

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Log of Test Borings

APPENDIX B
Laboratory Test Results

GEOTECHNICAL ENGINERING INVESTIGATION REPORT
MONTEREY BAY SANCTUARY SCENIC TRAIL PROJECT
MONTEREY COUNTY, CALIFORNIA

INTRODUCTION

This report presents the results of our geotechnical engineering investigation for the proposed Monterey Bay Sanctuary Scenic Trail Project in Moss Landing, Monterey County, California. Our work was performed generally in accordance with the scope of work as per our agreement. The general location of the site and its vicinity are shown on the Project Location Map, Plate 1

The geotechnical recommendations presented in this report are intended for design input and are not intended to be used as specifications. These recommendations should not be used for bidding purposes or directly for construction cost estimates.

PROPOSED CONSTRUCTION

The purpose of the project is to construct a trail that would allow people to bicycle around Monterey Bay from Lovers Point in Pacific Grove to Wilder Ranch in Santa Cruz. The subject segment of the proposed trail would run northward from Moss Landing Road near State Route 1 (SR-1) along the west side of SR-1, crossing Elkhorn Slough on a new bridge to join the existing segment of the Monterey Bay Sanctuary Scenic Trail (MBSST) adjacent to the North Harbor facilities of the Moss Landing Harbor District. The proposed trail segment is approximately 4,500 feet (0.85 mile) long, and would be constructed partly within State right of way for SR-1 and partially in easements from adjacent property owners.

The proposed bridge will be a seven-span, 380-ft-long structure, crossing over Elkhorn Slough. The new trail bridge would be constructed on the site of the former SR-1 bridge, just west of the existing Elkhorn Slough Bridge (Br. No. 44-0074), with a nearly flat profile. The new bridge abutments can be constructed behind the abandoned bridge abutments, so abutment construction will be

straightforward; no fill in the harbor will be required. The superstructure is planned to be constructed with precast slab elements.

Along the project limit, some cut and fill are required to accommodate the proposed improvement. It is planned to use segmental walls (e.g., Keystone[tm] or Versa-Lok[tm]) to retain the fill, and soldier pile and lagging walls to support the cut. A total of four retaining walls are planned along the trail. In addition, a pipe culvert is proposed at about Sta. 92+00 to carry the trail over the existing ditch.

PURPOSE AND SCOPE

The purpose of this investigation was to evaluate the general soil conditions at the project site, to evaluate their engineering properties and to provide recommendations for the proposed improvements.

The scope of work performed for this investigation included a review of the readily available soils and geologic literature pertaining to the site, obtaining representative soil samples and logging soil materials encountered in eight exploratory borings, laboratory testing of the collected samples, engineering analysis of the field and laboratory data, and preparation of this report. The basis for this investigation is a set of preliminary plans provided by Wood Rogers, Inc. We have presented the location plan and descriptive log of the borings in Appendix A.

Due to limitations inherent in geotechnical investigations, it is neither uncommon to encounter unforeseen variations in the soil conditions during construction nor is it practical to determine all such variations during an acceptable program of drilling and sampling for a project of this scope. Such variations, when encountered, generally require additional engineering services to attain properly constructed project. We, therefore, recommend that a contingency fund be provided to

accommodate any additional charges resulting from technical services that may be required during construction.

Our recommendations in this report are based on the above information. Any major deviation should be reported to this office for consideration.

SITE CONDITIONS

The project area is on the west side of State Route 1 (SR-1), between Moss Landing Road and the North Harbor, Moss Landing, Monterey County, California. The project area consists of undeveloped, level to gently sloping terrain near Moss Landing Road in the southern portion of the project area, with a bluff near the intersection of SR-1 and Dolan Road. The Moss Landing Power Plant (now operated by Dynegy, formerly Duke Energy and originally PG&E) occupies the land east and west of the highway from this location northward to Elkhorn Slough.

This area consists of a knoll with a steep bank to the water's edge. It is our understanding that the knoll area is highly sensitive for cultural resources. The retaining structures are planned to primarily retain imported fill material, thereby minimizing the amount of excavation into cultural deposits.

The remnants of the former alignment of SR-1 and the abutments of the original highway bridge across the slough are on the west side of the current SR-1 bridge across Elkhorn Slough. North of the approximately 350-foot-wide slough, the terrain is flat with a large paved parking area to the west of SR-1.

Based on the plans and hydrodynamic report provided, the deepest part of the slough appears to be at approximately Elev. -20 feet. Water level in the slough is affected by tidal fluctuations.

FIELD EXPLORATION

Based on the plans, discussions with design engineer, and readily available data of the area, eight borings were explored to maximum elevation of -100 feet. Borings MB-1 and MB-2 were drilled for the proposed bridge structure, located at the planned location of the north and south abutments, respectively. Borings MB-3 thru MB-8 were drilled for the proposed soldier pile and lagging walls. Borings MB-3 thru MB-5 were drilled around the knoll area, and Borings MB-6 thru MB-8 were drilled along the west side of SR-1, in front of The Moss Landing Power Plant. The locations and description of the materials are shown on "Log of Test Borings" presented in Appendix A.

Boring MB-1 was drilled with a truck-mounted drill rig. The boring was first advanced by hollow stem augers, and then converted to rotary wash drilling method when groundwater was encountered. The rest of the test borings (Borings MB-2 thru MB-8) were advanced with a portable drill rig (Minuteman) using solid stem augers. Selected samples were obtained from 2.5-inch I.D. (Modified California) and 1.4-inch I.D. (Standard Penetration) samplers at various depths. The samplers were driven into subsurface soils under the impact of a 140-pound hammer having a free fall of 30 inches. The blow counts are presented on the "Log of Test Borings". (When correlating standard penetration data in similar soils, the blow counts for the Modified California Sampler may be converted to equivalent SPT blow counts by multiplying a conversion factor of 0.65.) The samples were sealed and transported to our laboratory for further evaluation and testing. The field investigation was conducted under the supervision of our field engineer who logged the test borings and prepared the samples for subsequent laboratory testing and evaluation.

Laboratory tests were performed on selected samples during field exploration to determine the physical and engineering properties of the subsoils. Test methods and test results are presented in Appendix B. Laboratory data of moisture contents, unit weight, unconfined compressive strength, and indications for Atterberg limits and sieve analyses are presented on the Log of Test Borings.

The bore logs presented in Appendix A were prepared from the field logs which were edited after visual re-examination of the soil samples in the laboratory and results of classification tests on selected soil samples as indicated on the logs. The abrupt stratum changes shown on these logs may be gradual and relatively minor changes in soil types within a stratum may not be noted on the logs due to field limitations.

SUBSURFACE CONDITIONS

Based on Borings MB-1, MB-2 and the as-built boring data (Elkhorn Slough Bridge, Caltrans, 1984), the subsoils along the proposed bridge generally consist of interbedded soft clay and loose sand, and dense sand formation was encountered underneath the soft clay.

Per the as-built boring data (1984), the borings were drilled along the current alignment of the SR-1 bridge. Dense sand formation was generally encountered at approximate Elev. -60 to -70 feet in the borings along the bridge (Borings B-1 thru B-4). However, the recently conducted Boring MB-1, located immediately north of the slough at the planned location of Abutment 8, indicates that the dense sand layer was encountered at a much greater depth of approximate Elev. -95 feet. Soft clay was encountered between Elev. -65 and -95 feet.

Boring MB-1 is located only about 70 feet west of as-built Boring B-2. Such soft clay layer was not encountered in as-built Boring SP-1 either, which was drilled about 150 feet north Boring B-2. Therefore, an "underground cliff" may be expected where the dense sand formation dips toward west. For estimating the pile length, we have conservatively assumed the dense sand formation at Elev. -95 per our current boring data.

Borings MB-3 thru MB-5 were drilled at the knoll area to a maximum depth of 30 feet. The borings encountered predominantly medium dense to very dense, fine-grained sand. Borings MB-6 thru MB-8 were drilled along the shoulder of southbound SR-1, located in front of The Moss Landing

Power Plant. The borings also encountered predominantly fine-grained sand to 30 feet, the maximum depth drilled.

Groundwater level was encountered at Elev. -2.5± and 2.5 feet in Boring MB-1 and MB-2, respectively. The groundwater level is generally at mean sea level (MSL) and may vary with tidal fluctuations. The groundwater level is also anticipated to vary with the passage of time due to seasonal groundwater fluctuation, surface and subsurface flows, ground surface run-off, tide, and other factors that may not be present at the time of our investigation. To account for the seasonal fluctuation and tidal effect, we have conservatively assumed groundwater at Elev. 5 feet for design purpose.

GEOLOGY

General geologic features pertaining to the site were evaluated by referring to the "Maps Showing Geology and Liquefaction Potential of Northern Monterey and Southern Santa Cruz Counties, California", by Dupre and Tinsley (USGS MF-1199, 1980). Based on the publication, the northern portion (to the south of the slough) of the site is generally underlain by Artificial Fill (Qfl). The southern portion of the site is generally underlain by Eolian Deposits of Maresa Beach (Qem). A geologic map of the project vicinity is shown on Plate 2. Detail descriptions of the main geologic units are summarized as follows:

Qfl – Artificial Fill

Heterogeneous mixture of artificially deposited fill material ranging from well-compacted sand and silt to poorly compacted sediment high in organic content; only locally delineated. Liquefaction susceptibility ranges from high to low, depending on degree of compaction.

Qem – Eolian Deposits of Maresa Beach

Weakly to moderately consolidated, moderately well sorted silt and sand deposited in extensive coastal dune fields. Locally grades conformably into underlying coastal terrace deposits of Santa Cruz; elsewhere overlies fluvial facies of terrace deposits of Watsonville. Upper 3 to 6 m is indurated owing to clay and iron oxide cementation in weathered zone. Permeability generally low. Extensive erosion likely where lower unconsolidated sand exposed to a free face. Relatively low susceptibility to flooding and for liquefaction.

EARTHQUAKE CONSIDERATIONS

Seismic Sources

The project site is located in a seismically active part of northern California. Many faults existing in the San Francisco Bay Area are capable of producing earthquakes, which may cause strong ground shaking at the site. Attached Plate 3, Fault Map, presents the locations of the fault systems relative to the project site.

Maximum magnitudes (M_{max}) for some of the major faults in the area based on Caltrans 2007 fault database are summarized below. These maximum credible earthquake magnitudes represent the largest earthquakes that could occur on the given fault based on the current understanding of the regional tectonic structure.

Fault	Fault I.D.	Fault Type	Approx. Distance From Site	Maximum Magnitude (M_{max})
Zayante-Vergales Fault Zone	93	Right-Lateral Strike-Slip	7.3 miles	7.0
San Andreas Fault Zone (Santa Cruz Mountains section)	310	Right-Lateral Strike-Slip	11.0 miles	7.9
Reliz Fault Zone (Blanco section)	18	Reverse	9.5 miles	6.5
Monterey Bay-Tularcitos (Monterey Bay section)	94	Right-Lateral Strike-Slip	11 miles	7.3

As shown on the Fault Map, active faults, including the San Andreas Fault Zone, Zayante-Vergales Fault Zone, Reliz Fault Zone and Monterey Bay-Tularcitos, are located in the vicinity of the site. A major earthquake on these faults can produce moderate to strong ground shaking at the proposed site.

Seismic Hazards/Liquefaction Potential

Potential seismic hazards may arise from three sources: surface fault rupture, ground shaking and liquefaction. Since no active faults pass through the site, the potential for fault rupture is relatively low. Based on available geological and seismic data, the possibility of the site to experience strong ground shaking may be considered moderate to high.

Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary but essentially considerable loss of shear strength under the reversing, cyclic shear stresses associated with earthquake shaking. Submerged cohesionless sands and silts of low relative density are the type of soils which usually are susceptible to liquefaction. Clays generally are not susceptible to liquefaction.

Based on the boring data recently conducted by Parikh (MB-1, 2009), the silty sand layer encountered between approximate Elev. -20 and -30 feet has a high potential for soil liquefaction. The as-built boring data also indicate submerged loose sand layers along the proposed bridge alignment, which have relatively high potential for liquefaction. The potentially liquefiable sand layers were encountered between Elev. -30 and -40 based on Boring B-3 & B-4 (Caltrans, 1981). In fact, the Moss Landing area suffered extensive damage due to liquefaction during the 1989 Loma Prieta earthquake, and the old SR-1 bridge over Elkhorn Slough collapsed during the seismic event.

The engineering consequence of the potential liquefaction may be temporary loss of shear strength and some post-liquefaction settlement. The post-liquefaction settlement is estimated on the order of 3 inches, and should be random and localized. The effect of liquefaction has been considered in evaluation of both vertical and lateral pile capacity during seismic event.

Site-Dependent Response Spectrum

Average shear wave velocity (Vs) for the top 30m (100 feet) at the site was estimated by using established correlations and the procedure provided in the Design Manual (Ver. 1.0, August 2009). As mentioned in the previous section, liquefaction potential is considered high at the project site. Therefore, when estimating the V_{30m}, we have assumed residual shear strength per Seed and Harder (1990) and modeled the loose sand as soft clays for liquefaction case. Based on our calculation, we have estimated Vs_{30m} of 140 m/s and 165 m/s for liquefaction case and non-liquefaction case, respectively.

Consequently, the subsoil conditions do not fit the assumptions of the current Caltrans seismic design criteria (V_{S30m}<180 m/s). It is understood that potential soil liquefaction may result in a different and more complex ground response. Our previous project experience has indicated that the preliminary site-dependent response spectrum developed at the University of California for relatively thick soft cohesive soils and very strong ground shaking (Seed and Dickenson, 1993) can be used for this type of soil conditions with liquefaction. This approach has been accepted for seismic retrofit design by Caltrans. Several previous Caltrans seismic bridge retrofit projects at various locations along Salinas River in Monterey County were designed using this site-dependent response spectrum. The recommended site-dependent response spectrum (per Seed and Dickenson, 1993) is shown on Plate 4.

GEOTECHNICAL DESIGN CONSIDERSTIONS

For the proposed bridge crossing over Elkhorn Slough, the boring data indicate that the subsoils generally consist of interbedded soft clay/silt and loose sand overlying dense sand formation. The site history and record during the 1989 Loma Prieta earthquake indicates that there is a high liquefaction potential at the site. The implications of the soft clay layer and liquefiable sand were evaluated from a geotechnical aspect regarding their impact on the design of foundation piles for the project.

Under static loading conditions, the soft clay will settle under the weight of the new approach embankments. According to the plans provided, relatively minor fill (approximately 2 feet) will be placed at each abutment. Based on our analysis, the consolidation settlement is expected to be on the order of ¾ inch. In our opinion, the impact to foundation design due to consolidation settlement is considered relatively low.

More detailed discussions regarding the geotechnical design considerations are presented in the following sections.

FINDINGS AND RECOMMENDATIONS

General

This report was prepared specifically for the proposed project according to the plans provided to us. Normal construction procedures were assumed throughout our analysis and represent one of the bases of recommendations presented herein. Our design criteria have been based upon the materials encountered on the site. Therefore, we should be notified in the event that these conditions are changed, so as to modify or amend our recommendations.

Bridge Foundations

Based on Borings MB-1, MB-2 (Parikh, 2009) and the as-built boring data (Elkhorn Slough Bridge, Caltrans, 1984), liquefiable sand and soft clay were encountered at the site, and the dense sand formation was encountered at greater depth underneath the soft clay. Relatively deep piles are expected according to the lateral and vertical design demands of the foundations. Due to the presence of water and loose sand, Cast-In-Drilled-Hole (CIDH) concrete piles are not recommended, and driven piles may be considered for foundation support.

As mentioned in the "Subsurface Condition" section, dense sand formation was encountered at greater depth according to the recently conducted Boring MB-1. An "underground cliff" may be expected where the dense sand formation dips toward west. Based on the recent and as-built boring data, the depths of the dense sand may vary along the bridge alignment. For design purpose, we have conservatively assumed the dense sand formation at Elev. -95 per our current boring data. However, potential hard driving may be anticipated. Due to the uncertainty, concrete driven pile is not recommended. Consequently, open-ended steel pipe piles are considered the preferred option for foundation support for better drivability, and the piles are easier to be cut off when refusal being encountered shallower than the design tip elevation.

Per our discussion with the designer, it is currently planned to use 24-inch diameter open-ended Cast-In-Steel-Shell (CISS) piles at the abutments, and 36-inch diameter open-ended CISS piles at the piers. Preliminary foundation/pile design data and design loads in accordance with Caltrans MTD 3-1 were provided by the designer. It is our understanding that the STRENGTH I case governs the pile design at the bents. Therefore, the pile lengths were estimated based on the loads of STRENGTH I case as shown in the following tables.

For estimating the pile lengths, the capacity within the liquefiable soils were neglected, and we have considered down drag force induced by post-liquefaction settlement. In addition, the scour

elevation is assumed to be at Elev. -38 feet. The capacity of the piles at the bents was neglected above this elevation. The recommended specified pile tip elevations are also shown in the following tables.

FOUNDATION DESIGN DATA

Support No	Design Method	Pile Type	Finish Grade Elev. (ft)	Pile Cut-off Elev. (ft)	Pile Cap Size (ft)		Permissible Settlement (in)	No. of Piles per Support
					B	L		
Abut 1	WSD	24" CISS	11	9	10	20	1	6
Bent 2	LRFD	36" CISS	-38	13.7	-	-	1	3
Bent 3	LRFD	36" CISS	-38	14.4	-	-	1	3
Bent 4	LRFD	36" CISS	-38	13.8	-	-	1	3
Bent 5	LRFD	36" CISS	-38	13.2	-	-	1	3
Bent 6	LRFD	36" CISS	-38	12.7	-	-	1	3
Bent 7	LRFD	36" CISS	-38	12.1	-	-	1	3
Abut 8	WSD	24" CISS	11	9	10	20	1	6

FOUNDATION DESIGN LOADS

Support No.	Service-I Limit State (kips)			Strength Limit State (Controlling Group, kips)				Extreme Limit State (Controlling Group, kips)			
	Total Load		Perma-nent Loads	Compression		Tension		Compression		Tension	
	Per Support	Per Pile	Per Support	Per Support	Max. Per Pile.	Per Support	Max. Per Pile.	Per Support	Max. Per Pile.	Per Support	Max. Per Pile.
Abut 1	176.9	29.5	159.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bent 2	273.0	N/A	211.5	372.3	124.1	-	-	-	-	-	-
Bent 3	344.5	N/A	271.5	467.6	155.9	-	-	-	-	-	-
Bent 4	344.8	N/A	271.5	468.2	156.1	-	-	-	-	-	-
Bent 5	344.2	N/A	271.5	467.3	155.8	-	-	-	-	-	-
Bent 6	345.4	N/A	271.5	468.8	156.3	-	-	-	-	-	-
Bent 7	235.7	N/A	184.2	320.2	106.8	-	-	-	-	-	-
Abut 8	147.3	24.5	131.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

FOUNDATION RECOMMENDATIONS FOR ABUTMENTS

Support	Pile Type	Cut-off Elev. (ft)	LRFD Service-I Limit State Load (kips) per Support		LRFD Service-I Limit State Total Load (kips) per Pile (Compression)	Nominal Resistance (kips)	Design Tip Elev. (ft)	Specified Tip Elev. (ft)	Nominal Driving Resistance Required (kips)
			Total	Perma-nent					
Abut 1	24" CISS	11	176.9	159.0	29.5	60	-65.0 (a)	-65.0	260
Abut 8	24" CISS	11	147.3	131.7	24.5	60	-75.0 (a)	-75.0	240

Design tip elevations are controlled by (a) compression, (b) lateral

FOUNDATION RECOMMENDATIONS FOR BENT

Support Location	Pile Type	Cut-off Elev. (ft)	Service-I Limit State Load (kips) per Support	Total Permissible Support Settlement (in.)	Required Factored Nominal Resistance (kips)				Design Tip Elev. (ft)	Specified Tip Elev. (ft)	Nominal Driving Resistance Required (kips)
					Strength Limit		Extreme Event*				
					Comp. (ϕ=0.7)	Ten. (ϕ=0.7)	Comp. (ϕ=1)	Ten. (ϕ=1)			
Bent 2	36" CISS	13.7	211.5	1	124.1	-	-	-	-75.0 (a-I)	-75.0	280
Bent 3	36" CISS	14.4	271.5	1	155.9	-	-	-	-80.0 (a-I)	-80.0	310
Bent 4	36" CISS	13.8	271.5	1	156.1	-	-	-	-80.0 (a-I)	-80.0	310
Bent 5	36" CISS	13.2	271.5	1	155.8	-	-	-	-95.0 (a-I)	-95.0	375
Bent 6	36" CISS	12.7	271.5	1	156.3	-	-	-	-95.0 (a-I)	-95.0	375
Bent 7	36" CISS	12.1	184.2	1	106.8	-	-	-	-65.0 (a-I)	-65.0	240

Design tip elevations are controlled by: (a-I) Compression (Strength Limit), (b-I) Tension (Strength Limit), (a-II) Compression (Extreme Event), (b-II) Tension (Extreme Event), (c) Settlement, (d) Lateral Load.

PILE DATA TABLE

Location	Pile Type	Nominal Resistance (kips)		Design Tip Elev. (ft)	Specified Tip Elev. (ft)	Nominal Driving Resistance (kips)
		Compression	Tension			
Abut 1	24" CISS	60	0	-65.0 (a)	-65.0	260
Bent 2	36" CISS	180	0	-75.0 (a)	-75.0	280
Bent 3	36" CISS	230	0	-80.0 (a)	-80.0	310
Bent 4	36" CISS	230	0	-80.0 (a)	-80.0	310
Bent 5	36" CISS	230	0	-95.0 (a)	-95.0	375
Bent 6	36" CISS	230	0	-95.0 (a)	-95.0	375
Bent 7	36" CISS	160	0	-65.0 (a)	-65.0	240
Abut 8	24" CISS	50	0	-75.0 (a)	-75.0	240

Design tip elevations for Abutments & Bent are controlled by (a) Compression Loads

The inside of the CISS piles should be cleaned out and replaced with concrete to meet structural design requirements. Caltrans Standard Special Provisions for CISS piles are recommended. The depth of interior cleaning and concrete replacement will depend on the structural demands. We recommend that a minimum of 20 feet of the soil plug be left in the bottom portion of the shell. In addition, a 5-foot thick layer of seal course should be used inside the steel shell to facilitate pile construction. The contractor should select pile driving hammer and equipment to drive the piles. Based on existing site condition, a temporary trestle structure may be required for construction.

Corrosion test data indicate that the on-site soils have a minimum resistivity of 230 ohms-cm and a water soluble chloride concentration of 1120 ppm due to the marine environment. The subsoils are considered corrosive. The recommended minimum wall thickness for the proposed CISS piles is 0.75 inch.

The pile capacity will be derived primarily from frictional resistance along the pile shafts. The pile lengths are based on the footing and scour elevations provided by the designer. In the event that the elevations are changed, the design pile tip elevations may have to be revised accordingly.

Based on the boring data, hard driving conditions should be expected. In the event that unanticipated pile driving conditions are encountered, it is recommended that a Pile Driving Analyzer (PDA) be used to evaluate the pile capacity and integrity. Typical applications of the PDA include capacity evaluation (for both during driving and re-striking) and integrity testing for piles that have experienced hard driving. The Gates formula per Caltrans standard specifications (Section 49-1.08) may be used in the field for driving and capacity verification.

Pile driving should be allowed to terminate short of the specified tip elevation provided that either one of the following conditions are satisfied:

- Other requirements including tension and lateral demands are met;
- Any pile refusal within 5 feet above the specified tip elevation, which may be considered acceptable and cut off at the option of the contractor.

Lateral Design of Piles

It is our understanding that lateral load analyses will be performed by the structural engineer on the planned CISS piles. It will be an iterative process as part of the structural analysis. The

geotechnical parameters for LPILE analysis are provided. In our opinion, the analyses of the piles should consider scour potential, soil liquefaction and group efficiency.

The effect of liquefaction should be accounted for by using the p-y relationship for liquefied sand presented by Rollins et al (2003), which is only available for LPILE Plus version 5.0 or newer, or by reducing the original p-y relationship of the built-in "SAND" to 10% (p-multiplier=0.1) of the soil layer without liquefaction per Applied Technology Council (ATC-32).

For group efficiency, the reduction factor is a function of pile spacing and the layout of the pile group. Per our discussion with the designer, there will be three piles at each bent, and six piles at each abutment. Consequently, a group reduction factor of 0.6 is recommended for the abutment piles with planned pile spacing of 3D. For the bents, we have provided various group reduction factors based on different pile spacing and different directions for the iterative structural analysis.

Direction	Group Reduction Factor at Bents			
	2.5D	3D	3.5D	4D
Transverse	0.72	0.78	0.83	0.88
Longitudinal	0.84	0.91	0.97	1.0

For L-Pile analysis, the recommended geotechnical parameters were summarized in the following tables. Please note that the following parameters are determined for regular piles with pile diameter less than 2 feet. If piles larger than 2 feet in diameter will be used, the K values should be scaled up and E50 values scaled down by a factor of (pile size/2')$^{0.5}$.

Geotechnical Parameters for L-Pile Analysis at Abutment 1 & Piers 2-4

Approx. Elevation (ft)	LPILE Soil Type	Probable Soil Strength	K (pci)	E_{50} (in/in)	Effect Unit Weight (pci)
Above 5	4, SAND	$\phi = 34°$	20	--	0.072
-7.5 to 5	4, SAND (with liquefaction)	$\phi = 32°$ p-multiplier= 0.1	20	--	0.035
	4, SAND (without liquefaction)	$\phi = 32°$	20	--	0.035
-12.5 to -7.5	3, CLAY	c=13.89 psi	500	0.007	0.029
-17.5 to -12.5	4, SAND (with liquefaction)	$\phi = 32°$ p-multiplier= 0.1	20	--	0.035
	4, SAND (without liquefaction)	$\phi = 32°$	20	--	0.035
-30 to -17.5	1, SOFT CLAY	c=3.47 psi	--	0.01	0.029
-40 to -30	4, SAND (with liquefaction)	$\phi = 30°$ p-multiplier= 0.1	20	--	0.035
	4, SAND (without liquefaction)	$\phi = 30°$	20	--	0.035
-95 to -40	1, SOFT CLAY	c=4.86 psi	--	0.01	0.029
Below -95	4, SAND	$\phi = 40°$	125	--	0.041

Geotechnical Parameters for L-Pile Analysis at Piers 5 & 6

Approx. Elevation (ft)	LPILE Soil Type	Probable Soil Strength	K (pci)	E_{50} (in/in)	Effect Unit Weight (pci)
Above -40	1, SOFT CLAY	c=1.74 psi	--	0.02	0.029
-50 to -40	4, SAND (with liquefaction)	$\phi = 30°$ p-multiplier= 0.1	20	--	0.035
	4, SAND (without liquefaction)	$\phi = 30°$	20	--	0.035
-65 to -50	4, SAND	$\phi = 34°$	60	--	0.038
-95 to -65	1, SOFT CLAY	c=4.86 psi	--	0.01	0.029
Below -95	4, SAND	$\phi = 40°$	125	--	0.041

Geotechnical Parameters for L-Pile Analysis at Pier 7 and Abutment 8

Approx. Elevation (ft)	LPILE Soil Type	Probable Soil Strength	K (pci)	E_{50} (in/in)	Effect Unit Weight (pci)
Above 5	4, SAND	$\phi = 34°$	60	--	0.069
-17.5 to 5	1, SOFT CLAY	c=3.47 psi	--	0.01	0.029
-22.5 to -17.5	1, SOFT CLAY	c=4.86 psi	--	0.01	0.029
-32.5 to -20	4, SAND (with liquefaction)	$\phi = 30°$ p-multiplier= 0.1	20	--	0.035
	4, SAND (without liquefaction)	$\phi = 30°$	20	--	0.035
-40 to -32.5	4, SAND	$\phi = 36°$	60	--	0.038
-47.5 to -40	1, SOFT CLAY	c=5.21 psi	--	0.01	0.029
-65 to -47.5	4, SAND	$\phi = 34°$	60	--	0.038
-95 to -65	1, SOFT CLAY	c=5.21 psi	--	0.01	0.029
Below -95	4, SAND	$\phi = 36°$	125	--	0.038

According to the plans provided, the abutments are located relatively close to the existing sheet piles. The condition and the exact configuration of the sheet piles are not known. Therefore, it may be prudent to neglect the soil resistances, along longitudinal direction toward the slough, for the portions of the piles above the mud line.

Lateral Earth Pressures

Abutment retaining walls and wing walls should be designed to resist the following Applied Lateral Earth Pressures and live load. These values assume no hydrostatic pore pressure buildup behind the wall and are based on well-drained backfill behind the walls.

Applied Lateral Earth Pressures

Active Condition	36 pcf Equivalent Fluid Pressure (EFP) for the native soil.
Passive Resistance	5 ksf (ultimate) for seismic design of the abutment backwall (5.5 feet high or greater); for activated height less than 5.5 feet modify proportionally, i.e. 5×(H/5.5) ksf. A minimum lateral wall movement of 2% of wall height to mobilize the full ultimate passive pressure is required.

Cantilever walls which are free to rotate at least 0.004 radian may be assumed flexible for the active condition. Walls that are not capable of this movement should be assumed rigid and designed for the at-rest condition. The effect of any surcharge (dead or live load) should be added to the preceding lateral earth pressures. A coefficient of 0.3 may be used to determine the additional earth pressure resulting from the surcharge.

Settlement Estimates at the Abutments

Based on the plans provided, minor fill is expected at the abutments of the proposed bridge. The fill is expected to be on the order of 2 feet. Due to the presence of soft clay, consolidation tests were conducted on selected samples obtained from the borings for evaluating the amount of settlement. We have reviewed and adopted correlations from various references with revision to the site-specific laboratory test results for estimating the indexes for settlement calculation.

The estimation of pre-consolidation pressure is based Su/p per Skempton (1957) and NAVFAC D.M. 7.1. The modified compression index ($C_c/(1+e_0)$) and the modified recompression index ($C_r/(1+e_0)$) were obtained from the laboratory test results. The modified compression indices were compared to the correlation with natural moisture contents suggested by Lambe and Whitman (1969). After reviewing the laboratory data and the correlation, we have revised the correlation for estimating the modified compression index accordingly. For the recompression index (Cr, in the over-consolidated range), it is typically 10% of the compression index (per Holtz and Kovacs, 1982). According to the test data, we have assumed the ratio of Cr/Cc of 15% for estimating the modified recompression index ($C_r/(1+e_0)$), which is in general accordance with the suggested value.

Based on available boring information and the proposed embankment dimension, the estimated ground settlements are on the order of 3/4 inch. About one-third of the settlement is expected to be in the over-consolidated (OC) range and should occur relatively fast. In our opinion, the impact due to consolidation settlement is considered relatively minor, and waiting period will not be necessary.

Retaining Walls

- *Soldier Pile and Lagging Wall*

Two soldier pile and lagging walls are proposed along the trail. It is anticipated that the soldier piles consist of minimum 24-inch diameter Caltrans Cast-In-Drilled-Hole (CIDH) piles. The pile spacing may be on the order of 10 feet on centers. Based on the boring data, we anticipate that the soldier piles will be in relatively dense sand formation. Therefore, ravelling or caving is expected which may require additional drilling and cleaning effort and may increase the concrete volume for the piles. It is prudent to make the contractor aware of these conditions so that he takes appropriate steps to comply with the standards and maintain the integrity of the piles. All piles excavations should be observed by the geotechnical engineer or regulatory agency prior to the placement of reinforcement and concrete so that if conditions differ from those anticipated, appropriate recommendations can be made.

Based on the Retaining Wall Layout sheet provided, the maximum design height is 6 feet for Retaining Wall No. 2 and 8 feet for Retaining Wall No. 4. The design can be performed in accordance with Caltrans BDS Section 5. Relevant geotechnical parameters for design are summarized below:

Retaining Wall No. 2 – Sta. 76+22 to 81+12

- Unit Weight = 125 pcf, Traffic Surcharge = Extra 2 feet of soil
- Active Earth Pressure: Ka = 0.3 (ϕ = 32° for level granular fill and native sandy materials)
- Passive Earth Pressure: based on the terrain, the following passive resistance is recommended when there is minimum 10 feet of soil horizontally in from the pile.

  (1) Sta. 76+22 – 78+00:

  Kp = 5 (per Log-Spiral, ϕ = 33° for medium dense sand)

  (2) Sta. 78+00 – 81+12:

  Kp = 7 (per Log-Spiral, ϕ = 38° for very dense sand)

- Passive arching capability:

  (1) Sta. 76+22 – 78+00:

  Passive arching capability=2.64 (arching factor, f=0.53, assuming 24-inch CIDH piles with pile spacing of 10 feet on center)

  (2) Sta. 78+00 – 81+12:

  Passive arching capability=3.0 (arching factor, f=0.6, assuming 24-inch CIDH piles with pile spacing of 10 feet on center)

Retaining Wall No. 4 – Sta. 90+50 to 91+87

- Unit Weight = 125 pcf
- Active Earth Pressure: Ka = 0.5 (ϕ = 32° for sloping granular fill and native sandy materials)
- Passive Earth Pressure: Kp = 6 (per Log-Spiral, ϕ = 36° for very dense sand and engineered fill)
- Passive arching capability=2.88 (arching factor, f=0.58, assuming 24-inch CIDH piles with pile spacing of 10 feet on center)

Please note that while the soil in front of the pile is less than 10 feet horizontally, it is recommended to calculate the passive resistance by using 180 pcf EFP (Kp=1.5 and soil unit weight of 120 pcf). The resistance on the upper 3 feet should be completely neglected.

– *Keystone Wall*

Per our discussion with the designer, segmental walls will be used to support the import fill materials along the future trail. It is planned to use Keystone retaining wall system with Keystone Standard Unit. The information of the proposed walls are summarized in the following table:

Wall No.	Location ("M" Line)	Max. Design Wall Height (ft)
Retaining Wall No. 1	Sta. 60+50 – 67+49	5±
Retaining Wall No. 3	Sta. 88+00 – 91+87	14±

Retaining Wall No. 1 were not included in the original project scope. Therefore, no field exploration was conducted at the planned locations of this structure. Since the design wall height is relatively short, it is our understanding that the structural engineer will design these walls based on the guideline provided by the manufacturer. If specific design parameters are desired, more field exploration will be required to characterize the subsurface condition.

The published geologic map indicates that the area is underlain by Artificial Fill (Qfl). In our opinion, it may be prudent to assume Soil Type 5 per Table 1804A.2 (CBC, 2007) for the wall design, with suggested allowable bearing capacity of 1500 psf.

Retaining Wall No. 3 is located along the mid slope of the knoll, which is highly sensitive for cultural resources. According to the boring data, an allowable bearing capacity of 3000 psf is recommended for the wall design.

The trail will not be subject to heavy vehicular traffic. Therefore, these three walls will be designed with a uniform surcharge load of 100 psf (Case 2 loading condition). In general, the imported materials should comply with the guideline recommended by the manufacturer. In our opinion, the reinforced backfill should be be free of organic or other deleterious materials with maximum grain size of ¾ inch and minimum effective internal angle of friction of 30 degree.

Grading

Minor grading is expected for the proposed project, consisting primarily of construction of the approach embankments. All grading should be performed under the observation of regulatory

agency or the geotechnical engineer. Caltrans standard specification for earthwork (Section 19) should be followed.

In general, fill material imported to the site should be relatively non-expansive granular material having a plasticity index (P.I.) less than 15, a minimum Sand Equivalent of 10, and should be reviewed by the engineer. The fill material should be compacted to a minimum of 95% relative compaction per ASTM 1557.

At the proposed abutment locations, equipment mobility may be a concern due to high water level (tidal fluctuation). Should unsuitable materials be encountered, it is recommended that a layer of subgrade enhancement geotextile fabric (Section 88-1.04 of Caltrans standard specs. - Rock Slope Protection Fabric Type B) or a layer of high-strength geogrid be laid prior to the placement of the import materials.

Corrosion

Corrosion tests were performed on composite samples collected from the borings to determine the corrosion potential of the subsoil. The test results indicate a pH value of 8.6, minimum resistivity of 100 ohms-cm, water soluble chloride content of 2550 ppm, and water soluble sulfate content of 504 ppm. Based on the site proximity to the ocean and test data, the site is in a marine environment and the subsoils are highly corrosive. Therefore, an extra wall thickness of 6.35 mm (0.25 inch) is recommended for the CISS piles. The recommended wall thickness for CISS piles are presented under the Section of "Bridge Foundations". Standard Type II cement may be used for the concrete substructures. The minimum cement factor should be per Caltrans standard specifications 90-1.01.

Plan Review

We recommend that final plans for construction be reviewed by this office prior to construction so that the intent of our recommendations is included in the project plans and specifications and to further see that no misunderstandings or misinterpretations have occurred.

Construction Observation

To a degree, the performance of any structure is dependent upon construction procedures and quality. Hence, observation of foundation excavations, pile installation and subgrade preparation should be carried out by the regulating agencies. If the subsurface conditions different from those forming the basis of our recommendations is encountered this office should be informed in order to assess the need for design changes. Therefore, the recommendations presented in this report are contingent upon good quality control and these geotechnical observations during construction.

INVESTIGATION LIMITATIONS

Our services consist of professional opinions and recommendations made in accordance with generally accepted geotechnical engineering principles and practices and are based on our site reconnaissance and the assumption that the subsurface conditions do not deviate from observed conditions. All work done is in accordance with generally accepted geotechnical engineering principles and practices. No warranty, expressed or implied, of merchantability or fitness, is made or intended in connection with our work or by the furnishing of oral or written reports or findings. The scope of our services did not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in structures, soil, surface water, groundwater or air, below or around this site. Unanticipated soil conditions are commonly encountered and cannot be fully determined by taking soil samples and excavating test borings; different soil conditions may

require that additional expenditures be made during construction to attain a properly constructed project. Some contingency fund is thus recommended to accommodate these possible extra costs.

This report has been prepared for the proposed project as described earlier, to assist the engineer in the design of this project. In the event any changes in the design or location of the facilities are planned, or if any variations or undesirable conditions are encountered during construction, our conclusions and recommendations shall not be considered valid unless the changes or variations are reviewed and our recommendations modified or approved by us in writing. This report is issued with the understanding that it is the designer's responsibility to ensure that the information and recommendations contained herein are incorporated into the project and that necessary steps are also taken to see that the recommendations are carried out in the field.

The findings in this report are valid as of the present date. However, changes in the subsurface conditions can occur with the passage of time, whether they are due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards occur, whether they result from legislation or from the broadening of knowledge. Accordingly, the findings in this report might be invalidated, wholly or partially, by changes outside of our control.

Very Truly Yours,
PARIKH CONSULTANTS, INC.

Frank Y. Wang, P.E., G.E. 2862
Project Engineer

Gary Parikh, P.E., G.E 666
Project Manager

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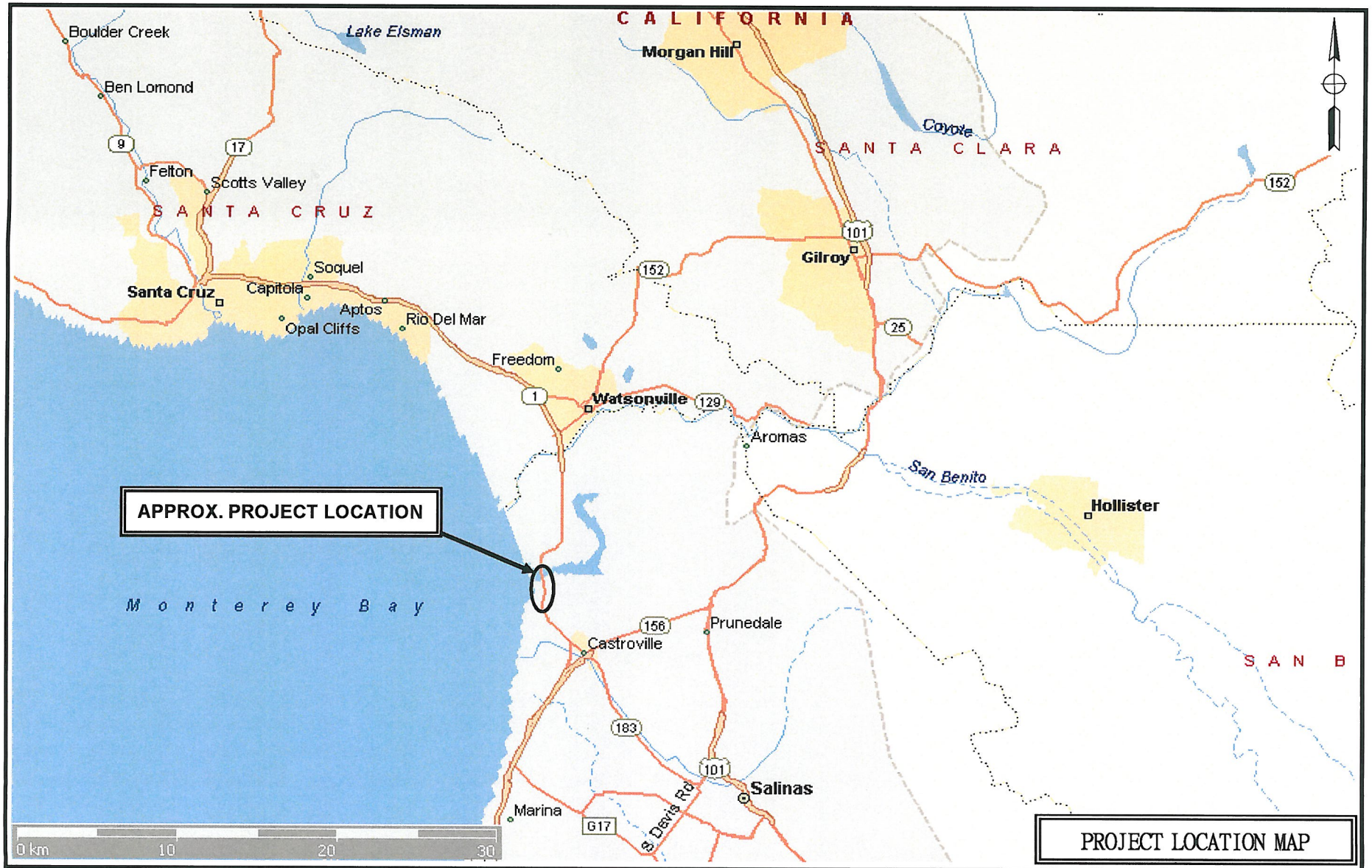
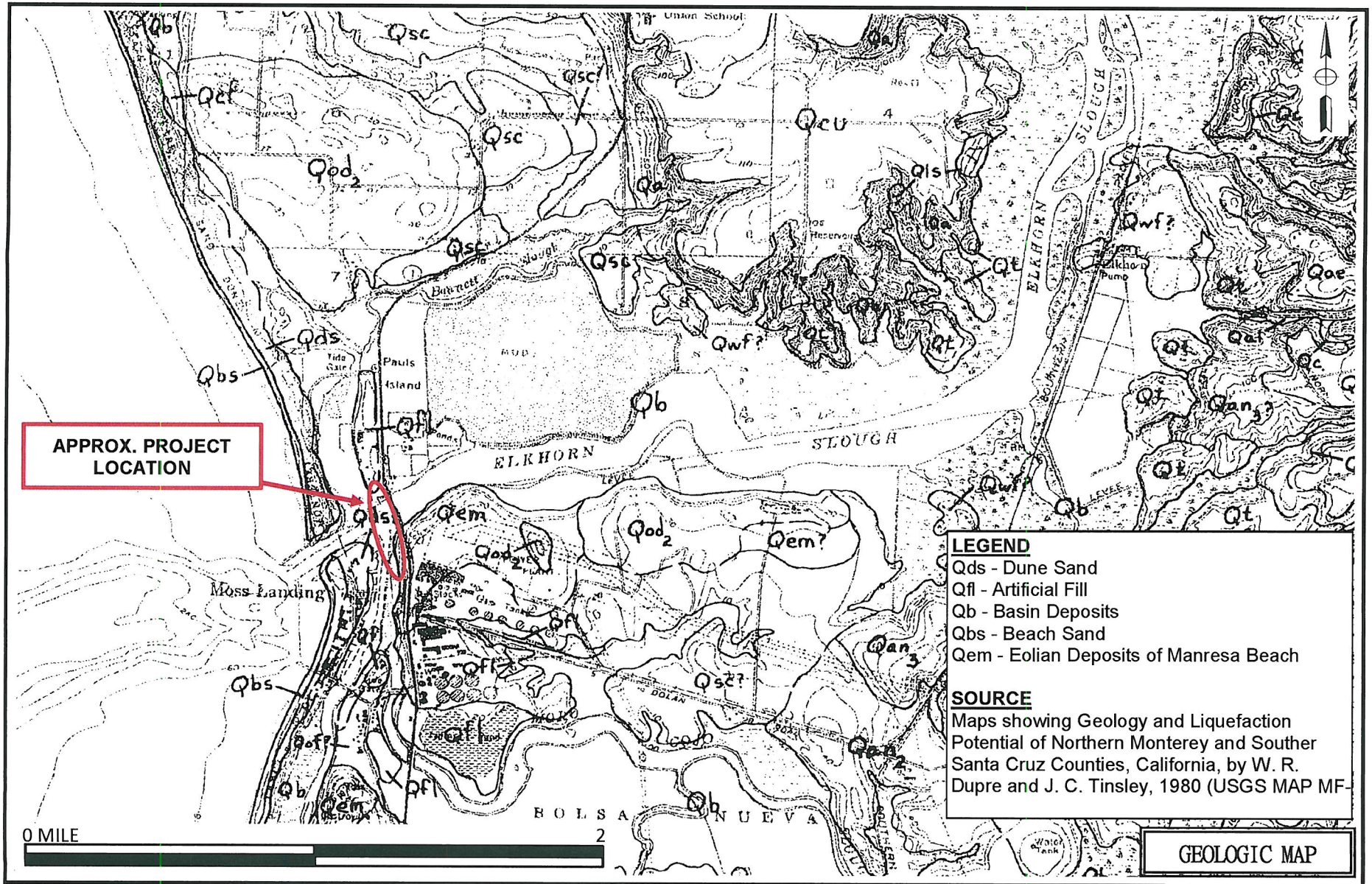


PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING, CALIFORNIA

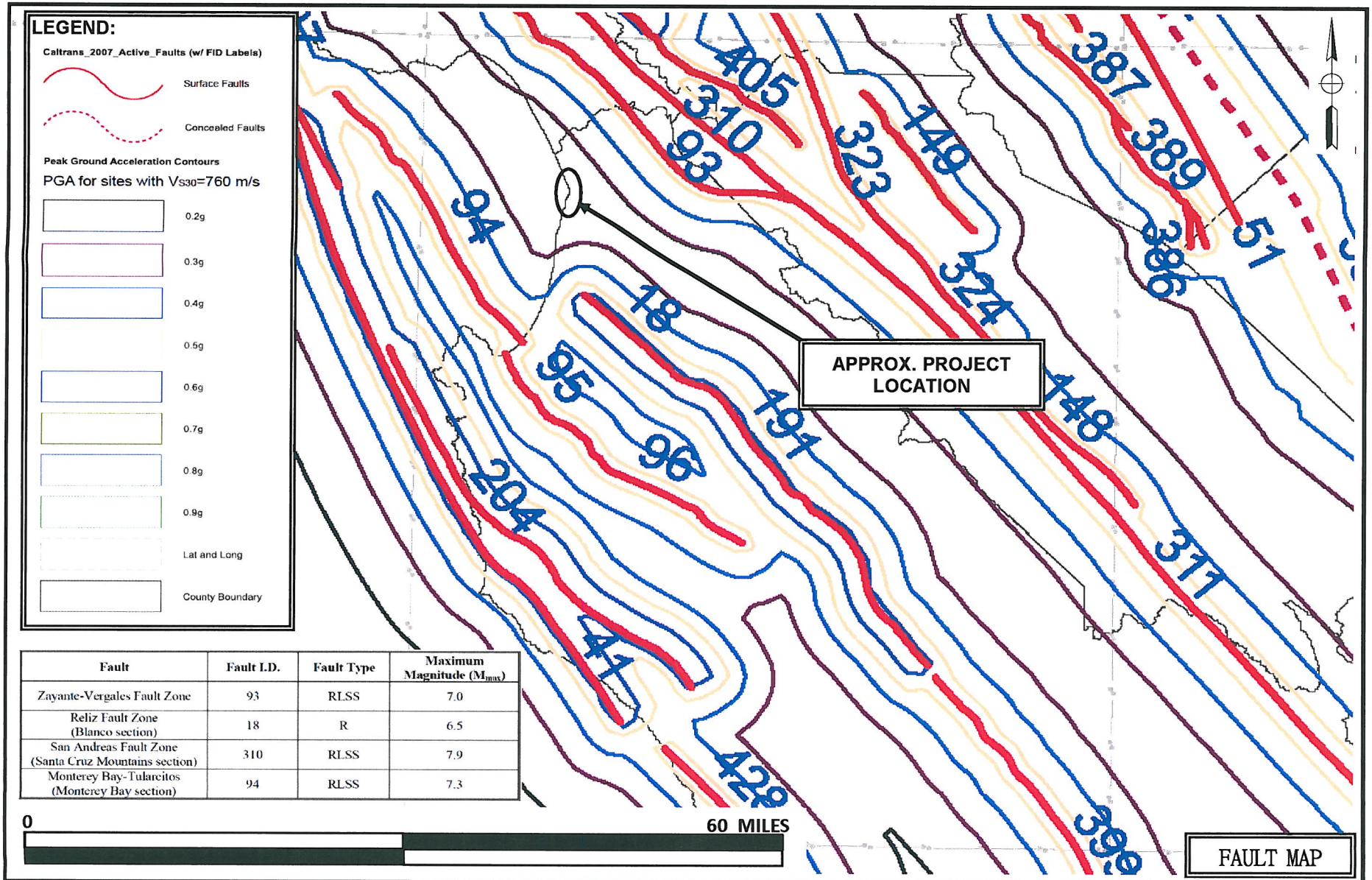
JOB NO.: 208137.10	PLATE NO.: 1



PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING, CALIFORNIA

JOB NO.: 208137.10 | **PLATE NO.: 2**



Fault	Fault I.D.	Fault Type	Maximum Magnitude (M_{max})
Zayante-Vergales Fault Zone	93	RLSS	7.0
Reliz Fault Zone (Blanco section)	18	R	6.5
San Andreas Fault Zone (Santa Cruz Mountains section)	310	RLSS	7.9
Monterey Bay-Tularcitos (Monterey Bay section)	94	RLSS	7.3

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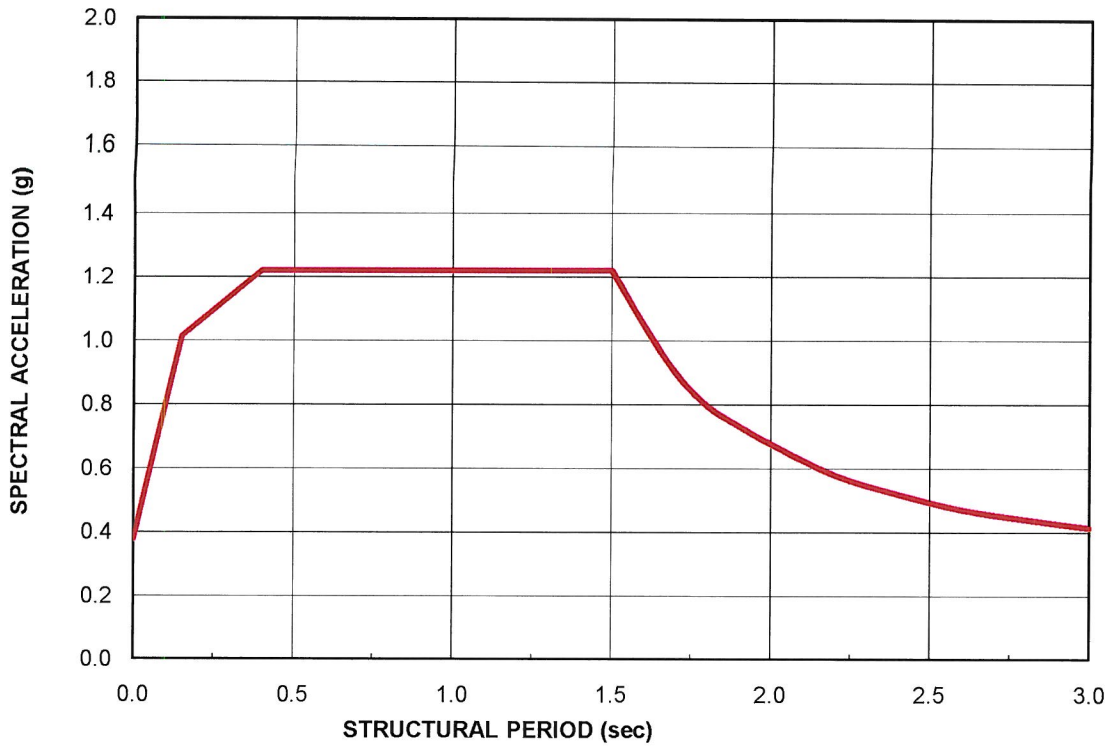
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING, CALIFORNIA

JOB NO.: 208137.10

PLATE NO.: 3

ARS DESIGN CURVE
MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING, CALIFORNIA



Spectral Data

Period (sec)	Spectral Accel. (g)
0.000	0.375
0.150	1.013
0.400	1.219
1.500	1.219
1.600	1.050
1.700	0.900
1.800	0.795
1.900	0.731
2.000	0.675
2.200	0.578
2.400	0.518
2.600	0.469
2.800	0.439
3.000	0.413

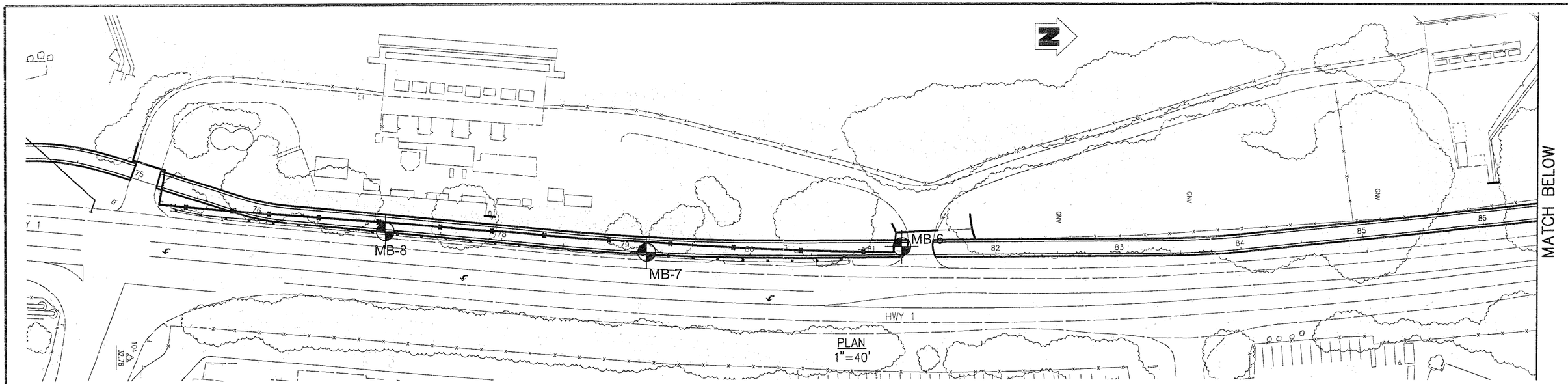
Site Information

Est. PGA (g)= 0.375

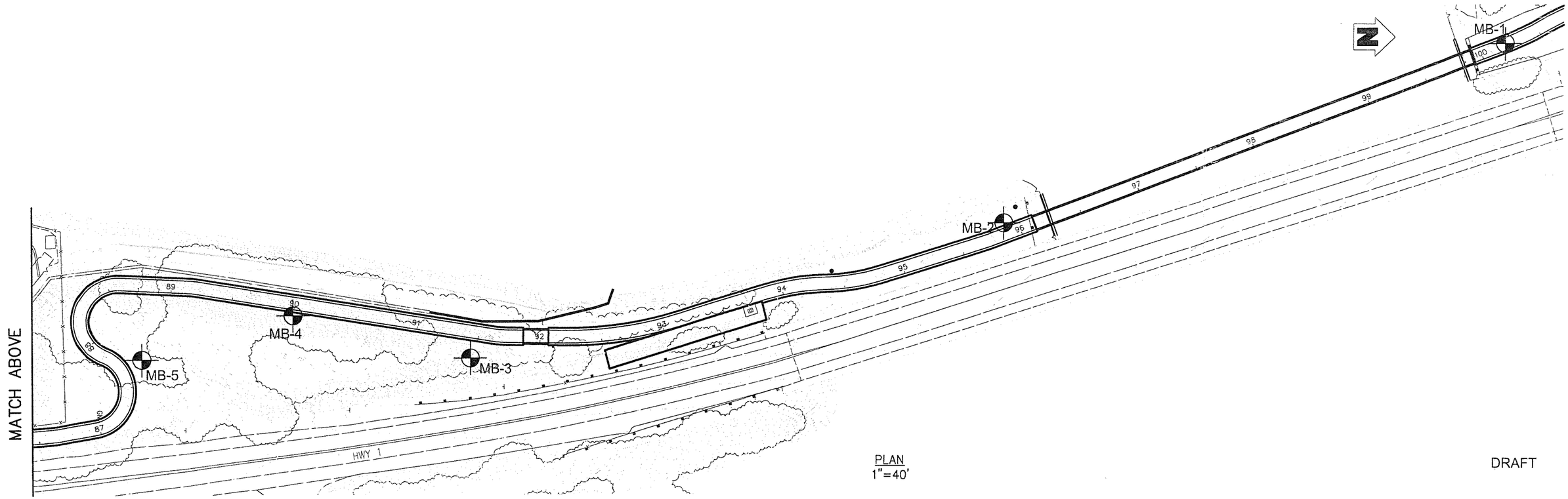
Reference

"Site-Dependent Seismic Response Including Recent Strong Motion Data", Proceedings of the Second Annual Seismic Research Workshop, by R.B. Seed, S.W. Chang, S.E. Dickenson & J.D. Bray (Caltrans, 1993).

APPENDIX A



PLAN
1"=40'



PLAN
1"=40'

DRAFT

SUBMITTED BY: Gary Parikh	
Field Investigation By : L. Duddu	CHKD BY. F. Wang
DRAWN BY : L. Duddu	CHKD BY. F. Wang
APPROVAL RECOMMENDED BY: Gary Parikh	

REGISTERED PROFESSIONAL ENGINEER
GARY PARIKH
No. G.E. 666
Exp 12/31/11
GEOTECHNICAL
STATE OF CALIFORNIA

PRELIMINARY

NO.	DATE	REVISION	APPROVED

COUNTY OF MONTEREY
RESOURCE MANAGEMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING SEGMENT

LOG OF TEST BORINGS (1 OF 6)

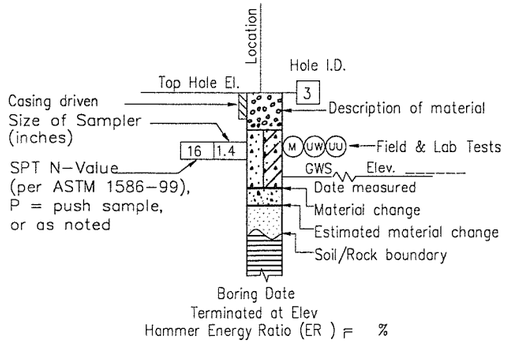
DATE 08/30/2010	DRAWING	SHEET OF
SCALE 1"=40'	VIEW	

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

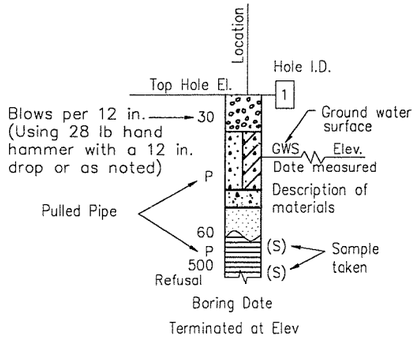
CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

BOREHOLE IDENTIFICATION		
Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R	Rotary drilled diamond core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778)
□	O	Other (note on LOTB)
Note: Size in inches.		

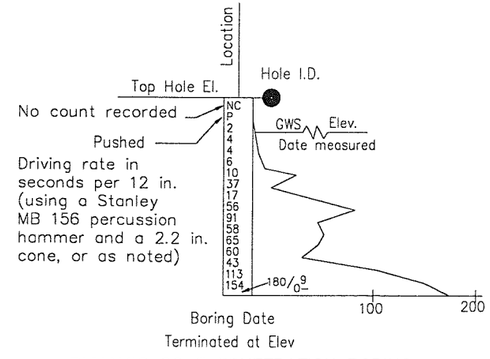
CONSISTENCY OF COHESIVE SOILS				
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 – 0.25	0.25 – 0.5	0.12 – 0.25	0.12 – 0.25
Medium Stiff	0.25 – 0.5	0.5 – 1	0.25 – 0.5	0.25 – 0.5
Stiff	0.5 – 1	1 – 2	0.5 – 1	0.5 – 1
Very Stiff	1 – 2	2 – 4	1 – 2	1 – 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



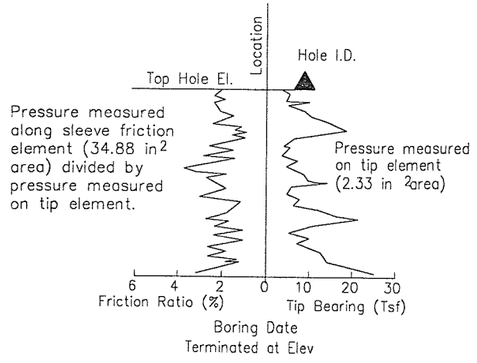
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

SUBMITTED BY: Gary Parikh

Field Investigation By : L. Duddu | CHKD BY. F. Wang

DRAWN BY : L. Duddu | CHKD BY. F. Wang

APPROVAL RECOMMENDED BY: Gary Parikh

REGISTERED PROFESSIONAL ENGINEER
GARY PARIKH
No. G.E. 666
Exp. 12/31/11
GEOTECHNICAL
STATE OF CALIFORNIA

PRELIMINARY

NO.	DATE	REVISION	APPROVED

MONTEREY COUNTY CALIFORNIA 1850

COUNTY OF MONTEREY
RESOURCE MANAGEMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING SEGMENT

LOG OF TEST BORINGS (2 OF 6)

DATE 07/14/2009 | DRAWING | SHEET OF

SCALE 1"=20' | VIEW

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL		
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (UC) Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 – 5
Loose	5 – 10
Medium Dense	10 – 30
Dense	30 – 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% – 10%
Little	15% – 25%
Some	30% – 45%
Mostly	50% – 100%

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 – 12
Gravel	Coarse	3/4 – 3
	Fine	1/5 – 3/4
Sand	Coarse	1/16 – 1/5
	Medium	1/64 – 1/16
	Fine	1/300 – 1/64
Silt and Clay		Less than 1/300

SUBMITTED BY: Gary Parikh

Field Investigation By : L. Duddu | CHKD BY: F. Wang

DRAWN BY : L. Duddu | CHKD BY: F. Wang

APPROVAL RECOMMENDED BY: Gary Parikh

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

PRELIMINARY

NO.	DATE	REVISION	APPROVED
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COUNTY OF MONTEREY
RESOURCE MANAGEMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

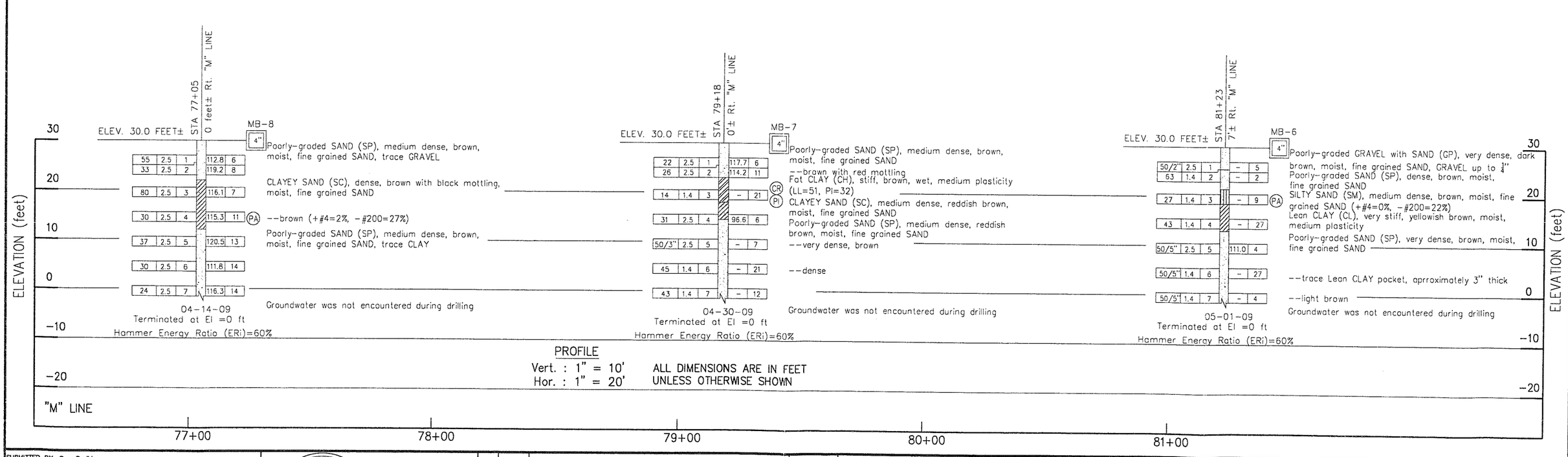
MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING SEGMENT

LOG OF TEST BORINGS (3 OF 6)

DATE	DRAWING	SHEET
07/14/2009		
SCALE	VIEW	OF

DRAFT

(SEE SHEET 1 OF 6 FOR BORING LOCATIONS)



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 20'

ALL DIMENSIONS ARE IN FEET
UNLESS OTHERWISE SHOWN

SUBMITTED BY: Gary Parikh

Field Investigation By : L. Duddu | CHKD BY F. Wang

DRAWN BY : L. Duddu | CHKD BY F. Wang

APPROVAL RECOMMENDED BY: Gary Parikh

REGISTERED PROFESSIONAL ENGINEER
GARY PARIKH
No. G.E. 666
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GEOTECHNICAL
STATE OF CALIFORNIA

PRELIMINARY

NO.	DATE	REVISION	APPROVED
1			
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6			

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RESOURCE MANAGEMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

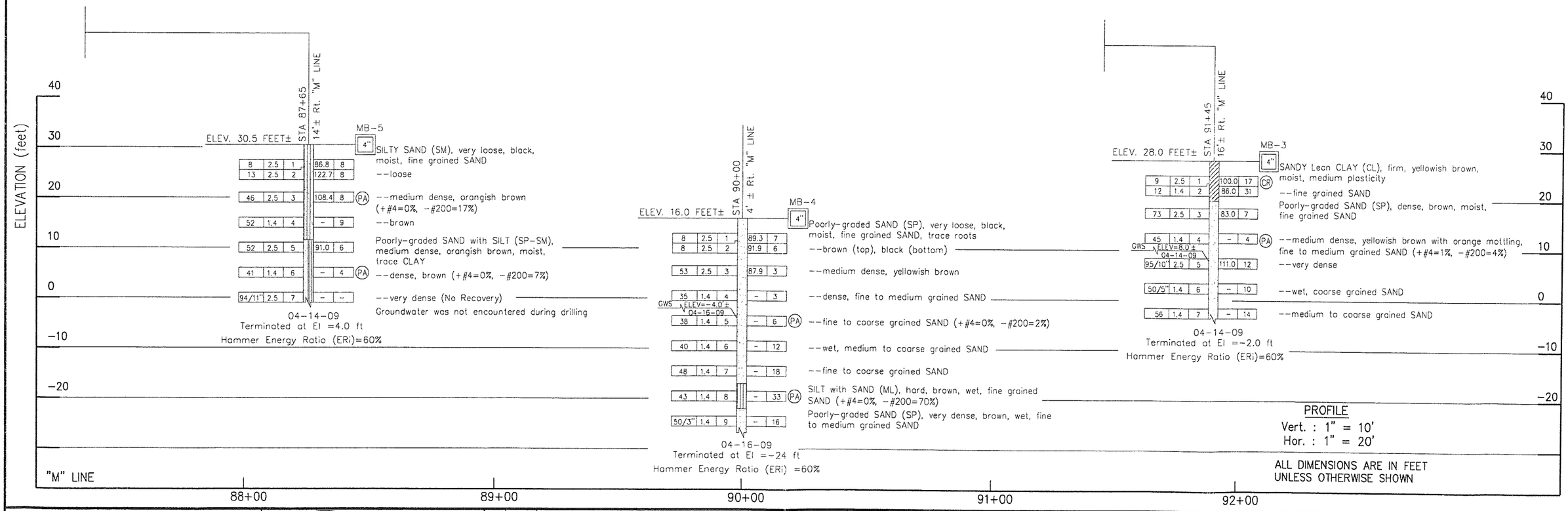
MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING SEGMENT

LOG OF TEST BORINGS (4 OF 6)

DATE	DRAWING	SHEET
07/14/2009		
SCALE	VIEW	OF

DRAFT

(SEE SHEET 1 OF 6 FOR BORING LOCATIONS)



SUBMITTED BY: Gary Parikh	
Field Investigation By : L. Duddu	CHKD BY F. Wong
DRAWN BY : L. Duddu	CHKD BY F. Wong
APPROVAL RECOMMENDED BY: Gary Parikh	

REGISTERED PROFESSIONAL ENGINEER
GARY PARIKH
No. G.E. 666
Exp. 12/31/09
GEOTECHNICAL
STATE OF CALIFORNIA

PRELIMINARY

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MONTEREY COUNTY CALIFORNIA • 1850 •

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RESOURCE MANAGEMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

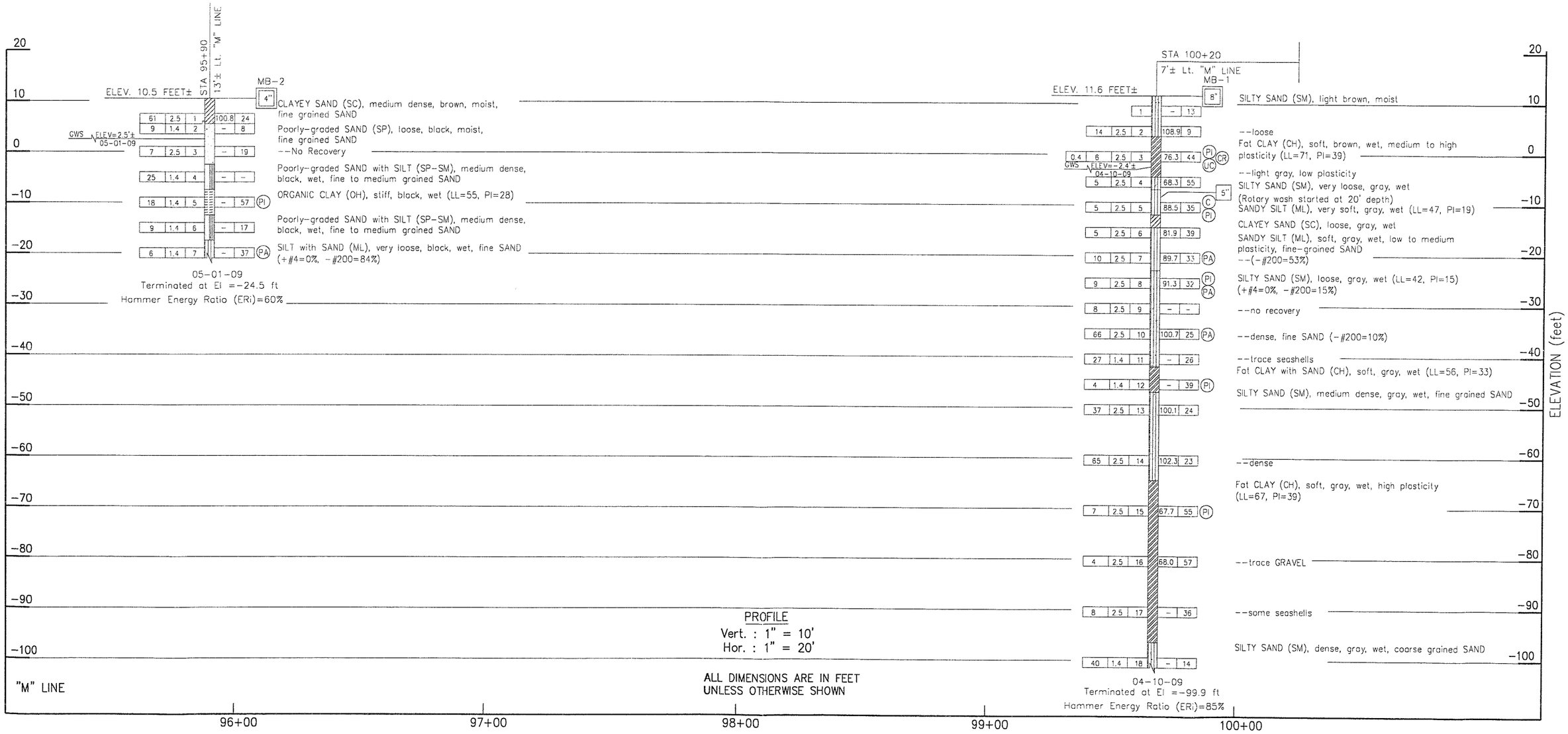
MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING SEGMENT

LOG OF TEST BORINGS (5 OF 6)

DATE 07/14/2009	DRAWING	SHEET
SCALE	VIEW	OF

DRAFT

(SEE SHEET 1 OF 6 FOR BORING LOCATIONS)



SUBMITTED BY: Gary Parikh

Field Investigation By : L. Duddu | CHKD BY: F. Wang

DRAWN BY : L. Duddu | CHKD BY: F. Wang

APPROVAL RECOMMENDED BY: Gary Parikh

REGISTERED PROFESSIONAL ENGINEER
GARY PARIKH
No. G.E. 666
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GEOTECHNICAL
STATE OF CALIFORNIA

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COUNTY OF MONTEREY
RESOURCE MANAGEMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING SEGMENT

LOG OF TEST BORINGS (6 OF 6)

DATE 08/30/2010 | DRAWING | SHEET OF

SCALE | VIEW

APPENDIX B

APPENDIX B
LABORATORY TESTS

Classification Tests

The field classification of the samples was visually verified in the laboratory according to the Unified Soil Classification System (ASTM Test Method D 2488, Visual-Manual Procedure). The classification has been verified with laboratory data as necessary. The classification tests are presented on "Log of Test Borings", Appendix A.

Moisture-Density

The natural moisture contents and dry unit weights were determined for selected undisturbed samples of the soils in general accordance with ASTM Test Method D 2216-92. This information was used to classify and correlate the soils. The results are presented at the appropriate depths on the "Log of Test Borings", Appendix A.

Unconfined Compression Tests

Strength tests were performed on selected undisturbed sample using unconfined compression machine. Unconfined compression test was performed in general accordance with California Test Method T 221. The results are presented on "Log of Test Borings".

Atterberg Limits

The Atterberg Limits were determined for selected samples of the fine-grained materials. These results were used to classify the soils, as well as to obtain an indication of the effective strength characteristics and expansion potential with variations in moisture content. The Atterberg Limits were determined in general accordance with ASTM Test Method D 4318-93. The results of these tests are presented on Plate B-2, "Plasticity Chart".

Grain Size Classification

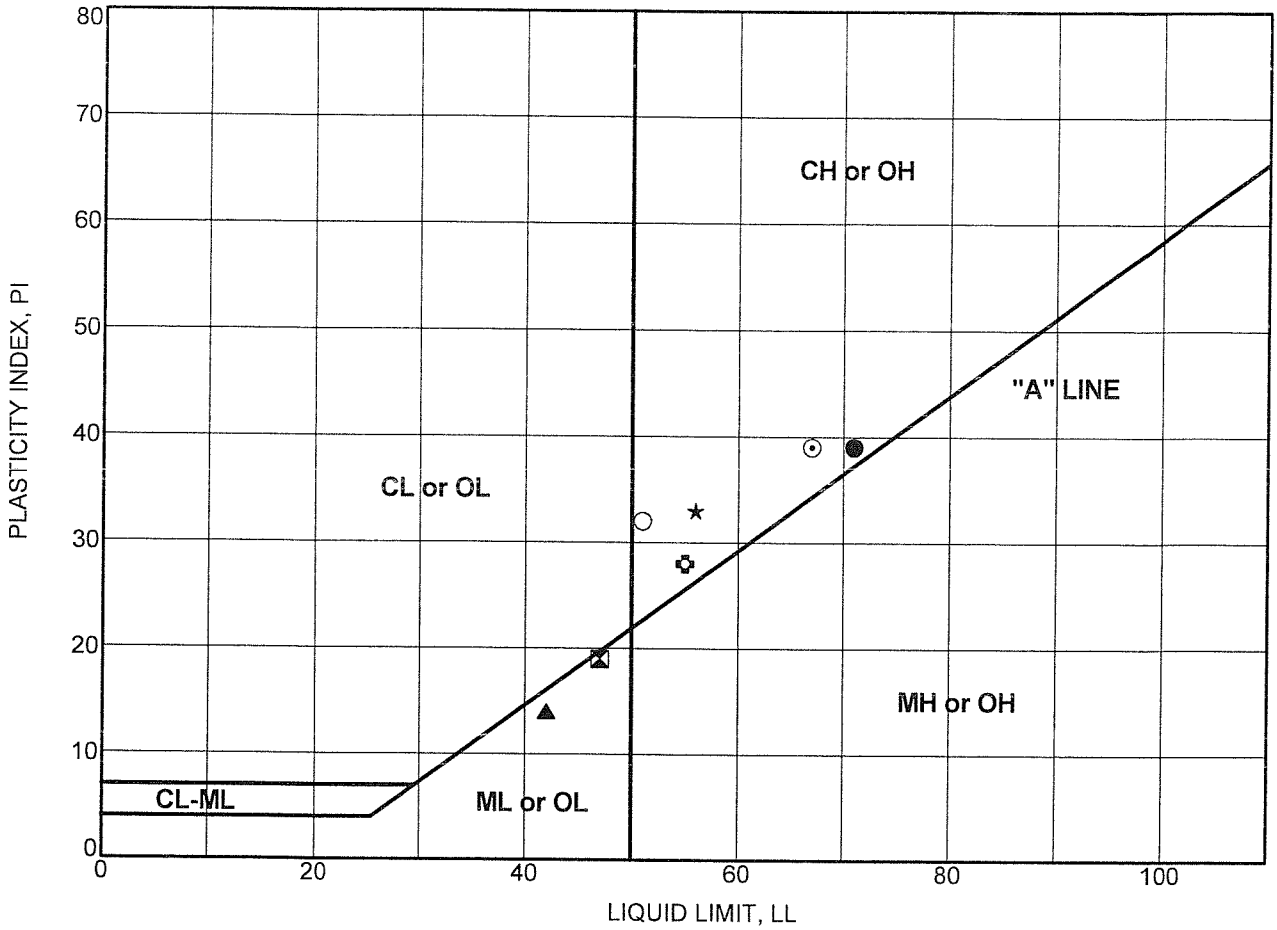
Grain size classification tests (ASTM Test Method D 422-63) were performed on selected samples of granular soil to aid in the classification. The results are presented on Plates B-3A to B-3C, "Grain Size Distribution Curves".

Corrosion Tests

Corrosion tests were performed on selected samples to determine the corrosion potential of the soils. The pH and minimum resistively tests were performed according to California Test Method 643 by Parikh Consultants, Inc. The test results are presented on Plates B-4A to B-4C.

Consolidation Tests

Consolidation tests were performed on selected samples in accordance with ASTM Test Method D 2435. The test results are presented on the Plates B-5A and B-5C.



PLASTICITY CHART

Boring Number	Sample Number	Depth (feet)	Test Symbol	Moisture Content (%)	LL	PL	PI	Description
MB-1	MC-3	11.0	●	44	71	32	39	FAT CLAY (CH)
MB-1	MC-5	21.0	⊠	35	47	28	19	SANDY SILT (ML)
MB-1	MC-8	36.0	▲	32	42	28	14	SILTY SAND (SM)
MB-1	SPT-12	56.0	★	39	56	23	33	FAT CLAY WITH SAND (CH)
MB-1	MC-15	81.0	⊙	55	67	28	39	FAT CLAY (CH)
MB-2	SPT-5	19.5	✿	57	55	27	28	ORGANIC FAT CLAY (OH)
MB-7	SPT-3	9.5	○	21	51	19	32	FAT CLAY (CH)

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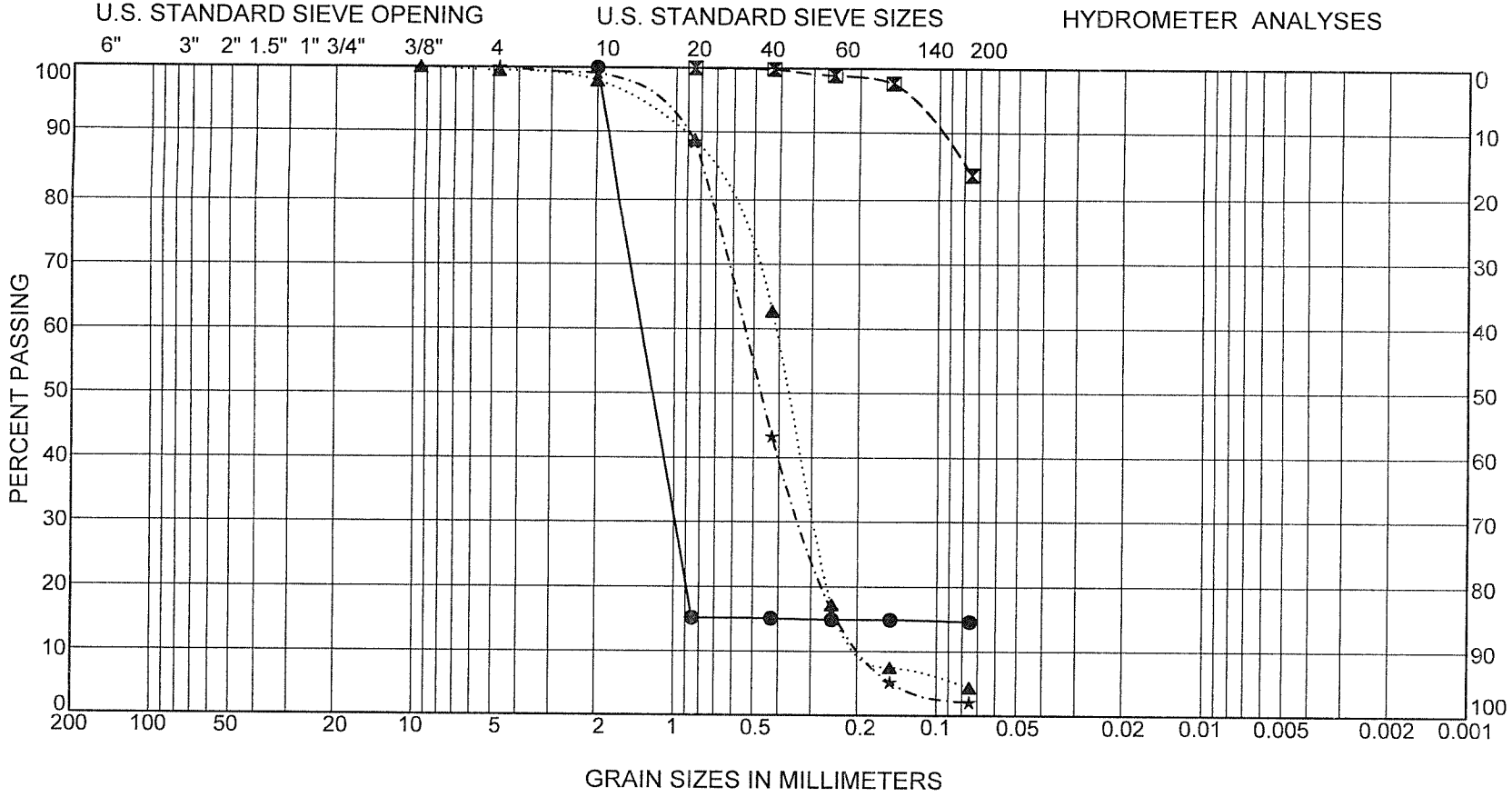
GRAIN SIZE DISTRIBUTION CURVES

COBBLES	GRAVEL		SAND			SILT AND CLAY
	coarse	fine	coarse	medium	fine	



Boring Number	Sample Number	Depth (feet)	Symbol	LL	PI	Description
MB-1	MC-8	36.0	●	42	14	SILTY SAND (SM)
MB-2	SPT-7	29.5	⊠			SILT WITH SAND (ML)
MB-3	SPT-4	14.5	▲			POORLY-GRADED SAND (SP)
MB-4	SPT-5	19.5	★			POORLY-GRADED SAND (SP)

JOB NO: 208137.10

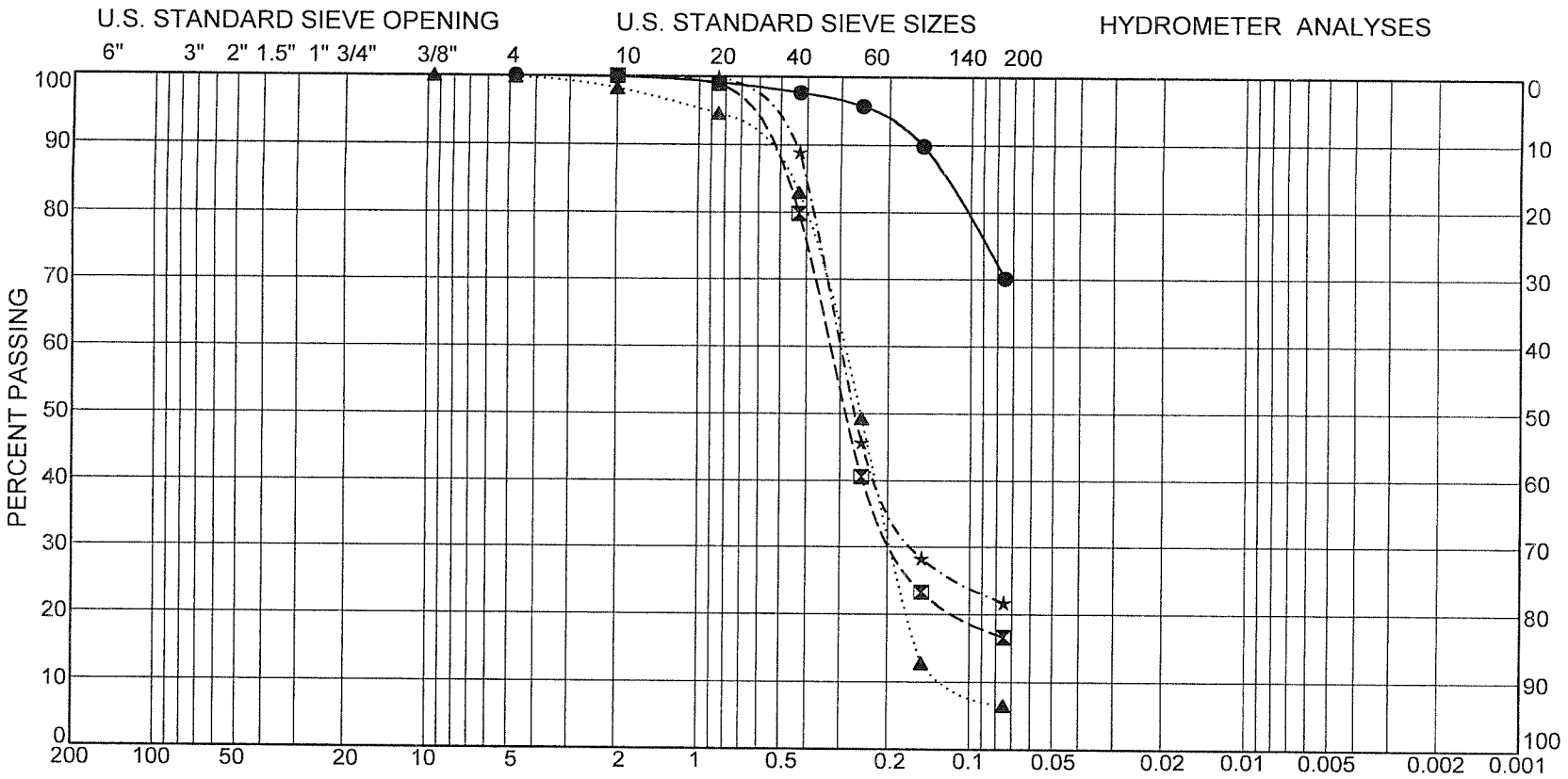
MONTEREY BAY SANCTUARY SCENIC DRIVE
MOSS LANDING, CALIFORNIA

PLATE NO: B-3A

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

GRAIN SIZE DISTRIBUTION CURVES

COBBLES	GRAVEL		SAND			SILT AND CLAY
	coarse	fine	coarse	medium	fine	



Boring Number	Sample Number	Depth (feet)	Symbol	LL	PI	Description
MB-4	SPT-8	34.5	●			SILT WITH SAND (ML)
MB-5	MC-3	9.5	⊠			SILTY SAND (SM)
MB-5	SPT-6	24.5	▲			POORLY-GRADED SAND WITH SILT (SP-SM)
MB-6	SPT-3	9.5	★			SILTY SAND (SM)

MONTEREY BAY SANCTUARY SCENIC DRIVE
MOSS LANDING, CALIFORNIA

JOB NO: 208137.10

PLATE NO: B-3B

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

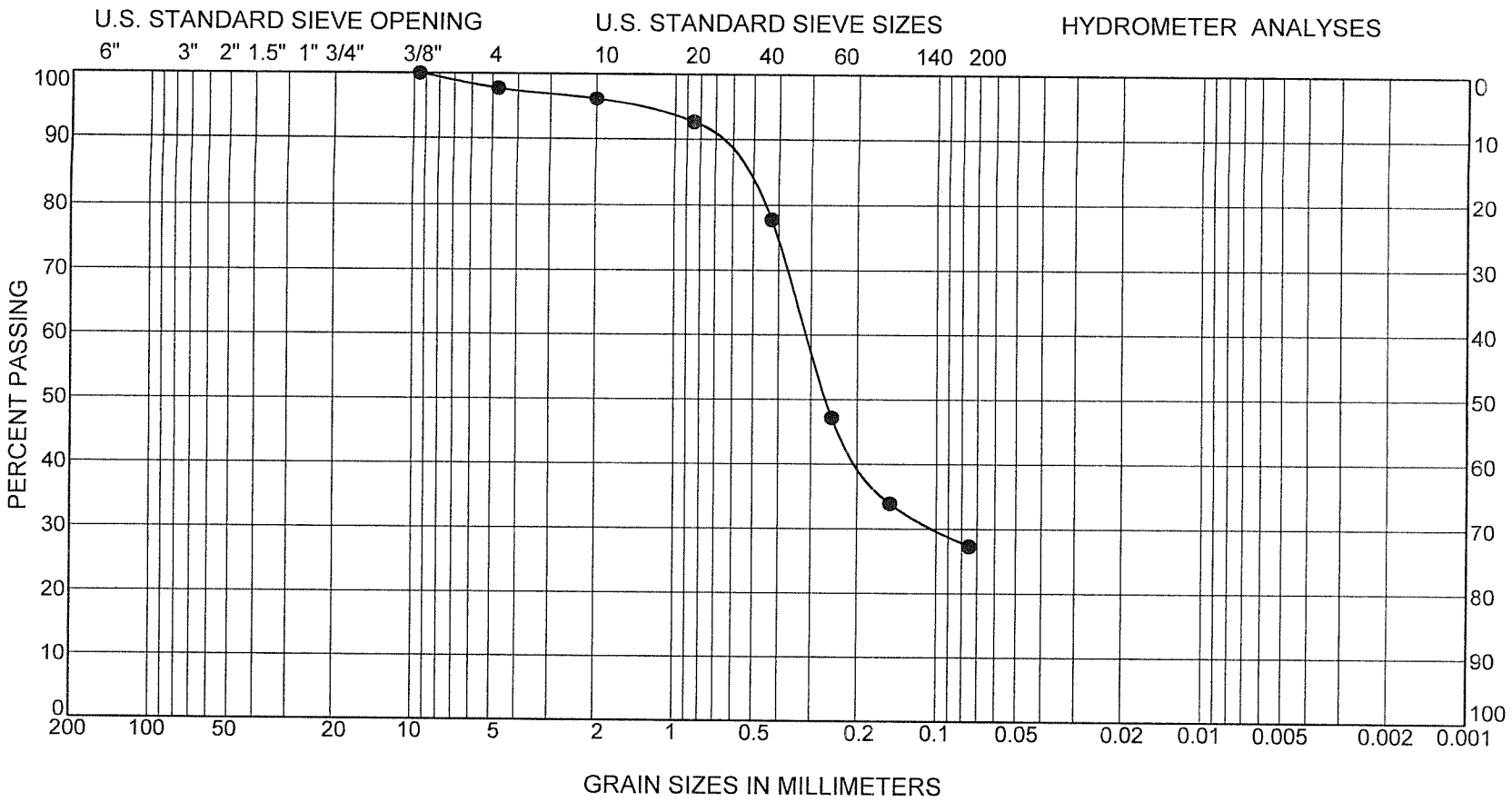
JOB NO: 208137.10

MONTEREY BAY SANCTUARY SCENIC DRIVE
MOSS LANDING, CALIFORNIA

PLATE NO: B-3C

GRAIN SIZE DISTRIBUTION CURVES

COBBLES	GRAVEL		SAND			SILT AND CLAY
	coarse	fine	coarse	medium	fine	



Boring Number	Sample Number	Depth (feet)	Symbol	LL	PI	Description
MB-8	SPT-4	14.5	●			CLAYEY SAND (SC)

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 05/27/2009
Date Submitted 05/20/2009

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 208137.10 MONTEREY Site ID : MB-1 #3 @ 11'
Thank you for your business.

* For future reference to this analysis please use SUN # 55727-112368.

EVALUATION FOR SOIL CORROSION

Soil pH	8.17		
Minimum Resistivity	0.23 ohm-cm (x1000)		
Chloride	1120.3 ppm	00.11203	%
Sulfate	188.0 ppm	00.01880	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

PLATE NO.: B-4A

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 05/13/2009
Date Submitted 05/06/2009

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 208137.10 MONTEREY Site ID : MB-3 # 1 @ 3'
Thank you for your business.

* For future reference to this analysis please use SUN # 55638-112105.

EVALUATION FOR SOIL CORROSION

Soil pH	7.64	
Minimum Resistivity	2.76 ohm-cm (x1000)	
Chloride	32.1 ppm	00.00321 %
Sulfate	7.7 ppm	00.00077 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

PLATE NO.: B-4B

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 06/05/2009
Date Submitted 06/01/2009

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 208137.10/MONTEREY Site ID : MB-7#3@9.5' .
Thank you for your business.

* For future reference to this analysis please use SUN # 55794-112507.

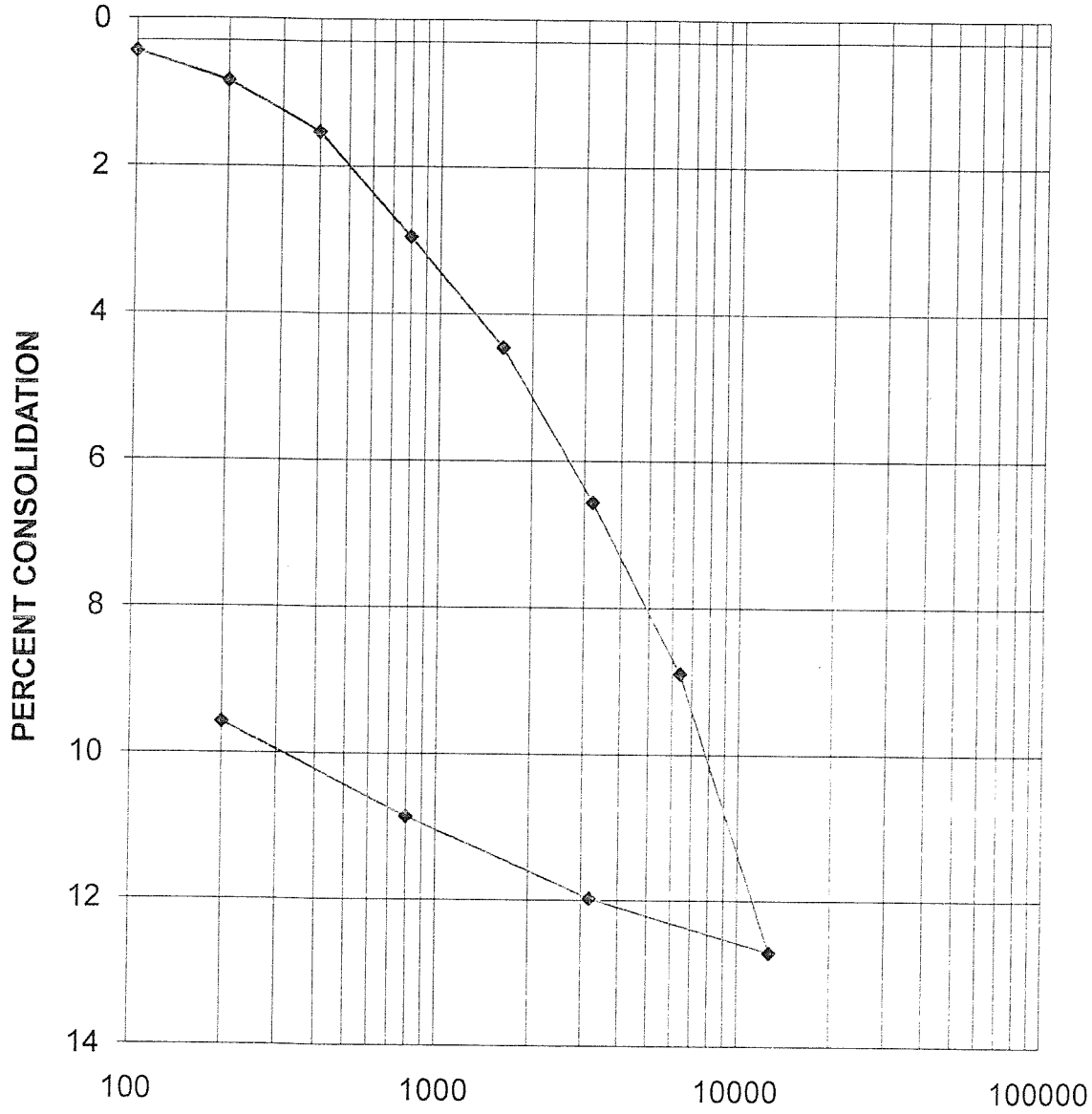
EVALUATION FOR SOIL CORROSION

Soil pH	6.65		
Minimum Resistivity	0.83 ohm-cm (x1000)		
Chloride	40.2 ppm	00.00402	%
Sulfate	89.2 ppm	00.00892	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

PLATE NO.: B-4C

CONSOLIDATION TEST RESULTS



	MOISTURE CONTENT %	DRY DENSITY PCF	HEIGHT (INCHES)	DIAMETER (INCHES)
INITIAL	35.1	88.5	1.0000	2.416
FINAL	28.6	97.9	0.9043	2.416

BORING NO.	B1	SAMPLE NO.	5	ELEV. OR DEPTH	21'
DESCRIPTION	Sandy Silt, gray				

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GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

Monterey Bay Sanctuary Scenic Drive
WOOD ROGERS

DATE	JOB NO:
5/20/09	208137.10

Reported by: Prav Dayah

Plate No.: B-5A

CONSOLIDATION TEST - TIME CURVE

JOB #: 208137.10

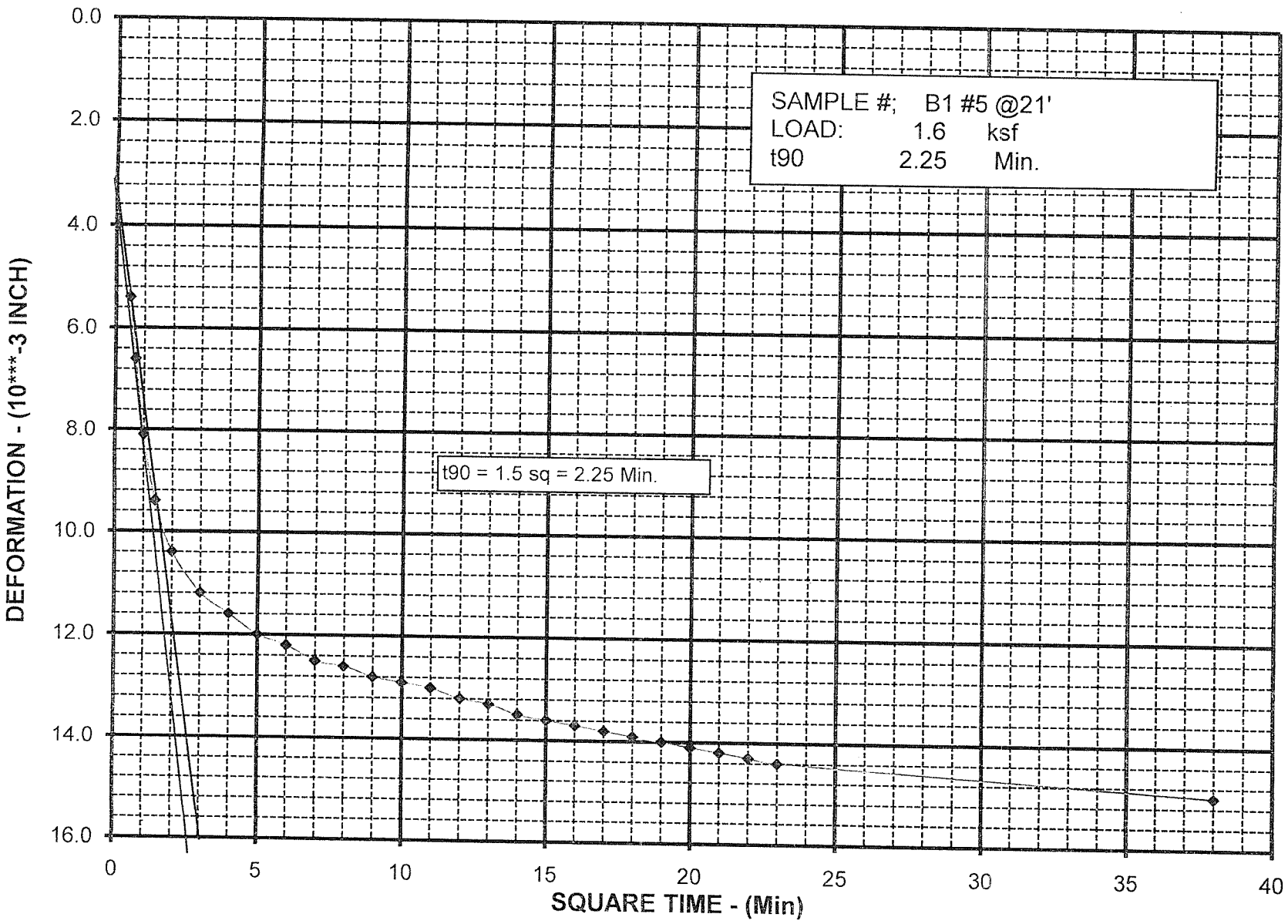

Plate No.: B-5B

CONSOLIDATION TEST - TIME CURVE

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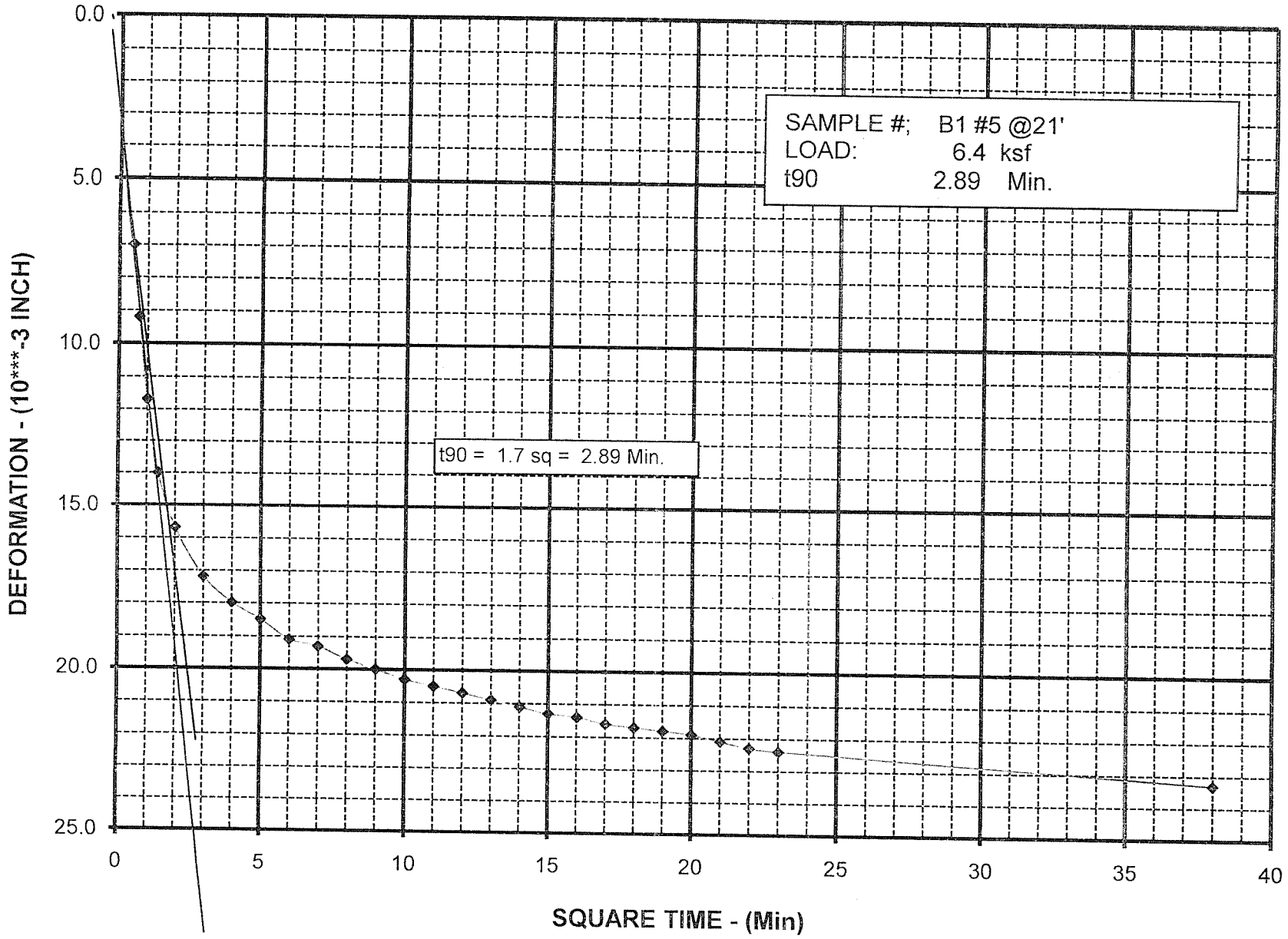

Plate No.: B-5C

NATURAL ENVIRONMENT STUDY/JURISDICTIONAL DELINEATION REPORT

JANUARY 2014

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Natural Environment Study

Bicycle/Pedestrian Path & Bridge Project

Moss Landing Road to Elkhorn Slough Crossing

Stations 59+00 to 101+00

County of Monterey Project No. 866865

Caltrans Location 05-MON-1-0-CR

Federal Aid Number HPLU-5944(108)

January 2014

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

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January 2014

Approved By: Patricia A. Lopez Date: 1/21/14

Patricia A. Lopez
County of Monterey
Department of Public Works
168 West Alisal Street, 2nd Floor
Salinas, California 93901
(831) 755-4800

Approved By: Date: 1/22/14

Randy LaVack, Senior Environmental Planner,
District 5 Environmental Stewardship Branch,
(805) 594-6188

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Summary

This Monterey Bay Sanctuary Scenic Trail Project (project) is located in Moss Landing, in County of Monterey, within the jurisdiction of California Department of Transportation (Caltrans) District 5. A bike trail is proposed along State Route 1 (SR-1), also known as, the Pacific Coast Highway (PCH).

Between 2007 and 2009, LSA conducted biological resource surveys that included general wildlife surveys, surveys for special status plant species, and a Jurisdictional Delineation (JD) to document existing conditions of biological resources within a 14.5-acre (ac) area surrounding and including the 0.86-mile trail corridor (hereafter referred to as the biological study area [BSA]). LSA also conducted a field survey in March 2012. This survey provided updated information on the biological resources within a portion of the Moss Landing Power Plant property where the trail alignment has changed. Station numbers for the BSA extend from 59+00 on the south to 101+00 on the north. The BSA consists of five habitat/vegetation community types, including disturbed, estuarine wetland/open water, invaded dune mat, Eucalyptus/cypress woodland (planted), and dune scrub.

Sensitive biological resources have been identified within and adjacent to the BSA. The California brown pelican (federally delisted as endangered (FDE), State delisted as endangered (SDE) and State fully protected (SFP)), American peregrine falcon (State endangered (SE) - nesting and SFP and the California sea otter (federally threatened (FT)) were observed foraging within the BSA during the focused surveys. A formal JD survey determined that there is up to 3.867-acre of jurisdictional features within the project area, including wetland areas, subject to the jurisdiction of the California Coastal Commission (CCC), the United States Army Corps of Engineers (USACE) and the Regional Water Quality Control Board (RWQCB). The limits of Section 404 have been identified in less steep portions of the shoreline, between the mean high water and the high tide. The limits of Section 10 waters have been identified below the mean high water mark. The limits of CCC jurisdiction include areas delineated as waters subject to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, and potentially the upland drainage.

The following agencies have regulatory authority over resources within the BSA. Monterey County will be required to obtain permits from these agencies for the project.

- Pursuant to the California Coastal Act (CCA), the applicant will need to obtain a Coastal Development Permit (CDP) for impacts to jurisdictional wetlands within the coastal zone. The County will seek an exemption to the requirements for a Coastal Development Permit for the removal of landmark trees within the public right-of-way. All trees to be removed will be within the public right-of-way by the time the trail is constructed.
- A nationwide (NW) permit (likely NW 14) and/or a letter of permission (LOP) will be necessary for effects to jurisdictional wetlands, pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act, respectively. A Habitat Mitigation and Monitoring Plan (HMMP) that is acceptable by CCC, USACE, and RWQCB will be a necessary component of the permit application package.
- A RWQCB water quality certification will be necessary pursuant to Section 401 of the CWA.
- Authorization from the United States Fish and Wildlife Service (USFWS) will be necessary through formal Section 7 consultation with Caltrans. A "may affect but not likely to adversely affect" determination is anticipated regarding tidewater goby and southern sea otter. A Marine Mammal Protection Plan and a Fisheries Management Plan will be required as part of this effort.
- Authorization from the National Marine Fisheries Service (NMFS) will be necessary through Section 7 consultation with Caltrans. A "may affect but not likely to adversely affect" determination is anticipated regarding effects to green sturgeon, steelhead, and Essential Fish Habitat (EFH). An incidental harassment authorization will be required through the NMFS for effects on marine mammals during construction. A Fisheries Management Plan will be required as part of this effort.
- Authorization from the California Department of Fish and Wildlife (CDFW) in the form of a 2081 permit or a concurrence letter is not anticipated to be necessary with regard to State-listed wildlife species. Foraging habitat (not nesting habitat) for California brown pelican (FDE, SDE, SFP), American peregrine falcon (SDE, SFP), and white-tailed kite (SFP) may be affected by the project. With implementation of the avoidance measures outlined in Section 4.3, impacts to these state listed or fully protected species would not result from the project.

A combination of avoidance and minimization measures and possibly compensatory mitigation will reduce the overall adverse effects of the project to biological resources.

Avoidance and minimization measures to be instituted during construction include:

1. Visible construction signs, fencing, stakes, and/or flags to limit access in adjacent sensitive habitats (dune scrub, jurisdictional wetlands, and trees to be preserved);
2. Development and implementation of an employee education program regarding sensitive biological resources and avoidance/minimization measures;
3. Biological monitoring during construction while work is occurring near jurisdictional waters or other sensitive resources;
4. Use of best management practices (BMPs) (i.e., silt or turbidity curtains) to manage sediment during construction;
5. Use of minimal impact construction equipment and methods (e.g., air bubble curtains, cushion blocks, and/or isolation casings for pile driving) during construction;
6. Preconstruction surveys for nesting birds if construction is to occur during the nesting season (February 22 through August 21);
7. Proper disposal of spoils and construction-related trash;
8. Prohibiting the feeding of wildlife, use of harmful chemicals, and on-site contractor pets;
9. Implementation of avoidance, minimization, and mitigation measures identified in the Habitat Mitigation and Monitoring Plan, Marine Mammal Protection Plan, and the Fisheries Management Plan will be prepared for the project;
10. Avoidance of preserved trees and jurisdictional wetlands for placement of staging areas; and
11. Compliance with site-specific measures identified in the Stormwater Pollution Prevention Plan to be developed for the project.

To offset effects to jurisdictional areas, a compensatory mitigation program may need to be developed. If necessary, the final compensatory mitigation program would be expected to fully offset project-related jurisdictional effects by providing “no net loss” of estuarine wetland/open water habitat.

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List of Abbreviated Terms

Abbreviation	Definition
ac	Acres
AMBAG	Association of Monterey Bay Area Governments
amsl	above mean sea level
BA	Biological Assessment
BMPs	best management practices
BSA	Biological Study Area
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CCA	California Coastal Act
CCC	California Coastal Commission
CDFG[1]	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CH	Critical Habitat
CNPS	California Native Plant Society
CNPSEI	CNPS On-Line Electronic Inventory of Rare and Endangered Vascular Plants of California
CWA	Clean Water Act
cy	cubic yards
CZMA	Coastal Zone Management Act
ESF	Elkhorn Slough Foundation
EFH	Essential Fish Habitat

[1] The name of the California Department of Fish and Game (CDFG) has changed to the California Department of Fish and Wildlife (CDFW) as of January 1, 2013. In this NES, CDFG is used only in reference to CDFW documents published prior to January 1, 2013.

Abbreviation	Definition
EO	Executive Order
ESA	environmentally sensitive area
ESHA	Environmentally Sensitive Habitat Area
ESNERR	Elkhorn Slough Natural Estuarine Research Reserve
FAC	Facultative
FACU	Facultative Upland
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
GIS	geographic information system
GPS	global positioning system
HMMP	Habitat Mitigation and Monitoring Plan
IHA	Incidental Harassment Authorization
JD	Jurisdictional Delineation
LCP	Local Coastal Plan
LOP	Letter of Permission
LSA	LSA Associates, Inc.
MBSST	Monterey Bay Sanctuary Scenic Trail
MBTA	Migratory Bird Treaty Act
MLHD	Moss Landing Harbor District
MLML	Moss Landing Marine Labs
MLPA	Marine Life Protection Act
MLPP	Moss Landing Power Plant
MMPA	Marine Mammal Protection Act
MOU	Memorandum of Understanding
MPAs	marine protected areas
MSA	Magnusson-Stevens Fishery Conservation and Management Act
MSE	mechanically stabilized earth
NAS	Naval Air Station
NES	Natural Environment Study
NMFS	National Marine Fisheries Service

Abbreviation	Definition
NOAA	National Oceanographic and Atmospheric Administration
OHWM	ordinary high water mark
PCH	Pacific Coast Highway
PCN	Pre-Construction Notification
PM	post miles
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
RHA	Rivers and Harbors Act
ROW	right-of-way
RPF	Registered Professional Forester
RSP	rock slope protection
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SAN	Streambed Alteration Notification
SAP	Streambed Alteration Permit
SER	Significant Ecological Area
SMCA	State Marine Conservation Area
SMP	State Marine Park
SMR	State Marine Reserve
SR-1	State Route 1
SWPPP	Storm Water Pollution Prevention Plan
TAMC	Transportation Agency for Monterey County
UPL	Obligate Upland
USACE	United States Army Corps of Engineers
USC	United States Code
USCG	Unites States Coast Guard
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

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Chapter 1. Introduction

The approximately 14.5-acre Biological Study Area (BSA) is in Moss Landing and crosses Elkhorn Slough, approximately 5 miles northwest of Castroville and 26 miles south of Santa Cruz (Figure 1). Moss Landing Harbor, the Old Salinas River and Monterey Bay are just to the west of the BSA; Elkhorn Slough passes through the BSA.

Construction of all planned segments of the Monterey Bay Sanctuary Scenic Trail (MBSST) will result in a continuous bicycle and pedestrian trail along Monterey Bay from Lovers Point in Pacific Grove to Wilder Ranch in Santa Cruz. The Moss Landing segment will run from the north side of Moss Landing Road on the west side of Moro Cojo Slough eastward to SR-1, then turn northward along the west side of SR-1, cross Elkhorn Slough on a new bridge (Bridge #44-0074), and join the existing segment of the MBSST adjacent to the North Harbor facilities of the Moss Landing Harbor District, on the north side of Elkhorn Slough (Figure 2). The Moss Landing segment is approximately 4,466-feet (0.85 mile) long, and will be constructed within the County ROW, State ROW for SR-1, and on easements through private property.

1.1. Project History

The primary purpose of the trail is to enhance appreciation and protection of the Monterey Bay National Marine Sanctuary by promoting public use and enjoyment at its shoreline. Construction of all planned segments of the MBSST would result in a continuous bicycle and pedestrian trail along Monterey Bay from Pacific Grove to Santa Cruz. Construction of the Moss Landing segment of the MBSST is a high priority for the following reasons:

1. The Moss Landing area poses one of the most significant constraints for bicyclists and pedestrians in the proposed MBSST corridor. Currently the only alternative for bicycle and pedestrian traffic in this area is along the shoulders of SR-1 which has high traffic volumes at highway speeds.
2. The Moss Landing area already has visitor activity, which is likely to continue increasing as a result of the redevelopment of the North Harbor area that was completed in 2007. Therefore, pedestrian and bicycle activity along this portion of the MBSST corridor will increase as overall visitor levels increase.

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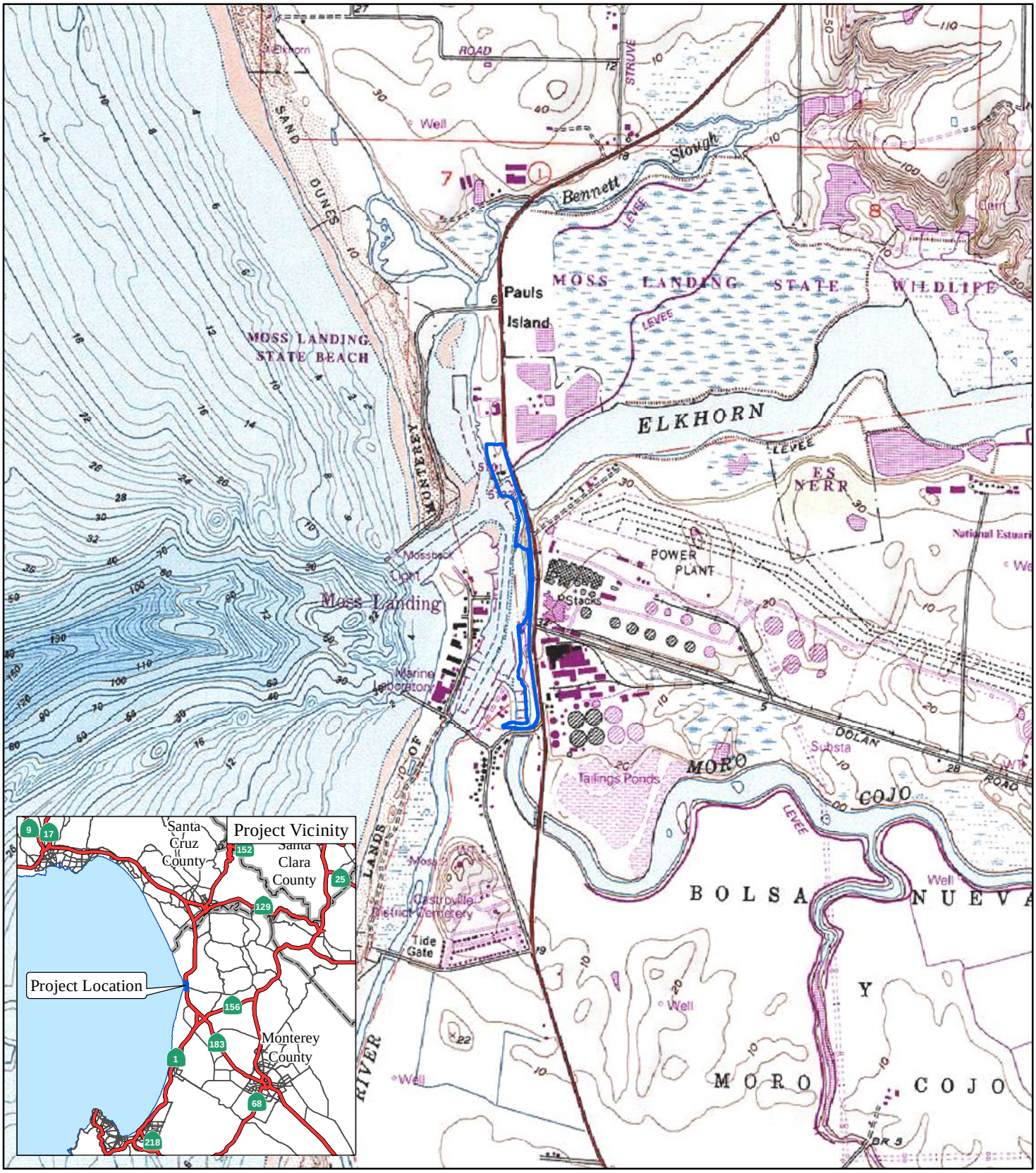

FIGURE 1

LEGEND

Biological Study Area (BSA)

N

0 1000 2000

FEET

SOURCE: USGS 7.5' QUAD, MOSS LANDING, CA (1994)

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Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Project Location Map

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FIGURE 2

Biological Study Area
Trail Alignment

0 150 300
FEET

Source: Wood Rodgers, 2009
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Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Biological Study Area
and Trail Alignment

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3. The Moss Landing area is one of the few places along SR-1 between Santa Cruz and Monterey that motorists have a close-up view of Monterey Bay. Therefore, the Moss Landing area offers one of the best opportunities along the MBSST corridor to view coastal California marine life, a working commercial harbor and recreational fishing village, and the ecologically and recreationally valuable area of Elkhorn Slough.

1.2. Project Description

For the purposes of this Natural Environment Study, the proposed project area is subdivided into five distinct segments, described below. The trail pavement will be 10 feet wide, with 2-foot-wide decomposed granite shoulders on either side, except as noted below.

1. **Moss Landing Road to Moss Landing Power Plant.** Along the north side of Moss Landing Road along the south shore of Moss Landing Harbor, the trail will be constructed along the north side of a curb and gutter to be constructed by a separate project along the edge of the roadway. The trail pavement will be 10 feet wide, with a 2-foot-wide decomposed granite shoulder along the north side. The north side of the trail shoulder will be supported by an embankment slope between the trail and the harbor. The embankment slope will extend into the tidal zone, and will be stabilized with rock slope protection. The area of rock slope protection will be about 250 feet long and will vary between 10 feet and 25 feet in width.

   From Moss Landing Road to a point opposite Dolan Road, the slopes in the project area are gentle and the trail can be constructed with minimal grading. A low retaining wall, approximately 700-feet-long and typically 2-feet-high but up to 3 feet, 6-inch-high in one location, will be constructed below the current grade of SR 1 along the west side of the trail in order to support the harbor side edge of the trail. Additionally, some tree trimming and/or removal to provide space for the trail will be required.

2. **Through Moss Landing Power Plant.** North of Dolan Road, along the southern seawater intake facility for the Moss Landing Power Plant (MLPP), the trail will be constructed near the west edge of SR 1. The existing metal guardrail will be replaced with a concrete barrier between the trail and the highway. A retaining wall of the soldier-pile type, approximately 490-feet-long, will be required to support the west side of the trail. The existing 6-foot chain-link security fence

along the intake facility will be replaced with an 8-foot chain-link fence relocated onto the new retaining wall.

The trail segment grade to the north of the driveway into the northern seawater intake facility for the MLPP will slope gently to the north at about the same grade as the adjacent SR 1 lanes, which will require excavation. To separate the trail from the adjacent southbound SR-1, a concrete barrier will be constructed. The existing 6-foot chain-link security fence around the intake facility will be replaced with an 8-foot chain-link fence. Removal of several eucalyptus and cypress trees may be necessary to provide sufficient width for the trail.

Just north of the power plant's existing northern pedestrian tunnel, the trail will turn west and slope downhill at less than 4% grade for approximately 100 feet, adjacent to the northern seawater intake facility for the MLPP. A retaining wall of the soldier-pile type with 8-foot chain-link fence on top will be constructed along the west side of the trail to provide a retained-fill bench of sufficient width for the trail. View-obscuring slats will be installed in the chain-link fabric to screen the industrial facility from the trail. The trail will pass over an existing pipeline, then turn northward along the shoreline, continuing to descend to the north at a profile grade of not more than 4 percent on fill retained by walls or gabions. No fence is planned to the north of the pipeline crossing, but either stainless steel or galvanized steel railings may be required to prevent falls. Removal of several eucalyptus trees will be necessary to provide sufficient width for the trail.

3. **Moss Landing Power Plant to Elkhorn Slough Bridge.** At the north end of the MLPP property, the trail alignment will cross an existing drainage in a 30-inch concrete culvert and pass into State right of way controlled by Caltrans. Approaching Elkhorn Slough from the south, the trail will be constructed on the old embankment of SR-1. The profile grade will be at or above an elevation of 15 feet, and the slope will be less than 1 percent, except at the approach to the bridge abutment. Some fill retained by walls or gabions will be required, and the failed broken concrete shore protection will be replaced with rock slope protection that extends through the tidal zone. The area of rock slope protection will be about 330 feet long and about 45 feet wide. Either stainless steel or galvanized steel railings may be required to prevent falls along the edge of the walls or gabions retaining the fill on which the trail is constructed. An existing concrete stormwater settling basin will remain in place and will not be disturbed by construction of the trail.

4. **Elkhorn Slough Bike Bridge.** A new pedestrian/bicycle bridge, 386 feet in length, will be constructed across Elkhorn Slough. The new bridge will be constructed entirely within the existing Caltrans right of way along the alignment of the previous SR-1 bridge that was replaced by the current SR-1 bridge to the east. The new bridge abutments will be constructed inland of the old bridge abutments, requiring excavation of up to 3 feet below the existing grade. The bridge piers will be constructed of driven cast-in-steel-shell concrete piles and will be aligned with the existing piers, allowing watercraft to navigate through the channel without additional obstruction. These pier piles will be driven into the slough bottom with a pile driver and dewatering and excavation in the Elkhorn Slough channel will not be required. The new bridge soffit elevation will be set at or above the soffit elevation of the existing SR-1 bridge, and the span lengths will match. The piers supporting the bridge, each consisting of three 3-foot-diameter piles, will be aligned with those of the adjacent SR-1 bridge to facilitate navigation by boats. The bridge deck will be constructed with precast concrete slab elements, which will provide a clear deck width of 12 feet between railings. Additional deck width will be provided on either side of the bridge deck at each pier to create overlook areas. There will be a total of 12 overlook areas, six on either side of the bridge. Each overlook area will provide space for trail users to stop on the bridge without causing interference with other trail users. From the bridge, trail users will have an opportunity to observe the Moss Landing Harbor, the Pacific Ocean, and Elkhorn Slough, particularly the abundant marine wildlife that inhabits the immediate vicinity. Railings on the bridge will be either stainless steel or galvanized steel to minimize maintenance.
5. **North Harbor.** North of the new bridge, approximately 100 feet of trail will be built to meet the existing section of the MBSST, which was constructed in 2007 along the east side of the North Harbor facilities of the Moss Landing Harbor District. Minimal grading will be necessary but some fill will be required to raise the trail to the grade of the bridge. An existing, temporary, paved 5-foot-wide trail connection to the shoulder of southbound SR-1, located mostly on imported fill for the current SR-1 approach to the Elkhorn Slough Bridge, will be removed. All of the work for this segment of the trail will to be confined to the area of the old SR-1 alignment west of the current SR-1 and will be within existing State right of way.

1.2.1. Construction Staging Areas

The precise location of staging areas has not yet been determined. However, all construction staging areas are proposed to be located primarily within disturbed areas of Caltrans right of way or in private property easements from adjacent property owners. Pending landowner permission, staging areas are currently proposed for the flat graveled area opposite Dolan Road near the south end of the trail alignment, and on the paved parking area just north of the planned bridge over Elkhorn Slough. An additional staging area in the open water of Elkhorn Slough west of the proposed bridge will also be necessary, since the pile driving activities must be completed from the water. One or two barges, each estimated to be 60-feet by 150-feet (9,000-square feet) with a crane/pile driver will be anchored within the staging area west of the existing SR-1 bridge during pile driving activities and construction of the bridge deck.

1.2.2. Construction Program

The length of time required for pile driving activities in Elkhorn Slough is anticipated to be no more than one week. Construction of the entire project is expected to last approximately nine months (one season). The estimated cost of the project is less than $3 million and federal funds will be the primary source of funding. The project is included in the 2008 TAMC Final Monterey Bay Sanctuary Scenic Trail Master Plan (Master Plan) and the 2008 Monterey County General Bikeways Plan (Monterey County, 2008), and is consistent with projects contained in those plans. Upon completion, the Moss Landing segment of the MBSST would also become part of the California Coastal Trail and Pacific Coast Bikeway.

Chapter 2. Study Methods

Prior to conducting field studies, the limits of the BSA were established. The BSA, approximately 0.86-miles in length and covering an area of 14.5-acres, consists of the project footprint, including cut/fill slopes, all potential access and staging areas, as well as the shoreline on Elkhorn Slough and Moss Landing Harbor near the trail alignment. The BSA includes lands beyond the footprint that could be permanently, temporarily, or indirectly affected by the project.

The scientific and English names for the plant and animal species used in this report are from the following sources: plants, Baldwin et al. (2012 [making note of synonyms used in Hickman, 1993]), and (CNPS, 2009); fishes, Nelson et al. (2004); amphibians and reptiles, Crother (2012) and Jennings and Hayes (1994); birds, American Ornithologists' Union (1998) and supplements and Shuford and Gardali (2008) (subspecies names of special status birds), and CDFW's Special Animals List (CDFG, 2011).; and mammals, Jones et al. (1997) and Reid (2006). For animals, subspecies names are used only when a specific subspecies is considered a special status species by the CDFW and and/or the USFWS or NMFS.

2.1. Regulatory Requirements

2.1.1. Review of Jurisdiction Subject to the California Coastal Act

When a project requires substantial fill or new construction fill within the Coastal Zone, the applicant (in this case, Monterey County) must obtain a permit from the California Coastal Commission (CCC) or the city or county with coastal permit jurisdiction. The CCC oversees implementation of the California Coastal Act (CCA) and the federal Coastal Zone Management Act (CZMA). The Coastal Zone is generally defined as the distance from the ocean shoreline to 1,000 yards inland or more in some locations.

A Coastal Development Permit (CDP) will be required for the project. The BSA is within jurisdiction of a certified Local Coastal Program (North County Land Use Plan Area, Local Coastal Program, Certified June 1982). Since the project is located within an area where a local entity has a certified Local Coastal Plan (LCP), the local entity (e.g., County of Monterey), can issue a CDP only if it is consistent with the LCP. The CCC, however, retains appeal authority for portions of LCPs and retains "original jurisdiction" over developments that occur below the mean high tide.

Areas under the jurisdiction of the CCC include estuarine wetland/open water associated with Elkhorn Slough and Moss Landing Harbor, and trees protected under the LCP. The upland drainage present within the BSA will be crossed via a 30-inch concrete culvert and fill and therefore would require inclusion in the CDP, should CCC determine it to be subject to jurisdiction under the Local Coastal Program.

2.1.2. Review of Jurisdiction Subject to Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act

The USACE regulates discharges of dredged or fill material into waters of the United States. These waters include wetland and non-wetland bodies of water that meet specific criteria. The USACE regulatory jurisdiction, pursuant to Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 United States Code [USC] 403), regulates almost all work in, over, and under waters listed as "navigable waters of the U.S."

Under Section 10 of the RHA, USACE jurisdiction over tidal waters of the United States extends from the ordinary low tide line seaward three nautical miles. USACE jurisdiction shoreward extends to the line on the shore reached by the mean high water. This jurisdiction extends to this edge even though portions of the water body may be extremely shallow and are thus considered "navigable in law" although they may not be navigable in fact (33 Code of Federal Regulations [CFR] 329.12).

Pursuant to Section 404 of the CWA, the USACE regulates the discharge of dredged and/or fill material into waters of the United States. The term "waters of the United States" is defined in 33 CFR Part 328 and currently includes: (1) all navigable waters (including all waters subject to the ebb and flow of the tide), (2) all interstate waters and wetlands, (3) all impoundments of waters mentioned above, (4) all tributaries to waters mentioned above, (5) the territorial seas, and (6) all wetlands adjacent to waters mentioned above.

The discharge of dredged or fill material (temporarily or permanently) into navigable waters of the United States (including wetlands) requires authorization from the USACE pursuant to Section 10 of the RHA and Section 404 of the CWA. Areas below the mean high water are jurisdictional per Section 10. Areas between mean high water and high tide are jurisdictional per Section 404. Impacts to Section 404 waters are expected to be authorized under Nationwide Permit 14 (linear transportation projects). Potential project effects to Section 10 waters will be authorized under a separate Letter of Permission (LOP) (Paula Gill, Personal communication).

2.1.3. Review of Jurisdiction Subject to Section 1600 of the California Fish and Game Code

Pursuant to Division 2, Chapter 6, Sections 1600–1602 of the California Fish and Game Code, the California Department of Fish and Wildlife (CDFW) regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife.

Unlike the USACE, CDFW regulates all activities that alter the bed or bank of streams and lakes and their associated habitat. The lateral extent of jurisdiction may, in some situations, extend to include a broader cross-sectional width of the drainages and floodplains above and beyond the area contained within the ordinary high water mark (OHWM), depending on the hydrological regime of a stream or river. For this reason, the dimensions of a CDFW jurisdictional streambed may vary substantially from the measured OHWM within the same stream or river.

A CDFW Streambed Alteration Permit (SAP) is required for activities resulting in effects to streambeds and their associated riparian habitats; however, the CDFW does not regulate tidal waters unless they occur within a river or stream. As the proposed project is located at the mouth of Elkhorn Slough, a Lake or Streambed Alteration Agreement (SAA) is not expected to be required for this project. The upland drainage present within the BSA will be crossed by a culvert and fill and therefore would require a SAP, should CDFW determine it to be subject to jurisdiction under Section 1600.

2.1.4. Review of Jurisdiction Subject to Section 401 of the Clean Water Act

The Regional Water Quality Control Board (RWQCB) is responsible for the administration of Section 401 of the CWA. Typically, the areas subject to RWQCB jurisdiction coincide with those of the USACE (i.e., waters of the United States, including any wetlands). RWQCB also asserts authority over waters of the State under waste discharge requirements pursuant to the Porter-Cologne Water Quality Control Act (Porter-Cologne Act).

The LOP to be issued from the USACE may be pre-certified by the State Water Resources Control Board; therefore, a separate Section 401 Water Quality Certification from the RWQCB may not be required for impacts to Section 10 waters. However, with regards to Nationwide Permit 14, precertification of the permit is typically issued separately. The project will comply with standard conditions of the

SWRCB and special conditions from the RWQCB as included in the LOP and Nationwide Permit 14.

2.1.5. Executive Order 11990 (EO 11990) Protection of Wetlands

Projects requiring federal funds or located on federal land must comply with Executive Order 11990 (May 24, 1977), which stipulates that such projects will be designed to minimize wetland impacts and impacts on wetlands must be identified in the environmental document. Alternatives that avoid wetlands must be considered. If wetland impacts cannot be avoided, then all practicable measures to minimize harm must be included. This must be documented in a specific "Finding of No Practicable Alternative" in the Final Environmental Document. Each agency, to the extent permitted by law, shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds 1) that there is no practicable alternative to such construction, and 2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. In making this finding the head of the agency may take into account economic, environmental and other pertinent factors.

2.1.6. Federal Endangered Species Act

Under provisions of Section 7(a)(2) of the Federal Endangered Species Act (FESA), a federal agency that permits, licenses, funds, or otherwise authorizes a project activity must consult with the USFWS and NMFS to ensure that its actions do not jeopardize the continued existence of listed species or destroy or adversely modify critical habitat. Chapter 4 of this NES provides details on the proposed project’s effects on federally-listed plant and wildlife species and critical habitat.

A federal Section 7 consultation between Caltrans and the USFWS and between Caltrans and NMFS will be required to authorize the project with regards to federally listed species. Caltrans received NEPA delegation from the FHWA and will act as the lead federal agency for Section 7 consultations. It is anticipated that a “may affect, but not likely to adversely affect” determination may be made due to potential impacts to Essential Fish Habitat, green sturgeon (FT), steelhead (FT), tidewater goby (FE), and southern sea otter (FT).

2.1.7. California Endangered Species Act

The California Endangered Species Act (CESA) is administered by CDFW and prohibits the take of plant and animal species identified as either threatened or endangered in the State of California by the Fish and Game Commission (Fish and

Game Code Section 2050–2089). "Take" means hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture or kill. Sections 2081 and 2080.1 of the CESA allow CDFW to authorize exceptions to the prohibition of take of the State-listed threatened or endangered plant and animal species for purposes such as public and private development. Chapter 4 of this NES provides details on the proposed project's effects to State-listed plant and animal species.

Foraging habitat (not nesting habitat) for California brown pelican (SFP), American peregrine falcon (SDE, SFP), and white-tailed kite (SFP) may be affected by the project. Given the avoidance measures outlined in Section 4.3, impacts to these state listed or fully protected species would not result from the project. A

2.1.8. Migratory Bird Treaty Act

Native bird species and their nests are protected under the Migratory Bird Treaty Act (MBTA) (16 USC 703-712). The MBTA states that all migratory birds and their parts (including eggs, nests, and feathers) are fully protected. The MBTA prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale any migratory bird, its eggs, parts, and nests, except as authorized under a valid permit.

Executive Order (EO) 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds) directs federal agencies "taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations to develop and implement a Memorandum of Understanding (MOU) with the USFWS that promotes the conservation of migratory bird populations."

Although no nesting migratory birds were observed during 2008 and 2009 biological surveys, the County of Monterey will avoid take of active nests by conducting a preconstruction survey for nesting birds within 300 feet of tree removal activity, should construction occur during the nesting season (February 22 through August 21). These specific dates and survey distances have been established by the Resource Management Agency of Monterey County, per the Tree Assessment Workshop attended by LSA's Certified Arborist on August 7, 2009. Additional monitoring may be required if active nests are observed within the BSA during construction activities. With these avoidance measures in place, no effects to nesting birds protected by the MBTA will occur; therefore, an MOU will not be necessary.

2.1.9. Invasive Species

On February 3, 1999, Executive Order (EO) 13112 was signed, 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 noxious weed list to define the invasive plants that must be considered as part of the CEQA analysis for a proposed project.

Twenty-two nonnative plant species occurring on the California Invasive Plant Council (Cal-IPC) California Invasive Plant Inventory were identified in the terrestrial portions of the BSA. In compliance with EO 13112, weed abatement measures will be incorporated into the Forest Management Plan to be completed for the project to minimize the importation of nonnative terrestrial plant material during and after construction.

Assembly Bill (AB) 740, approved on October 10, 2007, requires that removal and disposal of "hull fouling" organisms occurs on a regular basis (a period that does not exceed five years). AB 740 requires the State Lands Commission, in consultation with the U.S. Coast Guard, to develop and adopt regulations governing the management of "hull fouling" on vessels arriving at a California port or place. Removal of hull fouling is the responsibility of the master, owner, operator, or person in charge of the vessel. *Biofouling Management Regulations for Vessels Operating in California Waters* have not yet been adopted by the State Lands Commission but will be reintroduced in the near future (State Lands Commission, 2012).

A number of aquatic invasive species have been identified in San Francisco Bay and could be introduced to the BSA and Elkhorn Slough if vessels (e.g., barges) from San Francisco Bay are used during construction. Dumping bilge water outside of national marine sanctuary boundaries, proper flushing of raw water cooling systems, cleaning of sea strainers, regular inspections, and compliance with AB 740 requirements is warranted to ensure that the spread of invasive aquatic species does not occur to Elkhorn Slough. If any invasive species listed as least wanted aquatic invaders are found, they will be reported to Elkhorn Slough National Estuarine Research Reserve (ESNERR).

2.1.10. Marine Life Protection Act

The Marine Life Protection Act (MLPA) was passed in 1999 and requires California to reevaluate all existing marine protected areas (MPAs) and potentially design new MPAs that together function as a statewide network. The MLPA has clear guidance associated with the development of this MPA network. MPAs are developed on a regional basis with MLPA- and MPA-specific goals in mind, and are evaluated over time to assess their effectiveness for meeting these goals.

MPAs are separate geographic marine or estuarine areas designed to protect or conserve marine life and habitat. There are three types of MPAs designated (or recognized) in California: State marine reserve (SMR), State marine park (SMP) and State marine conservation area (SMCA).

Pursuant to the MLPA, the portion of Elkhorn Slough in the BSA is west of the Elkhorn Slough SMR and the Elkhorn Slough SMCA. These areas protected under the MLPA are outside of the BSA, primarily to the east of the SR-1 bridge over Elkhorn Slough. Furthermore, the Moro Cojo Estuary SMR is east of the southern end of the BSA and not included in the BSA (Figure 3) (CDFG, 2007).

2.1.11. Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) was authorized in 1996 and requires the NMFS to identify, conserve, and enhance Essential Fish Habitat (EFH) for those species regulated under a federal Fisheries Management Plan. EFH is defined as the waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Specifically, the MSA requires: (1) federal agencies to consult with NMFS on all actions or proposed actions authorized, funded, or undertaken by the agency that could adversely affect EFH; (2) NMFS to provide conservation recommendations for any federal or State action that could adversely affect EFH; and (3) federal agencies to provide a detailed response in writing to NMFS within 30 days of receiving EFH conservation recommendations.

The proposed project is located within an area designated as EFH for both the Coastal Pelagic Species and Pacific Coast Groundfish Fisheries Management Plans. Consultation with NMFS regarding impacts to EFH will be required since the project is anticipated to result in a “may affect, but not likely to adversely affect” determination regarding EFH.

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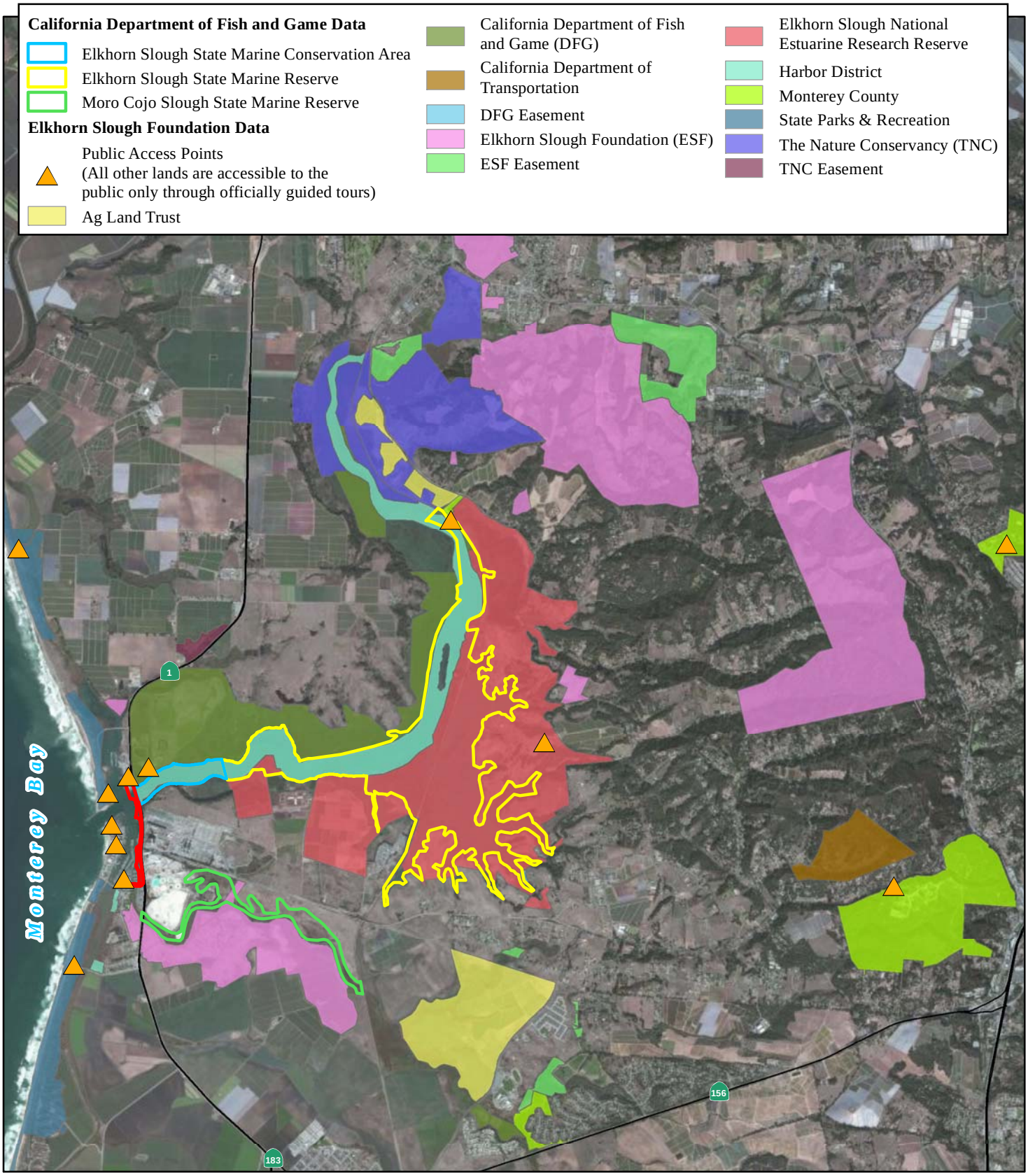

FIGURE 3

Biological Study Area (BSA)

N

0 0.5 1
Miles

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Preserved Areas Near the Biological Study Area

SOURCE: California Department of Fish and Game (2009); Elkhorn Slough Foundation (2009); Bing (c. 2010)

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2.1.12. Marine Mammal Protection Act

The NMFS is also the federal agency with jurisdiction over marine mammals that are protected under the Marine Mammal Protection Act (MMPA). This act protects marine mammals such as harbor seals and California sea lions from take. Take under the MMPA is defined as "harass, hunt, capture, kill, or attempt to harass, hunt, capture or kill a marine mammal." It is necessary for federal lead agencies (such as the USACE) to consult with NMFS regarding possible take of marine mammals during otherwise legal activities.

Citizens of the United States engaged in otherwise lawful activity (other than commercial fishing) may request authorization for incidental harassment of small numbers of marine mammals within a specified geographic region. The MMPA defines two levels of "harassment" as:

> *Any act of pursuit, torment, or annoyance which 1) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or 2) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).*

If an otherwise given lawful activity could result in harassment (as defined above) to marine mammals, an incidental harassment authorization (IHA) from NMFS would be required before the commencement of the activity. Caltrans will act as the lead federal agency and obtain the necessary harassment authorization. Construction of the bridge over Elkhorn Slough is expected to require an IHA and associated Marine Mammal Protection Plan.

2.1.13. Tree Ordinances

County of Monterey has provided regulations for the protection and preservation of trees as required in the *North County Land Use Plan*. Eucalyptus and Monterey cypress trees that are defined as landmark trees and are located within the coastal zone are protected by the *Monterey County Coastal Implementation Plan, Part 2, Regulations for Development in the North County Land Use Plan Area* (Chapter 20.144)). Chapter 20.144 states that a Coastal Development Permit must be obtained for the removal of trees and other major vegetation, but provides for specific exceptions. Chapter 20.144.050 C.1. provides the following exception from a Coastal

Development Permit requirement for removing native and non-native landmark trees within the coastal zone.

> *An exception may be granted by the decision-making body for removal of a tree that is 24 inches or greater in diameter (measured at breast height) and not also visually or historically significant, exemplary of its species or more than 1000 years old. To grant the exception, the decision-making body must find that no alternatives to development (such as resiting, relocation, or reduction in development area) exists whereby the tree removal can be avoided or that the tree removal is for the purpose of maintaining existing agricultural operations where not resulting in the enlargement of those operations.*
>
> *An exception may be granted by the decision-making body for removal of a landmark tree within the public right-of-way or area to be purchased for the public right-of-way where no feasible and prudent alternatives to such removal are available, subject to obtaining a coastal development permit.*

2.2. Studies Required

General biological surveys, a JD, and special status plant surveys were conducted by LSA in 2007, 2008 and 2009. In addition, LSA conducted a field survey in March 2012. This survey provided updated information on the biological resources within a portion of the Moss Landing Power Plant property where the trail alignment had changed since the original field work.

2.2.1. General Biological Surveys

Prior to performing the field surveys, existing documentation relevant to the BSA was reviewed. Database records and websites reviewed included:

- California Natural Diversity Database (CNDDB) information (January 3, 2014), which is administered by the CDFW (this database covers sensitive plant and animal species as well as sensitive natural communities that occur within California);
- California Native Plant Society On-Line Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPSEI);
- CalFlora website (CalFlora, 2009);
- CalPhotos website (CalPhotos, 2009);

- The California Consortium of Herbaria website (2008); and
- USFWS regional lists from August 2009 and January 2014 (Appendices A1 and A2, respectively).

Searches of the USFWS online list of federally-listed species (Appendices A1 and A2), referencing County of Monterey, the CNDDB and CNPSEI databases were conducted for the quadrangles containing and surrounding the BSA (i.e., *Moss Landing, Soquel, Watsonville East, Watsonville West, Prunedale, Salinas,* and *Marina* quadrangles United States Geological Survey [USGS] 7.5-minute quadrangles).

The special status species lists obtained from the CNDDB, CNPS, and USFWS were reviewed to determine which species could occur within the vicinity of the BSA. From these lists, a site-specific list was compiled that included the numerous species that potentially occur in the BSA due to the presence of suitable habitat. Special status species lists include each species' protection status, habitat information, potential for occurrence in the BSA, and supporting comments as necessary. The determination of whether a species potentially occurs within the BSA was based on the availability of suitable habitat within the species' known range. Species requiring specific habitat not present in the vicinity of the project (e.g., vernal pools) were eliminated as potentially occurring and are not discussed further. Those species that could occur in the BSA from a habitat suitability standpoint are discussed in Sections 5.2 and 5.3.

Surveys were conducted between August 2007 and August 2009, and in March 2012 by LSA Associates, Inc. (LSA) biologists. Habitats and plant communities' within the BSA were mapped during pedestrian surveys of the BSA. Plant communities were determined in general accordance with categories set forth in *California Vegetation* (Holland and Keil, 1996) and *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986). Vegetation communities were mapped on an orthographically corrected (1 inch = 50 feet) aerial photograph. Habitat areas that were considered too small to map separately were included in nearby habitat types determined to be the most appropriate based on species composition.

2.2.2. Jurisdictional Delineation

The fieldwork for this evaluation was conducted by LSA biologist Wendy Fisher on January 19, 2009 and March 24, 2009. A field verification visit was completed on July 15, 2009. Based on the verification visit, revisions were made to the wetland

map to show the boundaries of the BSA, the limits of high water, and mean high water. The USACE verified the original jurisdictional delineation in a letter dated October 7, 2009. The delineation was revised in July 2010 to account for a larger BSA. The BSA was enlarged to allow for shoreline protection measures that will enhance the quality of the aquatic estuarine habitat. The revised delineation was verified by the USACE on September 8, 2010.

LSA wetland specialist Chip Bouril conducted a follow-up field visit on March 1, 2012, to provide updated information on the wetland resources within a portion of the Moss Landing Power Plant property where the trail alignment had changed since the field delineation was conducted.

Areas of potential jurisdiction were evaluated according to USACE, CDFW, CCC, and RWQCB criteria. The boundaries of the potential jurisdictional areas were observed in the field and mapped on a series of aerial photographs (at a scale of 1 inch = approximately 50 feet), showing the BSA. Measurements of federal and State jurisdictional areas mapped during the course of the field investigation were determined by calculations through Geographic Information System (GIS).

Areas supporting vegetation indicative of wetlands were evaluated according to routine wetland delineation procedures described in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (Regional Supplement) (USACE, 2008) and the Corps of Engineers 1987 Wetland Delineation Manual (1987 Manual) (Environmental Laboratory, 1987). Representative sample points were selected and examined in the field in those areas where wetland jurisdiction was in question or needed to be confirmed. At each sample point, the dominant and subdominant plant species were identified and their wetland indicator status noted (Reed, 1988). When possible, a small pit (approximately 24-inches deep) was dug at each sample point in order to examine soil characteristics and composition. Soil matrix colors were classified according to the Munsell Soil Color Charts (Munsell Color, 2000). Hydrological conditions, including surface inundation, saturated soils, groundwater levels, and/or other wetland hydrology indicators, including the limits of mean high water and high tide, were noted. General site characteristics were noted. The revised delineation report is included in Appendix B1. The 2012 addendum to the revised delineation report is included in Appendix B2.

2.2.3. Special status Plant Surveys

A literature search preceded the 2009 special status plant surveys and focused on the habitat requirements for special status plants that potentially occur within the BSA. Specifically, the following sources were reviewed: the on-line version of the Inventory of Rare and Endangered Plants (CNPS, 2009), photographs of special status plants from the on-line Calflora website (www.calflora.org), and the CNDDB (CDFW, 2014).

Special status plant surveys within the BSA were conducted on March 24, April 23 June 5, and August 7, 2009 by LSA biologists Wendy Fisher and Laurel Huntzinger. Surveys were conducted in a manner that is consistent with conservation ethics and accepted plant collection and documentation techniques. Surveys were floristic in nature and conducted during the flowering seasons of the target species pursuant to CNPS Survey Guidelines (CNPS, 2001).

During each survey, the biologists walked approximately 10 to 25-feet-wide transects, depending on ground visibility, throughout the BSA in habitats determined to be potentially suitable for the target plant species. A portable global positioning system (GPS) Trimble XH unit was used to record target species population locations.

The surveys were timed to correspond with the optimal time for detecting special status plant species in the BSA, based on information provided by the CNPS Online Inventory (CNPS, 2009). All vascular plant species encountered in the BSA were identified to a level sufficient to determine their rarity status. Plants were keyed using *The Jepson Manual, Higher Plants of California* (Hickman, 1993). Secondary sources for plant identification, such as CalFlora (CalFlora, 2009), CalPhotos (CalPhotos, 2009), the California Consortium of Herbaria (2009), and Jepson Interchange (UC Berkeley, 2009) were also consulted. A list of vascular plant species observed during the surveys is included in Appendix C (plant taxonomy and nomenclature in this report follows Baldwin (2011), making note of synonyms used in Hickman (1993) where appropriate).

2.3. Personnel and Survey Dates

LSA biologists conducted surveys of the BSA between August of 2007 and August of 2009. An additional field survey was conducted in 2012 to assess a short trail segment that had changed since the original field work. Surveys consisted of mapping of vegetative communities, special status plant surveys, general wildlife surveys,

nesting bird surveys, a black legless lizard habitat assessment, and a JD, as shown in Table 1. The primary author of this NES was Senior Biologist, Wendy Fisher.

Table 1: Survey Dates and Personnel

Date	Personnel	Purpose of Survey
August 15, 2007	Eric Lichtwardt	On-site meeting, incidental general wildlife survey and animal habitat assessment
December 17, 2008	Wendy Fisher and Pam Reading	General biological survey
January 19, 2009	Wendy Fisher	JD, special status plant survey
February 6, 2009	Tim Lacy and Eric Lichtwardt	General wildlife survey, special status animal species habitat assessment, marine mammal observations
March 24, 2009	Wendy Fisher	JD, special status plant survey
April 8, 2009	Tim Lacy and Eric Lichtwardt	General wildlife survey, nesting bird survey, legless lizard survey and habitat assessment, marine mammal observations
April 23, 2009	Wendy Fisher and Laurel Huntzinger	Special status plant survey, tree evaluation
May 19, 2009	Tim Lacy and Eric Lichtwardt	General wildlife survey, nesting bird survey, legless lizard survey and habitat assessment, marine mammal observations
June 5, 2009	Wendy Fisher	JD, special status plant survey
July 15, 2009	Wendy Fisher	Verification visit with USACE of JD
August 7, 2009	Wendy Fisher	GPS boundaries of open water/estuarine wetland habitat, special status plant survey
March 1, 2012	Eric Lichtwardt, Chip Bouril, and Tim Milliken	Update for wildlife, special status plant, and tree evaluation, and wetlands for revised trail alignment.

2.4. Agency Coordination and Professional Contacts

- August 15, 2007. Field meeting to discuss funding, project alternatives, and schedule.
- January 24, 2008. Meeting held by County of Monterey Department of Public Works.
- June 11, 2008. Phone correspondence with Bill Collins, Wildlife Biologist, Army Base Realignment Fort Ord, Presidio of Monterey. Discussion regarding blooming period, access to reference populations of special status plants and occurrences of black legless lizard at Fort Ord and surrounding area.
- October 15, 2008. Kick-off meeting at County of Monterey Government Center.
- January 23, 2009. Discussion with Melanie Faust, fisheries biologist, CCC. Discussion regarding effects to fisheries from various construction methods and materials, minimization of sediment plumes, species seasonal requirements, fish

exclusion measures, and allowable uses within an Environmentally Sensitive Habitat Area (ESHA).

- January 23, 2009. Discussion with Mark Delaplaine, Manager, Federal Consistency Division CCC. Phone discussion regarding noise measurement procedures for bioacoustics, noise thresholds, impacts of pile driving on fisheries and marine mammals.
- March 12, 2009. Discussion with Greg Brown, USACE, regarding delineation of the BSA and suitability of this project for conducting a preliminary JD rather than a full JD.
- May 8, 2009. Discussion with Mark D'Avignon, USACE regarding the status of verification of the JD.
- June 10, 2009. Phone discussion with Michael Graham, Associate Professor in Phycology at Moss Landing Marine Laboratories (MLML). Phone discussion regarding poor habitat quality and lack of eelgrass habitat of the submerged ground surface at the bridge crossing (riprap, rubble, shells or barren surface).
- June 10, 2009. Phone Discussion with Catalina Reyes, Graduate Student in Phycology at MLML. Discussion regarding seaweeds in the subtidal zone (no *Zostera* habitat present or species observed) near the vicinity of the bridge crossing during extensive diving.
- June 10, 2009. Phone discussion with John Oliver, consulting oceanographer. Discussion regarding the likelihood of eelgrass occurrences near the bridge (absent at the bridge crossing due to depth), erosive environment beneath the SR-1 bridge (scouring to a depth of approximately 40-feet) with presence of old pilings, unnatural substrate, and absence of clams at this location.
- July 15, 2009. Field verification visit for the JD with USACE representatives Paula Gill and Christina Cavett.
- August 11, 2009. Discussion with Jackie King, Landscaping Contractor with Barefoot Gardens, regarding recommended native shrubs that can tolerate growth beneath Eucalyptus trees.
- August 13, 2009. Discussion with Gary Jones, Landscaping Contractor with Good Earth Landscaping, regarding recommended native shrubs that can tolerate growth beneath eucalyptus trees.
- August 20 and September 3, 2009. Discussions with Kevin Contreras, Land Acquisition Specialist with Elkhorn Slough Foundation (ESF), regarding availability of shape boundary files depicting preserved lands and public access points in the vicinity of Elkhorn Slough. This information was used to generate Figure 3.

- August 27, 2009. Discussion with David Mack, Environmental Planner with Monterey County regarding requirements for tree removal within the BSA.
- September 22, 2009. Discussion with Bill Stevens, Natural Resource Management Specialist with NOAA Fisheries, regarding absence of critical habitat for steelhead and documented occurrence of green sturgeon within Moss Landing Harbor.
- January 27, 2010. Email Correspondence with Andrew Cohen, Director, Center for Research on Aquatic Bioinvasions (CRAB) and Director of the Biological Invasions Program, Russ Jeffries, Moss Landing Harbor District, Lee Otter, Transportation & Public Liaison, CCC, and Kirsten Wasson, Research Coordinator, ESNERR regarding effects of the project on invasive aquatic species and recommended measures to minimize transportation of invasive aquatics.
- February 4, 2010. Email Correspondence with Deirdre Whalen, Government and Community Relations Coordinator, NOAA's Monterey Bay National Marine Sanctuary regarding procedures to minimize transportation of invasive aquatics.
- May 28, 2010. Phone conversation with Stephanie Strelow, Consultant from Strelow Consulting, regarding possible methods of barge importation and installation to minimize the spread of invasive aquatics.

2.5. Limitations That May Influence Results

No problems or limitations were encountered during the research, fieldwork, or document preparation that influenced the results presented herein. All surveys were completed at the appropriate time of year for correct identification of species. Standard protocols were used to conduct the fieldwork. All areas of the BSA that were not inundated were accessible during the surveys.

The collection of biological field data is normally subject to environmental factors that cannot be controlled or reliably predicted. Consequently, the interpretation of field data must be conservative and consider the uncertainties and limitations necessarily imposed by the environment.

Chapter 3. Results: Environmental Setting

3.1. Description of the Existing Biological and Physical Conditions

As described in *The Jepson Manual* (Baldwin et al., 2012), the BSA is located within the Central Coast subregion of the central western California region of the California Floristic Province. The Central Coast subregion is characterized by valleys and small hills that extend from the coast inland to the foothills of the Inner Ranges of Central California. Portions of the surrounding area are intensively developed for agricultural uses. The natural vegetation of the subregion consists primarily of dune scrub, dune mat, California sage scrub, annual grassland, oak woodland, and some riparian scrub and woodland.

3.1.1. Study Area

The Moss Landing section of the Monterey Bay Sanctuary Scenic Trail (MBSST) is located in Moss Landing, Monterey County. The proposed project would be constructed within the County right of way, State right of way for SR-1, and in private property easements. The BSA encompasses an approximately 0.86-mile-long linear route adjacent to SR-1 from approximately 100 feet north of Elkhorn Slough to Moss Landing Road in the south. This segment of SR-1 is a two lane conventional highway that runs north to south with one lane in each direction. Station numbers for the BSA range from 59+00 – 101+00. The proposed trail alignment will cross Elkhorn Slough directly west of the existing SR-1 bridge.

The Moss Landing Power Plant (MLPP) occupies the land east and west of the highway near the central portion of the BSA. The preliminary trail alignment surveyed in 2007-2009 did not extend onto the lands owned by MLPP (northern seawater intake facility) and enclosed by a chain link fence. In order to avoid impacts to cultural resources, the final trail alignment was revised and extended into the fenced MLPP area. A supplemental analysis was therefore performed for this area on March 1, 2012. Although not surveyed on foot in 2007-2009, the fenced area was included in the original BSA.

3.1.2. Physical Conditions

The BSA is located on the *Moss Landing, California* USGS 7.5-minute series topographic quadrangle map (Figure 1). The northern half of the BSA is in Township

13 south, Range 2 east, Section 7. The southern half of the BSA is within Township 13 south, Range 2 east, Section 18. The elevation ranges from sea level at the slough crossing to 30-feet above mean sea level (amsl).

Five soil series were identified in the BSA: the Alviso Series, Elkhorn Series, Oceano Series, Santa Ynez Series, and Xerorthents, loamy (NRCS, 2009) Soil types are described in Table 2. The extent of soils and the boundaries of the BSA are mapped in Figure 4.

Table 2: Description of Soils Located in the BSA

Soil Series and Phase (Map Symbol)	Parent Material	Location of General Occurrence	Drainage	Hydric Soils Listing
Alviso silty clay loam (Ac)	Alluvium dominantly from sedimentary rocks.	Occurs on northern tip of the BSA.	Very poorly drained; very slow runoff; slow permeability. Areas not diked are periodically flooded during high tides.	No
Elkhorn fine sandy loam, 5 to 9 percent slopes (EdC)	Alluvium from mixed rock sources.	Occurs in middle 1/3 of the BSA.	Well drained; slow to rapid runoff; moderately slow permeability.	No
Oceano loamy sand, 2 to 15 percent slopes (OaD)	Weathered sandy Aeolian deposits.	Occurs on southern tip of the BSA.	Excessively drained; very slow runoff; surface drainage pattern is very poorly developed; rapid permeability.	No
Santa Ynez fine sandy loam, 2 to 9 percent slopes (ShC)	Old alluvium from shale, sandstone and granite.	Occurs on southern 1/3 of the BSA.	Moderately well drained; slow to rapid runoff; very slow permeability.	No
Xerorthents, loamy (Xc)	Masses of loam, silty clay loam, clay, rock fragments and unconsolidated materials.	Occurs on southern 1/3 of the BSA.	Well drained; moderate to rapid runoff; Moderately slow permeability.	No

Biological Study Area

Proposed Trail

Ac - Alviso Silty Clay Loam

EdC - Elkhorn Fine Sandy Loam, 5 to 9 Percent Slopes

OaD - Oceano Loamy Sand, 2 to 15 Percent Slopes

ShC - Santa Ynez Fines Sandy Loam, 2 to 9 Percent Slopes

W - Water

Xc - Xerorthents, Loamy

N

0 300 600

FEET

FIGURE 4

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Soils within the Biological Study Area

SOURCE: Soil - USDA, Natural Resources Conservation Service (2006); Aerial - NAIP (2012); APE Boundary - Wood Rodgers (2007)

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North of slough, the terrain is flat with a large paved parking area to the west of SR-1. South of the slough and north of the Moss Landing Power Plant, the highest elevation of the BSA lies on what is referred to as the "knoll." South of the knoll, the topography is flat where the proposed trail lies on the road shoulder of SR-1. There is a small decline in the slope as this section of the trail approaches the southern most stretch to end west of Moro Cojo Slough along Moss Landing Road.

The BSA crosses Elkhorn Slough approximately 1,500-feet east of the mouth where it enters Monterey Bay, and ultimately the Pacific Ocean. In general, Elkhorn Slough and its tributaries consist of deepwater tidal habitats with adjacent tidal wetlands. Elkhorn Slough is part of a larger network of estuarine habitats. Bennett Slough enters Elkhorn Slough northwest of the bridge crossing. Moss Landing Harbor borders the proposed trail alignment along central portion of the trail. Moro Cojo Slough enters Moss Landing Harbor at the trail's southern extent (Figure 5). Watersheds surrounding the Elkhorn Slough from north to south include Pajaro, Elkhorn, Moro Cojo, Gabilan/Tembledero, and Salinas (ESTWPT, 2007). A variety of other land uses exist in the vicinity of the BSA, including transportation, residential, commercial, recreational, and undeveloped.

3.1.3. Elkhorn Slough

Elkhorn Slough, located 100-miles south of California's largest estuary, San Francisco Bay, is a full time slough, but only a part-time estuary. Unlike San Francisco Bay, which drains the Sacramento and San Joaquin Rivers, the slough has no year round freshwater flow. Seasonal flow of Carneros Creek dries up completely after spring. The summer sun evaporates the still backwaters of the slough, concentrating them to a salinity greater than seawater. Because of its winter-only freshwater flow, Elkhorn Slough is called a "seasonal estuary." The main channel of Elkhorn Slough is 700-feet wide and 25-feet deep at its mouth. It extends inland for 7 miles, growing gradually narrower and shallower until it ends in a marshy expanse.

Elkhorn Slough consists of several thousand acres of tidelands supporting extensive areas of various sized channels, mud and sand flats, and salt marsh. Carneros Creek and the other tributaries of Elkhorn Slough are seasonal, generally providing freshwater flows only during the winter rainy season. Due to strong tidal flows in the channel near the mouth of the slough and the proximity of the BSA to Monterey Bay, salinities within the BSA are presumed to be similar to those typical of ocean waters.

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LEGEND

- Biological Study Area (BSA)
- Waterbody
- Stream or Water

N

0 750 1500

FEET

SOURCE: National Hydrography Dataset (2000); Aerial - Bing (c. 2010

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FIGURE 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Surface Waters in the Vicinity of the Biological Study Area

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Outside of San Francisco Bay, Elkhorn Slough supports the largest tract of tidal salt marsh habitat in California. Over the last 150 years these tidal creeks have deepened and widened at the expense of tidal mud flat and salt marsh. Significant human impacts have increased marsh loss, increased erosion in estuarine habitats, increased eutrophication, introduced noxious weeds, degraded water quality, and increased levels of pollution. Approximately 50 percent of Elkhorn Sloughs tidal wetland habitats have been lost since 1870 (ESTWPT, 2007).

The 1,400-acre Elkhorn Slough National Estuarine Research Reserve (ESNERR) was created in the 1980s to protect what remained of the estuarine habitats in Elkhorn Slough. The ESNERR lies directly east of the BSA and is part of the large network of preserved lands in the vicinity of Elkhorn Slough (Figure 3). NOAA has designated areas of Elkhorn Slough to be a National Marine Research Reserve and a National Marine Sanctuary. Areas of Elkhorn Slough have been designated as a State Ecological Reserve and a State Wildlife Management Area.

Aquatic resources within the BSA are limited to the Elkhorn Slough and Moss Landing Harbor, which flow into Monterey Bay. Within the BSA, the Elkhorn Slough channel is 351-feet-wide and approximately 33-feet-deep. Water movement through the mouth of the slough is controlled by the mouth size and the tidal prism, which have resulted in incredible scouring and erosion in this portion of the channel (J. Oliver, personal communication, June 10, 2009). No eelgrass (*Zostera marina* or *Z. pacifica*) has been seen in aquatic habitat within the BSA by affiliates of Moss Land Marine Labs conducting extensive research on marine habitat at this location (C. Reyes and J. Oliver, personal communication, June 10, 2009). Furthermore, no kelp forests are present in the estuarine wetland/open water of the BSA.

3.1.4. Biological Conditions in the BSA

The terrestrial habitats within the BSA consist of a mosaic of several vegetation/land use types. Five vegetation communities/land uses were identified within the BSA, including 1) estuarine wetland/open water, 2) invaded dune mat, 3) disturbed, planted Eucalyptus/cypress woodland, 4) dune scrub, and 5) disturbed. Roadway and road shoulder comprises the majority of the BSA and is included in the disturbed habitat.

3.1.4.1. VEGETATION COMMUNITIES/LAND USES WITHIN THE BSA

Plant communities within the BSA are illustrated on the vegetation communities figure (Appendix D) and discussed below. Table 3 lists the acreage of each of the

Table 3: Acreage of Vegetation Communities/Land Uses Occurring within the BSA

Vegetation Community/Land Use	Total Acres	Percent of BSA
Disturbed	**4.8**	**33.1**
Estuarine Wetland/Open Water	3.8	26.2
Invaded Dune Mat	2.8	19.3
Eucalyptus / cypress woodland (planted)	**2.7**	**18.6**
Dune Scrub	**0.4**	**2.7**
Total	**14.5**	**100.0**

BSA = Biological Study Area

vegetation communities present within the BSA boundary. Selected photographs of the BSA can found in Appendix E.

Disturbed

Disturbed areas are lands that have been altered by human actions such that the natural communities no longer exist. Disturbed habitat occurs in areas that have been graded or otherwise denuded of vegetation or where areas have been developed for transportation or commercial uses. This habitat type encompasses approximately 33 percent of the BSA (see Table 3). Developed areas consist of human-made features including roads (paved and unpaved) and road shoulders.

In disturbed areas, the soil surface was mostly barren and compacted, and was heavily used by motorists and recreationists. The road shoulder of SR-1, turnouts, parking lots, and access roads were mapped as disturbed habitat. Vegetative species occasionally encountered in disturbed areas included wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), Canada horseweed (*Erigeron canadensis* [= *Conyza canadensis*]), cut-leaved plantain (*Plantago coronopus*), common groundsel (*Senecio vulgaris*), and common vetch (*Vicia sativa*).

Estuarine Wetland/Open Water

Approximately 3.8-acres of estuarine wetland/open water habitat were mapped in the BSA. The majority of the area mapped as open water is below the mean high water and is inundated year round within the BSA, and includes the estuarine waters of Elkhorn Slough and Moss Landing Harbor. The aquatic habitat contains one-celled plants called phytoplankton, including diatoms and dinoflagellates. They thrive in the waterways of the slough where nutrients and sunlight are abundant. The highly eroded and actively scoured nature of Elkhorn Slough within the BSA generally prevents establishment of marine algae or seaweeds within open water of the BSA.

Estuarine wetland encompasses the upper tidal marsh margins of Elkhorn Slough and Moss Landing Harbor within the BSA. The halophytic (salt-loving) vegetation found in the estuarine wetland provides valuable function to the overall wetland system by anchoring soils and controlling erosion. Dominant species observed in the upper margins of this habitat within the BSA included inland saltgrass (*Distichlis spicata*) and woody pickleweed (*Salicornia pacifica*[= *S. virginica*]).

At extremely low tide, a few vegetative species able to withstand rapidly changing temperature and salinity and even occasional drying were observed in the tidal rocks along the southern shoreline of Elkhorn Slough within the BSA. Stringy green algae (*Enteromorpha intestinalis*) covers part of the lower margins of estuarine wetland/open water habitat within the BSA. Delicate red algae (*Plocamium cartilegeneum*), common red algae (*Gracilariopsis lemaneiformis*), and its algal parasite *Gracilariophila oxyroides* are also abundant in lower tidal zone. No rooted eelgrass or kelp forests were observed in the BSA.

Invaded Dune Mat

Invaded dune mat habitat comprises approximately 2.8-acres of the BSA. This nonnative habitat is located intermittently along the length of the alignment in areas where openings in the dense tree canopy allow for understory growth. Invaded dune mat is dominated by invasive, nonnative species, primarily hottentot fig (*Carpobrotus edulis*). Areas mapped as invaded dune mat typically included other invasive herbaceous annuals like nonnative yellow-star thistle (*Centaurea solstitialis*), ripgut brome, cutleaf geranium *(Geranium dissectum)*, burclover *(Medicago polymorpha*), and Bermuda buttercup *(Oxalis pes-caprae)*. Native species occasionally encountered in areas mapped as invaded dune mat were coyote bush (*Baccharis pilularis*), ashy silktassle (*Garrya flavescens*), marsh gumplant (*Grindelia stricta* var. *angustifolia*), succulent lupine (*Lupinus succulentus*) and California poppy (*Eschscholzia californica*).

Eucalyptus/Cypress Woodland (Planted)

Approximately 60 blue-gum eucalyptus trees (*Eucalyptus globulus*) and 140 Monterey cypress (*Hesperocyparis macrocarpa*[= *Cupressus macrocarpa*]) trees have been planted in the BSA. Both species are tolerant of strong winds and salt spray, and both species grow rapidly. Neither species is currently native to the vicinity. Blue-gum eucalyptus was imported from Australia but has become naturalized throughout much of California. Monterey cypress, although native to parts of Monterey County, does not naturally occur in the Moss Landing region. Only two

extant populations of native Monterey cypress remain in Monterey County and both are located approximately 45-miles south of the BSA near Carmel.

Although the two tree species grow together along the length of the BSA, a grove of eucalyptus trees is directly south of the proposed Elkhorn Slough crossing on the knoll. Most of the cypress trees are located between the proposed trail alignment and Moss Landing Harbor in the southern portion of the BSA. Both the eucalyptus and cypress trees have been planted in these areas and most of the trees are mature. The understory of the eucalyptus grove is relatively sparse due to the acidic nature of the eucalyptus leaf litter (allelopathy), but consists of many of the same species found in the adjacent disturbed habitats of the site. Annual species observed growing under the trees within he BSA included New Zealand spinach (*Tetragonia tetragonioides*), rat-tail fescue (*Festuca myurose*[= *Vulpia myuros*]), and barnyard barley (*Hordeum murinum* subsp. *leporinum*). Ornamental varieties of shrubs were occasionally observed beneath the canopy, and included pittosporum (*Pittosporum erioloma*) and red-flowering gum (*Corymbia ficifolia*).

Dune Scrub

This habitat occurs sporadically along the upper shores of Moss Landing Harbor in the southern portion of the alignment. This relatively dense, woody habitat is dominated by coyote bush with inclusions of California sagebrush (*Artemisia californica*). Species commonly found beneath these shrubs included hottentot fig, marsh gumplant, soft chess, ripgut brome, and Italian thistle.

3.1.4.2. WILDLIFE USAGE WITHIN VEGETATION COMMUNITIES/LAND USES OF THE BSA

Descriptions of Common Animal Species

The commonly occurring wildlife of the Elkhorn Slough/Moss Landing area and species observed during the surveys are discussed below.

Amphibians

Overall, upland habitat for amphibians within the BSA is marginal due to past ground disturbance and the fact that the BSA is located on a narrow strip of land sandwiched between a marine estuary and a heavily traveled roadway, severely limiting the ability of amphibians to disperse to and from the area. The Gabilan Mountains slender salamander (*Batrachoseps gavilanensis*) was the only amphibian found in the BSA. These small, extremely sedentary salamanders, lay eggs that undergo direct development and are thus independent of freestanding water for breeding. The area

surrounding the BSA supports nine species of native amphibians (De Vogelaere et al., 1998; Stebbins, 2003) including populations of California tiger salamander (*Ambystoma californiense*), Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*), and California red-legged frog (*Rana draytonii*). All these species require freshwater ponds for breeding and are unlikely to occur in or adjacent to the BSA due to the lack of suitable breeding habitat.

Reptiles

A northern alligator lizard (*Elgaria coerulea*), discovered under a discarded piece of cardboard, was the only reptile observed in the BSA during focused wildlife surveys. A small population of this secretive relatively sedentary lizard is probably present in the BSA. The western pond turtle (*Actinemys marmorata*), the only native freshwater turtle in northern California, is known from freshwater wetlands within five miles of the BSA, but no suitable habitat for this species is present on or adjacent to the BSA. About 17 species of lizards and snakes are known from the Elkhorn Slough area (De Vogelaere et al., 1998; Stebbins, 2003); however, for the same reasons discussed for amphibians, few of these species are expected to occur within the BSA.

Birds

Over 265 species of birds have been recorded in the Moss Landing/Elkhorn Slough area (De Vogelaere et al., 1998; Roberson, 2002). This area of Monterey County is noted for its outstanding diversity of water birds, raptors, and the occurrence of unusual migrants. For birds, the most important feature in the BSA is the channel of Elkhorn Slough and adjacent areas of the Moss Landing Harbor which provide excellent foraging and loafing habitat for a variety of water birds. Water birds observed during the field surveys include surf scoter (*Melanitta perspicillata*), long-tailed duck (*Clangula hyemalis*), bufflehead (*Bucephala albeola*), two species of loons, three species of grebes, brown pelican (*Pelecanus occidentalis*), double-crested cormorant (*Phalacrocorax auritus*), Brandt's cormorant (*Phalacrocorax penicillatus*), pelagic cormorant (*Phalacrocorax pelagicus*), seven species of gulls and three species of terns (see Appendix C). Shorebird foraging habitat is relatively limited in the BSA, being confined to a narrow strip of mud flat along the west and south shore of the Moss Landing Harbor. Several species of shorebirds including the black-bellied plover (*Pluvialis squatarola*), willet (*Tringa semipalmata*), and marbled godwit (*Limosa fedoa*) were observed here, but the number of birds were few and this does not appear to be an important local foraging area for shorebirds.

Three heron species were observed in the area include the great blue heron (*Ardea herodias*), great egret (*Ardea alba*), and snowy egret (*Egretta thula*). These species nest colonially (rookeries), primarily in trees. During the field surveys, the groves of trees within the BSA were searched for evidence of heron rookeries or roost sites, but none were found.

As noted above, many species of raptors are known from the area, but due to the relatively small area of undeveloped land within the BSA, adjacent harbor to the west, and extensive area of developed land to the east, the BSA is not expected to be locally important raptor habitat. No raptor nests were seen during the field surveys. LSA biologists observed both osprey (*Pandion haliaetus*) and peregrine falcon (*Falco peregrinus anatum*) in the BSA, both these species are attracted to estuaries and associated marine habitat where they forage for fish and water birds, respectively. Osprey likely nested in the Moss Landing/Elkhorn Slough historically (Roberson, 2002), but this species is not known to currently nest in the area. The peregrine falcon is not known to nest in the Moss Landing/Elkhorn Slough area (Roberson, 2002).

Habitat for land birds is relatively limited within the BSA; the groves of large blue gum and Monterey cypress with little understory are not especially attractive nesting habitat for most species that breed in the area. The general lack of a brushy understory provides little habitat for most winter visitors. Land birds that were observed in the BSA and may breed there include Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), California towhee (*Melozone crissalis*), song sparrow (*Melospiza melodia*), and house finch (*Haemorhous mexicanus*). Both tree swallows (*Tachycineta bicolor*) and barn swallows (*Hirundo rustica*) were observed foraging in the airspace within the BSA and an active barn swallow nest was observed on a building about 400-feet north of the northern end of the BSA, but no nests were found in the BSA. Rock pigeons (*Columba livia*), a nonnative species, were observed nesting beneath the SR-1 bridge over Elkhorn Slough. Wintering and/or migrant land birds observed in the BSA include hermit thrush (*Catharus guttatus*) and yellow-rumped warbler (*Setophaga coronata*). For a complete list of bird species observed in the BSA during the field surveys, see Appendix C.

Mammals

As with the other terrestrial vertebrates discussed above, habitat for mammals within the BSA is limited, but several native species were observed or evidence of their presence (e.g., burrows) was found in the BSA. Both the California ground squirrel

(*Otospermophilus*[1] *beecheyi*) and Botta's pocket gopher (*Thomomys bottae*) are present, but the California ground squirrels appear to be limited to the area of the BSA north of the Elkhorn Slough channel as no individuals or burrows of this species were found in the BSA south of the channel. There is a CNDDB record of the Salinas harvest mouse (*Reithrodontomys megalotis distichlis*) in salt marsh habitat along the old Salinas River mouth within a mile of the southern end of the BSA, but this small mammal would not occur in the BSA due to lack of suitable habitat. A Virginia opossum (*Didelphis virginiana*), a nonnative mammal, was found dead in the BSA adjacent to SR-1, presumably killed while crossing the roadway. The striped skunk (*Mephitis mephitis*), and northern raccoon (*Procyon lotor*) are mid-sized native mammals that do well in urbanized landscapes and are expected to occur in the BSA. Various species of bats often use bridges as roost sites, but no sign of bat use of the existing SR 1 bridge was evident and there were no expansion joints in the bridge suitable for bat roost sites.

The most prominent mammals in Elkhorn Slough/Moss Landing Harbor are the California sea lion (*Zalophus californianus*), harbor seal (*Phoca vitulina*), and southern sea otter (*Enhydra lutris*); all occur in the slough and harbor portion of the BSA. California sea lions haul out in large numbers on the floating dock just west of the Elkhorn Slough Bridge. An adult male California sea lion was also observed in the BSA hauled out on the narrow sandy beach about 300-feet south of the slough channel. Sea otters swim and forage throughout the slough and were regularly observed foraging near the floating dock and under the existing SR-1 bridge.

Fish

Over 80 species of fish have been recorded in Elkhorn Slough (Brown, 2002; De Vogelaere et al., 1998). The fish fauna within the BSA includes species that favor the open water and strong currents of the tidal channel and species moving to and from Monterey Bay and the upper reaches of Elkhorn Slough with the changing tides. The presence and abundance of various species in the slough also changes with the seasons. Examples of elasmobranches known to occur in the BSA include leopard shark (*Triakis semifasciata*), brown smoothound (*Mustelus henlei*), and bat ray (*Myliobatis californica*); bony fishes include topsmelt (*Atherinops affinis*), jacksmelt (*Atherinopsis californiensis*), northern anchovy (*Engraulis mordax*), lingcod (*Ophiodon elongates*), California halibut (*Paralichthys californicus*), starry flounder

[1] Scientific name reflects a recent revision of the genus Spermophilus (Helgen, et al., 2009).

(*Platichthys stellatus*), black surfperch (*Embiotooca jacksoni*), pile surfperch (*Damalichthys vacca*), and shiner surfperch (*Cymatogaster aggregata*).

Elkhorn Slough is an important nursery area for a variety of fish species including species that are residents and species that use the slough seasonally such as leopard shark, northern anchovy, and various flatfishes and gobies (Brown, 2002).

Invertebrates

Elkhorn Slough is approximately 10 to 30-feet-deep at the location of the proposed bridge crossing. Species living in the sediments require adaptation for condition with lack of oxygen, gill-clogging silt and the periodic exposure to the drying air in areas between the mean high water and high tide line. In prime habitat, a single square foot of mud may be crowded with thousands of animals, such as mud crabs (*Hemigrapsus oregonensis*), lined shore crab (*Pachygrapsus crassipes*), ghost shrimp (*Callianassa californiensis*), Phoronid tube worm (*Phoronopsis viridis*), rubber-band worm (*Motomastus* tenuis), moon snail (*Polinices lewisii*), gaper clam (*Tresus nuttallii*), white sand clam (*Macoma secta*), or gem clam (*Gemma gemma*), and others. A few of these invertebrates are tolerant of human disturbance and are expected to be present in the BSA within Elkhorn Slough and Moss Landing Harbor. Eelgrass growing in other portions of Elkhorn Slough outside the limits of the BSA provides extremely valuable habitat for invertebrates such as shrimps, worms, and pipefishes.

No significant populations of butterflies, moths or other terrestrial invertebrates were observed within the BSA during the site surveys.

Fish and Wildlife Movement in the Biological Study Area

Wildlife corridors facilitate movement of animals between local and/or regional areas supporting population of a given species or species assemblage. As generally understood, wildlife corridors allow animals to traverse otherwise inhospitable landscapes between areas of suitable habitat, such as wooded stream courses passing through urban or agricultural lands.

The terrestrial/upland portion of the BSA does not provide a connection between large areas of undeveloped habitat. Terrestrial habitats in the BSA are fragmented and isolated from the relatively undeveloped terrestrial habitats in the Elkhorn Slough Reserve to the east and the sand dune habitats along the coast to the south by urban development, roads, parking lots, and marine waters. Therefore, the uplands of the BSA do not serve as a movement corridor for wildlife of the region. Mid-sized mammals, however, with home ranges that include portions of the BSA, such as

northern raccoons, likely forage along the waters edge in the BSA and probably move in and out of the BSA from points to the south.

The Elkhorn Slough channel between the Elkhorn Slough Bridge and Monterey Bay is a relatively narrow waterway connecting the extensive slough complex to the open waters of the bay. The narrow channel at the bridge provides the only connection for marine organisms between the slough and Monterey Bay.

Harbor seals and southern sea otters were frequently observed in the channel and east of the bridge during the fieldwork indicating that the channel is an important movement corridor for these marine mammals. In addition, as noted above, a harbor seal pupping area is located in the upper slough east of the bridge. The channel thus serves as a corridor for adults foraging in the bay while they have young and for the dispersal of young seals to the bay.

Likewise, various species of elasmobranches and boney fishes use the upper slough seasonally and temporally with the changing tides (Brown 2002; Ebert, 2003), and the channel is an important movement corridor for these aquatic vertebrates. Leopard sharks and bat rays pup and breed in the slough (Ebert, 2003; Talent, 1985). A variety of boney fishes (Yoklavich et al, 1991) and larval fishes use the channel to disperse from nursery areas in the upper slough to Monterey Bay. Various species of invertebrate animals (adults and/or larvae) also disperse between the bay and the upper slough through the channel.

3.2. Regional Species and Habitats of Concern

Regional habitats of concern exist near the BSA and include dune scrub, maritime chaparral coastal and valley freshwater marsh, coastal brackish marsh, and northern coastal salt marsh (Figure 6). None of these habitats occur in the BSA, and are therefore not further discussed. Sensitive natural habitats identified within the BSA include dune scrub and estuarine wetland/open water associated with Elkhorn Slough and Moss Landing Harbor. Within the BSA, dune scrub habitat is extremely fragmented and relatively low in vegetative diversity. Estuarine wetland/open water habitat within the Elkhorn Slough portion of the BSA is not as pristine as it is in other portions of the slough due to scouring, erosion, and previous impact from the old bridge at the location of the bridge crossing. Similarly, the estuarine wetland-open water portion of the BSA associated with Moss Landing Harbor has been impacted by the Moss Landing Road crossing, and has constant human disturbance with boats going in and out of the harbor.

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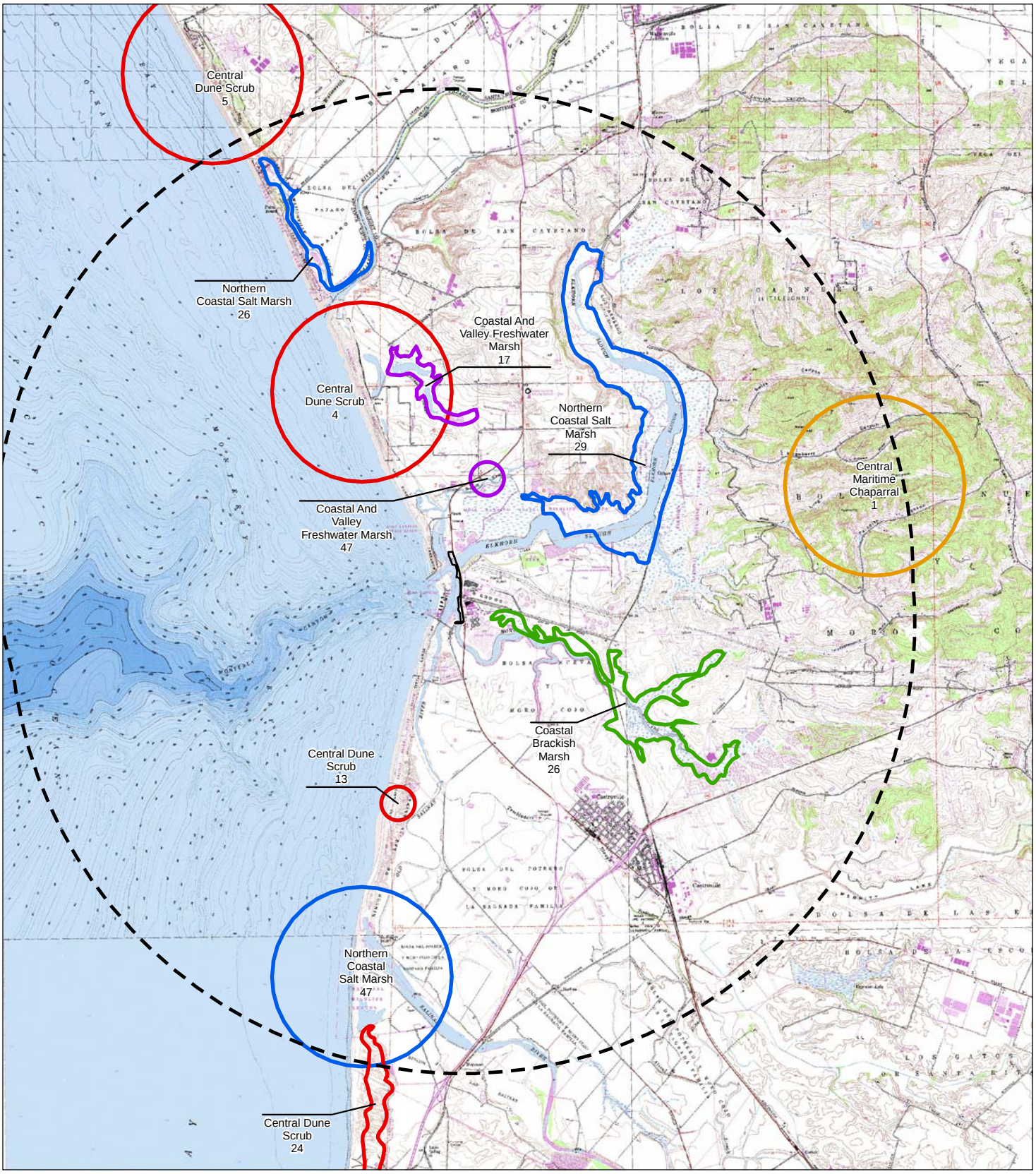

Biological Study Area
5 Mile Radius around the Project Area
Central Dune Scrub
Central Maritime Chaparral
Coastal And Valley Freshwater Marsh
Coastal Brackish Marsh
Northern Coastal Salt Marsh

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FEET

Source: CDFW CNDDB (01/03/2014).

FIGURE 6

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Vegetation Communities of Special Concern
in the Vicinity of the Biological Study Area

I:\WRS0803\GIS\Maps\Biology\Figure6_Vegetation Communities of Special Concern.mxd (1/14/2014)

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Information on the sensitive species within the BSA is presented below. Species that required additional surveys and analysis are addressed in Chapter 4.

3.2.1. Plants

After a thorough literature review, it was determined that a total of 38 special status plant species had the potential to occur on or within the vicinity of the BSA. Further information on these species, including status, habitat requirements, and potential for occurrence, is summarized in Table 4. Species that were observed, or for which suitable habitat is present within the BSA, are discussed further in Chapter 4.

3.2.2. Wildlife

After a thorough literature review, it was determined that suitable habitat occurs within or immediately adjacent to the BSA for 26 special status wildlife species and that these species would be evaluated in this NES. Nineteen of these species included in this table are listed as federal- and/or State-listed endangered or threatened, or proposed endangered or threatened, or are considered Fully Protected species by the State of California. Further information on these species, including status, habitat requirements, and potential for occurrence, is summarized in Table 5. Species that were observed or have habitat present within the BSA are discussed further in Chapter 4.

Table 4: Special Status Plant Species Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Occurrence within the BSA
Hickman's onion	*Allium hickmanii*	CNPS 1B	Closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, and valley and foothill grasslands (5–185 m). The blooming period is April–May.	A	Habitat is extremely marginal in the BSA. Species not observed during focused plant surveys which were conducted within the regular blooming period for this plant. No species of *Allium* were observed. As a result, this species is considered absent from the BSA.
Hooker's manzanita	*Arctostaphylos hookeri* subsp. *hookeri*	CNPS 1B	Sandy soils in closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub (85–300 m). The blooming period is January–June.	A	Habitat is extremely marginal in the BSA. Species not observed during focused plant surveys which were conducted within the regular blooming period for this plant. No species of manzanita were observed within the BSA. As a result, this species is considered absent from the BSA.
Anderson's Manzanita	*Arctostaphylos andersonii*	CNPS 1B	Broadleaved upland forest, chaparral, north coast coniferous forest. Prefers to grow in openings in redwood forests below 700 m. The blooming period is February-May.	A	No suitable habitat present in the BSA. No species of manzanita were observed within the BSA. As a result, this species is considered absent from the BSA.
Toro manzanita	*Arctostaphylos montereyensis*	CNPS 1B	Chaparral, cismontane woodland, coastal scrub. It is endemic to Monterey County and prefers sandy soil, usually with chaparral associates (30-730 m). The blooming period is February-March.	A	No suitable habitat present in the BSA. No species of manzanita were observed within the BSA. As a result, this species is considered absent from the BSA.
Pajaro manzanita	*Arctostaphylos pajaroensis*	CNPS 1B	Chaparral; sandy soil (30–760 m). The blooming period is December–March.	A	No suitable habitat present in the BSA. No species of manzanita were observed within the BSA. As a result, this species is considered absent from the BSA.

Table 4: Special Status Plant Species Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Occurrence within the BSA
Sandmat manzanita	*Arctostaphylos pumila*	CNPS 1B	Closed-cone coniferous forest, chaparral, cismontane woodland, coastal dunes, coastal scrub; in openings with sandy soil (3–205 m). The blooming period is February–May.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. No species of manzanita were observed within the BSA. As a result, this species is considered absent from the BSA.
Kings Mountain manzanita	*Arctostaphylos regismontana*	CNPS 1B	Broadleaved upland forest, chaparral, north coast coniferous forest. Prefers granitic or sandstone outcrops (305-730 m). The blooming period is January-April.	A	No suitable habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. No species of manzanita were observed within the BSA. As a result, this species is considered absent from the BSA.
Marsh sandwort	*Arenaria paludicola*	FE, SE	Freshwater wetlands, marshes, and swamps (5-250 m). The blooming period is May-August.	A	Included on the USFWS 2014 list of federally-listed species. No suitable habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Alkali milkvetch	*Astragalus tener* var. *tener*	CNPS 1B	Occurs in playas, valley and foothill grasslands with adobe clay soils, and in alkaline vernal pools in Central California. The blooming period is March - June.	A	No suitable habitat present in the BSA. No species of milk vetch were observed within the BSA. As a result, this species is considered absent from the BSA.

Table 4: Special Status Plant Species Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Occurrence within the BSA
Coastal dunes milk-vetch	*Astragalus tener* var. *titi*	CNPS 1B	Occurs in vernally moist areas with sandy soils of coastal bluff scrub, coastal dunes, and coastal prairie in Los Angeles, San Diego, and Monterey Counties. The blooming period is March – May.	HP	Habitat is marginal for this species. No species of milk vetch were observed within the BSA. As a result, this species is considered absent from the BSA.
Congdon's tarplant	*Centromadia parryi* subsp. *congdonii*	CNPS 1B	Valley and foothill grasslands with alkaline soil (1–230m). The blooming period is May–November. The nearest documented occurrence is approximately 1.5 mi north of the BSA (Figure 7).	A	Habitat is absent from the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Purple amole	*Chlorogalum purpureum* var. *purpureum*	FT, CNPS 1B	Cismontane woodlands, chaparral, and grasslands between 205–350 m in elevation. Endemic to sparsely vegetated less disturbed clay soils often with cryptogammic crusts or gravelly surfaces. Blooms April–June. Critical habitat for this species occurs within San Luis Obispo and Monterey Counties. The BSA does not lie within critical habitat for this species (Figure 9).	A	Habitat is absent from the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.

Table 4: Special Status Plant Species Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Occurrence within the BSA
Monterey spineflower	*Chorizanthe pungens* var. *pungens*	FT, CNPS 1B	Chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grasslands with sandy soil (3–450 m). Two occurrences are within ½ mile of the BSA (Figure 7). The blooming period is April–June.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Robust spineflower	*Chorizanthe robusta* var. *robusta*	FE, CNPS 1B	Cismontane woodland, coastal dunes, and coastal scrub; openings with sandy or gravelly soils (3–300 m). The blooming period is April–September. The nearest documented occurrence is from approx. 3 mi south of the BSA.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Seaside bird's beak	*Cordylanthus rigidus* subsp. *littoralis*	SE, CNPS 1B	Closed-cone coniferous forest, chaparral, cismontane woodland, coastal dunes, and coastal scrub with sandy soils. Often found in disturbed areas (0–425 m). The blooming period is April–October. The nearest documented occurrence is from 3 mi southeast of the BSA.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.

Table 4: Special Status Plant Species Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Occurrence within the BSA
Gowen cypress	*Hesperocyparis goveniana* (syn. = *Cupressus goveniana* subsp. *goveniana*)	FT, CNPS 1B	This evergreen tree occurs in closed-cone coniferous forest and chaparral (30-300 m). Known from only three native occurrences in Monterey County.	A	Habitat is extremely marginal for this species. The cypress that is present in the BSA is confirmed to be planted Monterey cypress (*Hesperocyparis macrocarpa*). This species is absent from the BSA.
Hutchinson's larkspur	*Delphinium hutchinsoniae*	CNPS 1B	Broadleafed upland forest, chaparral, coastal prairie, and coastal scrub (0–400 m). The blooming period is March–June.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Eastwood's goldenbush	*Ericameria fasciculata*	CNPS 1B	Closed-cone coniferous forest, chaparral, coastal dunes, and coastal scrub; in openings with sandy soil (30–275 m). The blooming period is July–October. The nearest documented occurrence is from 4 mi northeast of the BSA.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys which were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Sand-loving wallflower	*Erysimum ammophilum*	CNPS 1B	Maritime chaparral, coastal dunes, coastal scrub. Prefers sandy openings below 60 m. The blooming period is February-June. The nearest documented occurrence is from approx. 2 mi south of the BSA. Another occurrence is 3 mi northwest of the BSA.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.

Table 4: Special Status Plant Species Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Occurrence within the BSA
Menzies wallflower	*Erysimum menziesii* subsp. *menziesii*	FE, SE	Coastal dunes of Monterey and Mendocino Counties (0-35 m). Known from approximately 10 occurrences; Nearly extirpated from Monterey County. The blooming period is March – June.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Yadon's wallflower	*Erysimum menziesii* subsp. *yadonii*	FE, SE	Coastal dunes (0–10 m). Known from only four occurrences near Marina in Monterey County. The blooming period is May–September. The nearest documented occurrence is from approx. 4 mi south to southwest of the BSA.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Fragrant fritillary	*Fritillaria liliacea*	CNPS 1B	Found in woodlands, coastal scrub and grassland habitats typically in serpentine soils (3-410 m). The blooming period is February to April.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Sand gilia (Monterey gilia)	*Gilia tenuiflora* subsp. *arenaria*	FE, ST, CNPS 1B	Chaparral (maritime), cismontane woodland, coastal dunes, coastal scrub in openings with sandy soil. Found in bare, wind-sheltered areas often near the dune summit or in the hind dunes (0–45 m). The blooming period is April–	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.

Table 4: Special Status Plant Species Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Occurrence within the BSA
			June. One occurrence is within ½ mile south of the BSA.		
Santa Cruz tarplant	*Holocarpha macradenia*	FT,SE, CNPS 1B	Coastal prairie, coastal scrub, valley and foothill grassland; often in clay, sandy soil (10–220 m). The blooming period is June–October. The nearest documented occurrence is from approx. 4 mi northeast of the BSA.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Kellogg's horkelia	*Horkelia cuneata* var. *sericea* (*syn.* = *H. cuneata* subsp. *sericea*)	CNPS 1B	Closed-cone coniferous forest, chaparral, and coastal scrub; in openings with sandy or gravelly soil (10–200 m). The blooming period is April–September.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Beach layia	*Layia carnosa*	FE, SE, CNPS 1B	Sandy soils of coastal dunes and coastal scrub in Humboldt, Marin, San Francisco, Monterey, and Santa Barbara Counties (0 – 60 m). The blooming period is March – July.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Contra Costa goldfields	*Lasthenia conjugens*	FE, CNPS 1B	Alkaline soil in playas, vernal pools within cismontane woodland, and valley and foothill grassland (1–60 m). The blooming period is March–June.	A	No suitable habitat present in the BSA. Species is considered absent from the BSA.

Table 4: Special Status Plant Species Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Occurrence within the BSA
Tidestrom's lupine	*Lupinus tidestromii*	FE, SE, CNPS 1B	Coastal dunes (0-100 m). Known from fewer than 20 occurrences. The blooming period is April – June.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Dudley's lousewort	*Pedicularis dudleyi*	SR, CNPS 1B	Maritime chaparral, north coast coniferous forest, valley and foothill grassland. Deep shady woods of older coast redwood forests or in chaparral (100-490 m). Known from fewer than 10 occurrences in San Mateo, Monterey, San Luis Obispo, and Santa Cruz Counties. Blooms April - June.	A	No suitable habitat present in the BSA. Species is considered absent from the BSA.
Santa Cruz Mountains beardtongue	*Penstemon rattanii* var. *kleei*	CNPS 1B	Chaparral, lower montane coniferous forest, sandy shale slopes, sometimes in the transition between forest and chaparral (400-1100 m). The blooming period is May-June.	A	No suitable habitat present in the BSA. Species is considered absent from the BSA.
White-rayed pentachaeta	*Pentachaeta bellidiflora*	FE, SE, CNPS 1B	Valley and foothill grassland. Open dry rocky slopes and grassy areas, often on soils derived from serpentine bedrock (35-620 m). The blooming period is late March to late June.	A	No suitable habitat present in the BSA. Species is considered absent from the BSA.

Table 4: Special Status Plant Species Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Occurrence within the BSA
Yadon's rein orchid	*Piperia yadonii*	FE, CNPS 1B	Coastal bluff scrub, closed-cone coniferous forest, and chaparral with sandy soil (10–415 m). The blooming period is May–August. The nearest documented occurrence is from approx. 4 mi northeast of the BSA.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Choris' popcornflower	*Plagiobothrys chorisianus* var. *chorisianus*	CNPS 1B	Chaparral, coastal scrub, coastal prairie, and mesic sites below 100 m. The blooming period is March-June.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Hickman's potentilla	*Potentilla hickmanii*	FE, CNPS 1B	Coastal bluff scrub, closed-cone coniferous forest, vernally mesic meadows and seeps, and freshwater marsh (10 – 149 m) in Monterey, Sonoma and San Mateo Counties. The blooming period is April – August.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.
Pine rose	*Rosa pinetorum*	CNPS 1B	Closed-cone coniferous forest below 300 m. The blooming period is May-July.	A	No suitable habitat present in the BSA. Species is considered absent from the BSA.
Santa Cruz clover	*Trifolium buckwestiorum*	CNPS 1B	Moist grasslands in broadleaved upland forest, cismontane woodland, and coastal prairie, in margins (105–610 m). The blooming period is April–October.	HP	Potential habitat present in the BSA. Species not observed during focused plant surveys that were conducted within the regular blooming period for this plant. As a result, this species is considered absent from the BSA.

Table 4: Special Status Plant Species Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Occurrence within the BSA
Saline clover	*Trifolium hydrophilum* (syn. = *T. depauperatum* var. *hydrophilum*)	CNPS 1B	Marshes and swamps, valley and foothill grasslands, vernal pools. Prefers mesic, alkaline sites below 300 m. Five occurrences are within 1 mile of the BSA. The blooming period is April-June.	A	No suitable habitat present in the BSA. Species is considered absent from the BSA.
Monterey clover	*Trifolium trichocalyx*	FE, SE, CNPS 1B	Sandy, burned areas in closed cone coniferous forest in Monterey County (30 – 240 m). The blooming period is April – June.	A	No suitable habitat present in the BSA.. Species is considered absent from the BSA.

Legend

A (Absent) – No habitat present and no further work is needed.
HP (Habitat Present) – Habitat is or maybe present; species may be present.
CH (Critical Habitat) – The project is located within designated critical habitat.
FT/FE – Federal Threatened/Endangered
FT/FPE Federal Proposed Threatened/Endangered
FC – Federal Candidate
FD – Federal Delisted
ST/SE – State Threatened/Endangered
SR – State Rare
CNPS 1A – Presumed extinct in California
CNPS 1B – Rare or Endangered in California and elsewhere
CNPS 2 – Rare or Endangered in California, more common elsewhere
CNPS 3 – Review List - Plants About Which More Information is Needed

Table 5: Special Status Animal Species Evaluated for the Monterey Bay Sanctuary Scenic Trail Project.

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Rationale
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	Endemic to the grasslands of the Central Valley, and central and south coast mountains in small, clear water sandstone-depression and grassed swale, earth slump, or basalt-flow depression rain-filled pools.	A	No vernal pool complexes or other suitable habitat is present in the BSA.
Smith's blue butterfly	*Euphilotes enoptes smithi*	FE	Coastal and inland sand dunes, scrub, and chaparral. An essential habitat requirement is the presence of the host plants coast buckwheat (*Eriogonum latifolium*) and seacliff buckwheat (*E. parvifolium*).	A	Habitat and host plants are not present in the BSA.
Green sturgeon Southern DPS	*Acipsenser medirostris*	FT	Near shore marine waters, bays and estuaries, spawns in rivers in deep fast water over large cobbles, but also clean sand to bedrock. Southern most spawning population in the Sacramento River. Critical habitat encompasses the marine coastal zone of Monterey Bay, but excludes Elkhorn Slough.	HP	Potential foraging habitat is present, but spawning habitat is absent. Although green sturgeon were not found during fish surveys of Elkhorn slough (Brown, 2002), one individual was found in 2006 at the Moss Landing Power Plant (NMFS, 2009). This species is considered uncommon in the slough since no other documentation of green sturgeon could be found in Elkhorn Slough and vicinity.
Steelhead; South/Central California Coast ESU*	*Oncorhynchus mykiss irideus*	FT	Coastal rivers and streams with cold water and deep (3 feet or greater) pools and runs; for spawning requires clean, silt-free gravel (0.5-5 inches) beds, with clear flowing water and shaded stream reaches. Spawning adults occur during winter high water. Adults are wide ranging in offshore and inshore pelagic marine waters.	HP	Although suitable spawning habitat is absent in Elkhorn Slough and in tributaries to Elkhorn Slough, the presence of occasional stray individuals within the BSA cannot be ruled out. Steelhead have not been found during fish surveys of Elkhorn slough (Brown, 2002), and are therefore not expected to occur regularly within the BSA. This project does not lie within an area designated as critical habitat for steelhead (B. Stevens, personal communication, September 22, 2009).

Table 5: Special Status Animal Species Evaluated for the Monterey Bay Sanctuary Scenic Trail Project.

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Rationale
Tidewater goby	*Eucyclogobius newberryi*	FE, SSC	Shallow brackish lagoons and low gradient stream reaches with aquatic vegetation and areas of open bottom. Most common in the upstream portions of lagoons with barrier beaches. Generally not found in lagoons with open mouths and strong tidal flow. Favors low salinity, generally less than 10 ppt. Critical habitat for the tidewater goby has been identified in Bennett Slough, within 500 feet west of the BSA (Figure 9). The CNDDB documents this species within the BSA from the mouth of Elkhorn Slough to 1-mile upstream. Although this population was extant in mid-1984, it was not found in 1990 or since.	HP	The tidewater goby is a poor swimmer that occupies shallow still waters in the upper reaches of lagoons (Moyle, 2002; Swift et al., 1989); the strong tidal flows and high salinities typical of coastal ocean waters render the aquatic habitat in the BSA unsuitable for this fish. Although this species was documented in the BSA according to the CNDDB (2009), it has not been seen in the slough since 1984. Tidewater goby is unlikely to be present in the BSA.
Longfin smelt	*Spirinchus thaleichthys*	FC, ST, SSC	Found in open waters of estuaries, mostly in the middle or bottom water column. Prefers salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	HP	Moss Landing Harbor and Elkhorn Slough are not known as breeding grounds for this species. Individuals collected in 1993 may be strays from the San Francisco Bay-Delta population pushed southward by offshore currents. Although this species was documented in the BSA according to the CNDDB (2014), it is unlikely to be present in the BSA.
California tiger salamander	*Ambystoma californiense*	FT, SC, SSC	Annual grasslands and valley-foothill oak savannah with vernal pools or other temporary water bodies (e.g., stock ponds) for breeding. During the non-breeding season occupies the burrows of California ground	A	Occurs within five miles of the BSA to the north and east. No suitable breeding habitat is present on or adjacent to the BSA. The isolation of the BSA, from nearby areas of occurrence, by heavily traveled roadways, developed landscapes, and marine waters

Table 5: Special Status Animal Species Evaluated for the Monterey Bay Sanctuary Scenic Trail Project.

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Rationale
			squirrels and Botta's pocket gophers.		and salt marsh (all barriers to dispersal for salamanders) would preclude dispersing individuals from reaching the BSA.
Santa Cruz long-toed salamander	*Ambystoma macrodactylum croceum*	FE, SFP	Breeds in temporary pools and ponds and occupies rodent burrows in oak woodland, chaparral and grasslands during the dry season, also found under surface litter such as fallen logs. Migration to breeding ponds occurs during nights with heavy rain from October to February, breeding occurs in January and February.	A	Occurs within five miles of the BSA to the north and east, but suitable breeding habitat is not present on or adjacent to the BSA. The isolation of the BSA, from nearby areas of occurrence, by heavily traveled roadways, developed landscapes, and marine waters and salt marsh (all barriers to dispersal for salamanders) would preclude dispersing individuals from reaching the BSA.
California red-legged frog	*Rana draytonii*	FT, SSC	Creeks, ponds, marshes. Prefers aquatic habitat with deep (2 ft or deeper) areas with undercut banks, emergent aquatic vegetation, and bank cover. Does not occur in salt marshes or wetland with brackish water	A	Occurs within two miles north and east of the BSA, but suitable habitat is not present within the BSA. The isolation of the BSA, from nearby areas of occurrence, by heavily traveled roadways, developed landscapes, and marine waters and salt marsh (all barriers to dispersal for frogs) would preclude dispersing individuals from reaching the BSA.
Western pond turtle	*Actinemys marmorata*	SSC	Occurs in a wide variety of freshwater habitats with deep water, including slow flowing pools of rivers and streams, ponds, and marshes. Prefers aquatic habitats with a muddy or sand bottom, but also occurs in areas with a rocky or cobble bottom. Generally most common in areas with abundant basking habitat such as fallen trees. Must have access to upland areas with friable soils for egg laying	A	This species is known from nearby freshwater habitats, but does not occur in salt water estuaries, bays or other marine habitats. This species is considered absent from the BSA.

Table 5: Special Status Animal Species Evaluated for the Monterey Bay Sanctuary Scenic Trail Project.

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Rationale
Black legless lizard	*Anniella pulchra nigra*	SSC	Sandy soil, leaf litter/dunes, bush lupine and mock heather are often dominant plants in suitable habitat along the Central Coast. Moist soil and deep humus are important habitat elements.	A	Potentially suitable habitat is present in the BSA, but the habitat has been degraded by ground disturbance, the proximity of a major roadway, and dominance of invasive exotic plants such as hottentot fig (*Carpobrotus* sp.) and eucalyptus. Therefore, it is unlikely that a viable population could occur in the BSA. This species is considered absent from the BSA.
Silvery legless lizard	*Anniella pulchra pulchra*	SSC	Sandy or loose loamy soils under sparse vegetation. Moist soil and deep humus are important habitat elements.	A	Potentially suitable habitat is present in the BSA, but the habitat has been degraded by ground disturbance, the proximity of a major roadway, and dominance of invasive exotic plants such as hottentot fig (*Carpobrotus* sp.) and eucalyptus. Therefore, it is unlikely that a viable population could occur in the BSA. This species is considered absent from the BSA.
California brown pelican	*Pelecanus occidentalis californicus*	FDE, SDE, SFP (nesting)	Open marine waters with abundant small schooling fish populations, nests on islands lacking terrestrial predators, roosts on isolated islands, rocks, breakwaters, and docks.	HP	Brown pelicans forage in the main channel of Elkhorn Slough both up and down stream of the BSA and are expected to use the open water in the BSA regularly. This species does not breed in Monterey County, but post breeding adults and young birds disperse north from the Channel Islands in southern California (the closest breeding area) and are most abundant in the County from July through late October. However, within the BSA there are small numbers of non-breeding individuals present all year.

Table 5: Special Status Animal Species Evaluated for the Monterey Bay Sanctuary Scenic Trail Project.

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Rationale
White-tailed kite	*Elanus leucurus*	SFP (nesting)	Forages over grasslands, dry areas of marshes, road verges, and other open habitats. Nests in isolated trees and shrubs in grasslands, pasturelands and savannahs.	HP (nesting)	The white-tailed kite is a common year round resident in the Elkhorn Slough area. However, it is unlikely to forage regularly or nest in the BSA due to the small area of potential habitat affected and proximity of potential nesting trees to a busy roadway and developed areas.
Northern harrier	*Circus cyaneus*	SSC (nesting)	Nests on the ground among tall vegetation in grasslands, grain fields, sagebrush flats, and emergent wetlands along rivers or lakes.	A (nesting)	Suitable nesting and foraging habitat is not present in the BSA.
American peregrine falcon (nesting)	*Falco peregrinus anatum*	SE (nesting), SFP	Nests on cliffs, buildings, and under tall bridges often near water bodies, but also in inland areas. Forages for birds over land and water.	A (nesting)	Suitable nesting habitat is not present in the BSA. This species was observed flying over the BSA and likely forages for water birds over the adjacent harbor area.
Western snowy plover	*Charadrius alexandrinus nivosus*	FT, SSC	Sandy beaches, salt pond levees and shores of large alkali lakes. Need sandy, gravelly or friable soils for nesting.	A	Suitable nesting and foraging habitat is not present in the BSA.
Marbled murrelet	*Brachyramphus marmoratus*	FT, SSC	Spend most of lives foraging in marine environment; nest in old growth Douglas-fir and coast redwood. Residents occur along the Pacific coast between Alaska and Monterey, California.	A	Suitable nesting and foraging habitat is not present in the BSA. Although it is known from Monterey Bay, there are no documented occurrences from Elkhorn Slough. The nearest nesting location is from Big Basin in Santa Cruz County.

Table 5: Special Status Animal Species Evaluated for the Monterey Bay Sanctuary Scenic Trail Project.

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Rationale
California clapper rail	*Rallus longirostris obsoletus*	FE, SE	Occurs in salt-water and brackish marshes traversed by tidal slough. Associated with abundant growth of pickleweed.	A	Suitable nesting and foraging habitat are absent from the BSA. Historically known from Elkhorn Slough, but the local population has been heavily impacted by the nonnative (introduced) red fox (*Vulpes vulpes*) in the early 1980s (Roberson 2002). Clapper rails appear to be extirpated from the Elkhorn Slough area.
Short-eared owl	*Asio flammeus*	SSC (nesting)	Upland areas of fresh and salt marshes, moist grasslands, irrigated alfalfa fields. Roosts and nests on the ground in areas concealed by tall grass. Not expected to nest.	A	This species formerly nested in the marsh lands at the Salinas River mouth south of the BSA and they may also have nested at Elkhorn Slough, but are now rare winter visitors and fall migrants in Monterrey County (Roberson 2002).
Burrowing owl	*Athene cunicularia*	SSC (burrow sites and some wintering sites)	Uses burrows (often California ground squirrels) for refuge and breeding in relatively open, dry, annual or perennial grasslands. Burrowing owls may use a given site for breeding, wintering, foraging, and/or migration stopovers. Burrowing owls exhibit site fidelity, reusing burrows year after year.	A	Even though California ground squirrels were observed in the portion of the study area north of the Elkhorn Slough channel the small size of the area with burrows, the proximity of a heavily traveled highway, extensive areas of pavement, and human disturbance renders the this portion of the BSA unsuitable for burrowing owls. The southern portion of the BSA does not support ground squirrels and no burrows suitable for burrowing owls were observed in this area.
Bank swallow	*Riparia riparia*	ST (nesting)	Highly migratory species nests in colonies in self-excavated burrows in earthen banks, winters in Mexico and South America.	A	No suitable nesting habitat in the BSA. Rare nester in Monterey County with three isolated colonies in the Salinas River Valley (Roberson, 2002). Closest known colony to the BSA was at the mouth of the Pajaro River, about 3 miles north of the northern end of the BSA, but this colony is no longer extant (Roberson, 2002).

Table 5: Special Status Animal Species Evaluated for the Monterey Bay Sanctuary Scenic Trail Project.

Common Name	Scientific Name	Status*: Federal/State	General Habitat Description	Habitat Present/ Absent	Rationale
Least Bell's vireo	*Vireo bellii pusillus*	FE, SE	Summer resident of Southern California in low riparian scrub, typically dominated by willow, in the vicinity of water or in dry river bottoms.	A	Suitable nesting and foraging habitat are absent from the BSA. Although known from Monterey County, there are no documented occurrences near the BSA.
Southwestern willow flycatcher	*Empidonax traillii extimus*	FE, SE	Riparian woodlands in Southern California	A	Suitable nesting and foraging habitat are absent from the BSA, though the species may occur as a migrant. Although known from Monterey County, there are no documented occurrences near the BSA.
Salinas harvest mouse	*Reithrodontomys megalotis distichilis*	SSC	Fresh and brackish marsh and adjacent uplands.	A	This subspecies of the widely distributed western harvest mouse is not expected to occur in the BSA due to the lack of suitable habitat.
Southern sea otter	*Enhydra lutris nereis*	FT	Marine waters generally near shore in kelp beds and along rocky shores, but also occupies areas with a sandy bottom such as the Elkhorn Slough	HP	LSA biologists observed sea otters in the harbor at the at various locations from the southern end of the BSA north to the SR-1 bridge and in the Elkhorn Slough channel both up and down stream of the SR-1 Bridge. Up to 30 otters regularly rest in the shallows along the western edge of the North Harbor. Sea otters were observed in the BSA during all the surveys of the BSA.

Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation

4.1. Natural Communities of Special Concern

Natural communities are considered to be of special concern based on (1) federal, State, or local laws regulating their development; (2) limited distributions; and/or (3) the habitat requirements of special status plants or animals occurring on site. Two natural habitats/plant communities of special concern were identified within the BSA: estuarine wetland/open water and dune scrub. Each of these habitats identified within the project boundaries is described in more detail below and is shown in the Habitats/Vegetation Communities figures in Appendix D. Waters of the United States are also considered sensitive by both federal and State agencies, and are discussed in that regulatory context in more detail in Section 5.3.

The figures in Appendix F illustrate where Natural Communities of Special Concern will be affected by the maximum extent of the design features of the proposed project. Table 6 shows the approximate acreage of effect to each vegetation community/land use in the BSA. Project effects are based on LSA's interpretation of the construction plans prior to construction.

Table 6: Project Effects to Land Uses/Vegetation Communities

Vegetation Community	Acreage within the BSA**	Acreage of Effects from the Project		
		Temporary	Indirect	Permanent
Disturbed	4.8	0.440	0	0.450
Estuarine Wetland/Open Water*	3.8	0.106	0.110	0.273
Invaded Dune Mat	2.8	0.410	0.001	0.410
Eucalyptus / cypress woodland (planted)	2.7	0.450	0	0.640
Dune Scrub*	0.4	0	0	0
Total	**14.5**	**1.406**	**0.111**	**1.323**

* Natural Community
**BSA = biological study area

4.1.1. Discussion of Natural Community/Estuarine Wetland/Open Water

Estuarine wetland habitats such as those associated with Elkhorn Slough were formerly more abundant in semi-enclosed coastal waters of California's coast. These tidal wetlands of coastal Central California are now much reduced due to urban diversion, channelization, and other human developments that significantly altered or eliminated a once viable system. These habitats are considered high-quality wildlife habitats because they provide protective cover, reproduction, nesting, water, and food for a variety of species. Many animal species are estuarine wetland habitat obligates. Estuaries like Elkhorn Slough serve as nurseries for marine fishes and provide sediment traps, erosion control, and natural flood control. The fact that estuaries are considered ESHAs by the CCC protects them under the CCA. Estuaries are also protected by the USACE under Section 10 of the RHA and Sections 404 and 401 of the CWA.

4.1.1.1. SURVEY RESULTS

Estuarine wetland/open water habitat occurs from the depths of the open water to the high tidal zone within Elkhorn Slough and Moss Landing Harbor along the western and southern borders of the BSA. This portion of the slough is highly eroded and therefore poor quality habitat for plants (such as eelgrass), invertebrates, and fish (J. Oliver, personal communication, June 10, 2009). Refer to Appendix D for the location of this natural community within the BSA.

4.1.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

The following measures will be incorporated to avoid and minimize effects to estuarine wetland/open water habitat:

- Prior to vegetation clearing, ground disturbance, or construction, highly visible barriers (such as orange construction fencing) will be installed around sensitive habitats adjacent to the project footprint within 100-feet of estuarine wetland/open water habitat. No grading or fill activity of any type will be permitted within these areas (designated environmentally sensitive areas (ESA)). Heavy equipment, including motor vehicles, will not be allowed to operate within the ESAs. All construction equipment should be operated in a manner so as to prevent accidental damage to nearby preserved areas. All equipment maintenance, staging, and dispensing of fuel, oil, or any other such activities will occur in developed or designated non-sensitive, upland, habitat areas. The designated upland areas will

be located in such a manner as to prevent the runoff from any spills from entering aquatic habitats.

- A biologist will monitor construction within the vicinity of estuarine wetland/open water for the duration of the project to ensure that wildlife species are not affected during construction and that avoidance and minimization measures are properly implemented.
- An employee education program for all construction personnel will be developed and implemented by the biological monitor prior to the initiation of construction activities. At a minimum, the program will include the following topics: (1) biology, conservation, and legal status of the sea otter, marine mammals, fisheries and nesting birds; (2) responsibilities of the biological monitor; (3) delineation and flagging of adjacent habitat; (4) limitations on all movement of those employed on site, including ingress and egress of equipment and personnel, to designated construction zones (personnel shall not be allowed access to adjacent sensitive habitats); (5) on-site pet prohibitions; (6) use of trash containers for disposal and removal of trash; and (7) project features designed to reduce the impacts to listed species and habitat and promote continued successful occupation of adjacent habitat areas.
- The use of rodenticides, herbicides, insecticides, or other chemicals that could potentially harm estuarine wetland/open water shall be prohibited.
- The contractor will be required to develop a site-specific Storm Water Pollution Prevention Plan (SWPPP) that will identify specific best management practices (BMPs) for each construction activity to eliminate or minimize the potential for the discharge of polluted storm water or unauthorized non-storm water. Specific BMPs will be implemented during project construction so as not to cause or contribute to an exceedance of any water quality standard. In addition, changes to the BMPs such as alternative mechanisms, if necessary, during project design and/or construction will be implemented in order to achieve the stated goals and performance standards. These may include silt curtains or turbidity curtains that would contain resuspended sediment on site until it settles.
- Project construction includes the placement of cast-in-steel-shell piles to support the Elkhorn Slough bridge, which will require pile driving. To minimize effects of pile driving, attenuation methods (e.g., air bubble curtains, cushion blocks, and/or isolation casings) may be required.

4.1.1.3. PROJECT EFFECTS

The figures in Appendix F illustrate where estuarine/open water habitats will be affected by the proposed project.

Permanent Direct Effects

The proposed project would result in direct permanent effects to approximately 0.273-acre of estuarine/open water habitat in the following three locations: 1) the piers required for the bridge crossing (approximately 240 $ft.^2$ or 0.0055 acre of impact), 2) shoreline protection measures to be implemented along Moss Landing Harbor south of the Elkhorn Slough bridge crossing, and 3) shoreline protection measures to be implemented along Moss Landing Harbor adjacent to Moss Landing Road. The vast majority of these permanent impacts (approx. 0.273 acre) will result from implementing shoreline protection measures, which constitutes a beneficial effect to the open water/estuarine habitat because further erosion and sedimentation of the shoreline would be precluded once the shoreline protection measures are implemented.

Permanent Indirect Effects

The proposed project is expected to result in approximately 0.11 acre of permanent indirect adverse effects to estuarine/open water habitat of Elkhorn Slough from the trail crossing through the shading of estuarine habitat below the bridge. The soffit of the 12-foot-wide trail bridge will be elevated approximately 9.5 feet above mean sea level. Twelve overlook areas (six on either side) will provide space for viewing of the estuary without obstruction to other trail users. Adverse indirect effects associated with permanent shading from the trail bridge could include decreased accessible prey for avian predators and decreased habitat for sun-dependent aquatic species along the shallow margins of the slough. The minimal vegetation that exists on the margins of the slough below the bridge to be constructed may be affected due to lessened direct sunlight associated with the elevated trail. These adverse effects would not result in a significant disruption to habitat or species, as the trail bridge is not expected to inhibit wildlife use in the slough or to further degrade the habitat value of the estuarine habitat.

Shading is expected to only slightly effect the estuarine environment, and in some respects those changes are expected to be beneficial to the aquatic habitat. These beneficial effects will be minor given the relatively narrow width of the proposed trail, the depth of the slough at this location (ranges from 10 to 30 feet) and the fact that the structure will be elevated so high above the water surface. The amount of

shading will vary throughout the year in terms of the angle of the sun and the number of daylight hours. Very little change in the temperature regime is anticipated, since water movement beneath the bridge is highly active based on tidal influence. Light intensity passing through the water column and reaching the estuary floor will be lower as a result of the shading, creating a niche for species that evade avian predators and for aquatic vegetative or invertebrate species that prefer shade over sun. As discussed above, the highly eroded and actively scoured nature of Elkhorn Slough within the BSA generally prevents establishment of marine algae or seaweeds in the BSA. Shade will provide visual protection to fish and marine invertebrates that evade avian predators. These beneficial effects from shading are anticipated to be minor, at most.

Temporary Direct Effects

Temporary direct effects include construction-related effects such as shading and other disturbance associated with the barge(s), areas temporarily affected during construction of the shoreline protection areas south of the Elkhorn Slough bridge and along Moss Landing Road, dust, potential fuel spills from construction equipment, and unauthorized activities of equipment or personnel outside designated construction areas, as well as operation effects such as effects on adjacent habitats caused by storm water runoff, traffic, and litter (see Table 6). Temporary effects associated with the barge(s) are estimated to be approximately 9,000-square feet per barge, though the full extent of temporary effects is difficult to quantify. The exact size, number and placement of the barge(s) will be determined closer to the time of construction. This impact assessment assumes that temporary placement of two barges totaling 18,000-square feet (0.4 acre) for approximately 40 to 50 calendar days in duration will be necessary to complete the work.

The temporary effects of the barge(s) would be minimal. Adverse effects of the barges that could result from temporary shading could include lesser surface area of the water for marine mammal use and decreased accessible prey for avian predators. These adverse effects would not be considered to result in a significant disruption to habitat or species, as the barge(s) are not expected to inhibit wildlife use in the slough or to degrade the habitat value of the estuarine habitat.

The temporary shading provided by the barges may provide some benefit such as diffusing the light beneath the water surface, creating lower temperatures, lower light intensity, and protection to fish from avian predators. Shading from the barges is not

expected to have much of an impact on the vegetation occurring on the estuary floor, given the temporary and mobile nature of the barge(s).

Areas temporarily affected during construction of the shoreline protection areas south of Elkhorn Slough bridge and along Moss Landing Road could negatively impact the Slough and Harbor if BMP's to prevent siltation during construction are not correctly implemented during construction. The proposed shoreline protection efforts would provide long-term benefits to adjacent waters since the shoreline at these locations would be better protected from erosion and siltation once the protection measures are implemented. Upland areas between the shoreline protection areas and the trail itself would be restored with native vegetation once the shoreline protection work has been completed, resulting in higher quality habitat than is currently present in these locations.

4.1.1.4. COMPENSATORY MITIGATION

Compensatory mitigation for estuarine communities may be required to comply with Section 10 and Section 404 of the CWA and the California Coastal Act. All of the jurisdictional waters fall under the jurisdiction of the Coastal commission. The majority of existing estuarine/open water habitat within the BSA fall under the regulatory jurisdiction of the USACE pursuant to Section 10 of the RHA and/or Section 404 of the CWA. Most of the effects to USACE jurisdictional waters will occur to open water habitat for placement of the piers for the new bridge. Therefore, the project is anticipated to affect primarily federal waters under the jurisdiction of Section 10 of the RHA.

Given the relatively minor and generally beneficial temporary and indirect effects anticipated from the project (as described above under Section 4.1.1.3), compensation for temporary or indirect effects is not anticipated to be necessary. Compensation for permanent impacts to jurisdictional areas may or may not be necessary. The standard mitigation requirement of the USACE is 2:1 for permanent impacts and 1:1 for temporary and indirect effects. The CCC generally requires more stringent mitigation ratios to compensate for adverse wetland impacts if a significant disruption to a habitat or to species would result.

Permanent direct impacts to approximately 0.273 acre of estuarine/open water habitat would not likely result in a significant disruption to habitat or species. The estuarine/open water habitat at the location of the piers to be constructed has relatively low habitat quality. Areas along the shoreline to be protected are not

currently high quality habitat due to existing disturbance. These areas will ultimately benefit from the project, as protection of the Slough and the Harbor from future degradation associated with erosion or sedimentation will result.

The shading from construction of the piers will result in some benefit to the habitat and to species that depend upon that habitat. Visual protection from predators, lower temperatures, and decreased light intensity are some of the benefits of shading. Assuming that 2:1 compensation for direct permanent impacts associated with construction of the piers only would be required by the regulatory agencies, a compensation requirement of approximately 0.011-acre (480 square feet) would apply. Mitigation may be in the form of habitat restoration and/or enhancement in off-site areas. On-site wetland restoration is not appropriate given the small area of wetlands within the BSA. However, opportunities for enhancement, restoration or preservation of in-kind estuarine habitat in the near vicinity may not be available, since most of this habitat in Elkhorn Slough was already protected at the time this report was completed (Figure 3). Although it has not yet been determined that it is necessary as mitigation for the project, the County may have the opportunity purchase, or otherwise acquire credits, from the Elkhorn Slough Early Mitigation Pilot Project, a Caltrans compensatory mitigation project in the near vicinity. If necessary, the final compensatory mitigation program would be expected to fully offset project-related jurisdictional effects by providing “no net loss” of estuarine wetland/open water habitat.

A HMMP will be developed in coordination with the USACE, RWQCB, and CCC and will ensure no net loss of estuarine habitat value or acreage. Final details for compensatory mitigation will be evaluated through coordination between Caltrans and the resource agencies, including the CCC. The HMMP will comply with all terms and conditions set forth in the permits and opinions issued by the resource agencies and will typically include the following provisions:

- If possible, estuarine habitat will be restored in-kind and on-site within the BSA. If off-site restoration is required, it will be done within the same watershed as the proposed project.
- Further criteria specified in the HMMP may include an establishment period for the replacement habitat, if applicable, regular trash removal, and regular maintenance and monitoring activities to ensure the success of the mitigation plan.

4.1.1.5. CUMULATIVE EFFECTS

Implementation of the proposed project will result in increased visitations to the Moss Landing area as cyclists and pedestrians will likely use the parking lot north of the Elkhorn Slough crossing to access the trail. However, most of these visitors will not access the water itself. The ESNERR is east of the SR-1 bridge crossing, which preserves 1,400-acreof native habitat within Elkhorn Slough. Preservation of these lands provides for habitat in perpetuity within and near the vicinity of the project. Most of the surrounding wetlands outside of the Reserve have already been developed. Therefore, cumulative effects to estuarine wetland/open water habitat are not expected to be more than incremental.

4.1.2. Discussion of Natural Community / Dune Scrub

Native dune scrub communities such as those within the BSA were formerly abundant along California's coastline but are now much reduced due to an invasion of nonnative species and urban expansion. This habitat is not specifically "protected" by regulation. This habitat is geographically restricted to relatively small areas along the coast and supports a number of specialized species.

4.1.2.1. SURVEY RESULTS

Approximately 0.4-acre of native dune scrub has been identified in the BSA. This fragmented habitat is generally surrounded by invaded dune mat habitat and borders Moss Landing Harbor north of Moss Landing Road (see Appendix D). At its nearest location, the proposed trail will be constructed approximately 15-feet east of this habitat (see Sheet 5 of Appendix F).

4.1.2.2. AVOIDANCE AND MINIMIZATION EFFORTS

Avoidance measures to ensure that this habitat type is protected during trail construction activities are warranted. Prior to clearing or construction, highly visible barriers (such as orange construction fencing) will be installed around dune scrub habitat adjacent to the project footprint to designate ESAs to be preserved. No grading or construction activity or staging will be permitted within this habitat. In addition, heavy equipment, including motor vehicles, will not be allowed to operate within the ESAs. All construction equipment should be operated in a manner so as to prevent accidental damage to nearby preserved areas. All equipment maintenance, staging, and dispensing of fuel, oil, or any other such activities will occur in developed or designated non-sensitive upland habitat areas.

4.1.2.3. PROJECT EFFECTS

The proposed project would not result in direct permanent effects or temporary effects to dune scrub habitat through disturbance and/or removal of existing vegetation. Indirect effects, such as dust, potential and fuel spills from construction equipment could occur, but are expected to be extremely minimal, to this habitat type since this habitat should not suffer as they will be far enough away from the disturbance area and construction-related indirect effects.

4.1.2.4. COMPENSATORY MITIGATION

No compensatory mitigation is required for effects to dune scrub habitat, since no direct, indirect or temporary disturbance will occur from the proposed project.

4.1.2.5. CUMULATIVE EFFECTS

Because this habitat will not be affected by the project, this project will not contribute to cumulative effects to this habitat.

4.2. Special Status Plant Species

Thirty-seven (37) species of special status plants occur within the vicinity of the BSA (Table 4). Thirteen special status plant species have been identified within 5 miles of the BSA (CDFG, 2009a) and have been mapped in Figure 7.

Within the BSA, suitable habitat was absent for the 17 special status plant species occurring in the vicinity, including six State- and/or federally listed or candidate species (purple amole, Gowen cypress, Contra Costa goldfields, Dudley's lousewort, white-rayed pentachaeta, and Monterey clover) and eleven CNPS-listed species (Hickman's onion, Hooker's manzanita, Anderson's manzanita, Toro manzanita, Pajaro manzanita, Kings Mountain manzanita, alkali milk vetch, Congdon's tarplant, Santa Cruz Mountains beardtongue, pine rose, and saline clover). These species are not discussed further in this report.

Suitable habitat is present within the BSA for 11 federal- and/or State-listed special status plant species. None of these 11 species (Monterey spineflower, robust spineflower, Seaside bird's beak, Menzies wallflower, Yadon's wallflower, sand gilia, Santa Cruz tarplant, beach layia, Tidestrom's lupine, Yadon's rein orchid, Hickman's potentilla) were found during focused surveys. Nine other special status plant species, including those listed by the CNPS as List 1B, 2, 3, and 4 with suitable habitat occurring within the BSA, are discussed in this chapter. These nine CNPS-listed include sandmat manzanita, Hutchinson's larkspur, Eastwood's goldenbush,

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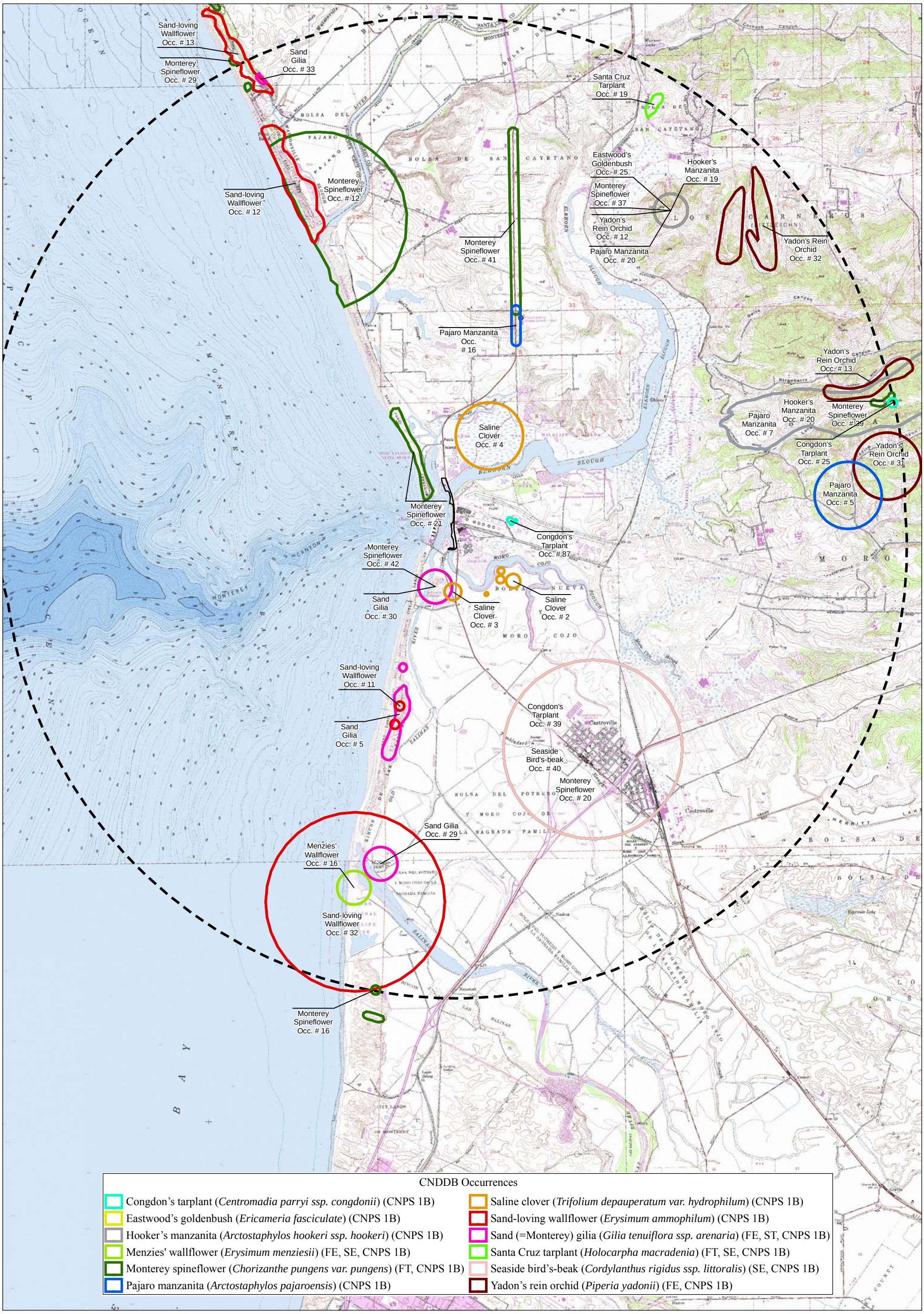

LEGEND

Biological Study Area

5 Mile Radius around the Project Area

N

0 0.5 1
MILES

Source: CDFW CNDDB (01/03/2014).

FIGURE 7

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Special-status Plant Species Occurrences within Five Miles of the Biological Study Area

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Coastal dunes milk vetch, sand-loving wallflower, fragrant fritillary, Kellogg's horkelia, Choris' popcornflower, and Santa Cruz clover. None of these species were observed during the surveys. The results of surveys, critical habitat discussion, minimization/mitigation measures, project effects, and cumulative effects for the 20 species for which suitable habitat is present within the BSA are discussed in this chapter.

4.2.1. Discussion of Plant Species Occurring in Dune Scrub / Invaded Dune Mat Habitats

Suitable habitat for 20 species of special status plants occurs within dune scrub/dune mat habitats within the BSA. These 20 species include Monterey spineflower, robust spineflower, Seaside bird's beak, Menzies wallflower, Yadon's wallflower, sand gilia, Santa Cruz tarplant, beach layia, Tidestrom's lupine, Yadon's rein orchid, Hickman's potentilla, sandmat manzanita, Hutchinson's larkspur, Eastwood's goldenbush, Coastal dunes milk-vetch, sand-loving wallflower, fragrant fritillary, Kellogg's horkelia, Choris' popcornflower, and Santa Cruz clover.

4.2.1.1. SURVEY RESULTS

Six special status plant surveys were conducted by LSA biologists within the BSA between January 2009 and August 2009; an additional survey was conducted in March 2012 to provide updated information for a small area within the Moss Landing Power Plant property where the trail alignment had changed since the original field work was conducted (see Table 1). The BSA was relatively overridden by nonnative species and did not contain a high diversity of native plants. Botanical surveys conducted during the appropriate blooming period for these species were negative. Therefore, these species are considered absent from the BSA.

4.2.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization measures are warranted because these species are absent from the BSA.

4.2.1.3. PROJECT EFFECTS

The proposed project would not be expected to affect any of these species since they are considered absent from the BSA.

4.2.1.4. COMPENSATORY MITIGATION

No compensatory mitigation is warranted because these species are absent from the BSA.

4.2.1.5. CUMULATIVE EFFECTS

Because these species are absent from the BSA, this project will not contribute to cumulative effects to the 20 species that potentially occur in dune mat/dune scrub habitat.

4.3. Special Status Animal Species Occurrences

Of the 19 special status animal species evaluated for the proposed project (see Table 5) only three, the California brown pelican, American peregrine falcon, and the southern sea otter were observed in the BSA during the field surveys. Nest sites of the peregrine falcon are considered sensitive but no suitable nesting habitat is located in or near the BSA. This species forages widely over a wide variety of open landscapes, including urban areas, agricultural lands, harbors, salt marshes, and grasslands and is expected to occur in the BSA only while foraging or dispersing. The proposed project will have no effect on known nest site or nesting pairs of American peregrine falcon and this species is not discussed further.

The other 16 special status species discussed in Table 5 are not expected to occur in or adjacent to the BSA due to the lack of suitable habitat. The larger trees in the BSA provide potential nesting substrate for the white-tailed kite, but no raptor nests were found during the field surveys and the proximity of developed areas and a busy roadway reduce the attractiveness of the BSA for nesting raptors including white-tailed kites.

The California sea lion (*Zalophus californianus*) and harbor seal (*Phoca vitulina richardsi*) are not considered special status species, but are protected under the federal MMPA. Due to the potential for harassment to these two marine mammals from the proposed project they are discussed in this section.

The results of surveys, critical habitat discussion, minimization/mitigation measures, project effects, and cumulative effects for the remaining listed wildlife species are discussed in this section. In addition, other special status wildlife species with potential of occurring within the BSA are discussed in this section. Figure 8 shows the documented occurrences of special status animal species within the vicinity of the BSA.

4.3.1. Green Sturgeon

The green sturgeon (*Acipsenser medirostris*) inhabits near shore marine and estuary habitats and ascends large rivers to spawn. This species ranges in the eastern Pacific

from northern Baja California, Mexico to Alaska, but is most common from the San Francisco Estuary north. Green sturgeon were formerly considered conspecific with the Sakhalin sturgeon (*A. mikadoi*) of the western north Pacific and Asia, but both these species are now considered distinct (Froese and Pauly, 2009). While wide ranging in near shore marine waters, green sturgeon are known to spawn in relatively few large rivers in Oregon and California (e.g., Rogue , Klamath, and Sacramento Rivers). The southern DPS of green sturgeon is only known to spawn in the Sacramento River (NMFS, 2005a).

4.3.1.1. SURVEY RESULTS

Fish surveys of the BSA were beyond the scope of the field studies. Green sturgeon are occasionally caught in Monterey Bay (Moyle, 2002) and there is at least one anecdotal record of an individual apparently trapped in an intake pipe of the power generating plant at Moss Landing (Bill Stevens, personal communication). The status of this species in Elkhorn Slough is not well known, but to the best of our knowledge, the observation noted above is the only record of this species in the slough. Green sturgeon are considered rare south of the San Francisco Estuary (Moyle, 2009). Brown (2002) did not note any records of this species from Elkhorn Slough. Available data suggest that this species is only an occasional stray to Elkhorn Slough.

4.3.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

The green sturgeon is a large mobile species and if present is likely to move out of the project area if disturbed during construction activities. The mitigation measures outlined for fish in general should avoid and minimize potential impacts to green sturgeon if they are indeed present. Before in water construction begins, including moving work barges into the BSA, consultation with the NMFS under Section 7 of the FESA will be required.

4.3.1.3. PROJECT EFFECTS

Based on available data, green sturgeon appear to be only occasional strays to Elkhorn Slough. However, their presence during project construction cannot be ruled out; the project may affect green sturgeon during pile driving operations.

4.3.1.4. COMPENSATORY MITIGATION

Avoidance and minimization measures described above under Section 4.3.1.2 will be incorporated to avoid direct and indirect effects to green sturgeon. Specific compensatory mitigation is not warranted.

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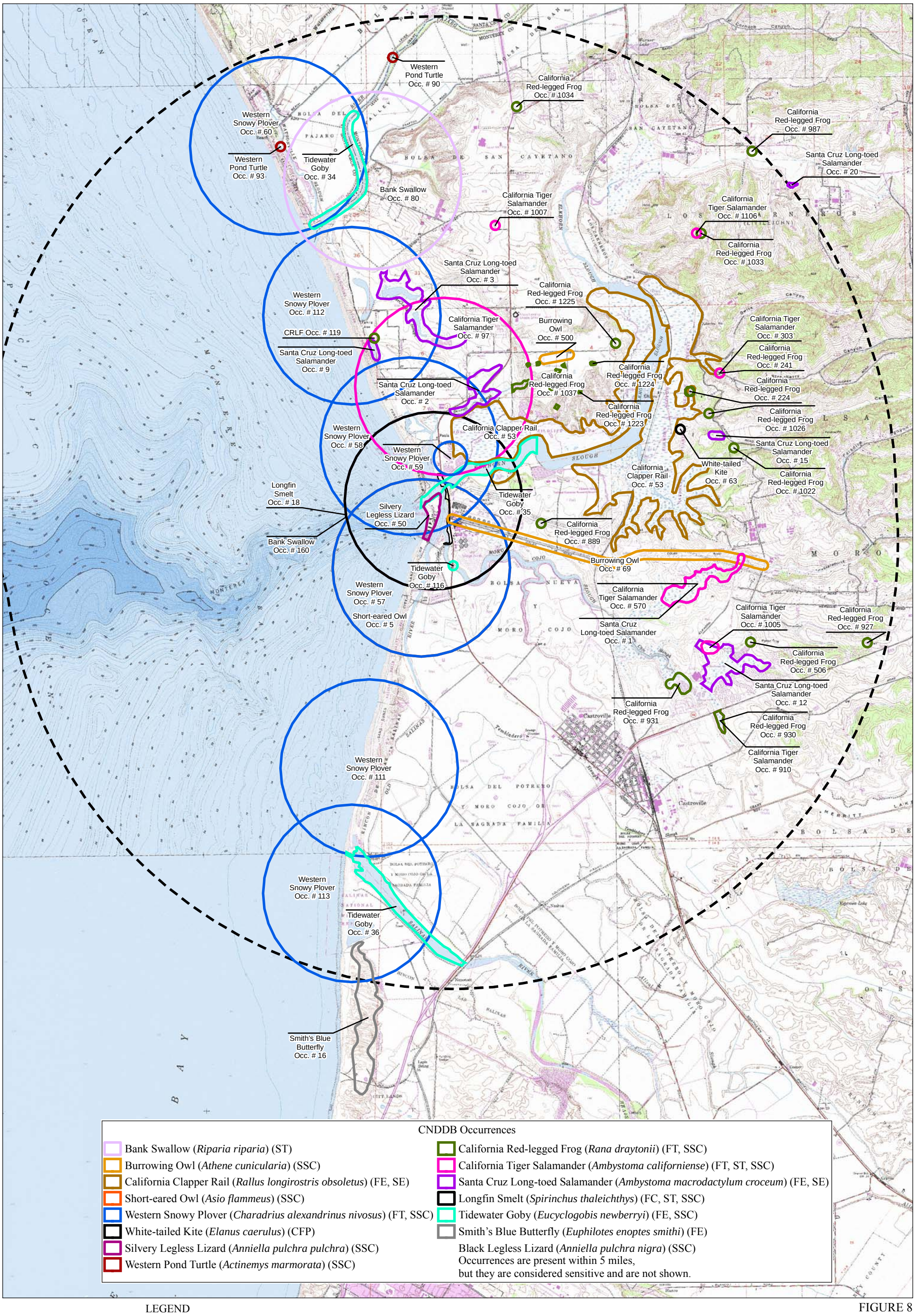

LEGEND

Biological Study Area

5 Mile Radius around the Project Area

0 0.5 1
MILES

Source: CDFW CNDDB (01/03/2014).

FIGURE 8

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Special-status Animal Species Occurrences
within Five Miles of the Biological Study Area

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4.3.1.5. CUMULATIVE EFFECTS

Due to the apparent rarity of this species in Elkhorn Slough, no cumulative effects are expected.

4.3.2. Steelhead-South/Central California ESU

The South/Central California ESU of steelhead includes populations from the Pajaro, Salinas, and Carmel Rivers, the smaller streams of the Big Sur coast south to Point Conception, Santa Barbara County, California (Moyle 2002). This steelhead ESU is a winter run species and typically moves upstream towards their spawning areas when winter rains increase river flows. Steelhead occur in the coastal marine waters off the central California coast including Monterey Bay, but based on available data (Brown, 2002) they have never been recorded in Elkhorn Slough. If steelhead does occur in Elkhorn Slough, it is likely to be only as an occasional stray.

4.3.2.1. SURVEY RESULTS

Fish surveys of the BSA were beyond the scope of the field study, but to the best of our knowledge, this species has never been recorded in Elkhorn Slough.

4.3.2.2. AVOIDANCE AND MINIMIZATION EFFORTS

Steelhead are large highly mobile fish and would likely move out of the area if disturbed by construction activities (e.g., pile-driving). Nonetheless, in the unlikely event that a steelhead is present in the BSA, the mitigation measures outlined for fish in general should avoid and minimize potential impacts to this species. Before in water construction begins, including moving work barges into the BSA, consultation with the NMFS under Section 7 of the FESA will be required.

4.3.2.3. PROJECT EFFECTS

Based on available data, steelhead appear to be absent from Elkhorn Slough. However, due to the high mobility of this species, their presence during project construction cannot be completely ruled out; the project may affect, but is unlikely to adversely affect steelhead during pile driving operations.

4.3.2.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed.

4.3.2.5. CUMULATIVE EFFECTS

The project will not result in cumulative effects to steelhead.

4.3.3. Tidewater Goby

The tidewater goby is a habitat specialist being restricted to shallow brackish lagoons and low gradient stream reaches with aquatic vegetation and areas of open bottom. These unique fish are endemic to California and occur in highly isolated populations in lagoons at river and stream mouths along the California coast. Tidewater gobies are most common in the upstream portions of lagoons with barrier beaches and generally are absent in lagoons with open mouths and strong tidal flow. They favor low salinity, generally less than 10 ppt.

Critical habitat for the tidewater goby has been identified in Bennett Slough (critical habitat unit MN1), about 500 feet west of the BSA (Figure 9). This critical habitat unit is currently occupied by gobies (USFWS, 2013). The CNDDB lists an occurrence (occurrence number 35) for this species within the BSA (from the mouth of Elkhorn Slough to 1 mile upstream), but this occurrence is mapped as a non-specific polygon and not a specific record of occurrence. Suitable habitat is not present in the BSA.

4.3.3.1. Survey Results

Fish surveys were beyond the scope of the field survey, but based on the lack of suitable habitat within or adjacent to the BSA the presence of this species is unlikely. There may be a remote possibility that individual tidewater gobies could be washed into the BSA during unusual storm events, but due to the strong tidal flow and lack of quiet backwater areas within the BSA, any occurrence would be ephemeral.

4.3.3.2. Avoidance and Minimization Efforts

In the unlikely event that a tidewater goby is present in the BSA, the avoidance and minimization measures outlined for fish would minimize effects to this species. Therefore, before in water construction begins, including moving work barges into the BSA, consultation with the USFWS under Section 7 of the FESA will be required.

4.3.3.3. Project Effects

The project is not likely to affect tidewater goby, but in the unlikely event that one is washed into the BSA during pile-driving activities, the project could affect this species.

4.3.3.4. Compensatory Mitigation

No compensatory mitigation is proposed.

4.3.3.5. CUMULATIVE EFFECTS

The project will not result in cumulative effects to tidewater goby.

4.3.4. California Brown Pelican

The brown pelican has been delisted both as state and federal endangered species (USFWS, 2009), but is a Fully Protected species by the state of California. The brown pelican was removed from the federal endangered species list on November 17, 2009 and from the State of California's endangered species list on February 17, 2009. The brown pelican is a distinctive marine bird found along both the southern Atlantic and Pacific Coasts of the United States and south into the Caribbean region, Mexico, Central America, and northern South America including the Galapagos Islands. The California brown pelican is a large subspecies that ranges from central California south to northwestern Mexico including the Gulf of California and the Islas Tres Marias (Shields, 2002). The brown pelican is found in estuarine, marine subtidal, and marine pelagic waters along the California coast. California brown pelicans do not breed in the Elkhorn Slough/Moss Landing area, but are a common post-breeding visitor to this part of the Monterey County coast. California brown pelicans historically nested at Point Lobos (Roberson, 2002). Their breeding range in the United States is currently restricted primarily to Anacapa and Santa Barbara Islands in southern California; small numbers have also recently started breeding at the south end of the Salton Sea. Although nesting is restricted to southern California, small numbers of California brown pelicans occur in Monterey County throughout the year.

Brown pelicans feed primarily by plunge diving for small schooling fish such as northern anchovies and Pacific sardines (*Sardinops sagax*). Dispersal between breeding seasons ranges from British Columbia, Canada, to southern Mexico and possibly to Central America. Brown pelicans do not nest in Monterey County. During the nonbreeding season, which varies between colonies but typically extends from July to January, brown pelicans roost communally, generally in areas that are near adequate food supplies, have some type of physical barrier to predation and disturbance, and provides some protection from environmental stresses such as wind and high surf. Breakwaters and jetties are often used for roosting. Brown pelican numbers in a given area may vary greatly with the season.

4.3.4.1. SURVEY RESULTS

Numerous California brown pelicans were observed foraging in and adjacent to the BSA during all the wildlife surveys. Pelicans were seen foraging in the Elkhorn Slough channel and perched on pilings and riprap breakwaters along the Moss

Landing Harbor shore. The numbers of brown pelicans are highest in the Elkhorn Slough/Moss Landing area from July through October (Roberson, 2002).

4.3.4.2. AVOIDANCE AND MINIMIZATION EFFORTS

No specific avoidance and minimization efforts are required for brown pelicans. This species is a large, highly mobile bird that frequently habituates to urbanized marine environments such as the San Francisco Bay, Monterey Harbor, and Moss Landing Harbor. For example, under a USFWS approved protocol, LSA has been conducting year round monitoring of California brown pelicans (and other special status birds) during on-going construction of the San Francisco Oakland Bay Bridge Seismic Safety Project for over six years. Monitoring includes observing brown pelicans and other bird species during multiple periods of large (8-feet) and small diameter pile driving. During the monitoring surveys LSA biologists have not observed behavior that indicates brown pelicans have been disturbed during construction activities including all types of pile driving. Pelicans were frequently observed flying through or foraging near marine construction areas during pile driving and other activities with no apparent adverse effects. Based on LSA's Bay Bridge observations (weekly observation memos posted at biomitigation.org), LSA believes brown pelicans will likely avoid construction activities that might distress them and/or will quickly habituate to project construction activities including pile driving. In addition, it is likely that brown pelicans foraging in the area of Elkhorn Slough Bridge are already being habituated to relatively high ambient noise levels due to traffic on SR-1.

Even though brown pelicans are not known to nest in the County, preconstruction surveys for nesting birds within 300 feet of all disturbance areas will be completed by a qualified biologist prior to construction, should construction occur within the nesting season (February 22 through August 21). The construction area will be monitored during construction and construction will be halted if it would impact brown pelicans.

4.3.4.3. PROJECT EFFECTS

California brown pelicans have been observed foraging within the BSA on multiple occasions during 2009 surveys. Upon implementation of avoidance and minimization measures, the proposed project is not expected to directly affect this species; however, there would be indirect and temporary effects through loss of habitat.

Because brown pelicans 1) do not nest in the area, 2) have the ability to easily avoid construction areas, and 3) have extensive areas of suitable roosting and foraging

habitat available to them that will not be effected by construction activity, the proposed project is not expected to have any negative effects on brown pelicans.

4.3.4.4. COMPENSATORY MITIGATION

Avoidance and minimization measures described above under Section 4.3.1.2 will be incorporated to avoid direct and indirect effects to California brown pelican. Specific compensatory mitigation is not warranted.

4.3.4.5. CUMULATIVE EFFECTS

The proposed project will increase the ambient noise level and activity in the vicinity of the Elkhorn Slough Bridge and trail alignment during construction, which may affect pelicans that use the slough and harbor. If construction occurs concurrent with other harbor redevelopment activities, noise and activity levels could be elevated well above ambient levels. Since the redevelopment activities have been completed (construction of the boat ramp, public wharf, and floating dock), no other projects are expected to occur in the vicinity of the Elkhorn Slough Bridge that would add to the noise and activity levels in the slough during bridge construction.

4.3.5. Southern Sea Otter

The sea otter is the largest member of the mammalian Family Mustelidae (weasels, otters, and relatives) and the most fully aquatic species in the Order Carnivora. In the eastern north Pacific, sea otters historically ranged from Alaska to central Baja California, Mexico and in the western Pacific south to northern Japan. During the eighteenth and nineteenth centuries sea otter populations were decimated by hunting for their valuable hides and were pushed to the brink of extinction. In 1911, sea otters were protected under the International Fur Seal Treaty and populations have slowly recovered, but with a much more restricted geographic range. Currently, they are found primarily along the central California coast. The southern sea otter was listed as a federal threatened species in 1977.

4.3.5.1. SURVEY RESULTS

Southern sea otters were observed foraging and resting in the Elkhorn Slough channel and Moss Landing Harbor within and adjacent to the BSA. Otters were seen in these areas during all the wildlife surveys and were seen foraging in the Elkhorn Slough channel both up and downstream of the Elkhorn Slough Bridge. In addition, a sea otter resting area is located near the western shore of the North Harbor (about 750-feet west of the northern end of the BSA). A raft of approximately 25 to 30 individuals was observed in this area during all the field surveys.

4.3.5.2. AVOIDANCE AND MINIMIZATION EFFORTS

It is anticipated that most sea otters will avoid the project area during construction activities, but it is possible that some individuals may be present in the work area at various times during construction. In addition, loud airborne or underwater sounds, such as those produced by in-water pile driving, could have detrimental effects on sea otters. Therefore, before in water construction begins, including moving work barges into the BSA, consultation with the USFWS under Section 7 of the FESA will be required.

A Marine Mammal Protection Plan, subject to approval by the USFWS, should be developed to avoid effects to otters from the proposed project. The Marine Mammal Protection Plan should include, but may not be limited to, the following measures:

1. Establishment of a marine mammal impact zone, which may require recording construction-related underwater sound pressure levels (SPL) by a qualified underwater acoustic monitor. The marine mammal impact zone is the area where marine mammals may be negatively affected by underwater noise generated by in-water construction such as pile driving.
2. If necessary to prevent harm to marine mammals, the use of a dewatered isolation casing shall be required around each pile being driven.
3. Based on the marine mammal impact zone, establish buffer/safety zone to be monitored by a qualified biologist, approved by USFWS. An acceptable buffer is anticipated to be 500 feet from work activities, as was required for the public wharf and floating dock located on the north side of the mouth of Elkhorn Slough (NMFS, 2006). The approved biologist will monitor the buffer/safety zone during all in-water construction activities. Once established the marine mammal buffer/safety zone should be clearly marked with buoys for easy monitoring. Pile driving will not begin until the buffer zone is clear of marine mammals.
4. A “soft start” practice will be implemented at the on-set of pile driving activities. Pile driving would be initiated at an energy level sell than full capacity (i.e. approximately 40-60 percent energy levels) for at least 5 minutes before gradually escalating to full capacity. The “soft start” practice would ensure that any pinnipeds that are undetected during monitoring of the buffer zone will not be injured.
5. Limit construction activities, including pile driving, to the daylight hours (0800 to 1700 hours) when marine mammals can be most effectively observed. In-water construction (e.g., pile driving) may also be seasonally limited based on consultation with the resources agencies.

6. Construction monitoring should be conducted during all work on the proposed bridge including over water construction after the piles have been put in place.
7. The biological monitor will have the authority to stop or delay construction if it is determined that a given activity may pose a threat to a marine mammal that has entered the buffer/safety zone.

Such a plan should incorporate the avoidance and minimization measures outlined above, and will include measures for California sea lions and harbor seals as well as southern sea otter. If these measures are followed, then it is expected that the proposed project may affect, but will not likely adversely affect, southern sea otter.

4.3.5.3. PROJECT EFFECTS

The proposed project would include driving of 18 three-foot diameter, cast-in-steel-shell concrete pilings across the mouth of Elkhorn Slough, just west of the existing SR-1 bridge. The piers of the new bridge will be aligned with columns on the existing highway bridge to facilitate boat traffic passage under the two bridges. Pile driving is expected to take approximately 6-8 days. Pile driving activities will not necessarily occur consecutively, but will occur within a 40-50 day construction window. Piles will be driven into the channel bottom using an impact hammer pile driver. The percussive forces generated during pile driving activities may result in injury to sea otters within and adjacent to the BSA.

During issuance of a take permit for marine mammals for the construction of the public wharf and floating dock located on the north side of the mouth of Elkhorn Slough, the NMFS assumed that pile driving would generate underwater sounds in the range of 165-175 dB at 10 meters (NMFS, 2006). These levels are below 190 dB re 1 microPa rms, the level NMFS uses to estimate Level A harassment of pinnipeds and the onset of temporary threshold shift (TTS) in pinniped hearing (NMFS, 2003). Furthermore, since airborne noise level area expected to be below 80-90 dB measured at 250 feet distance from the pile driving, these airborne levels are not believed to cause Level A harassment or onset of TTS to marine mammals (NMFS, 2006). Given that sea otters co-occur with seals and sea lions at this location, it is assumed that these underwater and airborne noise thresholds would also be applicable to sea otters. The driving of the steel piles is expected to exceed the Level A harassment levels if no attenuation methods are used. Use of appropriate attenuation methods during pile driving such as bubble curtains or blocks, are expected to reduce the sound pressure levels below the harassment level .

Construction of the bridge will also bring construction personnel and equipment into the area where sea otters occur. Although there will be an incremental increase in activity due to bridge and trail construction, the harbor and slough typically host large numbers of people engaged in recreational and commercial activities. The temporary presence of construction personnel, therefore, is not expected to significantly impact sea otters.

Construction of the bridge may also alter movement of sea otters through the mouth of the slough. No dewatering of the slough is needed to construct the bridge, so this impact would be temporary during the period of pile driving and bridge deck construction. Once the pile driving is completed, the bridge will not impede the movement of sea otters through the mouth of the slough.

Construction of the trail on dry land is not expected to impact sea otters provided that sediments and construction materials are retained on land and measures are implemented to prevent the movement of the soil, concrete, and other construction materials into the slough or harbor.

4.3.5.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed.

4.3.5.5. CUMULATIVE EFFECTS

The proposed project will increase the ambient noise level and activity in the vicinity of the Elkhorn Slough Bridge and trail alignment during construction which may affect sea otters that use the slough and harbor. If construction occurs concurrent with other harbor redevelopment activities, noise and activity levels could be elevated well above ambient levels. Since the redevelopment activities have been completed (construction of the boat ramp, public wharf, and floating dock), no other projects are expected to occur in the vicinity of the Elkhorn Slough Bridge that would add to the noise and activity levels in the slough during bridge construction.

4.3.6. California Sea Lion and Pacific Harbor Seal

The California sea lion and harbor seal are the most common and widespread marine mammals along the California coast and both occur in the waters of Elkhorn Slough and Moss Landing Harbor. These two species use haul out sites adjacent to or close by the BSA. The California sea lion and harbor seal are not federally listed species or California species of special concern; however, they are protected under the Marine Mammal Protection Act and therefore are addressed in regards to potential harassment from the proposed project.

4.3.6.1. SURVEY RESULTS

Both these species were observed in or adjacent to the BSA during all the wildlife surveys. California sea lions were most frequently observed hauled out on a floating dock located at the north edge of the channel just over 100-feet west of the northern edge of the BSA. Mostly young individuals (250 to 300) were observed on the dock, but several adults were also observed. An adult male was seen sleeping on the narrow beach at the edge of the BSA about 400-feet south of the south side (just west of the Elkhorn Slough Bridge) of the Elkhorn Slough channel. California sea lions are expected to occur in the BSA as they move to and from the portion of the Slough east of the bridge.

Harbor seals occur in the Elkhorn Slough channel both up and downstream of the Elkhorn Slough Bridge and a haul out is located on the west shore of the North Harbor just over 1000 feet northwest of the northern edge of the BSA. Up to 30 individuals were observed at this haul out during the field surveys. Harbor seals do not typically pup at this haul out, but there is a pupping area at Seal Bend in Elkhorn Slough about one half mile to the east of the BSA (NMFS, 2006).

4.3.6.2. AVOIDANCE AND MINIMIZATION EFFORTS

It is anticipated that most California sea lions and harbor seals will avoid the project area during construction activities, but it is possible that some individuals may be present in the work area at various times during construction activity. In addition, prior studies have shown that loud underwater sounds, such as those produced by in-water pile driving, can have detrimental effects on marine mammals. Therefore, before in water construction begins, including moving work barges into the project area, an Incidental Harassment Authorization (IHA), issued under the authority of Section 101 (a) (5) (D) of the Marine Mammal Protection Act, will be required. Issuance of an IHA will require the preparation of a Marine Mammal Mitigation Plan subject to the approval of NMFS, as described under Section 4.3.2.2, above.

4.3.6.3. PROJECT EFFECTS

Project impacts for California sea lions and Pacific harbor seals are expected to be similar to those described for sea otters in Section 4.3.2.3, above. An additional impact to sea lions and harbor seals is the disturbance that may result to a small haul out area (sandy beach) used by lone sea lions just south of the southern abutment of the bridge. Construction of the trail in this area will include construction of rock shore protection to replace the existing broken concrete shore protection, but rock shore protection will not impact the small sand beach just south of were an existing oil pipeline enters the

harbor . Trail construction in this area will also include a 30-inch box culvert to cross the existing drainage; construction of this culvert will not affect the small sand beach. Construction of this section of the trail may cause sea lions to avoid this area or may put them in close proximity to construction equipment if they continue to use the small sandy beach during construction. As the beach is at water level and the trail will be constructed on the terrace approximately 8 feet above, direct impacts to the sea lions and harbor seals that may hauled out at this location are not expected.

4.3.6.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed.

4.3.6.5. CUMULATIVE EFFECTS

The proposed project will increase the ambient noise level and activity in the vicinity of the Elkhorn Slough Bridge and trail alignment during construction which may affect California sea lions and harbor seals that use the slough and harbor. If construction occurs concurrent with other harbor activities, noise and activity levels could be elevated well above ambient levels. No other projects are expected to occur in the vicinity of the Elkhorn Slough Bridge that would add to the noise and activity levels in the slough during bridge construction.

4.4. Critical Habitat

Critical habitat for five federally listed species occurs within two miles of the BSA: Monterey spineflower, green sturgeon, tidewater goby, South Central California Coast ESU of steelhead, and western snowy plover, (Figure 9). Critical habitat for the Monterey spineflower is located in dune habitat to the west, north and south of the BSA, the closest within 1,000-feet of the north end of the BSA. Tidewater goby critical habitat is located in the North Harbor (Bennett Slough) about 150-feet northwest of the Elkhorn Slough channel (west side of bridge) portion of the BSA, and the nearest critical habitat for the western snowy plover is approximately 1,060-feet northeast of the BSA. Critical habitat for green sturgeon does not include Elkhorn Slough but encompasses the marine coastal zone of Monterey Bay. Critical habitat for the South/Central California Coast ESU of steelhead in the project vicinity includes various streams and estuaries in the Salinas Hydrologic Unit (NMFS, 2005b). In the Elkhorn Slough area, the Salinas River and Gabilan Creek are designated as critical habitat for this ESU of steelhead (Figure 9). An erroneous mapping of critical habitat for steelhead associated with Moss Landing Harbor was discovered during the analysis. Although critical habitat for steelhead is shown on various maps as including a portion of the Moss Landing Harbor, this mapping is in error and critical habitat

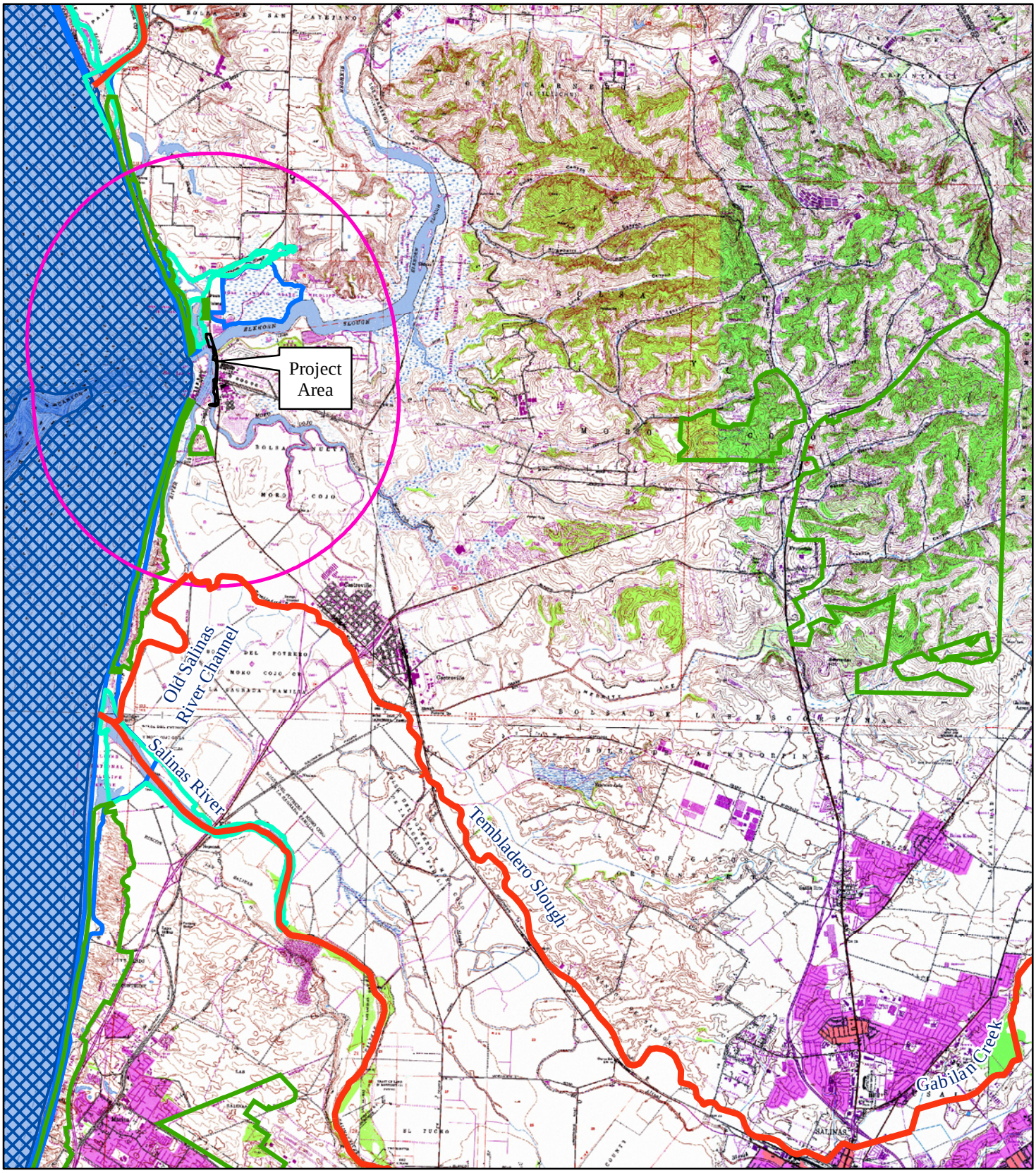

FIGURE 9

Biological Study Area (BSA)
2 Mile Buffer
South Central California Coast Steelhead (*Oncorhynchus mykiss*)
Monterey Spineflower (*Chorizanthe pungens var. pungens*)
Tidewater Goby (*Eucyclogobius newberryi*)
Western Snowy Plover (*Charadrius alexandrinus nivosus*)
Green Sturgeon (*Acipenser medirostris*) Marine Coastal Zone

N

0 0.75 1.5
Miles

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Critical Habitat in Vicinity of the Biological Study Area

SOURCE: FWS (2009); MVSE (2008)

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for steelhead does *not* include the Moss Landing Harbor (Bill Stevens, personal communication, September 22, 2009), therefore, critical habitat is not located within or adjacent to the BSA. As noted above, steelhead have not been found during fish surveys in the Elkhorn Slough area, including Moss Landing Harbor, which was occasionally surveyed in the studies reviewed by Brown (2002).

4.5. Fish

As noted in Section 3.1.3, Elkhorn Slough provides habitat for over 80 fish species, many of which move between the slough and Monterey Bay either daily or seasonally. Fish moving through the mouth of the slough or inhabiting the area in the vicinity of the slough mouth may be affected by bridge construction particularly during the pile driving activities.

4.5.1. Survey Results

Brown (2002) summarizes fish sampling data for Elkhorn Slough over approximately the past 30 years. In the report, 35 species were found to occur in the vicinity of the Elkhorn Slough Bridge with a frequency of occurrence of between 70-100 percent. Another 7 species occurred in the vicinity of the bridge at a frequency of 36-69 percent. Examples of species commonly found in the vicinity of the bridge based on previous sampling efforts (36-100 percent frequency of occurrence) include topsmelt and jacksmelt, speckled sanddab (*Citharichthys stigmaeus*), shiner surfperch, northern anchovy, greenling (*Hexagrammos* sp.), bat ray, lingcod, cabezon (*Scorpaenichthys marmoratus*), bay pipefish (*Syngnathus leptorhynchus*), and leopard shark. Although the federally threatened green sturgeon was not documented in Brown's report, this species was documented in Moss Landing Harbor in 2006 (NMFS, 2009). The measures discussed below will also serve to mitigate for effects to green sturgeon.

4.5.2. Avoidance and Minimization Efforts

CDFW and NMFS have established noise limits associated with pile driving to avoid and minimize effects to fish. These thresholds are discussed in detail in the *Final Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish* (ICF Jones & Stokes and Illingworth and Rodkin, 2009). Peak sound levels from pile driver will be limited to 206 dB while cumulative sound exposure level (SEL) will be limited to 183 dB consistent with the *Final Technical Guidance* (ICF Jones & Stokes and Illingworth and Rodkin, 2009).

Acoustic monitoring as stipulated in the *Final Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish* (ICF Jones & Stokes and Illingworth and Rodkin, 2009) will be conducted during pile driving activities. If pile driving exceeds the thresholds of 206 dB_{peak} or 183 dB SEL, then attenuation devices will be used to bring the sound levels below the threshold levels. Attenuation method identified in the *Final Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish* (ICF Jones & Stokes and Illingworth and Rodkin, 2009) under Best Management Practices will be used (i.e., air bubble curtains, cushion blocks, and/or isolation casings).

A biological monitor will be onsite during pile driving to monitor fish that may become injured or killed during the pile driving. If fish are observed to be injured or killed, pile driving will cease and Caltrans will notify NMFS, while the County will contact CDFW, to determine appropriate steps to avoid additional effects to the fish.

Results of monitoring will be reported to the County and Caltrans within 2 weeks following the completion of pile driving activities.

All pile driving, bridge construction, and trail construction will take place during daylight hours 0800 hours to 1700 hours).

4.5.3. Project Effects

The proposed project would include driving of 18, 36-inch diameter, cast-in-steel-shell (CISS) concrete pilings across the mouth of Elkhorn Slough, just west of the existing SR-1 bridge. Each of the six piers (bents) will contain three, 36-inch CISSpiles. The piers of the new bridge will be aligned with the piers of the existing highway bridge to facilitate boat traffic passage under the two bridges. Each pile is expected to require 500 strikes to fully drive the pile to the required depth. At an estimated three piles per day (1,500 strikes per day), in-water pile driving is expected to be completed in 6 days. An additional 12, 24-inch CISS piles will be driven in the north and south banks of the slough mouth to support the bridge abutments. Each abutment will contain 6, 24-inch CISS piles. Each pile is expected to take 500 strikes to reach the required depth. With up to 3,000 strikes per day, piles for the abutments are expected to take 2 days (one day per abutment). Piles will be driven into the channel bottom using an impact hammer pile driver. The percussive forces generated during pile driving activities may result in injury and death to fish within the impact area. Both the peak sound pressure level (Peak) and the sound exposure level (SEL) may result in damage to the auditory tissue of fishes or temporary hearing loss

(temporary threshold shift (TTS)) (ICF Jones & Stokes and Illingworth and Rodkin, 2009). Temporary hearing loss occurs at lower levels than auditory tissue damage and is dependent on the size of the fish, with smaller fishes being affected at lower levels than larger fishes (ICF Jones & Stokes and Illingworth and Rodkin, 2009). In addition to the direct effect of hearing loss of auditory tissue damage, sound levels from pile driving may also result in indirect effects such as inability to avoid predators or detect prey, and inability to communicate or detect the environment (ICF Jones & Stokes and Illingworth and Rodkin, 2009).

Auditory tissue damage and temporary hearing loss are not the only impacts that may result from pile driving. Increased sound levels associated with pile driving may also affect fish by causing physiological and anatomical damage. Non-auditory tissue damage may include capillary rupture in skin, neurotrauma, eye hemorrhage, swim bladder rupture, and death of individual fish (ICF Jones & Stokes and Illingworth and Rodkin, 2009). Such impacts may be the result of single or repeated exposure to elevated sound levels.

The acoustic impact area for the in-water pile driving (36-inch CISS piles) proposed for this project is estimated to extend from bank to bank at the mouth of Elkhorn Slough and up- and down-stream 1,000-meters. This area is estimated using the NMFS calculator for assessing underwater sound produced by pile driving (Appendix H) in the *Final Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish* (ICF Jones & Stokes and Illingworth and Rodkin, 2009).

Pile Driving Sound Impact Calculations for the 36-inch CISS Piles in the Bents with Attenuation Device (Isolating 5-6 ft. diameter casing)				
	Acoustic Metric			
	Peak	**SEL**	**RMS**	**Effective Quiet**
Measured single strike level (dB)	**199**	**176**	**188**	**150**
Distance at which sound measured (m)	**10**	**10**	**10**	
Estimated number of strikes per day	**1500**			
Cumulative SEL at measured distance				
208				
	Distance (m) to threshold			
	Onset of Physical Injury			**Behavior**
	Peak	**Cumulative SEL dB****		**RMS**
	dB	Fish ≥ 2 g	Fish < 2 g	dB
Transmission loss constant (15 if unknown)	206	187	183	150
15	**3**	**242**	**447**	**3415**

Green boxes = measured values from similar project
Yellow boxes = threshold values
Blue boxes = Calculated values

For the 24-inch CISS piles driven in the bank of the slough with no attenuation device, the distances to thresholds in meters are shown below.

Pile Driving Sound Impact Calculations for the 24-inch CISS Piles in the Abutments				
	Acoustic Metric			
	Peak	SEL	RMS	Effective Quiet
Measured single strike level (dB)	197	173	185	150
Distance at which sound measured (m)	15	15	15	
Estimated number of strikes per day	3000			
Cumulative SEL at measured distance				
208				
	Distance (m) to threshold			
	Onset of Physical Injury			Behavior
	Peak	Cumulative SEL dB**		RMS
	dB	Fish ≥ 2 g	Fish < 2 g	dB
Transmission loss constant (15 if unknown)	206	187	183	150
15	4	364	512	3232

Green boxes = measured values from similar project
Yellow boxes = threshold values
Blue boxes = Calculated values

The complete impact calculators for each type of pile are included in Appendix H.

Because some of the calculated values approach or exceed 500-meters, and due to the difficulty in detecting audibility beyond 500 to 1,000-meters, the upstream and downstream acoustic impact area is assumed to be 1,000-meters (ICF Jones & Stokes and Illingworth and Rodkin, 2009).

During issuance of a take permit for marine mammals for the construction of the public wharf and floating dock located on the north side of the mouth of Elkhorn Slough, NMFS assumed that pile driving would generate sounds in the range of 165-175 dB at 10-meters (USFWS, 2006). This level is below the peak and cumulative SEL for fish. Likewise, the MBSST bridge project is expected to generate sounds in the range of 197-199 dB (peak) and 173-179 SEL for the 24-inch and 36-inch CISS piles at 10 meters, respectively. Therefore, it is assumed that through the use of proper equipment, attenuation methods, and adjustment of the strikes per day, pile driving for the bridge can be completed within the acoustic limits established in the *Final Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish* (ICF Jones & Stokes and Illingworth and Rodkin, 2009).

Construction of the bridge may also alter movement of fish through the mouth of the slough. This impact would be temporary during the period of pile driving. Once the pile driving is completed, bridge construction will not impede the movement of fish through the mouth of the slough. No dewatering of the slough is needed to construct the bridge.

Construction of the trail on dry land is not expected to affect fish provided that sediments and construction materials are retained on land and measures are implemented to prevent the movement of the soil, concrete, and other construction materials into the slough or harbor. Placement of additional rock slope protection along the shore is not expected to generate significant acoustic impacts and is therefore not considered any further.

4.5.4. Compensatory Mitigation

No compensatory mitigation is proposed.

4.5.5. Cumulative Effects

The proposed project will increase the ambient noise level in the vicinity of the Elkhorn Slough Bridge during construction. If construction occurs concurrent with other harbor redevelopment activities, noise levels could be elevated well above ambient levels. Since the redevelopment activities have been completed (construction of the boat ramp, public wharf, and floating dock), no other projects are expected to occur in the vicinity of the Elkhorn Slough Bridge that would add to the noise levels in the slough during bridge construction.

4.6. Essential Fish Habitat

Essential Fish Habitat (EFH) are those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. For the purpose of interpreting the definition of essential fish habitat: “waters” include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; “substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities; “necessary” means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” covers a species’ full life cycle. EFH is described by Fishery Management Councils in amendments to Fishery Management Plans, and is approved by the Secretary of Commerce acting through the NMFS (50 CFR 600.10) (NMFS, 2004). The importance of EFH is not necessarily the presence of federally listed species, but what the habitat contributes to the surrounding environment (i.e. wetlands, near shore ecosystem, immediate adjacent to Elkhorn Slough).

4.6.1. Survey Results

The proposed project is located within an area designated as EFH by NMFS for both the Coastal Pelagic Species and Pacific Coast Groundfish Fisheries Management Plans. Ninety-three (93) fish and 1 invertebrate species are listed in these management plans. The species known from Elkhorn Slough are listed in Table 7. No focused fish surveys were conducted as a part of this study; however, previous studies were examined. Elkhorn Slough provides EFH for at least one life stage of the species listed in Table 7.

4.6.2. Avoidance and Minimization Efforts

Consultation with the NMFS regarding effects to EFH in Elkhorn Slough will be necessary. At a minimum, the following conservation measures will be implemented to reduce effects to EFH associated with the construction of the bike/pedestrian bridge (measures based on conservation measures in Hanson, 2003).

1. If feasible, drive piles, when the current is reduced (i.e., centered around slack current) in areas of strong current, to minimize the number of fish exposed to adverse levels of underwater sound.
2. Monitor peak sound levels during pile driving to ensure that they do not exceed the threshold for injury to fish.
3. Implement mitigation measures to attenuate the sound if sound pressure levels would otherwise exceed acceptable limits. Methods to reduce the sound pressure levels include, but are not limited to, the following:
    a. Surround the pile with an air bubble curtain system or air-filled isolation casing.
    b. Since the sound produced has a direct relationship to the force used to drive the pile, the smallest hammer that will effectively advance the pile should be used to reduce the sound pressures.
    c. Use a hydraulic hammer if impact driving cannot be avoided. The force of the hammer blow can be controlled with hydraulic hammers; reducing the impact force will reduce the intensity of the resulting sound.

4.6.3. Project Effects

The proposed project will have an adverse effect on Pacific Coast Groundfish ESF through the construction of the bridge across Elkhorn Slough. The bridge will not impede movement of fish into and out of the slough as no coffer dams or dewatering is proposed in the construction of the bridge. Construction will have a temporary effect on fish that inhabit the slough during pile driving operations as described in

Table 7: Federally Managed Fish Species and Life Stages with Essential Fish Habitat Designation in the Biological Study Area

Fishery Management Plan	Habitat Area of Particular Concern Within the Biological Study Area	Council-Managed Species		Life Stage Present Within the Biological Study Area				
Coastal Pelagic		Common Name	Scientific Name	Eggs	Larvae	Juvenile	Adult	Spawning
	Estuarine	Northern anchovy	*Engraulis mordax*	X	X	P	X	P
Groundfish	Estuarine	Leopard shark**	*Triakis semifasciata*	N/A	N/A	P	X	N/A
	Estuarine	Lingcod	*Ophiodon elongatus*	*	*	*	X	*
	Estuarine	Cabezon	*Scorpaenichthys marmoratus*	*	*	*	X	*
	Estuarine	Brown rockfish	*Sebastes auriculatus*	P	P	P	X	P
	Estuarine	Copper rockfish	*Sebastes caurinus*	P	P	P	X	P
	Estuarine	Black rockfish	*Sebastes melanops*	P	P	P	X	P
	Estuarine	Blue rockfish	*Sebastes mystinus*	P	P	P	X	P
	Estuarine	Bocaccio	*Sebastes paucispinis*	P	P	P	X	P
	Estuarine	Grass rockfish	*Sebastes rastrelliger*	P	P	P	X	P
	Estuarine	Southern rock sole	*Lepidopsetta bilineata*	*	*	*	X	*
	Estuarine	Starry flounder	*Platichthys stellatus*	P	P	P	X	P
	Estuarine	Curlfin sole	*Pleuronichthys decurrens*	P	P	P	X	P

Source, Brown 2002
* Data regarding the presence of these life stages within the Biological Study Area was not available.
** Leopard Sharks have internal fertilization and bear live young
P = Potential occurrence in the BSA (known historically from Elkhorn Slough, but current status within BSA not known).

Section 4.5 (Fish) above. In addition to the injury and mortality that may result from pile driving, pile driving will likely make the channel bottom in the vicinity of the bridge unsuitable for groundfish during the limited pile driving operations. This will be a temporary loss of habitat, and no permanent effects will occur to the habitat except for a minimal loss of channel bottom where the 36-inch, cast-in-steel-shell concrete piles will be placed (approximately 127 square feet).

Placement of rock shore protection will result in a minor loss of open water habitat for fish by extending the present rocky substrate further into the harbor/slough. Placement of rock shore protection will result in the loss of approximately 0.273 acres of existing rocky shore habitat for fish, but the new rock shore protection will provide a similar habitat.

4.6.4. Compensatory Mitigation

No compensatory mitigation is proposed.

4.6.5. Cumulative Effects

The proposed project will increase the ambient noise level in the vicinity of the Elkhorn Slough Bridge during construction which may affect fish habitat designated as EFH. If construction occurs concurrent with other harbor redevelopment activities, noise levels could be elevated well above ambient levels. Since the redevelopment activities have been completed (construction of the boat ramp, public wharf, and floating dock), no other projects are expected to occur in the vicinity of the Elkhorn Slough Bridge that would add to the noise levels in the slough during bridge construction. The placement of rock shore protection will not contribute to cumulative effects because it is essentially replacing existing similar habitat.

4.7. Wildlife Movement

Wildlife species require large areas of habitat to forage for food, find burrowing/dinning or nesting sites, and for breeding. Corridors linking areas of suitable habitat are important because they provide useful habitat and allow movement of wildlife from one area to another. Corridors are often used by juveniles dispersing to new territories. This avoids intraspecific competition in existing habitats and allows the recolonization of areas from which animals have become extirpated. Wildlife movement and habitat fragmentation are greatly affected by roads.

4.7.1. Project Effects

The detrimental effects of SR-1 have long been in place. The trail project, which will parallel the highway on its western edge, will not result in any permanent effect on wildlife movement or result in further fragmentation of habitat.

4.7.2. Avoidance and Minimization Measures

Limiting construction work to daylight hours (0800 hours to 1700 hours) will help to minimize disturbance to wildlife movement.

4.8. Ordinance Trees

Approximately 236 mature blue-gum eucalyptus and Monterey cypress greater than 12-inches in diameter have been identified in the BSA. Of this 236 trees, 26 eucalyptus and 6 Monterey cypress are greater than 24 inches dbh and are proposed for removal. These trees are clustered primarily in the central and southern portion of the BSA. These mature trees appear to have been planted at nearly the same time. In general, a vegetative understory was absent beneath the canopy of the trees, due to allelopathic chemicals released by eucalyptus and dense shade under the cypress.

4.8.1. Survey Results

All trees within near proximity of the proposed trail within the BSA were mapped in the field using GPS. An estimate of trees necessary for removal to accommodate the trail was made based on proximity of each tree to the proposed alignment. Of the 236 trees within the BSA, 51 trees (35 eucalyptus and 16 cypress) cannot be avoided. Of those trees that cannot be avoided, 26 eucalyptus and 6 cypress have a diameter greater than 24 inches.

4.8.2. Avoidance and Minimization Efforts

Protection measures will be implemented to ensure that the trees that need not be removed are not harmed during construction. Measures to minimize root and trunk damage to trees that are to be retained will include placement and maintenance of orange construction fencing as far from the trunk as possible. Where possible, a protective buffer will be placed no less than 20-feet from the drip line of the canopy. Grading, deposition of soil, or irrigation will be minimized within the tree protection zone.

It would be the County’s responsibility to hire an arborist to conduct on-site monitoring services during construction activities. Monitoring during construction

would help to ensure that protection measures are in place (the fencing remains intact) and that trees to be retained are not damaged during construction.

4.8.3. Project Effects

Implementation of the proposed project would result in a maximum removal of 51 mature trees (35 eucalyptus and 16 Monterey cypress). Monitoring by the arborist after project construction will determine the ultimate number of trees removed or damaged from the project. The remaining 185 mature eucalyptus and cypress trees identified within the BSA will be retained. Per North County Policy #15 of the North County Area Plan, removal of eucalyptus trees (that are not overwintering sites for monarch butterflies) and conversion to native habitat is encouraged as part of overall restoration efforts. The eucalyptus trees within the BSA are not overwintering sites for monarchs. Therefore, removal of the 35 eucalyptus as proposed will result in a beneficial effect from the project.

4.8.4. Compensatory Mitigation

Of the 51 trees to be removed for this project, 20 landmark eucalyptus trees (36 inches or greater when measured at breast height) and 6 landmark Monterey cypress (24 inches or greater when measured at breast height) will be removed. Because all trees to be removed will be within the public right-of-way prior to the start of construction, and because there is no feasible alternative to the proposed alignment, the County will seek an exemption from the requirements for a Coastal Development Permit for this segment of the trail. No compensatory mitigation is therefore proposed.

4.8.5. Cumulative Effects

Cumulative effects from the project will be minimal, given the large expanse of native forested habitats protected by various land trusts in the vicinity of Moss Landing (Figure 3).

Chapter 5. Results: Permits and Technical Studies for Special Laws or Conditions

5.1. Federal Endangered Species Act Consultation Summary

Under provisions of Section 7(a)(2) of the FESA, a federal agency (i.e., USACE) that permits, licenses, funds, or otherwise authorizes a project activity must consult with the USFWS to ensure that its actions would not jeopardize the continued existence of any listed species or destroy or adversely modify critical habitat. This NES provides details on the proposed project's effects to federally listed plant and wildlife species. On behalf of the FHWA, Caltrans will initiate a formal Section 7 consultation with the USFWS to provide authorization for the project to proceed. It is anticipated that a "may effect, but not likely to adversely affect" determination will be made with respect to the federally listed southern sea otter. Avoidance and minimization measures as proposed will prevent any effect from occurring. A Section 7 Biological Assessment will likely be required of the County in order for Caltrans to initiate the consultation.

5.2. Federal Fisheries and Essential Fish Habitat Consultation Summary

On behalf of the FHWA, Caltrans will initiate formal consultation with the NMFS regarding potential effects to EFH and green sturgeon. Avoidance and minimization measures as proposed will serve to mitigate for effects to EFH and green sturgeon. It is anticipated that "a may affect, but not likely to adversely affect" determination will be made with respect to EFH and green sturgeon. In addition, the NES, a Section 7 Biological Assessment may be required of the applicant in order for Caltrans to initiate the consultation.

5.3. California Endangered Species Act Consultation Summary

CESA protects plant and animal species listed as rare, threatened, or endangered. The CDFW authorizes take of endangered, threatened, or candidate species through the provisions of Sections 2081 and 2080.1 of the California Fish and Game Code. No coordination with CDFW regarding effects to species protected under CESA is required.

5.4. Wetlands and Other Waters Coordination Summary

The findings and conclusions of the location and extent of wetlands and other waters subject to regulatory jurisdiction (or lack thereof) represent the professional opinion of LSA. These findings and conclusions are typically considered preliminary until verified by the USACE and RWQCB, per Section 10 of the Rivers and Harbors Act and Sections 404 and 401 of the Clean Water Act, respectively. Development and implementation of a HMMP acceptable to the agencies is warranted to compensate for impacts to jurisdictional waters.

5.4.1. USACE Jurisdiction

As described in the Jurisdictional Delineation Report (Appendix B1), Elkhorn Slough and Moss Landing Harbor are navigable waters. Furthermore, the estuary is considered relatively permanent waters. All relatively permanent waters are considered jurisdictional, and no significant nexus determination is required.

A total of 0.273-acre of USACE jurisdictional waters would be permanently affected by project activities. Approximately 0.106-acre of temporary effects to USACE jurisdictional areas are expected. Furthermore, approximately 0.11-acre of permanent indirect effects to jurisdictional waters could result from the project from shading related to the proposed bridge. Beneficial impacts would result from protection of the shoreline and from shading.

5.4.2. CDFW Jurisdiction

None of the areas to be affected within the BSA are rivers, lakes, streams, or their associated estuarine habitat. All potential wetlands that will be affected are associated with Moss Landing Harbor or Elkhorn Slough, a coastal salt marsh system. Salt marshes are typically not regulated under the Fish and Game Code. Thus, there are no potential CDFW jurisdictional areas within the BSA.

5.4.3. RWQCB Jurisdiction

RWQCB jurisdiction correlates with wetland areas under the jurisdiction of the USACE. A Section 401 Water Quality Certification will be required in concordance with the Section 404 permit from the USACE.

5.4.4. CCC Jurisdiction

Potential for CCC jurisdiction exists due to the BSA's location within the Coastal Zone. Therefore, all of the areas satisfying the USACE jurisdictional criteria for waters and wetlands of the United States, as described above, are also subject to CCC

jurisdiction as wetlands pursuant to the CCA (see Section 5.4.1 above). Because CCC employs a one-parameter approach to delineating jurisdictional wetlands, CCC wetlands usually tend to be more inclusive and extensive. LSA biologists delineated potential CCC jurisdictional wetlands using this one-parameter approach. As a result, CCC wetland jurisdiction was mapped where wetland vegetation extended beyond the limit of the highest high water mark. There were no hydric soils that extended beyond the limit of the highest high water. CCC jurisdictional areas correlate with USACE jurisdictional areas, with the addition of the upland drainage which likely would be jurisdictional by the CCC and CDFW only. Refer to Appendix B1 for the extent of potential CCC wetland jurisdiction.

5.4.5. Executive Order 11990 (EO 11990) Protection of Wetlands

Projects requiring federal funds or must comply with Executive Order 11990 which stipulates that such projects will be designed to minimize wetland impacts and impacts on wetlands must be identified in the environmental document. This project is in compliance with Executive Order 11990.

5.5. Invasive Species

Executive Order 13112 Invasive Species, was established on February 3, 1999 to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.

Assembly Bill (AB) 740, approved on October 10, 2007, expands the marine species invasive species program and would require the removal and disposal of “hull fouling” organisms occurs on a regular basis (a period that does not exceed five years). “Hull fouling” has been defined as the attachment of association of marine organisms to the submerged portions of a vessel or it appurtenances, including, but not limited to, sea chests, propellers, anchors and associated chains. Cleaning is required using the best available technologies that are economically achievable and designed to minimize the release of coating and biological materials into the surrounding waters. AB 740 requires the State Lands Commission, in consultation with the U.S. Coast Guard, to develop and adopt regulations governing the management of hull fouling on vessels arriving at a California port or place. As of November 2012, the State Lands Commission has yet to adopt regulations for hull fouling on vessels arriving at a California port or place.

5.5.1. Terrestrial Exotic Species

Exotic plant species exist within the nonnative plant communities throughout the BSA, within patches of native plant communities, and in areas that have been disturbed by human uses. Exotic species are typically more numerous adjacent to roads and developed areas and frequently border the ornamental landscape. In the past, these areas likely supported native dune mat, dune scrub, grasslands, and estuarine habitats. Consequently, scattered plant species associated with these plant communities are often found in these areas.

A total of 22 nonnative plant species occurring on the Cal-IPC California Invasive Plant Inventory were identified in terrestrial habitats of the BSA. These observations should not be considered all-inclusive. Of these species, there are three (3) with an overall high rating, twelve (12) with a moderate rating, and seven (7) with a limited rating. Invasive species that have severe ecological effects are given a high rating. Species with a high rating identified within the BSA are: hottentot fig, yellow star-thistle, and pampas grass. Measures will be implemented to properly dispose of removed vegetative materials from these species during construction.

5.5.2. Aquatic Invasive Species

Over 80 nonnative species have been documented in Elkhorn Slough's estuarine habitats. The majority of nonnative aquatic invaders in Elkhorn Slough are invertebrates, although algal, vascular plant, and fish invaders are commonly found in Elkhorn Slough estuarine habitats as well. Some of the most commonly found nonnative species in Elkhorn Slough include the European green crab (*Carcinus maenas*) and the Japanese mud snail (*Batillaria attramentaria*) (Wasson et al. 2001). Local extinction of native competitors and prey organisms, alteration of community composition and food chains, introduction of parasites and diseases into the aquatic ecosystem, changes in physical habitat structure, and alteration of the flow of energy and materials through whole ecosystems have resulted from marine and estuarine invasions.

A list of two dozen least wanted aquatic invaders for Elkhorn Slough and the Monterey Bay Area has been generated as part of the early detection program sponsored by ESNERR, Monterey Bay National Marine Sanctuary, and the California Sea Grant Program. These species are not yet known to be present in the Monterey Bay region (including Elkhorn Slough), but have successfully invaded other coastal regions. Invasive species included on the list are caulerpa (*Caulerpa taxifolia*), wakame (*Undaria pinnatifida*), smooth cordgrass (*Spartina alterniflora*), black sea

Jellyfish (*Maeotias inexspectata*), spotted jellyfish (*Phyllorhiza punctata*), striped barnacle (*Balanus amphitrite*), red swamp crayfish (*Procambarus clarkii*), American lobster (*Homarus americanus*), Chinese mitten crab (*Eriocheir sinensis*), Harris mud crab (*Rhithropanopeus harrisii*), Eastern mud snail (*Ilyanassa obsoleta*), channeled whelk (*Busycotypus canaliculatus*), veined rapa whelk (*Rapana venosa*), Atlantic ribbed mussel (*Ischadium demissum*), green mussel (*Perna spp.*), Northern quahog (*Mercenaria mercenaria*), false angelwing (*Petricolaria pholadiformis*), winged oyster (*Pteria sterna*), Asian clam (*Potamocorbula amurensis*), Northern Pacific seastar (*Asterias amurensis*), spaghetti bryozoan (*Zoobotryon verticillatum*), Mediterranean fan worm (*Sabella spallanzanii*), chameleon goby (*Tridentiger trigonocephalus*), and diamondback terrapin (*Malaclemys terrapin*) (ESTWPT, 2007).

Measures will be implemented to ensure that no new invasive aquatic species are accidentally introduced into Elkhorn Slough by the barges during transport, in the ballast tanks and through hull fouling. The barges will most likely need to be transferred to Elkhorn Slough from the San Francisco Bay, which is known to be one of the most infested estuaries worldwide and to harbor populations of 165 species of exotic organisms (Cohen and Carlton, 1998).

Procedures to prevent infestation (including emptying of ballast tanks en route and inspection and cleaning of the hull) have been recommended by NOAA (D. Whalen, personal communication, February 4, 2010). Many exotic aquatic species that are dispersed by vessels are known to be transported in the ballast tanks. Ballast tanks will be emptied outside the boundaries of the national marine sanctuary in the Pacific Ocean or in the pumpout station located at Pillar Point Marina in Half Moon Bay prior to entrance into Monterey Bay. The ballast tanks will be flushed with freshwater. Freshwater will be held in the tanks for at least two days and maintained in the ballast during the length of the project, if possible. Furthermore, raw water cooling systems will be flushed and sea strainers cleaned appropriately prior to moving the barges into Elkhorn Slough.

Furthermore, a large number of aquatic invaders are transported via “hull fouling”, as described in Section 2.1.9. Prior to departure from San Francisco Bay, the hull will be inspected for non-native invasive species above and below water-line by divers. If a species is found that closely resembles one of the least wanted invaders, an expert will be consulted to determine correct identification. If determined to be an invasive non-native species, a report will be filed with the ESNERR at (831) 728-2822. Should

the expert be unavailable, the material will be removed by hand and disposed of properly in garbage receptacles on land. The barges will be transported to Elkhorn Slough within 3 days of completing removal of invasives in order to prevent inoculation. Upon arrival to Elkhorn Slough, the hull will be inspected again.

Other methods of preventing infestations during transport into Elkhorn Slough are being considered. For example, assembly and disassembly on land prior to placement in the Slough would have the advantage of ensuring a clean hull. However, this option may not be feasible from an engineering standpoint due to the large size of the equipment necessary for the pile driving activities.

Exotic species will be prevented from entering Elkhorn Slough using methods and procedures that are feasible for the project. The specific methods and procedures will be negotiated with the appropriate agencies prior to temporary transport of the barges into Elkhorn Slough.

5.6. Migratory Bird Treaty Act and California Fish and Game Code (Breeding Birds)

Even though no special status bird species are expected to nest in the BSA, several native species such as the Anna's hummingbird, black phoebe, California towhee, song sparrow, and house finch could nest in the area. Disturbance of the active nests during the nesting season (February 22 to August 21) could result in "take", which is prohibited under the MBTA and the California Fish and Game Code.

Clearing of vegetation for the proposed trail could affect species nesting in the vegetation in the BSA. If project construction is to begin during the nesting season (February 22 to August 21), all suitable nesting habitat within 50-feet of the limits of work will be surveyed by a qualified biologist no more than 3 days prior to ground disturbing activities. If an active nest is found, a qualified biologist in conjunction with the USFWS/CDFW will determine the appropriate buffer size and delineate the buffer using environmental sensitive area fencing, pin flags, or orange construction fencing. During construction, the qualified biologist will conduct regular monitoring (at CDFW approved intervals) to evaluate the nest for potential disturbances associated with construction activities. Construction within the buffer is prohibited until the qualified biologist determines that the nest is no longer active. If an active nest is found after completion of the pre-construction surveys and after construction begins, all construction activities will stop until a qualified biologist has evaluated the nest and erected the appropriate buffer around the nest. If establishment of the buffer

is not feasible, USFWS/CDFW will be contacted for further avoidance and minimization guidelines.

Construction beginning during the non-nesting season and continuing into the nesting season shall not be subject to these measures. It is recommended that vegetation be removed outside of the breeding season (before February 21 or after the August 22). This will discourage birds from nesting in construction areas and would greatly reduce the potential for nesting birds to delay the construction schedule.

5.7. Marine Mammal Protection Act

Marine mammals identified within the BSA include southern sea otter, harbor seal, and California sea lion. Although it is anticipated that marine mammals will avoid the project area during construction, a Marine Mammal Protection Plan will be prepared for the project that will ensure that no marine mammals are harmed from the project. The plan will include establishment of a marine mammal impact zone, a marine mammal buffer/safety zone, "soft start" practice prior to the onset of pile driving activities, limit of work to the daylight hours (0800 hours to 1700 hours), biological monitoring during construction.

5.8. Tree Ordinance

Eucalyptus and Monterey cypress trees that are defined as landmark trees and which are located within the coastal zone are protected by the Monterey County Coastal Implementation Plan, Part 2, Regulations for Development in the North County Land Use Plan Area (Chapter 20.144)). Chapter 20.144 states that a Coastal Development Permit must be obtained for the removal of trees and other major vegetation, but provides for specific exceptions. Chapter 20.144.050 C.1. provides the following exception from a Coastal Development Permit requirement for removing native and non-native landmark trees within the coastal zone:

> *An exception may be granted by the decision-making body for removal of a tree that is 24 inches or greater in diameter (measured at breast height) and not also visually or historically significant, exemplary of its species or more than 1000 years old. To grant the exception, the decision-making body must find that no alternatives to development (such as resiting, relocation, or reduction in development area) exists whereby the tree removal can be avoided or that the tree removal is*

for the purpose of maintaining existing agricultural operations where not resulting in the enlargement of those operations.

An exception may be granted by the decision-making body for removal of a landmark tree within the public right-of-way or area to be purchased for the public right-of-way where no feasible and prudent alternatives to such removal are available, subject to obtaining a coastal development permit.

Implementation of the proposed project would require removal of a maximum of 20 landmark eucalyptus trees (36 inches or greater when measured at breast height) and 6 landmark Monterey cypress (24 inches or greater when measured at breast height) within the coastal zone. The trees proposed for removal are not visually or historically significant as determined in the Visual Impact Assessment and Historic Property Survey Report of the IS/MND. A majority of the trees to be removed are currently within the public right of way and the County will acquire public easements across all private land prior to construction of the proposed project. Therefore, prior to project construction, all trees proposed for removal would be within the public right of way. The other condition for an exemption for obtaining a CDP for removal of landmark trees relates to feasible alternatives. There are currently no feasible alternatives to the proposed bicycle/pedestrian trail alignment because of existing physical and natural resource constraints. The proposed project is located within a narrow corridor between the Moss Landing Harbor and SR-1, which includes buildings and structures associated with the Moss Landing Power Plant and highly sensitive cultural and biological resources. The proposed project alignment was the outgrowth of an extensive constraints analysis that sought to avoid sensitive cultural and biological resources while adhering to the security requirements of the existing Moss Landing Power Plant. Based on these factors, the County will seek and exemption from the requirements of a CDP for the removal of trees associated with this project.

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Appendix A U.S. Fish and Wildlife Service Regional Species Lists

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A.1 August 2009 U.S. Fish and Wildlife Species List

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
81440-2009-SL-0470

August 31, 2009

Eric Lichtwardt, Senior Biologist
LSA Associates, Inc.
157 Park Place
Point Richmond, California 94801

Subject: Species List for Monterey Bay Scenic Trail, Moss Landing, Monterey County, California

Dear Mr. Lichtwardt:

This letter is in response to your request, dated and received by us on July 27, 2009, for a list of endangered, threatened, and other special status species that may occur in the vicinity of the Moss Landing U.S. Geological Survey 7.5-minute Quadrangle, Monterey County, California. The list was requested for the Monterey Bay Scenic Trail project in the vicinity of Moss Landing.

The U.S. Fish and Wildlife Service's (Service) responsibilities include administering the Endangered Species Act of 1973, as amended (Act), including sections 7, 9, and 10. Section 9 of the Act prohibits the taking of any federally listed endangered or threatened species. Section 3(18) of the Act defines take to mean to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Service regulations (50 CFR 17.3) define harm to include significant habitat modification or degradation which actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harassment is defined by the Service as an intentional or negligent action that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. The Act provides for civil and criminal penalties for the unlawful taking of listed species.

Exemptions to the prohibitions against take may be obtained through coordination with the Service in two ways. If the subject project is to be funded, authorized, or carried out by a Federal agency and may affect a listed species, the Federal agency must consult with the Service, pursuant to section 7(a)(2) of the Act. If a proposed project does not involve a Federal agency but may result in take of a listed animal species, the project proponent should apply for an incidental take permit, pursuant to section 10(a)(1)(B) of the Act. Once you have determined if the proposed project will have a lead Federal agency, we can provide you with more detailed information regarding the section 7 or 10(a)(1)(B) permitting process.

We recommend that you review information in the California Department of Fish and Game's Natural Diversity Data Base. You can contact the California Department of Fish and Game at (916) 324-3812 for information on other sensitive species that may occur in this area.

If you have any questions, please call Douglass Cooper of my staff at (805) 644-1766, extension 272.

Sincerely,

David M. Pereksta
Assistant Field Supervisor

Enclosure

LISTED SPECIES AND CRITICAL HABITAT WHICH MAY OCCUR IN THE MOSS LANDING U.S.G.S. 7.5 – MINUTE QUADRANGLE, MONTEREY COUNTY, CALIFORNIA

Mammals		
Southern sea otter	*Enhydra lutris nereis*	T
Birds		
Brown pelican	*Pelecanus occidentalis*	E
California clapper rail	*Rallus longirostris obsoletus*	E
California least tern	*Sterna antillarum browni*	E
Western snowy plover	*Charadrius alexandrinus nivosus*	T, CH
Marbled murrelet	*Brachyramphus marmoratus marmoratus*	T
Amphibians		
California red-legged frog	*Rana aurora draytonii*	T, CH
Santa Cruz long-toed salamander	*Ambystoma macrodactylum croceum*	E
California tiger salamander	*Ambystoma californiense*	T
Fish		
Tidewater goby	*Eucyclogobius newberryi*	E
Steelhead trout	*Oncorhynchus mykiss*	*
Invertebrates		
Smith's blue butterfly	*Euphilotes enoptes smithi*	E
Plants		
Monterey spineflower	*Chorizanthe pungens* var. *pungens*	T, CH
Robust spineflower	*Chorizanthe robusta* var. *robusta*	E, CH
Menzies' wallflower	*Erysimum menziesii*	E
Monterey gilia	*Gilia tenuiflora* ssp. *arenaria*	E
Beach layia	*Layia carnosa*	E
Tidestrom's lupine	*Lupinus tidestromii*	E
Coastal dunes milk-vetch	*Astragalus tener* var. *titi*	E
Hickman's potentilla	*Potentilla hickmanii*	E
Santa Cruz tarplant	*Holocarpha macradenia*	T, CH

Key:
E – Endangered T - Threatened CH - Critical habitat
* Species for which the National Marine Fisheries Service has responsibility. For more information, call the Santa Rosa Field Office at (707) 575-6050 or go to http://swr/ucsd.edu

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A.2 January 2014 U.S. Fish and Wildlife Species List

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
VENTURA FISH AND WILDLIFE OFFICE
2493 PORTOLA ROAD, SUITE B
VENTURA, CA 93003
PHONE: (805)644-1766 FAX: (805)644-3958

Consultation Tracking Number: 08EVEN00-2014-SLI-0094 January 02, 2014
Project Name: Monterey Bay Sanctuary Scenic Trail

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

The enclosed list identifies species listed as threatened and endangered, species proposed for listing as threatened or endangered, designated and proposed critical habitat, and species that are candidates for listing that may occur within the boundary of the area you have indicated using the U.S. Fish and Wildlife Service's (Service) Information Planning and Conservation System (IPaC). The species list fulfills the requirements under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the species list should be verified after 90 days. We recommend that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists following the same process you used to receive the enclosed list. Please include the Consultation Tracking Number in the header of this letter with any correspondence about the species list.

Due to staff shortages and excessive workload, we are unable to provide an official list more specific to your area. Numerous other sources of information are available for you to narrow the list to the habitats and conditions of the site in which you are interested. For example, we recommend conducting a biological site assessment or surveys for plants and animals that could help refine the list.

If a Federal agency is involved in the project, that agency has the responsibility to review its proposed activities and determine whether any listed species may be affected. If the project is a major construction project*, the Federal agency has the responsibility to prepare a biological assessment to make a determination of the effects of the action on the listed species or critical habitat. If the Federal agency determines that a listed species or critical habitat is likely to be adversely affected, it should request, in writing through our office, formal consultation pursuant to section 7 of the Act. Informal consultation may be used to exchange information and resolve conflicts with respect to threatened or endangered species or their critical habitat prior to a

written request for formal consultation. During this review process, the Federal agency may engage in planning efforts but may not make any irreversible commitment of resources. Such a commitment could constitute a violation of section 7(d) of the Act.

Federal agencies are required to confer with the Service, pursuant to section 7(a)(4) of the Act, when an agency action is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat (50 CFR 402.10(a)). A request for formal conference must be in writing and should include the same information that would be provided for a request for formal consultation. Conferences can also include discussions between the Service and the Federal agency to identify and resolve potential conflicts between an action and proposed species or proposed critical habitat early in the decision-making process. The Service recommends ways to minimize or avoid adverse effects of the action. These recommendations are advisory because the jeopardy prohibition of section 7(a)(2) of the Act does not apply until the species is listed or the proposed critical habitat is designated. The conference process fulfills the need to inform Federal agencies of possible steps that an agency might take at an early stage to adjust its actions to avoid jeopardizing a proposed species.

When a proposed species or proposed critical habitat may be affected by an action, the lead Federal agency may elect to enter into formal conference with the Service even if the action is not likely to jeopardize or result in the destruction or adverse modification of proposed critical habitat. If the proposed species is listed or the proposed critical habitat is designated after completion of the conference, the Federal agency may ask the Service, in writing, to confirm the conference as a formal consultation. If the Service reviews the proposed action and finds that no significant changes in the action as planned or in the information used during the conference have occurred, the Service will confirm the conference as a formal consultation on the project and no further section 7 consultation will be necessary. Use of the formal conference process in this manner can prevent delays in the event the proposed species is listed or the proposed critical habitat is designated during project development or implementation.

Candidate species are those species presently under review by the Service for consideration for Federal listing. Candidate species should be considered in the planning process because they may become listed or proposed for listing prior to project completion. Preparation of a biological assessment, as described in section 7(c) of the Act, is not required for candidate species. If early evaluation of your project indicates that it is likely to affect a candidate species, you may wish to request technical assistance from this office.

Only listed species receive protection under the Act. However, sensitive species should be considered in the planning process in the event they become listed or proposed for listing prior to project completion. We recommend that you review information in the California Department of Fish and Wildlife's Natural Diversity Data Base. You can contact the California Department of Fish and Wildlife at (916) 324-3812 for information on other sensitive species that may occur in this area.

[*A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.]

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: Monterey Bay Sanctuary Scenic Trail

Official Species List

Provided by:

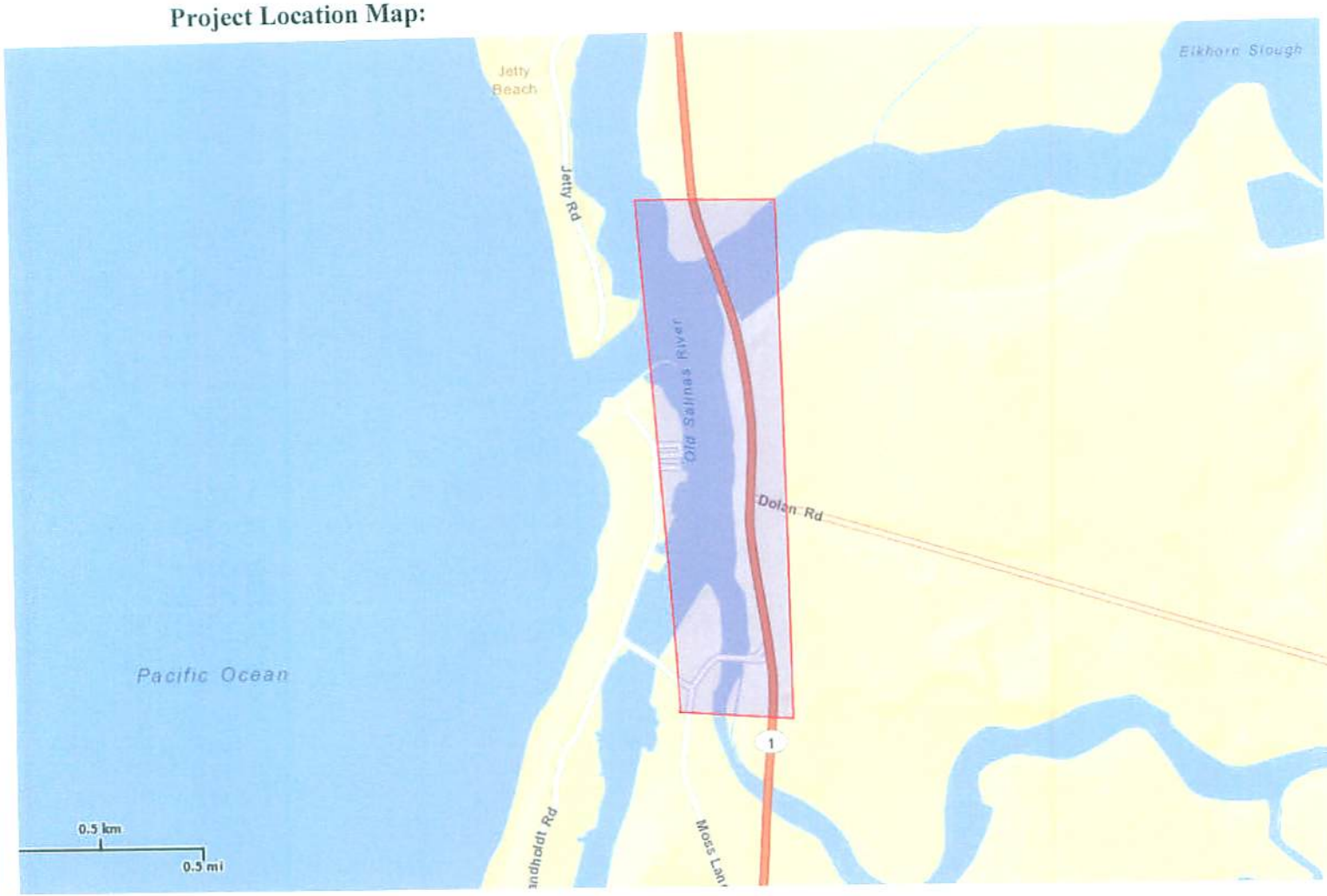
VENTURA FISH AND WILDLIFE OFFICE
2493 PORTOLA ROAD, SUITE B
VENTURA, CA 93003
(805) 644-1766

Consultation Tracking Number: 08EVEN00-2014-SLI-0094
Project Type: Bridge Construction / Maintenance
Project Description: Construction of a bike/pedestrian trail including a bridge over Elk Horn Slough

United States Department of Interior
Fish and Wildlife Service

Project name: Monterey Bay Sanctuary Scenic Trail

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-121.7874747 36.8119889, -121.7827541 36.8119201, -121.7824923 36.7982409, -121.7863589 36.7984505, -121.7862688 36.7984471, -121.7874747 36.8119889)))

Project Counties: Monterey, CA

Endangered Species Act Species List

There are a total of 16 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed on the **Has Critical Habitat** lines may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

California Clapper rail *(Rallus longirostris obsoletus)*

Population: Entire

Listing Status: Endangered

California Least tern *(Sterna antillarum browni)*

Listing Status: Endangered

California red-legged frog *(Rana draytonii)*

Population: Entire

Listing Status: Threatened

Has Critical Habitat: Final designated

California Tiger Salamander *(Ambystoma californiense)*

Population: U.S.A. (Central CA DPS)

Listing Status: Threatened

Has Critical Habitat: Final designated

Least Bell's vireo *(Vireo bellii pusillus)*

Population: Entire

Listing Status: Endangered

Has Critical Habitat: Final designated

Marbled murrelet *(Brachyramphus marmoratus)*

Population: CA, OR, WA

Listing Status: Threatened

Has Critical Habitat: Final designated

Marsh Sandwort *(Arenaria paludicola)*

Listing Status: Endangered

Menzies' wallflower *(Erysimum menziesii)*

Listing Status: Endangered

Monterey gilia *(Gilia tenuiflora ssp. arenaria)*

Listing Status: Endangered

Monterey spineflower *(Chorizanthe pungens var. pungens)*

Listing Status: Threatened

Has Critical Habitat: Final designated

Santa Cruz Long-Toed salamander *(Ambystoma macrodactylum croceum)*

Population: Entire

Listing Status: Endangered

Santa Cruz tarplant *(Holocarpha macradenia)*

Listing Status: Threatened

Has Critical Habitat: Final designated

Southern Sea otter *(Enhydra lutris nereis)*

Listing Status: Threatened

Southwestern Willow flycatcher *(Empidonax traillii extimus)*

Population: Entire

Listing Status: Endangered

Has Critical Habitat: Final designated

Vernal Pool fairy shrimp *(Branchinecta lynchi)*

Population: Entire

Listing Status: Threatened

Has Critical Habitat: Final designated

western snowy plover *(Charadrius nivosus ssp. nivosus)*

Population: Pacific coastal pop.

Listing Status: Threatened

Has Critical Habitat: Final designated

Critical habitats that lie within your project area

There are no critical habitats within your project area.

Appendix B Jurisdictional Delineation and Memo Update

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JURISDICTIONAL DELINEATION REPORT

MONTEREY BAY SANCTUARY SCENIC TRAIL – MOSS LANDING

MONTEREY COUNTY, CALIFORNIA

Bicycle/Pedestrian Path & Bridge Project

Elkhorn Slough Crossing at Moss Landing

LSA

May 2009
Revised July 2010

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C: FIGURES OF JURISDICTIONAL WATERS
D: PLANT SPECIES IDENTIFIED IN THE BIOLOGICAL STUDY AREA
E: SELECTED PHOTOGRAPHS OF POTENTIAL JURISDICTIONAL AREAS IN THE BIOLOGICAL STUDY AREA

1.0 INTRODUCTION

This report presents the results of a delineation by LSA Associates, Inc. (LSA) of potential wetlands and waters subject to the jurisdiction of the United States and the State of California within the biological study area for the Moss Landing segment of the Monterey Bay Sanctuary Scenic Trail, Monterey County (County), California (Figure 1). This report addresses the requirements of the federal Clean Water Act (CWA), the State Regional Water Quality Control Board, the California Fish and Game Code, and the California Coastal Act. This report has been prepared for use by the United States Army USACE of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), the California Department of Fish and Game (CDFG), and the California Coastal Commission (CCC) as part of their review of applications for permit authorization.

This routine wetland and jurisdictional delineation was prepared for the Department of Public Works, Monterey County, with Wood Rodgers and LSA acting as County agents for this project. The findings and conclusions presented in this report, including the location and extent of wetlands and other waters subject to regulatory jurisdiction, represent the professional opinion of LSA and should be considered preliminary until verified by representatives of the USACE, RWQCB, CDFG, and CCC.

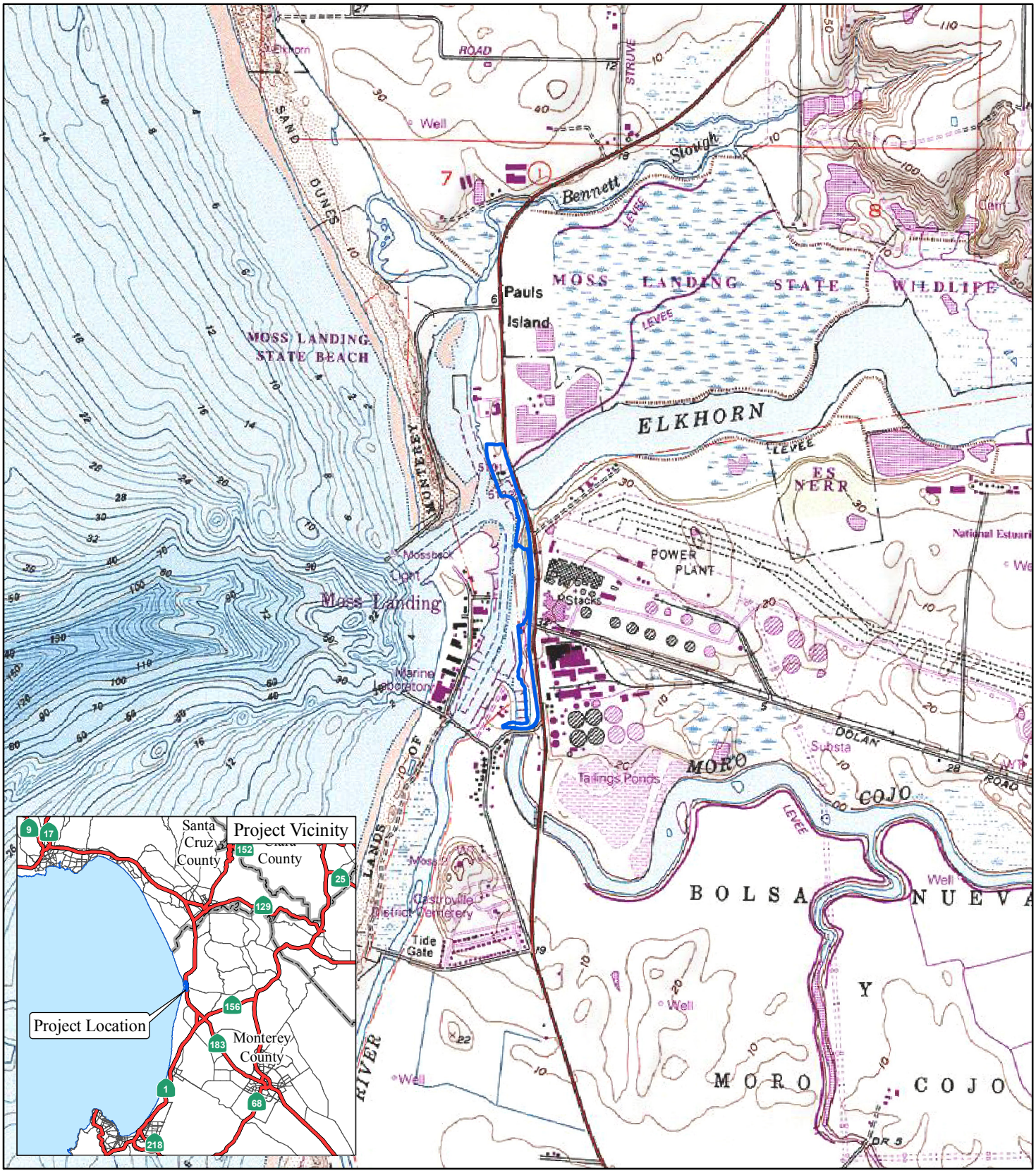
1.1 PROPOSED PROJECT

The Monterey Bay Sanctuary Scenic Trail (MBSST) is a collaborative effort between public agencies, non-profit organizations, and the public to construct a trail that would allow people to bicycle around Monterey Bay from Lovers Point in Pacific Grove to Wilder Ranch in Santa Cruz. The primary purpose of the Trail is to enhance appreciation and protection of the Monterey Bay National Marine Sanctuary by promoting public use and enjoyment at its shoreline.

The proposed project is located in Moss Landing in northwestern Monterey County. The proposed project consists of the construction of 0.85 mile (4,508 linear feet) portion of the Trail through the Moss Landing area, between Moss Landing Road on the south and the existing section of trail at 300 feet north of the north shoreline of Elkhorn Slough. The proposed trail will cross Elkhorn Slough near the northern extent of the proposed project and parallel Moss Landing Harbor along Moss Landing Road at the southern extent of the proposed project. Stabilization of the shoreline along portions of the trail alignment will be implemented as part of the project.

1.2 SITE DESCRIPTION

Elkhorn Slough, located 100 miles south of California's largest estuary, San Francisco Bay, is a full time slough, but only a part-time estuary. Unlike San Francisco Bay, which drains the Sacramento and San Joaquin Rivers, the slough has no year-round freshwater flow. The seasonal inflow from Carneros Creek dries up completely sometime in the spring depending on rainfall. The summer sun



LSA

FIGURE 1

LEGEND

Biological Study Area (BSA)

N

0 1000 2000

FEET

Jurisdictional Delineation
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Project Location

SOURCE: USGS 7.5' QUAD, MOSS LANDING, CA (1994)

I:\WRS0803\GIS\Project_Location_JD.mxd (7/12/2010)

evaporates the still backwaters of the slough, resulting in salt concentrations greater than sea water. Because of its winter-only freshwater flow, Elkhorn Slough is called a "seasonal estuary". The main channel of Elkhorn Slough is 700 feet across and 25 deep at its mouth. It extends inland for seven miles, growing gradually narrower and shallower until it ends in a marshy expanse. The biological study area is located within the Elkhorn Slough Watershed. The watershed includes tributaries to Elkhorn Slough and Moro Cojo Slough, including Carneros and Watsonville Creeks. The watershed is composed of approximately 44,000 acres covering a wide variety of habitats including tidal salt marsh, mixed oak woodland, and intensively farmed strawberry fields.

The northern half of the biological study area is located at latitude 36°48'40.49"N, longitude 21°47'8.09"W, primarily in Section 7 of Township 13 South, and Range 2 East, on the United States Geological Survey (USGS) *Moss Landing, California* 7.5-minute series topographic quadrangle. The southern half of the biological study area is located at latitude 36.79930, longitude -121.785078, primarily in Section 18 of Township 13 South, and Range 2 East, on the USGS *Moss Landing, California* 7.5-minute series topographic quadrangle. The majority of the biological study area is relatively flat. The elevation varies between six and 34 feet (two and 10.5 meters) above mean sea level.

2.0 REGULATORY BACKGROUND

2.1 UNITED STATES ARMY CORPS OF ENGINEERS (USACE)

The USACE regulates discharges of dredged or fill material into waters of the United States. These waters include wetland and non-wetland bodies of water that meet specific criteria. USACE regulatory jurisdiction, pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 United States Code [U.S.C.] 403), regulates almost all work in, over, and under waters listed as "navigable waters of the U.S." USACE regulatory jurisdiction, pursuant to Section 404 of the CWA, is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct, through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce, or indirect, through a nexus identified in the USACE regulations. The following definition of waters of the United States is taken from the discussion provided at 33 Code of Federal Regulations (CFR) 328.3:

> "The term waters of the United States means:
>
> (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce . . . ;
>
> (2) All interstate waters including interstate wetlands;
>
> (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams) . . . the use, degradation or destruction of which could affect interstate or foreign commerce . . . ;
>
> (4) All impoundments of waters otherwise defined as waters of the United States under the definition; and
>
> (5) Tributaries of waters defined in paragraphs (a) (1)–(4) of this section."

The USACE typically considers jurisdiction as waters of the United States with respect to bodies of water displaying an ordinary high water mark (OHWM). USACE jurisdiction over nontidal waters of the United States extends laterally to the OHWM or beyond the OHWM to the limit of any adjacent wetlands, if present (33 CFR 328.4). The OHWM is defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area." (33 CFR 328.3) Jurisdiction typically extends upstream to the point where the OHWM is no longer perceptible. Under Section 404, USACE jurisdiction over tidal waters extends to the line on the shore reached by the highest high water.

Under Section 10, USACE jurisdiction over tidal waters of the United States extends from the ordinary low tide 3 nautical miles seaward. USACE jurisdiction shoreward extends to the line on the

shore reached by the mean high water. Jurisdiction extends to this point even though portions of the water body may be extremely shallow and are thus considered "navigable in law" although they may not be navigable in fact (33 CFR 329.12).

As discussed above, USACE regulatory jurisdiction under Section 404 of the CWA is founded on a connection between the water body in question and interstate commerce. This connection may be direct, through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce, or indirect, through a nexus identified in the USACE regulations. In the past, an indirect nexus could potentially be established if isolated waters provided habitat for migratory birds, even in the absence of a surface connection to a navigable water of the United States. The 1984 rule that enabled the USACE to expand jurisdiction over isolated waters of this type became known as the Migratory Bird Rule. However, on January 9, 2001, the United States Supreme Court narrowly limited the USACE jurisdiction of "nonnavigable, isolated, intrastate" waters based solely on the use of such waters by migratory birds, and particularly, the use of indirect indicators of interstate commerce (e.g., use by migratory birds that cross state lines) as a basis for jurisdiction. The court's ruling derives from the case Solid Waste Agency of Northern Cook County v. United States Army USACE of Engineers, No. 99-1178 (SWANCC). The Supreme Court determined that the USACE exceeded its statutory authority by asserting CWA jurisdiction over an abandoned sand and gravel pit in northern Illinois that provides habitat for migratory birds.

In 2006, the United States Supreme Court further considered the USACE jurisdiction of "waters of the United States" in the consolidated cases Rapanos v. United States and Carabell v. United States (126 S. Ct. 2208), collectively referred to as Rapanos. The Supreme Court concluded that wetlands are "waters of the United States" if they significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as navigable. On June 5, 2007, the USACE issued guidance regarding the Rapanos decision. This guidance states that the USACE will continue to assert jurisdiction over traditional navigable waters, wetlands adjacent to traditional navigable waters, relatively permanent nonnavigable tributaries that have a continuous flow at least seasonally (typically three months), and wetlands that directly abut relatively permanent tributaries. The USACE will determine jurisdiction over waters that are nonnavigable tributaries that are not relatively permanent and wetlands adjacent to nonnavigable tributaries that are not relatively permanent only after making a significant nexus finding.

Waters found to be isolated and not subject to USACE regulation are often still regulated by the Regional Water Quality Control Board (RWQCB) under the State Porter-Cologne Water Quality Control Act (Porter-Cologne Act).

Wetlands

Wetland delineations for Section 404 purposes must be conducted according to the Interim Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Arid West Region (Regional Supplement) (USACE 2008) and the USACE of Engineers 1987 Wetland Delineation Manual (1987 Manual) (Environmental Laboratory 1987). Where there are differences between the two documents, the Regional Supplement takes precedence over the 1987 Manual.

The USACE and Environmental Protection Agency (EPA) define wetlands as follows:

> "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions."

In order to be considered a jurisdictional wetland under Section 404, an area must possess three wetland characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology. Each characteristic has a specific set of mandatory wetland criteria that must be satisfied in order for that particular wetland characteristic to be met. Several parameters (indicators) may be analyzed to determine whether the criteria are satisfied.

Hydrophytic vegetation and hydric soils indicators provide evidence that episodes of inundation have lasted more than a few days or have occurred repeatedly over a period of years, but do not confirm that an episode has occurred recently. Conversely, wetland hydrology provides evidence that an episode of inundation or soil saturation occurred recently, but does not provide evidence that episodes lasted more than a few days or occurred repeatedly over a period of years. Because of this, if an area lacks one of the three characteristics under normal circumstances, the USACE considers these areas as non-wetland under most circumstances.

Hydrophytic Vegetation. Hydrophytic vegetation is plant life that grows and is typically adapted for life in permanently or periodically saturated soils. Hydrophytic indicator species are those included on the *National List of Plant Species That Occur in Wetlands: California (Region 0)* (Reed 1988). Each species on the list is rated according to a wetland indicator category, as shown below.

Category		Probability
Obligate Wetland	OBL	Almost always occur in wetlands (estimated probability > 99 percent)
Facultative Wetland	FACW	Usually occur in wetlands (estimated probability 67–99 percent)
Facultative	FAC	Equally likely to occur in wetlands and nonwetlands (estimated probability 34–66 percent)
Facultative Upland	FACU	Usually occur in nonwetlands (estimated probability 67–99 percent)
Obligate Upland	UPL	Almost always occur in nonwetlands (estimated probability > 99 percent)

To be considered hydrophytic, the species must have wetland indicator status (i.e., be rated as obligate [OBL], facultative wetland [FACW], or facultative [FAC]).

Hydric Soils.[1] Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.[2] Soils are considered likely to meet the definition of a hydric soil when one or more of the following criteria are met:

1. All Histels except Folistels and Histosols except Folists; or
2. Soils that are frequently ponded for long duration or very long duration[3] during the growing season; or
3. Soils that are frequently flooded for long duration or very long duration during the growing season.

The Regional Supplement has a number of field indicators that may be used to identify hydric soils. The Natural Resources Conservation Service (NRCS) (2003) has also developed a number of field indicators that may demonstrate the presence of hydric soils. These indicators persist during both wet and dry periods. Separate indicators have been developed for sandy soils and for loamy and clayey soils.

Wetland Hydrology. Under natural conditions, development of hydrophytic vegetation and hydric soils are dependent on a third characteristic: wetland hydrology. Areas with wetland hydrology are those where the presence of water has an overriding influence on vegetation and soil characteristics due to anaerobic and reducing conditions, respectively (Environmental Laboratory 1987). The wetland hydrology parameter is satisfied if the area is seasonally inundated or saturated to the surface for a minimum of 14 consecutive days during the growing season in most years (USACE 2008).

Hydrology is often the most difficult criterion to measure in the field due to seasonal and annual variations in water availability. Some of the indicators that are commonly used to identify wetland hydrology include visual observation of inundation or saturation, watermarks, recent sediment deposits, surface scour, and oxidized root channels (rhizospheres) resulting from prolonged anaerobic conditions.

2.2 CALIFORNIA DEPARTMENT OF FISH AND GAME

The CDFG, through provisions of the California Fish and Game Code (Section 1600 et seq.), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks and at least an intermittent flow of water. The CDFG regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by the CDFG.

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1 The hydric soil definition and criteria included in the 1987 Manual are obsolete. Users of the Manual are directed to the United States Department of Agriculture (USDA) Natural Resources Conservation Service Web site for the most current information on hydric soils.

2 Current definition as of 1994 (Federal Register [FR] July 13, 1994).

3 Long duration is defined as a single event ranging from 7 to 30 days; very long duration is defined as a single event that lasts longer than 30 days.

The CDFG generally includes within the jurisdictional limits of streams and lakes any riparian habitat present. Riparian habitat includes willows, mulefat, and other vegetation typically associated with the banks of a stream or lake shorelines.

2.2 CALIFORNIA COASTAL COMMISSION

The CCC, through provisions of the California Coastal Act, is empowered to issue a Coastal Development Permit (CDP) for many projects located within the Coastal Zone. In areas where a local entity has a certified Local Coastal Program (LCP), the local entity (e.g., County of Monterey) can issue a CDP only if it is consistent with the LCP. The CCC, however, retains appeal authority for portions of LCPs and retains "original jurisdiction" over developments which occur below the mean high tide (e.g., Elkhorn Slough).

The CCC's definition of wetlands, as defined in Section 30121 of the Coastal Act and Title 14 §13577 of the CCC's regulations, is distinctly different from the USACE definition of wetlands. According to the CCC's regulations, wetlands are defined as "land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes." Both definitions focus on three fundamental wetland characteristics: hydrology, soils, and vegetation. However, while the USACE definition requires the existence of all three wetland characteristics for an area to be considered a wetland, the CCC's definition of wetlands is based on the existence of only two characteristics, wetland hydrology and either: 1) a prevalence of hydrophytic vegetation or 2) the presence of hydric soils. The CCC routinely makes jurisdictional wetlands determinations based on the presence of one characteristic indicator (i.e., wetland soils or vegetation) under the assumption that wetland hydrology must be present in order for the indicator to be present.

2.3 REGIONAL WATER QUALITY CONTROL BOARD

The California RWQCB is responsible for the administration of Section 401 of the CWA. Typically, the areas subject to RWQCB jurisdiction coincide with those of the USACE (i.e., waters of the United States, including any wetlands). The RWQCB also asserts authority over waters of the State under waste discharge requirements pursuant to the Porter-Cologne Act.

3.0 METHODOLOGY

Delineation of wetlands and other waters potentially subject to regulation by the USACE, CDFG, and CCC was conducted by LSA biologist Wendy Fisher on January 19 and March 24, 2009. Data on vegetation, soils, and hydrology was collected during these visits. Field maps of the area to be surveyed were prepared using a 2006 aerial photograph base at a scale of 1 inch = 100 feet. The biological study area was surveyed on foot, and all areas of potential jurisdiction were evaluated according to USACE, CDFG, and CCC criteria. Data were recorded directly on the field maps.

Areas supporting hydrology or species of plant life potentially indicative of wetlands were evaluated according to routine wetland delineation procedures described in the Regional Supplement (USACE 2008). Representative sample points were selected and examined in the field in those areas where wetland jurisdiction was in question or needed to be confirmed. At each sample point, the dominant and subdominant plant species were identified and their wetland indicator status noted (Reed 1988).

A small sample pit (approximately 20 inches deep) was dug at each of the five sample points in order to examine soil characteristics and composition, when conditions allowed. Soil matrix colors were classified according to the Munsell Soil Color Charts (Munsell Color 2000). Hydrological conditions, including any surface inundation, saturated soils, groundwater levels, and/or other wetland hydrology indicators, were recorded. General site characteristics were also noted. Standard data forms were completed for each sample point; copies of these data forms are included in Appendix A of this report.

A verification visit was completed on July 15, 2009. Attendees include LSA Senior Biologist Wendy Fisher, County representative Steve Leiker, and USACE representatives Paula Gill and Christina Cavett. During the verification visit, USACE representatives requested that the limits of high tide and mean high water associated with Moss Landing Harbor and Elkhorn Slough be identified on the map of jurisdictional waters. The limits of high tide were mapped on August 7, 2009 using a Trimble GPS unit. The limits of mean high water were determined using *Digital Elevation Model of Monterey, California* (NOAA, 2009) and surveyed elevation data provided by the project engineer. This report has been revised based on comments from the USACE during the verification visit on July 15, 2009.

4.0 RESULTS

4.1 SOILS

Five soil series were identified in the biological study area, as described in Table A. (www.nrcs.usda.gov). Soils within the biological study area are mapped in Appendix B.

Table A: Description of Soils Located in the Biological Study Area (NRCS 2008).

Soil Series and Phase (Map Symbol)	Parent Material	Location of General Occurrence	Drainage	Hydric Soils Listing
Alviso silty clay loam (Ac)	Alluvium dominantly from sedimentary rocks.	Occurs on northern tip of the biological study area.	Very poorly drained; very slow runoff; slow permeability. Areas not diked are periodically flooded during high tides.	No
Elkhorn fine sandy loam, 5 to 9% slopes (EdC)	Alluvium from mixed rock sources.	Occurs in middle 1/3 of the biological study area.	Well drained; slow to rapid runoff; moderately slow permeability.	No
Oceano loamy sand, 2 to 15% slopes (OaD)	Weathered sandy eolian deposits.	Occurs on southern tip of the biological study area and along Moss Landing Road.	Excessively drained; very slow runoff; surface drainage pattern is very poorly developed; rapid permeability.	No
Santa Ynez fine sandy loam, 2 to 9% slopes (ShC)	Old alluvium from shale, sandstone and granite.	Occurs on southern 1/3 of the biological study area.	Moderately well drained; slow to rapid runoff; very slow permeability.	No
Xeror-thents, loamy (Xc)	Masses of loam, silty clay loam, clay material, rock fragments and unconsolidated materials.	Occurs on southern 1/3 of the biological study area.	Well drained; moderate to rapid runoff; moderately slow permeability.	No

The Alviso Series is distributed around San Francisco Bay and other tidal flats of California. The Alviso Series includes silty clay loam, silty clay, and very fine sand. This series consists of shallow and very poorly drained soils that formed from alluvium dominantly from sedimentary rocks. Alviso soils are most commonly used for recreation and very limited grazing due to the slow permeability and very slow runoff characteristics. The mean annual soil temperature is approximately 57 degrees F. The soil is neutral to slightly acid. Vegetation common to the Alviso Series includes pickleweed, inkweed, saltgrass, and other salt-tolerant plants.

The Elkhorn Series is distributed on marine terraces along the coast of Monterey County in California. The Elkhorn Series includes fine sandy loam and sandy clay loam. This series consists of deep, well drained soils that formed in material weathered from alluvium from mixed rock sources. Elkhorn soils are most commonly used for growing special crops such as brussel sprouts, strawberries, artichokes, broccoli, pasture and hay due to their moderately slow permeability and slow runoff characteristics. The Elkhorn soils typically have slopes of 0 to 50 percent and are located at elevation ranging from 20 to 800 feet. The mean annual soil temperature is between 59 and 60 degrees Fahrenheit (F). The organic matter ranges from 2 to 6 percent to a depth of 20 inches and decreases regularly with depth. The soil is neutral to slightly acid.

The Oceano Series is distributed on rolling dune-like topography along the coast of Monterey County in California. The Oceano Series is comprised of sand throughout the entire profile and is not stratified. This series consists of deep, excessively drained soils that formed in material weathered from sandy eolian deposits. Oceano soils are most commonly used for rangeland due to the rapid permeability and very slow runoff characteristics. The Oceano soils typically have slopes of 0 to 50 percent and are located at elevations ranging from 25 to 1,100 feet. The mean annual soil temperature is 59 to 62 degrees F. The soil is moderately acid to strongly acid. Vegetation common to the Oceano Series includes Eucalyptus trees, bush lupine, Ceanothus, chamise, scrub live oak, annual grasses and forbs.

The Santa Ynez Series is distributed on coastal terraces and footslopes along the central and south-central coast counties of California. The Santa Ynez Series includes fine sandy loam, clay, clay loam, and sandy clay loam. This series consists of deep, moderately well drained soils that formed in material weathered in alluvium from shale, sandstone and granite. Santa Ynez soils are most commonly used for rangeland due to the very slow permeability and slow runoff characteristics. The Santa Ynez soils typically have slopes of 0 to 50 percent and are located at elevations ranging from 20 to 1,200 feet. The mean annual soil temperature is about 59 to 63 degrees F. The soil ranges from medium acid to neutral. Vegetation common to the Santa Ynez Series includes annual grasses, forbs, and scattered live oak.

The Xererts-Xerolls Complex soils are distributed on moderately steep to steep bluffs and banks along major rivers, escarpments of terraces, fans or alluvial plains, and along drainaways. The soils consist of masses of loam, silty clay loam, clay laom, clay material, rock fragments and other unconsolidated materials. The soils are most commonly used for rangeland or left idle due to their moderately slow permeability and moderate to rapid runoff characteristics. The Xererts-Xerolls Complex soils typically have slopes of 15 to 50 percents, but are 9 percent along narrow escarpments that have only a few feet of relief. They are located at elevations ranging from 20 to 2,000 feet but mostly below 1,000 feet. The soils commonly are calcareous and range from slightly acid to

moderately alkaline. Vegetation common to the soils consists of bromes, bur clover, wild oats, fescues, lupine, forbs, and brush.

4.2 CLIMATE

The climate in the coastal communities of the unincorporated area of Moss Landing typically has cool foggy summers and cool moist winters. The mean annual precipitation is approximately 20.35 inches. The annual temperature ranges between 57.8 F to 60.8 F. The average temperature in the winter months (September through February) is 50.8 F. The average temperature in the summer months (June through August) is 63.8 F. The average frost-free season is about 250-350 days per year.

4.3 JURISDICTIONAL AREAS

Jurisdictional waters that have been identified on the site are limited to marine aquatic habitat of Elkhorn Slough and Moss Landing Harbor. The proposed project includes open water (Section 10 waters: areas below the mean high tide line) and estuarine wetland (Section 404 waters: areas between the mean high tide line and high tide line). Table C shows the extent of jurisdictional areas in the biological study area.

Figures in Appendix C of this report show the locations of the sample points and the jurisdictional areas identified. Sample point #2 was taken in an upland area. Other features (a concrete basin, roadside drainage ditch, and upland drainage) were identified in the biological study area but were not claimed as jurisdictional by the USACE (refer to section 4.3.2 below for a description of each). No other potential jurisdictional areas were identified in the biological study area except those described below.

Table B: Jurisdictional Waters and Other Features within the Biological Study Area

Description of Feature	Sample point	Approximate Square Footage	Approximate Acreage
Jurisdictional Waters			
Open Water	1	130,740	3.5
Estuarine Wetland	N/A	12,129	0.3
Other Features			
Concrete Basin	4	2,178	0.05
Roadside Drainage Ditch	3	392	0.009
Upland Drainage	5	348	0.008
Total	**5**	**145,787**	**3.867**

4.3.1 Estuarine Wetland/Open Water

Open water/estuarine wetland within the biological study area includes the mouth of Elkhorn Slough and the shoreline of the Moss Landing Harbor running parallel to Moss Landing Road totaling approximately 3.5 acres (Sheets 1-5 of Appendix C). At the location of the proposed bridge crossing, Elkhorn Slough is approximately 350 feet wide and 33 feet deep. Sample point #1 was taken on the southern margin of the slough. Vegetation observed within the margins of this perennial water included seaweeds tolerant of saltwater and common to intertidal zones of Central California. Estuarine wetland encompasses the upper tidal marsh margins of Elkhorn Slough and Moss Landing Harbor within the BSA. The halophytic (salt-loving) vegetation found in the estuarine wetland provides valuable function to the overall wetland system by anchoring soils and controlling erosion. Dominant species observed in the upper margins of this habitat within the BSA included inland saltgrass (*Distichlis spicata*) (FACW) and woody pickleweed (*Salicornia virginica*) (OBL).

At extremely low tide, a few vegetative species able to withstand rapidly changing temperature and salinity and even occasional drying were observed in the tidal rocks along the southern shoreline of Elkhorn Slough within the BSA. Stringy green algae (*Enteromorpha intestinalis*) covers part of the lower margins of estuarine wetland/open water habitat within the BSA. Delicate red algae (*Plocamium cartilegeneum*), common red algae (*Gracilariopsis lemaneiformis*), and its algal parasite *Gracilariophila oxyroides* are also abundant in lower tidal zone. No rooted eelgrass or kelp forests were observed in the BSA.

No soil pit was dug at this location, since rocks in the intertidal zone would not allow for digging. This sample point was in a tidal area and is not a wetland. However, the perennially hydric nature of Elkhorn Slough would prove that hydric soils exist. Indicators of wetland hydrology included surface water, inundation visible on aerial imagery, presence of aquatic invertebrates, and drainage patterns.

Pursuant to Section 10 of the Rivers and Harbors Act, the USACE will assert jurisdiction over tidal areas up to the mean high tide line. Therefore, USACE has jurisdiction per Section 10 over 3.5 acres of Elkhorn Slough within the biological study area.

Furthermore, the upper limits of Moss Landing Harbor between the mean high tide line and high tide line are within the limits of Section 404 jurisdiction (Sheets 1-5 of Appendix C). Therefore, USACE has jurisdiction per Section 404 over an additional 0.3 acre of Elkhorn Slough within the proposed biological study area.

4.3.2 Other Features

4.3.2.1 Concrete Lined Basin. A concrete lined basin is present within the project area a few hundred feet south of the southern extent of Elkhorn Slough (approximately 0.05 acre)(2,178 ft.^{2}) (Sheet 2 of Appendix C). This basin conveys water through a corrugated 12" diameter culvert to connect with the v-shaped roadside drainage ditch, as described under section 4.3.3 below. Sample point #4 was taken within the most vegetated portion of this basin. This basin was mostly unvegetated during the site surveys and did not exhibit evidence of dominant hydrophytic vegetation or hydric soils. The sporadic vegetation that did occur included curly dock (*Rumex crispus*) (FACW-), English plantain (*Plantago lanceolata*) (FAC-), coyote bush (*Baccharis pilularis*) (UPL), Bermuda buttercup (*Oxalis pes-caprae*) (UPL), and Oregon gumplant (*Grindelia stricta* var. *angustifolia*) (UPL). Though

not dominated by wetland vegetation, a few of the plant species are found more often than not in wetlands.

No soil pit was dug in the basin, since very little soil (approximately 1 inch in depth) was present even in the most vegetated portion of the basin. A culvert was constructed at the northern extent of the basin that carries water underground to Monterey Bay/Elkhorn Slough to the west. This basin was constructed for stormwater purposes. Therefore, one of the three technical criteria was met: wetland hydrology. This concrete lined basin was not claimed as jurisdictional by the USACE during the verification visit.

4.3.2.2 Roadside Drainage Ditch. A v-shaped roadside drainage ditch was present directly south of the concrete basin and encompassed approximately 0.009 acre (Sheet 2 of Appendix C). Approximately one half of the drainage ditch was lined with concrete. Sample point #3 was taken in the portion of the drainage ditch that was not lined with concrete. The ditch averages 2.5 feet in width along its extent. Vegetation observed in the ditch during the field survey in March of 2009 included Italian thistle (*Carduus pycnocephalus*)(UPL), California brome (*Bromus carinatus*)(UPL), rose clover (*Trifolium hirtum*) (UPL), dissected geranium (*Geranium dissectum*) (UPL), miner's lettuce (*Claytonia perfoliata*) (FAC), and woodland geranium (*Geranium molle*) (UPL). The portion of the drainage ditch that was lined with concrete (the northern half) was very sparsely vegetated and included the same species as the portion of the ditch (southern half) that was not lined with concrete.

The Munsell color notation at this sample point was 7.5 YR 3/2, and no redoximorphic features were evident. Although the soil was moist in the drainage during the March 24 field visit, no saturation or surface water was evident. Evidence of wetland hydrology included an obvious drainage pattern. One of the three technical criteria (wetland hydrology) was met at this location. This culvert connects to Moss Landing Harbor through an underground culvert as described above under Section 4.3.2. This roadside drainage ditch was not claimed as jurisdictional by the USACE during the verification visit.

4.3.2.3 Upland Drainage. A small drainage was observed in the biological study area directly west of the roadside drainage ditch. This drainage was approximately 8 feet in width and 0.01 acre (see sample point 5 on Sheet 2 of Appendix C). A 2-foot diameter culvert was present on its eastern end and the drainage terminated in a rock pile at the waters edge to the west. Vegetation observed within the drainage during the March survey included a mix of upland and wetland species, including poison hemlock (*Conium maculatum*) (FACW), miners lettuce (FAC), coyote bush (UPL), Bermuda buttercup (UPL), rattail fescue (FACU*), and crystalline ice plant (*Mesembryanthemum crystallinum*) (UPL).

The upland drainage contained soils similar to those found in the roadside drainage ditch. Munsell color notations were 7.5 YR 3.2 and no redoximorphic features were evident. A clearly defined bed and bank was present in this upland drainage, and connectivity with Moss Landing Harbor is obvious. This upland drainage was not claimed as jurisdictional by the USACE during the verification visit although is likely considered jurisdictional by the CCC and CDFG.

5.0 CONCLUSIONS

5.1 USACE SECTION 404 AND SECTION 10 JURISDICTION

Each of the areas shown in Appendix C has a direct connection to a designated navigable water of the U.S. Therefore, USACE will verify that a "significant nexus determination" is not required. Under USACE guidance, agencies will assert jurisdiction over navigable waters and their adjacent wetlands, where adjacent is defined as "bordering, contiguous, or neighboring." Therefore, finding a surface connection is not required to determine adjacency under this definition.

There is a total of 3.3 acres potentially subject to USACE jurisdiction, of which 0.3 acre is subject to jurisdiction under Section 404 as Waters of the United States and 3.5 acres under Section 10 of the Rivers and Harbors Act.

5.2 CALIFORNIA DEPARTMENT OF FISH AND GAME JURISDICTION

CDFG will not likely claim jurisdiction over the bed and bank of Elkhorn Slough that is encompassed by the biological study area. The portion of the Elkhorn Slough over which the trail would be constructed (i.e., pedestrian/bike bridge) is tidal and tidal areas are not typically subject to regulation under Section 1602 of the Fish and Game Code. The only other feature identified in the biological study area and described in this report that may be construed to have a bed or bank would be the upland drainage. This is the only feature that may be subject to jurisdiction under Section 1602 occurring in the biological study area.

5.3 CALIFORNIA COASTAL COMMISSION JURISDICTION

Areas satisfying the USACE jurisdictional criteria for Section 10 and Section 404 waters of the United States, as described above under Section 5.1, are also subject to CCC jurisdiction pursuant to the California Coastal Act. Because CCC employs a one-parameter approach to delineating jurisdictional wetlands, CCC wetlands usually tend to be more inclusive and extensive. There is a total of 3.308 acres potentially subject to CCC jurisdiction.

5.4 REGIONAL WATER QUALITY CONTROL BOARD

For the purposes of this jurisdictional delineation, the areas subject to the RWQCB jurisdiction coincide with the areas identified as potential USACE jurisdiction but also include the concrete basin, roadside drainage ditch, and upland drainage. There is a total of 3.867 acres potentially subject to RWQCB jurisdiction.

Table C below shows acreages and various jurisdiction of potential jurisdictional waters located in the biological study area.

Table C: Anticipated Jurisdictional Status of Jurisdictional Waters

Feature Description	**Acreage**					
	USACE Section 404	USACE Section 10	CDFG	CCC	RWQCB	Total Jurisdictional Waters
Open Water	-	3.5	-	3.5	3.5	3.5
Estuarine Wetland	0.3	-	-	0.3	0.3	0.3
Concrete Basin	-	-	-	-	0.05	0.05
Roadside Drainage Ditch	-	-	-	-	0.009	0.009
Upland Drainage	-	-	0.008	0.008	0.008	0.008
Total	**0.3**	**3.5**	**0.008**	**3.308**	**3.867**	**3.867**

6.0 REFERENCES

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APPENDIX A

COPIES OF WETLAND DATA FORMS

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: MBSST- Elkhorn Slough City/County: Moss Landing/Monterey County Sampling Date: 1/19/09

Applicant/Owner: Monterey County Department of Public Works State: CA Sampling Point: 1

Investigator(s): Wendy Fisher Section, Township, Range: Section 7, Township 13 South, Range 2 East

Landform (hillslope, terrace, etc.): Elkhorn Slough Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Lat: 36°47'59.95"N Long: 121°47'1.22"W Datum:

Soil Map Unit Name: Water NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____ Soil X or Hydrology X Significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____ Soil ____ or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No X

Hydric Soil Present? Yes X No ____

Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:

Seaweeds and marine invertebrates present in aquatic habitat (intertidal wetland). This data point was taken during low tide, exposing many of the seaweeds otherwise under water.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Plocamium cartilegeneum* (Red Algae)	20	Yes	NI
2. *Enteromorpha intestinalis* (Green Algae)	25	Yes	NI
3. *Zostera marina* (Eelgrass)	<5	No	NI
4. Other unknown seaweeds	40	Yes	NI
5. *Macrocystis pyrifera* (Giant sea kelp)	10	No	NI
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum			
1. None			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 75 % Cover of Biotic Crust ____.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____.	x 1 =	____.
FACW species	____.	x 2 =	____.
FAC species	____.	x 3 =	____.
FACU species	____.	x 4 =	____.
UPL species	____.	x 5 =	____.
Column Totals:	____. (A)		____. (B)

Prevalence Index = B/A = ____.

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X.

Remarks:

Seaweeds are not on the indicator species list, though the perennial aquatic requirements are obvious.

SOIL

Sampling Point: _____1_____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (Al)	___ Sandy Redox (S5)	___ 1 cm Muck (A9) (LRR C)
___ Histic Epipedon (A2)	___ Stripped Matrix (S6)	___ 2 cm Muck (AlO) (LRR B)
___ Black Histic (A3)	___ Loamy Mucky Mineral (Fl)	___ Reduced Vertic (F18)
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix F2)	___ Red Parent Material (TF2)
___ Stratified Layers (A5) (LRR C)	___ Depleted Matrix (F3)	X Other (Explain in Remarks)
___ 1 cm Muck (A9) (LRR D)	___ Redox Dark Surface (F6)	
___ Depleted Below Dark Surface (All)	___ Depleted Dark Surface (F7)	
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (Sl)	___ Vernal Pools (F9)	
___ Sandy Gleyed Matrix (S4)		

Indicators for Problematic Hydric Soils[3]:

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

No soil pit was dug. Rocks in the intertidal zone near seawall (just below) create conditions where a soil pit cannot be dug. Seawalls have been constructed on both the north and south sides of the Slough.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X Surface Water (Al)	___ Salt Crust (B11)	Secondary Indicators (2 or more required)	
___ High Water Table (A2)	___ Biotic Crust (B12)	___ Water Marks (Bl) (**Riverine**)	
___ Saturation (A3)	X Aquatic Invertebrates (B13)	___ Sediment Deposits (B2) (**Riverine**)	
___ Water Marks (B1) (**Nonriverine**)	___ Hydrogen Sulfide Odor (Cl)	___ Drift Deposits (B3) (**Riverine**)	
___ Sediment Deposits (B2) (**Nonriverine**)	___ Oxidized Rhizospheres along Living Roots (C3)	X Drainage Patterns (B10)	
___ Drift Deposits (B3) (**Nonriverine**)	___ Presence of Reduced Iron (C4)	___ Dry-Season Water Table (C2)	
___ Surface Soil Cracks (B6)	___ Recent Iron Reduction in Plowed Soils (CS)	___ Thin Muck Surface (C7)	
X Inundation Visible on Aerial Imagery (B7)	X Other (Explain in Remarks)	___ Crayfish Burrows (C8)	
___ Water-Stained Leaves (B9)		___ Saturation Visible on Aerial Imagery (C9)	
		___ Shallow Aquitard (D3)	
		___ FAC-Neutral Test (D5)	

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 2 “

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Crabs, periwinkles, clams, limpets, jellyfish, urchins, seastars, eelgrass, octopus, sea otters, CA sea lions, CA sea otters, and a great diversity of shoreline birds prevalent.

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: MBSST- Elkhorn Slough City/County: Moss Landing/Monterey County Sampling Date: 1/19/09

Applicant/Owner: Monterey County Department of Public Works State: CA Sampling Point: 2

Investigator(s): Wendy Fisher Section, Township, Range: Section 7, Township 13 South, Range 2 East

Landform (hillslope, terrace, etc.): Above cement seawall Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Lat: 36°47'59.95"N Long: 121°47'1.22"W Datum:

Soil Map Unit Name: Xerothents, Loamy NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)

Are Vegetation X Soil X or Hydrology X Significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____ Soil ____ or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No X
Hydric Soil Present? Yes ____ No X
Wetland Hydrology Present? Yes ____ No X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:

Location: fill area next to Hwy 1 bridge over Elkhorn Slough. This sampling point was taken approximately 15 feet south and 12 feet higher in elevation of sampling point #1.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Oxalis pes-caprae*	50	Yes	UPL
2. *Grindelia stricta* var. *angustifolia*	5	No	UPL
3. *Tetragonia tetragonioides*	3	No	UPL
4. *Bromus carinatus*	40	Yes	UPL
5. *Brassica nigra*	2	No	UPL
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum			
1. None			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust ____.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____.	x 1 =	____.
FACW species	____.	x 2 =	____.
FAC species	____.	x 3 =	____.
FACU species	____.	x 4 =	____.
UPL species	____.	x 5 =	____.
Column Totals:	____. (A)		____. (B)

Prevalence Index = B/A = ____.

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X.

Remarks:

Vegetation is limited to upland species.

SOIL

Sampling Point: _____2_____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2	7.5 YR 3/2	100	None					Sandy Loam

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (Al)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (All)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (Sl)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (Fl)
- ____ Loamy Gleyed Matrix F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (AlO) (LRR B)
- ____ Reduced Vertic (F18)
- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Cement rocks scatter surface of soil- no pit dug > 2" deep. Fill material is not natural. No indicators of hydric soils are present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ____ Surface Water (Al)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (**Nonriverine**)
- ____ Sediment Deposits (B2) (**Nonriverine**)
- ____ Drift Deposits (B3) (**Nonriverine**)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (Cl)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (CS)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (Bl) (**Riverine**)
- ____ Sediment Deposits (B2) (**Riverine**)
- ____ Drift Deposits (B3) (**Riverine**)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology are present.

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: MBSST- Elkhorn Slough City/County: Moss Landing/Monterey County Sampling Date: 3/24/09

Applicant/Owner: Monterey County Department of Public Works State: CA Sampling Point: 3

Investigator(s): Wendy Fisher Section, Township, Range: Section 7, Township 13 South, Range 2 East

Landform (hillslope, terrace, etc.): Roadside Drainage Ditch Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Lat: 36°47'59.95"N Long: 121°47'1.22"W Datum:

Soil Map Unit Name: Elkhorn Fine Sandy loam, 5 - 9% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____ Soil X or Hydrology X Significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____ Soil ____ or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No X

Hydric Soil Present? Yes ____ No X

Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:

Sampling point taken in the upper reach of drainage ditch, approximately 10 feet above cement-lined portion of ditch.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Carduus pycnocephalus*	40	Yes	UPL
2. *Geranium molle*	20	Yes	UPL
3. *Bromus carinatus*	10	No	UPL
4. *Geranium dissectum*	10	No	UPL
5. *Claytonia perfoliata*	15	No	FAC
6. *Trifolium hirtum*	5	No	UPL
7.			
8.			
Total Cover:	100		
Woody Vine Stratum			
1. None			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ____.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____.	x 1 =	____.
FACW species	____.	x 2 =	____.
FAC species	____.	x 3 =	____.
FACU species	____.	x 4 =	____.
UPL species	____.	x 5 =	____.
Column Totals:	____. (A)		____. (B)

Prevalence Index = B/A = ____.

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X.

Remarks:

SOIL

Sampling Point: _____3_____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	7.5YR 3/2	100	None				sand	Soil is slightly moist

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (Al)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (All)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (Sl)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (Fl)
- ____ Loamy Gleyed Matrix F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (AlO) (LRR B)
- ____ Reduced Vertic (F18)
- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

No water is flowing in this roadside drainage ditch even after recent storm (March 21, 09). No indicators of hydric soils are present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ____ Surface Water (Al)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (**Nonriverine**)
- ____ Sediment Deposits (B2) (**Nonriverine**)
- ____ Drift Deposits (B3) (**Nonriverine**)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (Cl)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (CS)
- X Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (Bl) (**Riverine**)
- ____ Sediment Deposits (B2) (**Riverine**)
- ____ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: This drainage ditch culminates suddenly, with no outlet apparent (no culvert). No connection with Monterey Bay or Elkhorn Slough is apparent.

There is an obvious drainage pattern in both the vegetated and unvegetated (cement-lined) portion of this roadside drainage ditch.

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: MBSST- Elkhorn Slough City/County: Moss Landing/Monterey County Sampling Date: 3/24/09

Applicant/Owner: Monterey County Department of Public Works State: CA Sampling Point: 4

Investigator(s): Wendy Fisher Section, Township, Range: Section 7, Township 13 South, Range 2 East

Landform (hillslope, terrace, etc.): Elkhorn Slough Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Lat: 36°47'59.95"N Long: 121°47'1.22"W Datum:

Soil Map Unit Name: Elkhorn Fine Sandy Loam, 5-9 % slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____ Soil X or Hydrology X Significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____ Soil ____ or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No X

Hydric Soil Present? Yes ____ No X

Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:

Sampling location taken in most densely vegetated portion of concrete basin.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Rumex crispus*	25	Yes	FACW -
2. *Plantago lanceolata*	20	Yes	FAC-
3. *Oxalis pes-caprae*	25	Yes	UPL
4. *Grindelia stricta var. angustifolia*	15	No	UPL
5. *Baccharis pilularis*	15	No	UPL
6.			
7.			
8.			
Total Cover: 100			
Woody Vine Stratum			
1. None			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ____.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____.	x 1 =	____.
FACW species	____.	x 2 =	____.
FAC species	____.	x 3 =	____.
FACU species	____.	x 4 =	____.
UPL species	____.	x 5 =	____.
Column Totals:	____. (A)		____. (B)

Prevalence Index = B/A = ____.

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X.

Remarks:

Though not dominated by wetland vegetation, some evidence of hydrophytic vegetative conditions is present. Mostly the basin is barren of vegetation and soils (80% barren).

SOIL

Sampling Point: _____4_____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (Al)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (All)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (Sl)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (Fl)
- ___ Loamy Gleyed Matrix F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (AlO) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** _____

Remarks:

No soil pit was dug, since bottom of basin is lined with concrete. Very little soil (approximately 1") has accumulated on surface in some portions of the basin where vegetation is present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (Al)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (Cl)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (CS)
- X Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (Bl) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This basin obviously holds water (or once did) for some period of time during and after storm events. A culvert at the northern end of the basin drains into Monterey Bay/Elkhorn Slough west of the culvert. Another culvert (12" diameter) at southern end of basin connects to the v-shaped roadside drainage ditch 21' to the south.

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: MBSST- Elkhorn Slough City/County: Moss Landing/Monterey County Sampling Date: 3/24/09

Applicant/Owner: Monterey County Department of Public Works State: CA Sampling Point: 5

Investigator(s): Wendy Fisher Section, Township, Range: Section 7, Township 13 South, Range 2 East

Landform (hillslope, terrace, etc.): Upland drainage Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Lat: 36°47'59.95"N Long: 121°47'1.22"W Datum:

Soil Map Unit Name: Xerothents, Loamy NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____ Soil ____ or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ Soil ____ or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No X
Hydric Soil Present? Yes ____ No X
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:

Vegetated drainage that has a 2' culvert on its eastern extent and flows into rock pile on waters edge to west.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Conium maculatum*	20	Yes	FACW
2. *Oxalis pes-caprae*	15	No	UPL
3. *Claytonia perfoliata*	15	No	FAC
4. *Baccharis pilularis*	35	Yes	UPL
5. *Vulpia myuros*	10	No	FACU *
6. *Mesembryanthemum crystallinum*	2	No	UPL
7. *Bromus diandrus*	3	No	UPL
8.			
Total Cover:	100		
Woody Vine Stratum			
1. None			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ____.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	15	x 3 =	45
FACU species	10	x 4 =	40
UPL species	55	x 5 =	275
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X.

Remarks:

Drainage is vegetated densely.

SOIL

Sampling Point: _____5_____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	7.5 YR 3/2	100	None				Sandy loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (Al)	___ Sandy Redox (S5)	**Indicators for Problematic Hydric Soils[3]:**
___ Histic Epipedon (A2)	___ Stripped Matrix (S6)	___ 1 cm Muck (A9) (LRR C)
___ Black Histic (A3)	___ Loamy Mucky Mineral (Fl)	___ 2 cm Muck (AlO) (LRR B)
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix F2)	___ Reduced Vertic (F18)
___ Stratified Layers (A5) (LRR C)	___ Depleted Matrix (F3)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9) (LRR D)	___ Redox Dark Surface (F6)	___ Other (Explain in Remarks)
___ Depleted Below Dark Surface (All)	___ Depleted Dark Surface (F7)	
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (Sl)	___ Vernal Pools (F9)	[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.
___ Sandy Gleyed Matrix (S4)		

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

No indicators of hydric soils are present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (Al)	___ Salt Crust (B11)	___ Water Marks (Bl) (**Riverine**)
___ High Water Table (A2)	___ Biotic Crust (B12)	___ Sediment Deposits (B2) (**Riverine**)
___ Saturation (A3)	___ Aquatic Invertebrates (B13)	___ Drift Deposits (B3) (**Riverine**)
___ Water Marks (B1) (**Nonriverine**)	___ Hydrogen Sulfide Odor (Cl)	X Drainage Patterns (B10)
___ Sediment Deposits (B2) (**Nonriverine**)	___ Oxidized Rhizospheres along Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3) (**Nonriverine**)	___ Presence of Reduced Iron (C4)	___ Thin Muck Surface (C7)
___ Surface Soil Cracks (B6)	___ Recent Iron Reduction in Plowed Soils (CS)	___ Crayfish Burrows (C8)
___ Inundation Visible on Aerial Imagery (B7)	X Other (Explain in Remarks)	___ Saturation Visible on Aerial Imagery (C9)
___ Water-Stained Leaves (B9)		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)

Secondary Indicators (2 or more required)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes ___	No X	Depth (inches): ___		
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___	**Wetland Hydrology Present?**	Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Topography clearly indicates that water flows through this upland drainage. A 2 foot diameter culvert feeds the drainage. A bed and bank is obvious.

APPENDIX B

FIGURE AND DESCRIPTION OF SOILS LOCATED IN THE BIOLOGICAL STUDY AREA

LSA

Project Area

Proposed Trail

Ac - Alviso Silty Clay Loam

EdC - Elkhorn Fine Sandy Loam, 5 to 9 Percent Slopes

OaD - Oceano Loamy Sand, 2 to 15 Percent Slopes

ShC - Santa Ynez Fines Sandy Loam, 2 to 9 Percent Slopes

W - Water

Xc - Xerorthents, Loamy

N

0 300 600

FEET

APPENDIX B

Jurisdictional Delineation
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Extent of Soils within the Biological Study Area

SOURCE: Soil - USDA, Natural Resources Conservation Service (2006); Aerial - NAIP (2005); APE Boundary - Wood Rodgers (2007)

I:\WRS0803\GIS\Soils_JD.mxd (9/22/2009)

LOCATION ALVISO CA

Established Series
Rev. RCH/LCL/ET
03/2001

AC – Alviso silty clay loam

ALVISO SERIES

The Alviso series have gray, neutral, silty clay loam A horizons and light gray, gleyed, mildly alkaline, silty clay loam and silty clay upper C horizons, and greenish gray very fine sand lower C horizons.

TAXONOMIC CLASS: Fine, mixed, superactive, nonacid, isomesic Typic Fluvaquents

TYPICAL PEDON: Alviso silty clay loam - marsh. (Colors are for dry soil unless otherwise stated.)

O--0 to 1/8 inches; discontinuous layer of plant remains. (0 to 1 inch thick)

Ag--1/8 to 5 inches; gray (5Y 5/1) silty clay loam, dark olive gray (5Y 3/2) moist; moderate medium angular blocky structure; hard, friable, sticky, plastic; few fine and common very fine roots; few very fine interstitial and very fine tubular pores; neutral (pH 7.2); gradual smooth boundary. (4 to 7 inches thick)

Clg--5 to 14 inches; light gray (5Y 6/1) silty clay loam,dark gray (5Y 4/1) moist; common fine brown (7.5YR 5/4) mottles; moderate medium angular blocky structure; hard, friable, sticky, plastic; many very fine and fine roots; common very fine and fine roots; common very fine and few fine tubular pores; slightly alkaline (pH 7.8); clear smooth boundary. (6 to 12 inches thick)

C2g--14 to 45 inches; mixed gray and light gray (N 7/, 6/, 5/) silty clay, dark gray (5Y 4/1) moist; common medium distinct olive (5Y 5/3) moist mottles; moderate medium angular blocky structure; very hard, friable, sticky, plastic; common very fine roots; few very fine and fine tubular pores; layer or organic material 1/2 inch thick near top of horizon, several very dark gray and dark greenish gray (5Y 3/1, 5G 4/1 moist) seams 1/8 to 1/2 inch thick, color becomes more greenish in lower portion of horizon; few small 2 to 5 mm concretions; slightly alkaline (pH 7.8); gradual boundary. (10 to 40 inches thick)

2Cg--45 to 60 inches; greenish gray (5GY 6/1) very fine sand, very dark greenish gray (5BG 2/1) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; many very fine interstitial pores; slightly acid (pH 6.4).

TYPE LOCATION: Monterey County, California; 1 mile south of Moss Landing on Tembladero Slough; 4/10 mile west on Potrero Road, from Moss Landing Road, and 660 feet north (100 feet beyond dike).

RANGE IN CHARACTERISTICS: The water table is close enough to the surface that the upper horizons are always moist. The soil may be flooded by sea water at high tide or during high stream flows coinciding with high tides. The mean soil temperature is about 57 degrees F, the average July soil temperature is about 59 degrees F and the average January soil temperature is about 52 degrees F. Fine stratification is absent from the upper part of the profile. Coarse stratification is common and the organic matter decreases irregularly with depth.

The A horizon is less than 7 inches thick or has less than 1 percent organic matter after mixing to 7 inches. Distinct or prominent mottles are in or immediately below the A horizon. This horizon is gray to dark gray and is neutral or has 10YR or 5Y hue. It ranges from neutral to moderately alkaline.

The upper part of the C horizon ranges from light gray to greenish gray (5Y and 5GY hues) with distinct to prominent, brown to olive mottles (7.5YR and 5Y hues). It is silty clay loam to silty clay and usually is stratified with thin layers of organic material and lenses of coarser textured material. The 10 to 40 inch section averages 35 to 45 percent clay. This horizon is neutral to moderately alkaline and is calcareous in some pedons. The lower part of the C horizon has strong gley colors in 5GY, 5Bg or 5B hue. It ranges from silty clay to sand, but is usually sandy. It is slightly acid to moderately alkaline.

COMPETING SERIES: These are the Bayside, Coquille, Maria, Reyes, Sycamore, Temple, and Valdez series. Bayside soils do not have a water table within a foot of the surface most of the time and are not flushed by sea water. Coquille soils are strongly acid. Maria soils are calcareous throughout. Reyes soils are strongly acid, are high in sulfur, and become extremely acid upon oxidation. Sycamore soils have chroma of 2 or more throughout and lack colors indicative of intense reduction. Temple soils have a mean soil temperature of more than 59 degrees F. Valdez soils lack dark A horizons and have less than 35 percent clay.

GEOGRAPHIC SETTING: The Alviso soils occur near sea level in level basins and tidal flats with branched meandering channels that are flushed by sea water and varying amounts of fresh water. They formed in alluvium dominantly from sedimentary rocks. The climate is subhumid, mesothermal with cool foggy summers and cool, moist winters. Mean annual rainfall is 12 to 21 inches. Mean annual temperature is about 57 degrees F, average January temperature about 49 degrees F, and average July temperature about 57 to 59 degrees F. The average frost-free season is 330 to 365 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Antioch, Camarillo, Clear Lake, Pescadero, and Tamba soils and the competing Reyes soils. Antioch soils lack high water table and mottles. Camarillo soils have no mottles above depth of 20 inches. Clear Lake soils have cracks and slickensides. Pescadero soils have natric horizons. Tamba soils are strongly acid.

DRAINAGE AND PERMEABILITY: Very poorly drained; very slow runoff; slow permeability. Ares not diked are periodically flooded during high tides.

USE AND VEGETATION: Used mainly for recreation and very limited grazing. Diked areas have been reclaimed and are used for pasture and growing artichokes. Vegetation is mostly pickleweed, inkweed, saltgrass, and other salt-tolerant plants.

DISTRIBUTION AND EXTENT: The soils occur around San Francisco Bay and other tidal flats of California. The soils are inextensive.

MLRA OFFICE RESPONSIBLE: Davis, California

SERIES ESTABLISHED: Salinas Area, California, 1925.

REMARKS: The soils were formerly classified as Low Humic Gray soils.

The classification was updated in February 2001 using the Eighth Edition to Soil Taxonomy. This series was formerly classified as Fine, mixed, nonacid, isomesic Tropic Fluvaquents. Competing series were not checked at that time.

Last major revision by the state on 5/72.

National Cooperative Soil Survey
U.S.A.

LOCATION ELKHORN CA

Established Series
Rev. TDC/RAD/RWK/ET
02/2003

EdC – Elkhorn fine sandy loam 5–9% slopes

ELKHORN SERIES

The Elkhorn series consists of deep, well drained soils that formed in material weathered from alluvium from mixed rock sources. Elkhorn soils are on coastal terraces and have slopes of 2 to 50 percent. The mean annual precipitation is about 18 inches and the mean annual air temperature is about 58 degrees F.

TAXONOMIC CLASS: Fine-loamy, mixed, superactive, thermic Pachic Argixerolls

TYPICAL PEDON: Elkhorn fine sandy loam, cultivated. (Colors are for dry soil unless otherwise noted.)

Ap1--0 to 9 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine and few medium roots; few very fine tubular pores; neutral (pH 7.0); clear smooth boundary. (7 to 10 inches thick)

Ap2--9 to 17 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; moderate coarse angular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and few medium roots; few very fine and fine tubular, few very fine interstitial pores; slightly acid (pH 6.5); clear smooth boundary. (7 to 15 inches thick)

A3--17 to 26 inches; brown (10YR 5/3) heavy fine sandy loam, dark brown (10YR 3/3) moist; moderate medium and coarse angular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and fine, few medium roots; many medium, fine and very fine tubular, many very fine interstitial pores; numerous worm casts; moderately acid (pH 5.8); clear irregular boundary. (6 to 12 inches thick)

B2t--26 to 46 inches; brown (7.5YR 5/4) sandy clay loam, mixed dark brown and reddish brown (7.5YR 4/4, 5YR 4/4) moist; massive; very hard, firm, sticky and slightly plastic; few thin discontinuous clay films lining pores; many medium and coarse weakly cemented shot that are not magnetic but effervescent in solution of H2O2; moderately acid (pH 6.0); gradual wavy boundary. (20 to 40 inches thick)

C--46 to 63 inches; strong brown (7.5YR 5/6) fine sandy loam, mixed strong brown and dark brown (7.5YR 5/6 and 4/4) moist; massive; very hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few coarse tubular, few very fine interstitial pores; few thin distinct clay films line pores; few medium faint weakly cemented coarse shot are not magnetic, but effervescent in solution of H2O2; slightly acid (pH 6.5).

TYPE LOCATION: Monterey County, California; about 4 miles north of Moss Landing; 2,600 feet west and 3,000 feet north of Springhill Road from intersection of Highway 1.

RANGE IN CHARACTERISTICS: Solum thickness is 42 to 60 inches. The soil between depths of 6 and 18 inches becomes moist in some part in November or early December and remains moist until May. The mean annual soil temperature is between 59 and 60 degrees F. The average summer soil temperature is about 65 degrees F., and the mean winter soil temperature is about 54 degrees F. Base saturation is 75 to 95 percent in all parts. Gravel, shale fragments and other rock fragments are less than 15 percent in the A horizon and B horizon. Organic matter ranges from 2 to 6 percent in the upper 20 inches and decreases regularly to less than 1 percent at 40 inches below the surface.

The A1 horizon is grayish brown, dark grayish brown, very dark grayish brown, brown or dark brown (10YR 5/2, 4/2, 3/2, 5/3, 4/3). It is sandy loam, fine sandy loam or loam. This horizon has granular , subangular blocky or angular blocky structure. Reaction is neutral to medium acid. Some pedons have a few dark reddish brown or brown, coarse shot or concretions in the lower A horizon. A transitional A3 horizon or B1 horizon or both, occurs between the A1 horizon or B2t horizon.

The B2t horizon is dark brown, brown, pale brown, very pale brown, grayish brown, light brownish gray, light gray, dark yellowish brown, or yellowish brown (10YR 4/3, 5/3, 6/3, 6/2,7/2,4/4 5/4) and brown, dark brown, or strong brown (7.5YR 3/2, 4/2, 5/2, 4/4, 5/4, 5/6). It is neutral to medium acid. Few to common firm iron manganese shot, concretions, or flakes are present in some part of this horizon. A buried sandy clay loam or clay layer occurs below the B2t horizon in some pedons.

The C horizon is brown, strong brown or reddish yellow (7.5YR 5/4, 5/6,6/6) and pale brown, yellowish brown, light yellowish brown or brownish yellow (10YR 6/3, 6/4, 5/4, 6/6, 5/6). It is loamy sand, loamy fine sand, sandy loam or fine sandy loam. Reaction is moderately acid to neutral.

COMPETING SERIES: These are the Arujo (t), Botella, Havala (t), Lockwood and McCoy series. Arujo and Havala soils have an average summer-winter soil temperature variance of more than 25 degrees F. Botella and Lockwood soils lack shot or concretions in the solum. Also, Botella soils have chroma of 1 or have neutral colors in the A horizon, and Lockwood soils have 15 to 35 percent shale or other rock fragments in the A horizon. McCoy soils have a paralithic contact of bedrock at depths of 25 to 40 inches.

GEOGRAPHIC SETTING: The Elkhorn soils are on marine terraces with gradients of 0 to 50 percent. They formed in old stablized sandy dune deposits and in soft marine sediments near the coast. The underlying sediments have contrasting textures, some reddish material, and are in part cemented with iron. Elevations are 20 to 800 feet. The climate is subhumid mesothermal with moderately cool, dry somewhat foggy summers and cool, wet winters. The mean annual precipitation is 14 to 35 inches. The average July temperature is 62 to 72 degrees F.; the average January temperature is 46 to 50 degrees F.; and the mean annual temperature is 58 to 60 degrees F. The frost free season is 250 to 280 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Arnold, Oceano, Pfeiffer, Pinto, Santa Ynez and Watsonville series. Arnold and Oceano soils are sandy in all parts and have less than 1 percent organic matter in the surface 10 inches. Pfeiffer soils have less than 18 percent clay. Pinto soils have an abrupt A/B horizon boundary, and have less than 1 percent organic matter below depth of 20 inches. Santa Ynez soils have more than 35 percent clay in the B2t horizon. Watsonville soils have more than 35 percent clay in the B2t horizon.

DRAINAGE AND PERMEABILITY: Well drained; slow to rapid runoff; moderately slow permeability.

USE AND VEGETATION: Used for growing special crops such as brussel sprouts, strawberries, artichokes, broccoli, pasture and hay. Uncultivated; dry areas have annual grasses and forbs.

DISTRIBUTION AND EXTENT: Near the coast in central California. The soils are of small extent.

MLRA OFFICE RESPONSIBLE: Davis, California

SERIES ESTABLISHED: Monterey County (Salinas Area), California, 1925.

REMARKS: The activity class was added to the classification in February of 2003. Competing series were not checked at that time. - ET

LOCATION OCEANO CA

Established Series
Rev. RW/GES/LCL/ET
03/2001

Oad – oceano loamy sand
2 – 15% slopes

OCEANO SERIES

The Oceano series consists of deep, excessively drained soils that formed in material weathered from sandy eolian deposits. Oceano soils are on rolling dune-like topography, near the ocean and have slopes of 0 to 50 percent. The mean annual precipitation is about 15 inches and the mean annual air temperature is about 58 degrees F.

TAXONOMIC CLASS: Mixed, thermic Lamellic Xeropsamments

TYPICAL PEDON: Oceano sand, annual grass and forbs, grazed. (Colors are for dry soil unless otherwise noted.)

A1--0 to 1.5 inches; grayish brown (10YR 5/2) sand, dark grayish brown (10YR 4/2) moist; single grained; loose; many very fine roots; many very fine interstitial pores; slightly acid (pH 6.1); clear smooth boundary. (0 to 3 inches thick)

A2--1.5 to 4 inches; grayish brown (10YR 5/2) sand, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, common very fine roots; many very fine interstitial pores; moderately acid (pH 5.9); gradual smooth boundary. (0 to 6 inches thick)

A3--4 to 15 inches; light brownish gray (10YR 6/2) sand, brown (10YR 4/3) moist; massive; soft, very friable; few very fine roots; many very fine interstitial, few fine tubular pores; strongly acid (pH 5.5); gradual smooth boundary. (11 to 22 inches thick)

AC--15 to 20 inches; light brownish gray (10YR 6/2) sand, brown (10YR 4/3) moist; massive; soft, very friable; few very fine roots, many very fine interstitial and few fine tubular pores; strongly acid (pH 5.5); gradual smooth boundary. (15 to 25 inches thick)

C1--20 to 39 inches; pale brown (10YR 6/3) sand, yellowish brown (10YR 5/4) moist; massive; soft, very friable; few very fine roots; many very fine interstitial and few fine tubular pores; strongly acid (pH 5.3); gradual smooth boundary. (15 to 25 inches thick)

C2--39 to 55 inches; pale brown (10YR 6/3) sand, yellowish brown (10YR 5/4) moist; massive; soft, very friable; few very fine roots; many very fine interstitial pores; several weak 1/8 inch thick lamellae (7.5YR 4/4 moist, 5/4 dry); slightly hard, somewhat branched, upper lamellae bends up into C1 horizon; slightly more firm than C1; strongly acid (pH 5.1); gradual smooth boundary. (14 to 20 inches thick)

C3--55 to 75 inches; light yellowish brown (10YR 6/4) sand, yellowish brown (10YR 5/4) moist; massive; soft, very friable; many very fine interstitial pores; horizon of maximum lamellae, 1/4 inch thick, hard when dry, two continuous, several discontinuous, similar in color to lamellae above; black specks 1 to 5 mm in diameter about 1 percent of mass; strongly acid (pH 5.1); gradual smooth boundary. (15 to 25 inches thick)

C4--75 to 90 inches; light yellowish brown (10YR 6/4) sand, yellowish brown (10YR 5/4) moist; massive; soft, very friable; plastic; many very fine interstitial pores; weak lamellae 1/4 inch to 3/8 inch thick, discontinuous, slightly wavy, sand grains very thinly coated; slightly more coarse than C3; strongly acid (pH 5.5).

TYPE LOCATION: Santa Barbara County, California; 3.7 airline miles south-southeast of center of Santa Maria; central portion of the SE1/4 of NW1/4 section 36, T.10 N., R.34 W. 34 degrees North latitude, 53 minutes, 43 seconds, 120 degrees West longitude, 24 minutes, 40 seconds

RANGE IN CHARACTERISTICS: The mean annual soil temperature at a depth of 20 inches is 59 degrees to 62 degrees F., and usually the temperature is not below 47 degrees F. at any time. Soil between the depths of about 12 and 35 inches usually is dry all of the time from late April or May until November and usually is moist in some or all parts all the rest of the year. The soil is sand or loamy sand throughout and rock fragments are lacking. It is mostly moderately acid but the range is slightly to strongly acid. There is no clear reaction trend with depth except that the uppermost and lowermost horizons commonly are less acid.

The A horizon is grayish brown, brown, light brownish gray, pale brown or light yellowish brown. In uncultivated soils the organic matter content ranges from 2 to 4 percent in the uppermost 2 to 4 inches, but decreases with depth and the average for the upper 10 inches is about 1/2 to 1 percent.

Lower horizons are either B or C horizon. They are light gray or light yellowish brown to brown with hue 10YR or 7.5YR, value of 5 through 7 and chroma of 3 or 4. A few weak and somewhat discontinuous lamellae 1/8 to 1/2 inch thick are present. The first lamellae occur at a depth of about 25 to 32 inches and continue to a depth of about 60 to 90 inches. They have stronger chroma, redder hue of lower value, or a combination of these features, compared to the matrix color. The matrix is soft or loose and the lamellae are slightly hard or hard, Some of the lamellae are slightly brittle. Lamellae have few to common very thin or thin clay bridges between mineral grains. In some pedons are lamellae 1/4 to 3/4 inches thick below 40 inches.

COMPETING SERIES: These are the Marina series in this family and the Arnold, Baywood, Corralitos, Delhi, Garey, Metz, Tangair, and Tujunga series. Arnold soils have a paralithic contact of soft sandstone and lack lamellae. Baywood soils have mollic epipedons. Corralitos and Tujunga soils are stratified and lack lamellae. Delhi soils are neutral and lack lamellae. Garey soils have argillic horizons made up of lamellae. Marina soils have B horizons with slightly hard matrix and hard lamellae. Metz soils are alkaline and are not sandy in all parts of the 10- to 40-inch section. Tangair soils are saturated within 40 inches of the surface part of the year.

GEOGRAPHIC SETTING: Oceano soils are on dune-like topography at elevations of 25 to 1,100 feet. Slopes are 0 to 50 percent. The soils formed in sandy eolian deposits near the Pacific Ocean. The climate is subhumid mesothermal with cool, rainless but foggy summers and cool moist winters. The mean annual subhumid mesothermal with cool, rainless but foggy summers and cool moist winters. THe mean annual precipitation is 10 to 20 inches. Average January temperature is 50 degrees F., average July temperature is 63 degrees F.; mean annual temperature is 57 degrees to 59 degrees F. The average freeze-free season is 200 to 350 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the competing Arnold, Baywood, Garey and Marina soils and the Elkhorn and San Andreas soils. Elkhorn soils have argillic horizons with more than 18 percent clay. San Andreas soils are sandy loams with a paralithic contact at depths of 40 inches or less.

DRAINAGE AND PERMEABILITY: Excessively drained; very slow runoff; surface drainage pattern is very poorly developed; rapid permeability.

USE AND VEGETATION: Used mainly for range. Some areas have been planted to eucalyptus trees and localized areas are used for growing truck crops and fruit with irrigation. Areas closer to the coast tend to have a brush cover of bush lupine, ceanothus, chamise and scrub live oak whereas more inland or cleared areas have a cover of annual grasses and forbs.

DISTRIBUTION AND EXTENT: Oceano soils occur near the ocean in central and south-central California. They are of moderate extent in MLRA 14d.

MLRA OFFICE RESPONSIBLE: Davis, California

SERIES ESTABLISHED: Monterey County, California, 1972.

REMARKS: The classification was updated in February 2001 using the Eighth Edition to Soil Taxonomy. This series was formerly classified as mixed, thermic Argic Xeropsamments. Competing series were not checked at that time.

ADDITIONAL DATA: Two NSSL pedons in Santa Barbara County: S62CA-083-001 (type location) and S62CA-083-002 (range in characteristics).

National Cooperative Soil Survey
U.S.A.

LOCATION SANTA YNEZ CA

Established Series
TDC/LWW/RWK
02/97

SnC - Santa Ynez fine sandy loam
2-9% slopes

SANTA YNEZ SERIES

The Santa Ynez series consists of deep, moderately well drained soils that formed in material weathered in alluvium from shale, sandstone and granite. Santa Ynez soils are on terraces and footslopes and have slopes of 0 to 50 percent. The mean annual precipitation is about 20 inches and the mean annual air temperature is about 59 degrees F.

TAXONOMIC CLASS: Fine, smectitic, thermic Ultic Palexerolls

TYPICAL PEDON: Santa Ynez fine sandy loam, annual grass rangeland. (Colors are for dry soil unless otherwise noted.)

A11--0 to 3 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky and moderate fine and medium structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine roots; many very fine interstitial, common very fine and few fine tubular pores; medium acid (pH 5.7); clear wavy boundary. (3 to 4 inches thick)

A12--3 to 16 inches; gray (10YR 5/1, grayish brown 5/2 rubbed) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and medium, few fine roots; common very fine and fine, few medium tubular pores; medium acid (pH 5.8); clear wavy boundary. (9 to 18 inches thick)

A2--16 to 18 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; many medium roots mostly horizontal and matted on top of the B2t horizon; medium acid (pH 6.0); abrupt wavy boundary. (1/4 to 8 inches thick)

B21t--18 to 26 inches; grayish brown (10YR 5/2 exterior) clay, gray (10YR 5/1 inped), very dark grayish brown (10YR 3/2) moist; strong coarse columnar structure parting to strong medium prismatic; very hard, firm, very sticky and very plastic; common very fine and medium, few fine roots, mostly along faces of peds; few very fine tubular pores; continuous thin clay films on faces of peds and lining pores; medium acid (pH 6.0); clear wavy boundary. (5 to 10 inches thick)

B22t--26 to 36 inches; gray (10YR 5/1) clay loam (near sandy clay), very dark grayish brown (10YR 3/2 rubbed) moist; moderate coarse prismatic structure parting to strong coarse angular blocky; very hard, firm, sticky and plastic; common very fine and few fine and medium roots mostly along faces of peds; few fine tubular pores; continuous thick clay films line pores, many thin and moderately thick clay films on faces of peds; slightly acid (pH 6.4) in upper part, neutral (pH 7.3) in lower part; clear wavy boundary. (7 to 12 inches thick)

B3t--36 to 43 inches; grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2 rubbed) moist; many large distinct pale brown (10YR 6/3) mottles; weak coarse subangular blocky structure; very hard, firm, sticky and plastic; few very fine roots mostly along faces of peds; few very fine tubular pores; many thin clay films line pores and common thin clay films on faces of peds; mildly alkaline (pH 7.6); clear wavy boundary. (6 to 30 inches thick)

C--43 to 61 inches; light gray (2.5Y 7.2) sandy clay loam, grayish brown (2.5Y 5/2 rubbed) mixed grayish brown and light yellowish brown broken (2.5Y 5/2 and 6/4) moist; few fine prominent black (10YR 2/1) mottles that appear to be charcoal; massive; slightly hard, friable, slightly sticky and slightly plastic; moderately alkaline (pH 8.0).

TYPE LOCATION: Monterey County, California; near Corral de Tierra Valley about 0.5 mile south on Underwood Road from intersection with Corral de Tierra Road, NW corner SW 1/4 NW 1/4 NW 1/4 SW 1/4 sec. 20, T.16S., R.3E.

RANGE IN CHARACTERISTICS: The mean annual soil temperature is about 59 degrees to 63 degrees F. and the soil temperature usually is not below 47 degrees F. at any time. The soil between depths of about 5 and 15 inches usually is dry all of the time from late April or May until November or early December and is moist in some or all parts all the rest of the year. Rock fragments usually are in the form of shale fragments and they make up about 1 to 35 percent of the A and B horizons.

The A1 horizon is gray, dark gray, grayish brown or dark grayish brown in 10YR hue. It is fine sandy loam, sandy loam, loam or clay loam. This horizon is massive and slightly hard or it has granular or subangular blocky structure. It ranges from medium acid to neutral and has 50 to 75 percent base saturation in some or all parts. It has 2 to 5 percent organic matter.

The A2 horizon is light gray, light brownish gray, pale brown or white dry and grayish brown, light brownish gray, grayish brown or dark grayish brown moist. The upper boundary of the B2t horizon is abrupt and it has 15 to 25 percent more clay, absolute, than the A2 or A1 horizon.

The B2t horizon is gray to brown to olive gray (10YR 5/1, 5/2, 5/3, 4/2, 6/2, 6/3; 2.5Y 5/2, 5/4; 5Y 5/2, 5/3). It is clay, sandy clay or heavy clay loam and has 35 to 50 percent clay, and has columnar or prismatic structure and usually the primary structure parts to angular blocky structure or is angular blocky in the lower part. It ranges from medium acid to mildly alkaline and usually becomes more alkaline with increasing depth. Base saturation is 50 to 90 percent in the upper part and over 75 percent in the lower part. The lower boundary is gradual or diffuse or a B3 horizon is present.

The C horizon is light brownish gray to white (10YR 6/2, 7/2, 8/2, 6/3; 2.5Y 6/2, 7/2). It is fine sandy loam to clay loam, and is medium acid to moderately alkaline but the soil material is not effervescent.

COMPETING SERIES: These are the Malibu series in this family and the Los Osos, Sespe, Sween, Tierra and Watsonville series in other families. Los Osos, Sespe and Sween soils are underlain by bedrock at depths of 24 to 40 inches and have a base saturation of more than 75 percent and lack abrupt A/B horizon boundaries. Malibu soils have a lithic contact at depths of 22 to 40 inches. Tierra soils have hard or very hard and massive A horizons. Watsonville soils have an albic horizon, and are somewhat poorly drained.

GEOGRAPHIC SETTING: The Santa Ynez soils are on coastal terraces and footslopes and have slopes of 0 to 50 percent. Elevations are 20 to 1,200 feet. The soils formed in old alluvium from shale, sandstone, and granite. The climate is subhumid mesothermal with warm dry somewhat foggy summers and cool moist winters. Mean annual precipitation is 15 to 35 inches. Average January temperature is about 50 degrees F., average July temperature is about 65 degrees F.; mean annual temperature is 57 degrees to 60 degrees F. The freeze-free season is about 250 to 300 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Antioch, Arnold, Ballard, Chamise, Diablo, Elkhorn, Positas, San Andreas, and Santa Lucia soils. Antioch and Positas soils have massive and hard A horizons. Arnold, San Andreas, and Santa Lucia soils lack argillic horizons. Ballard and Elkhorn soils have less than 35 percent rock fragments and lack an abrupt A/B horizon boundary. Diablo soils are clay throughout and have cracks and slickensides that intersect.

DRAINAGE AND PERMEABILITY: Moderately well drained; slow to rapid runoff; very slow permeability.

USE AND VEGETATION: Used for range and few areas for growing field and forage crops mostly with irrigation. Uncultivated areas have a cover of annual grasses, forbs, scattered live oak, and a small amount of brush.

DISTRIBUTION AND EXTENT: Central and south-central coast counties of California. The soils are of moderate extent.

MLRA OFFICE RESPONSIBLE: Davis, California

SERIES ESTABLISHED: Santa Barbara County (Santa Ynez Area), California, 1927.

REMARKS: The A2 horizon is not considered an albic horizon. More field study is needed on this soil. In the past, some soils now identified as being in the Santa Ynez series were grouped in the Tierra series. Tierra soils are now defined as having a dark colored epipedon that is hard or very hard and massive when dry.

OSED scanned by SSQA. Last revised by state on 6/76.

National Cooperative Soil Survey
U.S.A.

Xc - Xerorthents, loamy

drained to well drained. The elevation ranges from 400 to 3,000 feet. Slopes are 30 to 75 percent.

The soils consist of masses of loam, silty clay loam, clay loam, and clay material and rock fragments and other unconsolidated materials that have moved downslope. Landslides of soil material commonly have an uneven, concave-convex topography, which appears as steps or small benches on the soil surface. The lower part of the soil profile or substratum is exposed as scars where the soil mass broke away from its original position. The slippage occurs during or after long rains when the soils are saturated with water. Many springs, seeps, and small ponds are on the landscape. Older landslides that have become relatively stable have a cover of annual grasses.

Included in mapping were small areas of Climara, Diablo, and Montara soils, Badland, and Rock outcrop-Xerorthents association.

Runoff is slow to very rapid, and permeability is slow. The erosion hazard is high and very high. Roots can penetrate to a depth of 40 to 60 inches. The available water capacity is 6 to 11.5 inches for Xererts and 7 to 13 inches for Xerolls.

Some areas of this complex are used for range, watershed, and wildlife habitat. It has limited use for the construction of fences, roads, and other structures, because the soil material is unstable. Capability unit VIIe–1 (15) ; Clayey range site.

Xerorthents

Xb—Xerorthents, sandy. These well drained, strongly sloping to steep soils are on banks and escarpments in areas of abrupt changes in elevation between different levels of alluvial fans or terraces. The elevation ranges from 50 to 1,500 feet. The annual precipitation ranges from 10 to 25 inches. The vegetation consists of bromes, fescues, filarees, wild oats, forbs, some patches of scattered brush, and a few scattered oaks.

These soils are sands, loamy sands, sandy loams, and loams. They are high in content of sand and coarse sand and low in silt and clay. Some places are gravelly or cobbly. The clay subsoil of the Gloria or Placentia soils is exposed in places. Some areas also have the cemented substratum exposed along banks near drainageways. The alluvium in Xerorthents, sandy, is derived mostly from granite, schist, or gneiss. Reaction ranges from strongly acid to neutral. The escarpments are relatively stable; they are affected very little by erosion and produce little sediment.

Included in mapping were small areas of Badland, Xerorthents, loamy, and Chualar soils that have slopes of 9 to 20 percent.

Permeability is moderately rapid. Runoff and the erosion hazard vary considerably over very short distances. Roots can penetrate to a depth of about 24 to 60 inches. The available water capacity is about 1.5 to 6 inches.

This land is used for annual range or is left idle. Capability unit VIIe–1 (15) ; Sandy range site.

Xc—Xerorthents, loamy. These well drained, moderately steep and steep soils are on bluffs and banks along major rivers, on escarpments of terraces, on fans or alluvial plains, and along drainageways. Slopes commonly are 15 to 50 percent, but are 9 percent along narrow escarpments that have only a few feet of relief. The elevation ranges from 20 to 2,000 feet, but is mostly below 1,000 feet. The annual precipitation ranges from 10 to 25 inches. The vegetation consists of bromes, bur clover, wild oats, fescues, lupine, forbs, and some brush.

These soils are loams, silt loams, clay loams, and clays. They are high in content of silt and clay and very low in coarse sand. They have very few pebbles or cobbles. The soils commonly are calcareous, and reaction ranges from slightly acid to moderately alkaline. The escarpments are relatively stable and are little affected by erosion. Because slopes are vegetated, only minor amounts of sediment are produced.

Included in mapping were small areas of Badland and Xerorthents, sandy. Also included were areas of Salinas, Mocho, and Cropley soils in narrow areas where changes in elevation are abrupt. These narrow areas commonly have no native vegetation and are cultivated.

Permeability is moderately slow. Runoff and the erosion hazard are variable. Roots can penetrate to a depth of more than 60 inches. The available water capacity is about 6 to 9 inches.

This land is used for annual range or is left idle. Capability unit VIe–1 (15) ; Fine Loamy range site.

Xd—Xerorthents, dissected. These are steep to extremely steep soils on bluffs along major rivers, on steep escarpments of fans and terraces, and on the banks of deeply entrenched streams and gullies that have narrow bottoms. Slopes are typically 50 to 65 percent, but range from 35 to 90 percent. The elevation ranges from 200 to 2,500 feet. The annual precipitation ranges from 12 to 40 inches. The vegetation consists of sparse annual grasses and forbs, brush, and some scrub oaks and digger pine.

These soils consist mostly of unconsolidated or weakly consolidated alluvium that commonly contains pebbles, cobblestones, and stones. Textures are mostly sandy loam or coarse sandy loam and are gravelly or cobbly. The banks are commonly moderately eroded and have areas of severe erosion. The potential for erosion and deposition of soil material is high.

Included in mapping were small areas of Gloria, Chualar, Chamise, Arroyo Seco, Pinnacles, and Santa Lucia soils, Badland, and Xerorthents, sandy. Also included were areas of Tujunga, Hanford, or Gorgonio soils on small, narrow, alluvial bottoms. Some areas of Rock outcrop and areas where the indurated substratum is exposed were included along the banks.

Runoff is rapid and very rapid, and the erosion hazard is high or very high. Drainage, subsoil permeability, depth of the root zone, and available water capacity all vary within short distances.

This land is used for watershed, wildlife habitat, and annual range for limited grazing. Some areas are used for building sites. There is a potential hazard of sediment deposition onto adjacent roads and land. Capability unit VIIe–1 (15) ; Loamy range site.

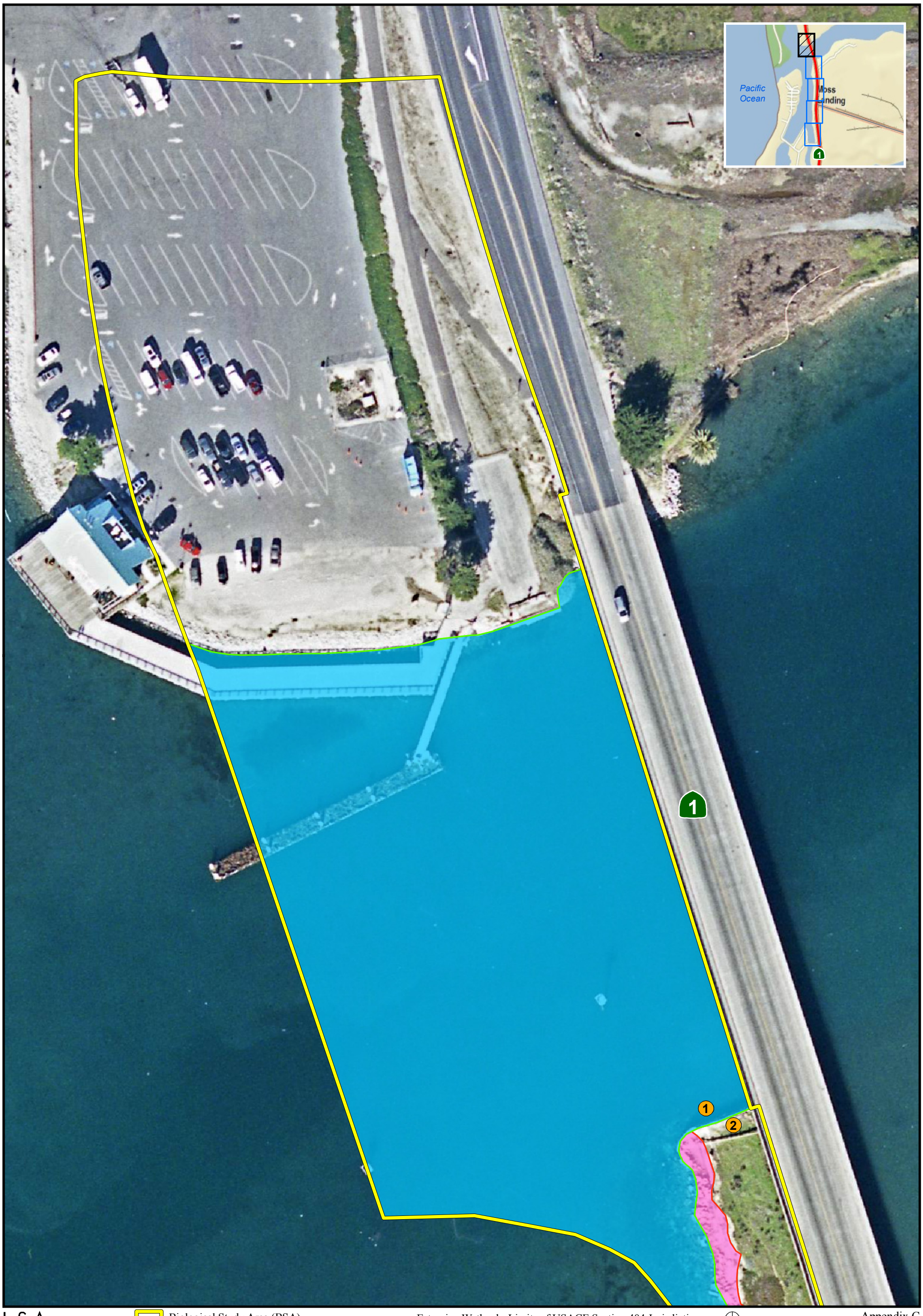
Use and Management of the Soils

This soil survey is a detailed analysis and evaluation of the most basic resource of the survey area—the soil. It may be used to relate the use of the land, includ-

Source: Monterey County Soil Survey
Issued April 1978

APPENDIX C

FIGURE OF JURISDICTIONAL WATERS (SHEETS 1 THROUGH 5)



LSA

Biological Study Area (BSA)

\# Sample Locations

Jurisdictional Waters

Open Waters - Limits of US Army Corps of Engineers (USACE) Section 10 jurisdiction per Rivers and Harbors Act (RHA) (3.5 ac)

Approximately 4 inches above Mean High Tide, Elevation 4.78 feet (NOAA, 2009)

Estuarine Wetland - Limits of USACE Section 404 Jurisdiction per Clean Water Act (CWA) and limits of California Coastal Commission jurisdiction per California Coastal Act (0.3 ac)

High High Water

Other Features

A Concrete Basin

B Roadside Drainage Ditch

C Upland Swale

Culvert

N

0 30 60

FEET

SOURCE: Imagery: Wood Rodgers (2009); APE: Wood Rodgers (2009)

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Appendix C

Sheet 1 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Jurisdictional Waters

LSA

Biological Study Area (BSA)

Sample Locations

Jurisdictional Waters

Open Waters - Limits of US Army Corps of Engineers (USACE) Section 10 jurisdiction per Rivers and Harbors Act (RHA) (3.5 ac)

Approximately 4 inches above Mean High Tide, Elevation 4.78 feet (NOAA, 2009)

Estuarine Wetland - Limits of USACE Section 404 Jurisdiction per Clean Water Act (CWA) and limits of California Coastal Commission jurisdiction per California Coastal Act (0.3 ac)

High High Water

Other Features

A Concrete Basin

B Roadside Drainage Ditch

C Upland Swale

Culvert

N

0 30 60

FEET

SOURCE: Imagery: Wood Rodgers (2009); APE: Wood Rodgers (2009)

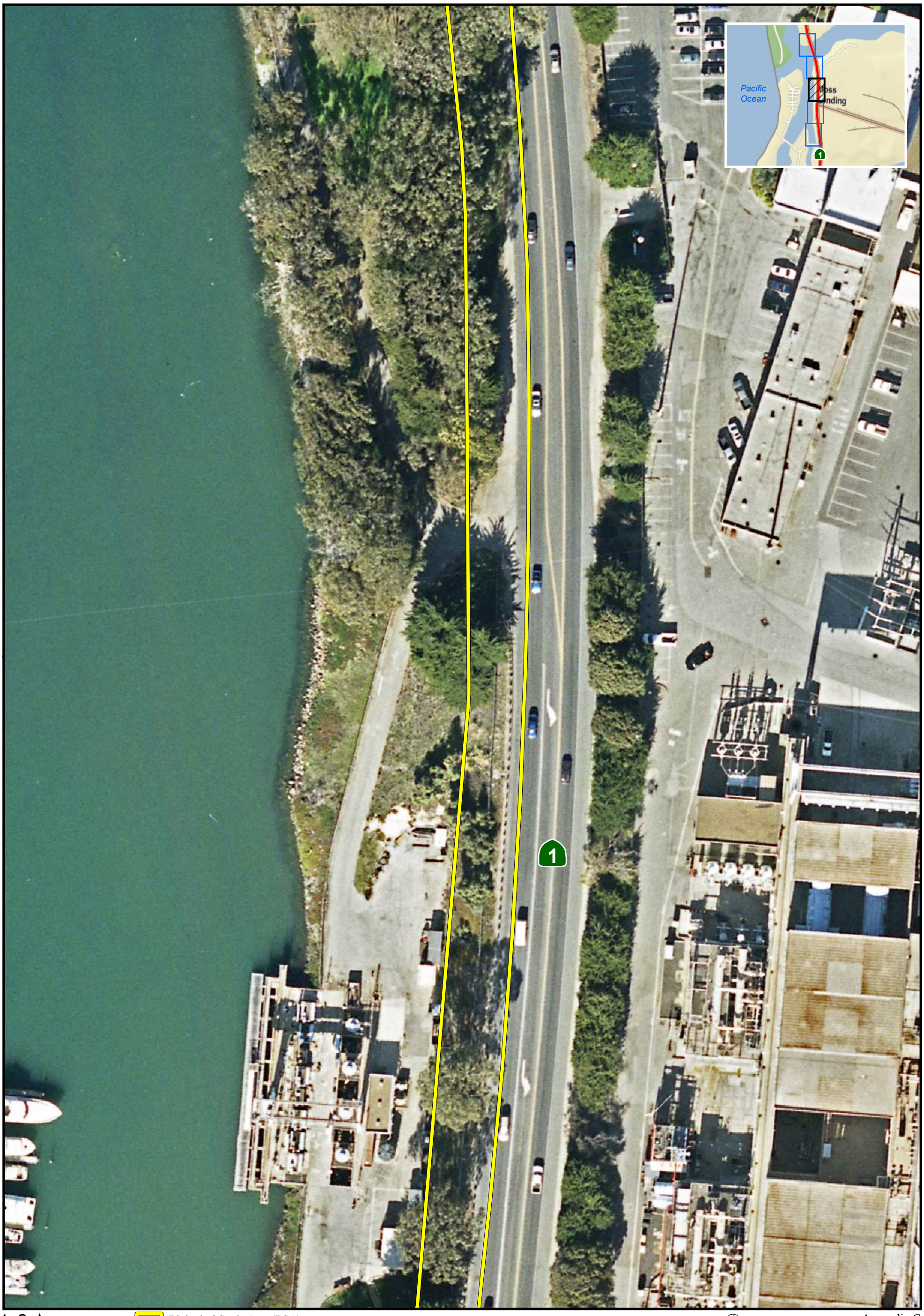
I:\WRS0803\GIS\Jurisdictional_Delineation.mxd (7/12/2010)

Appendix C

Sheet 2 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Jurisdictional Waters



LSA

Biological Study Area (BSA)

Sample Locations

Jurisdictional Waters

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High High Water

Other Features

A Concrete Basin

B Roadside Drainage Ditch

C Upland Swale

Culvert

0 30 60
FEET

SOURCE: Imagery: Wood Rodgers (2009); APE: Wood Rodgers (2009)

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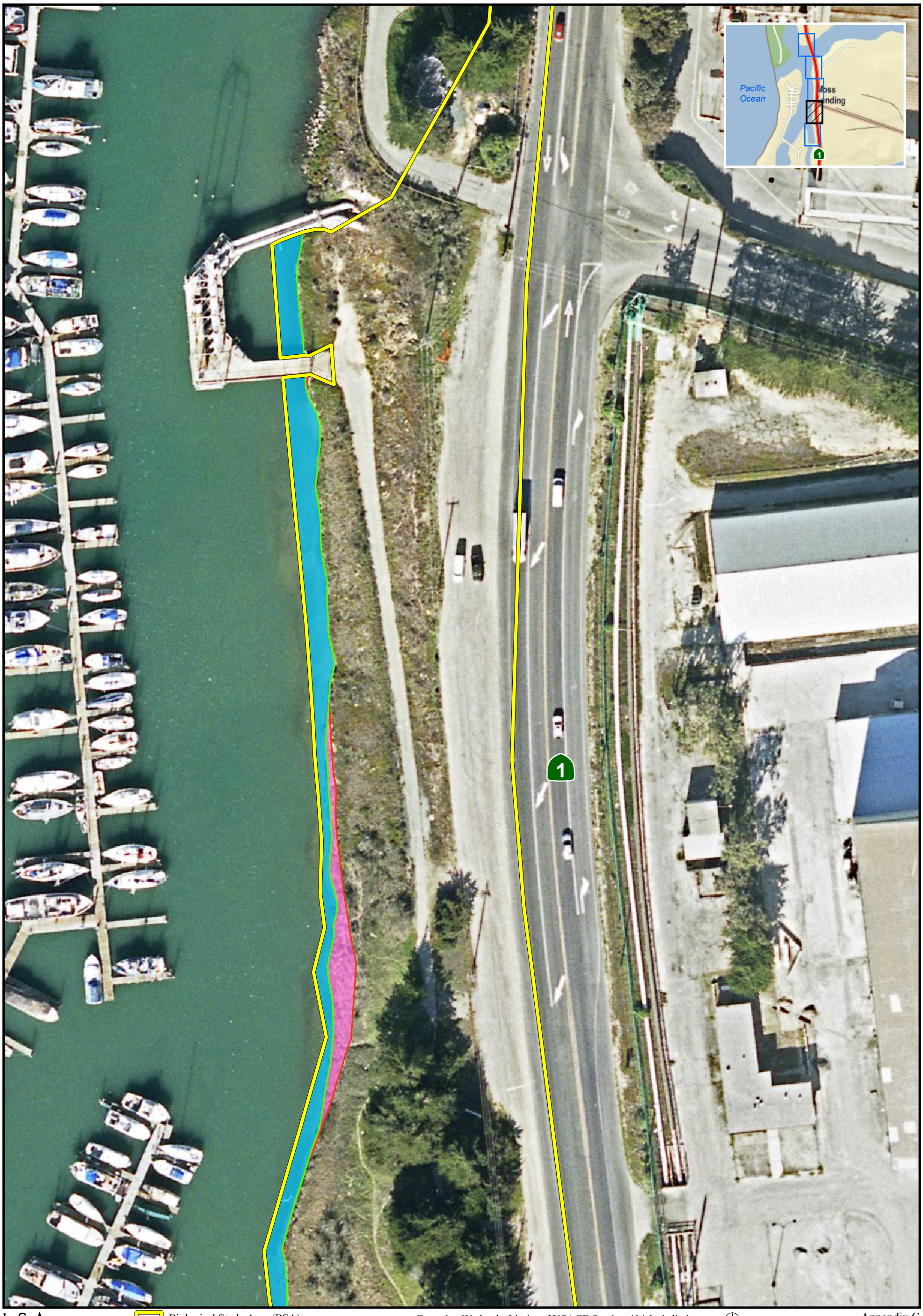
Appendix C
Sheet 3 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Jurisdictional Waters



LSA

Biological Study Area (BSA)

Sample Locations

Jurisdictional Waters

Open Waters - Limits of US Army Corps of Engineers (USACE) Section 10 jurisdiction per Rivers and Harbors Act (RHA) (3.5 ac)

Approximately 4 inches above Mean High Tide, Elevation 4.78 feet (NOAA, 2009)

Estuarine Wetland - Limits of USACE Section 404 Jurisdiction per Clean Water Act (CWA) and limits of California Coastal Commission jurisdiction per California Coastal Act (0.3 ac)

High High Water

Other Features

A Concrete Basin

B Roadside Drainage Ditch

C Upland Swale

Culvert

N

0 30 60

FEET

SOURCE: Imagery: Wood Rodgers (2009); APE: Wood Rodgers (2009)

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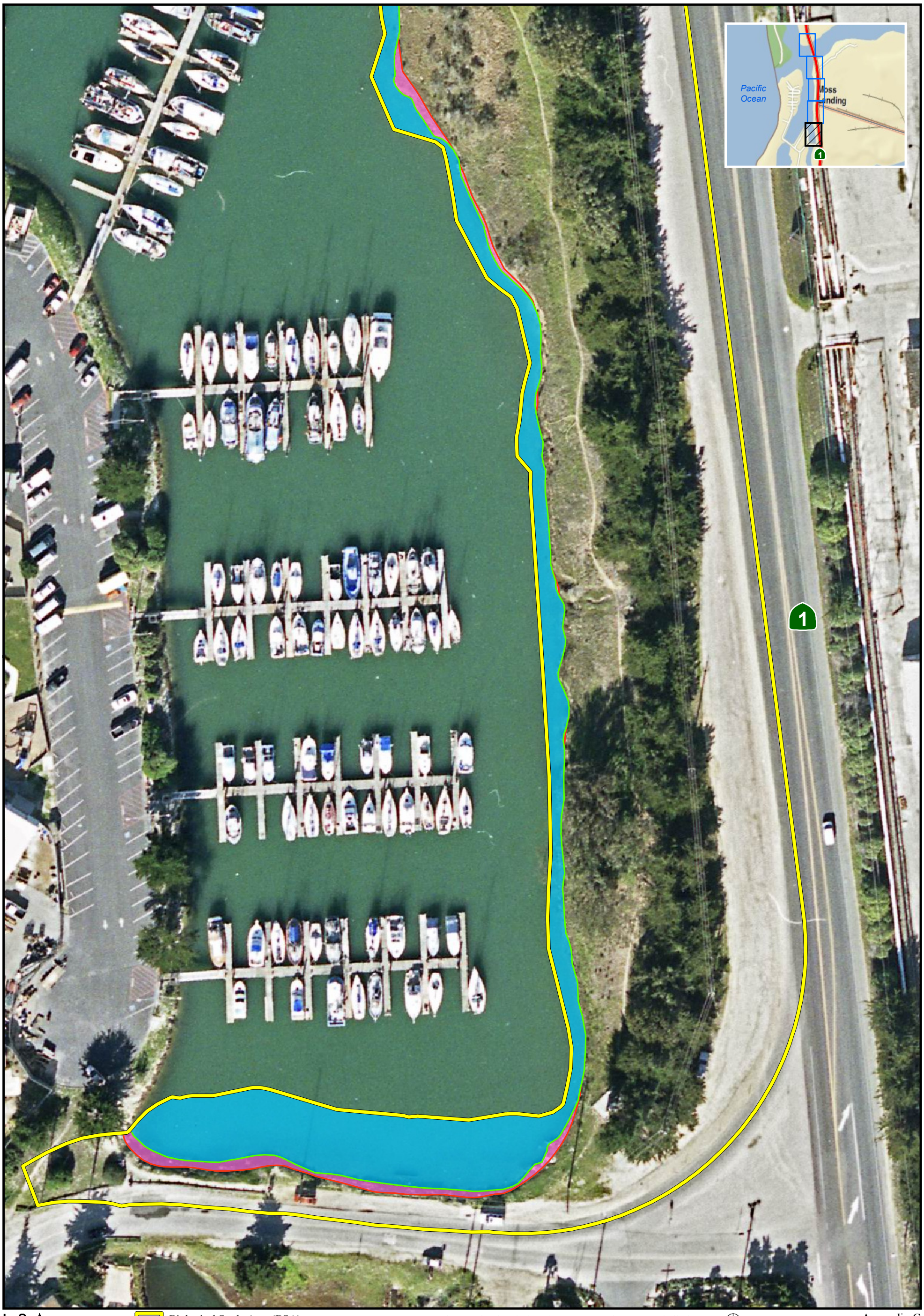
Appendix C

Sheet 4 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Jurisdictional Waters



LSA

Biological Study Area (BSA)

Sample Locations

Jurisdictional Waters

Open Waters - Limits of US Army Corps of Engineers (USACE) Section 10 jurisdiction per Rivers and Harbors Act (RHA) (3.5 ac)

Approximately 4 inches above Mean High Tide, Elevation 4.78 feet (NOAA, 2009)

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High High Water

Other Features

A Concrete Basin

B Roadside Drainage Ditch

C Upland Swale

Culvert

N

0 30 60

FEET

SOURCE: Imagery: Wood Rodgers (2009); APE: Wood Rodgers (2009)

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Appendix C
Sheet 5 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Jurisdictional Waters

APPENDIX D

PLANT SPECIES IDENTIFIED IN THE BIOLOGICAL STUDY AREA

APPENDIX D

MONTEREY BAY SANCTUARY SCENIC TRAIL - VASCULAR PLANT SPECIES OBSERVED IN THE BIOLOGICAL STUDY AREA DURING SITE VISITS CONDUCTED ON AUGUST 15, 2007; DECEMBER 17, 2008; JANUARY 19, FEBRUARY 6, MARCH 24, APRIL 8, APRIL 23, MAY 19, JUNE 5, AND AUGUST 7, 2009..

Category		Probability
Obligate Wetland	OBL	Almost always occur in wetlands (estimated probability > 99 percent)
Facultative Wetland	FACW	Usually occur in wetlands (estimated probability 67–99 percent)
Facultative	FAC	Equally likely to occur in wetlands and nonwetlands (estimated probability 34–66 percent)
Facultative Upland	FACU	Usually occur in nonwetlands (estimated probability 67–99 percent)
Obligate Upland	UPL	Almost always occur in nonwetlands (estimated probability > 99 percent)

PLANTS

Scientific Name	Common Name	Family	Indicator Status
Alyssum alyssoides	Alyssum	Brassicaceae	UPL
Ambrosia psilostachya	Western ragweed	Asteraceae	FAC
Anagallis arvensis	Scarlet pimpernel	Myrsinaceae	UPL
Artemesia californica	California sagebrush	Asteraeae	UPL
Atriplex sp.	Saltbush	Chenopodiaceae	-
Avena fatua	Wild oats	Poaceae	UPL
Baccharis pilularis	Coyote brush	Asteraceae	UPL
Brassica rapa	Field mustard	Brassicaceae	UPL
Bromus carinatus	California brome	Poaceae	UPL
Bromus diandrus	Ripgut brome	Poaceae	UPL
Bromus hordeaceus	Soft chess	Poaceae	UPL
Carduus pycnocephalus	Italian thistle	Asteraceae	UPL
Carpobotrys edulus	Hottentot fig	Asteraceae	UPL
Centauria solstitialis	Yellow star thistle	Asteraceae	UPL
Claytonia perfoliata	Miner's lettuce	Rubiaceae	FAC
Conium maculatum	Poison hemlock	Apiaceae	FACW
Conyza canadensis	Canada horseweed	Asteraceae	FAC
Cortaderia selloana	Pampas grass	Poaceae	UPL
Corymbia ficifolia	Red-flowering gum	Myrtaceae	UPL
Cucurbita foeditissima	Wild cucumber	Cucurbitaceae	UPL
Cupressus macrocarpa	Monterey cypress	Cupressaceae	UPL

Scientific Name	Common Name	Family	Indicator Status
Cynodon dactylon	Bermuda grass	Poaceae	FAC
Distichlis spicata	Inland saltgrass	Poaceae	FACW
Elymus glaucus	Blue wildrye	Poaceae	UPL
Enteromorpha intestinalis	Stringy green algae	Class Cholorphyta	OBL
Erodium botrys	Filaree	Geraniaceae	UPL
Eschscholtzia californica	California poppy	Papaveraceae	UPL
Eucalyptus globulus	Blue gum	Myrtaceae	UPL
Galium parisiense	Bedstraw	Rubiaceae	FACU
Garrya flavescens	Ashy silktassel	Garryaceae	UPL
Geranium dissectum	Dissected geranium	Geraniaceae	UPL
Geranium molle	Woodland geranium	Geraniaceae	UPL
Gnaphalium sp.	Cudweed	Asteraceae	-
Gracilariopsis lemaneiformis	Common red algae	Class Rhodophyta	OBL
Grindelia stricta var. *angustifolia*	Marsh Gumplant	Asteraceae	UPL
Hirschfeldia incana	Hirschfeldia	Brassicaceae	UPL
Hordeum murinum var. *leporinum*	Barnyard barley	Poaceae	NI
Lolium multiflorum	Italian ryegrass	Poaceae	UPL
Lupinus succulentus	Succulent lupine	Fabaceae	UPL
Macrocystis pyrifera	Giant sea kelp	Class Phaeophyta	OBL
Medicago polymorpha	California burclover	Fabaceae	UPL
Melilotus indica	Sweet Indian clover	Fabaceae	FAC
Oxalis pes-caprae	Bermuda buttercup	Oxalidaceae	UPL
Picris echioides	Bristly ox-tongue	Asteraceae	FAC*
Pittosporum erioloma	Pittosporum	Pittosporaceae	UPL
Plantago coronopus	Cut-leaved plantain	Plantaginaceae	FAC
Plantago lanceolata	English plantain	Plantaginaceae	FAC-
Plocamium cartilegeneum	Red algae	Class Rhodophyta	OBL
Raphanus sativus	Wild radish	Brassicaceae	UPL
Rumex crispus	Curly dock	Polygonaceae	FACW-
Salicornia virginica	Pickleweed	Amaranthaceae	OBL
Senecio mikanioides	German ivy	Asteraceae	UPL
Senecio vulgaris	Common groundsel	Asteraceae	NI*
Sonchus oleraceus	Common sow thistle	Asteraceae	NI*
Stellaria media	Common chickweed	Caryophyllaceae	FACU
Tanacetum camphoratum	Dune tansy	Asteraceae	UPL
Taraxacum officinalis	Common dandelion	Asteraceae	FACU
Tetragonia tetragonioides	New Zealand spinach	Aizoaceae	UPL
Trifolium hirtum	Rose clover	Fabaceae	UPL
Vicia sativa	Common vetch	Fabaceae	FACU
Vicia villosa	Vetch	Fabaceae	UPL
Vulpia myuros	Rat-tail fescue	Poaceae	FACU*

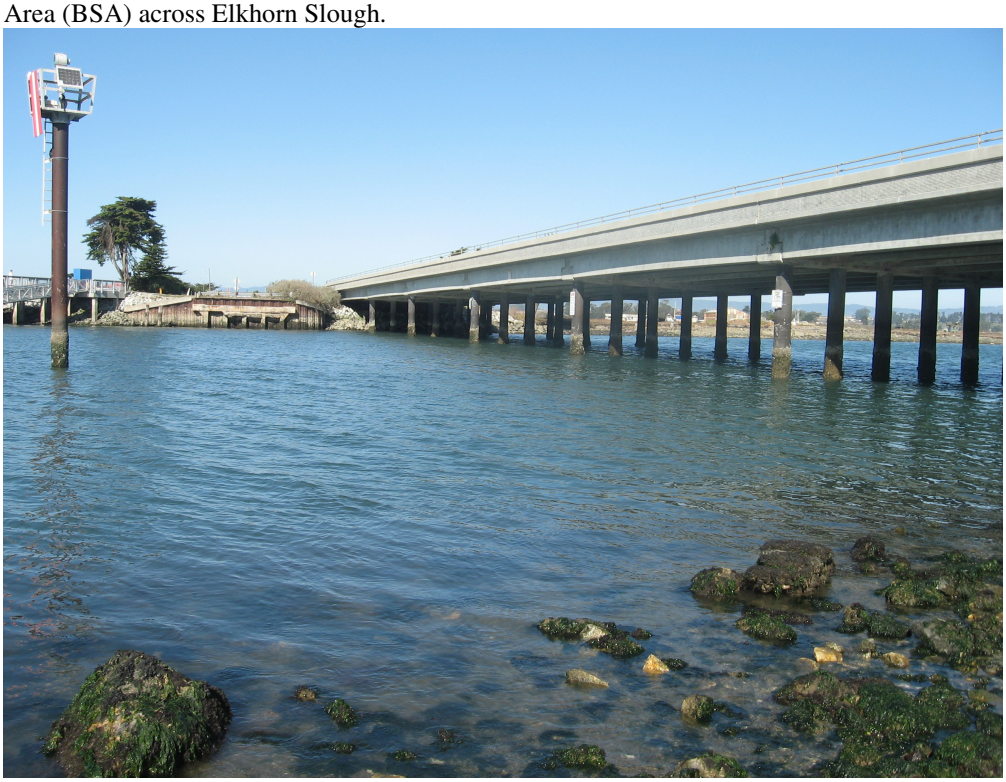
*Plant names are consistent with Hickman (1993)

APPENDIX E

SELECTED PHOTOGRAPHS OF BIOLOGICAL STUDY AREA

Photograph #1 (above). Sampling point #1 was taken below the cement wall in the intertidal zone at low tide on the south side of the proposed bridge. A variety of seaweed and other intertidal life occurs in the sampling point. Photograph #2 (below). Sampling Point #2 was taken in upland habitat south of the wall.

Photographs #3 and #4. Looking north through the Biological Study Area (BSA) across Elkhorn Slough.



Photograph #5 (upper left). Looking south across Elkhorn Slough.

Photograph #6 (left). The roadside drainage ditch is lined with cement along its northern half. Sample location #3 was taken approximately 10 feet south of the cement lining. Upland vegetation was found growing in the ditch and it did not appear to connect with Elkhorn Slough.

Photograph #7 (left). The concrete basin was sparsely vegetated with a mix of wetland and upland vegetation. This potential jurisdictional water connects with Elkhorn Slough to the west through an underground culvert. Sample location number #4 was taken in the concrete basin.

Photograph #8 (below). This upland drainage is bounded by a culvert on the east and the rocky shoreline of Elkhorn Slough on the west.

LSA ASSOCIATES, INC.
157 PARK PLACE
PT. RICHMOND, CALIFORNIA 94801
510.236.6810 TEL
510.236.3480 FAX
BERKELEY
CARLSBAD
FORT COLLINS
FRESNO
IRVINE
PALM SPRINGS
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO
SOUTH SAN FRANCISCO

M E M O R A N D U M

DATE: November 8, 2012

TO: Randy LaVack, Environmental Planning Branch, Caltrans District 5

FROM: Chip Bouril

SUBJECT: Addendum to the Jurisdictional Delineation Report – Monterey Bay Sanctuary Scenic Trail – Moss landing, Monterey County, California, Revised, 20 July 2010.

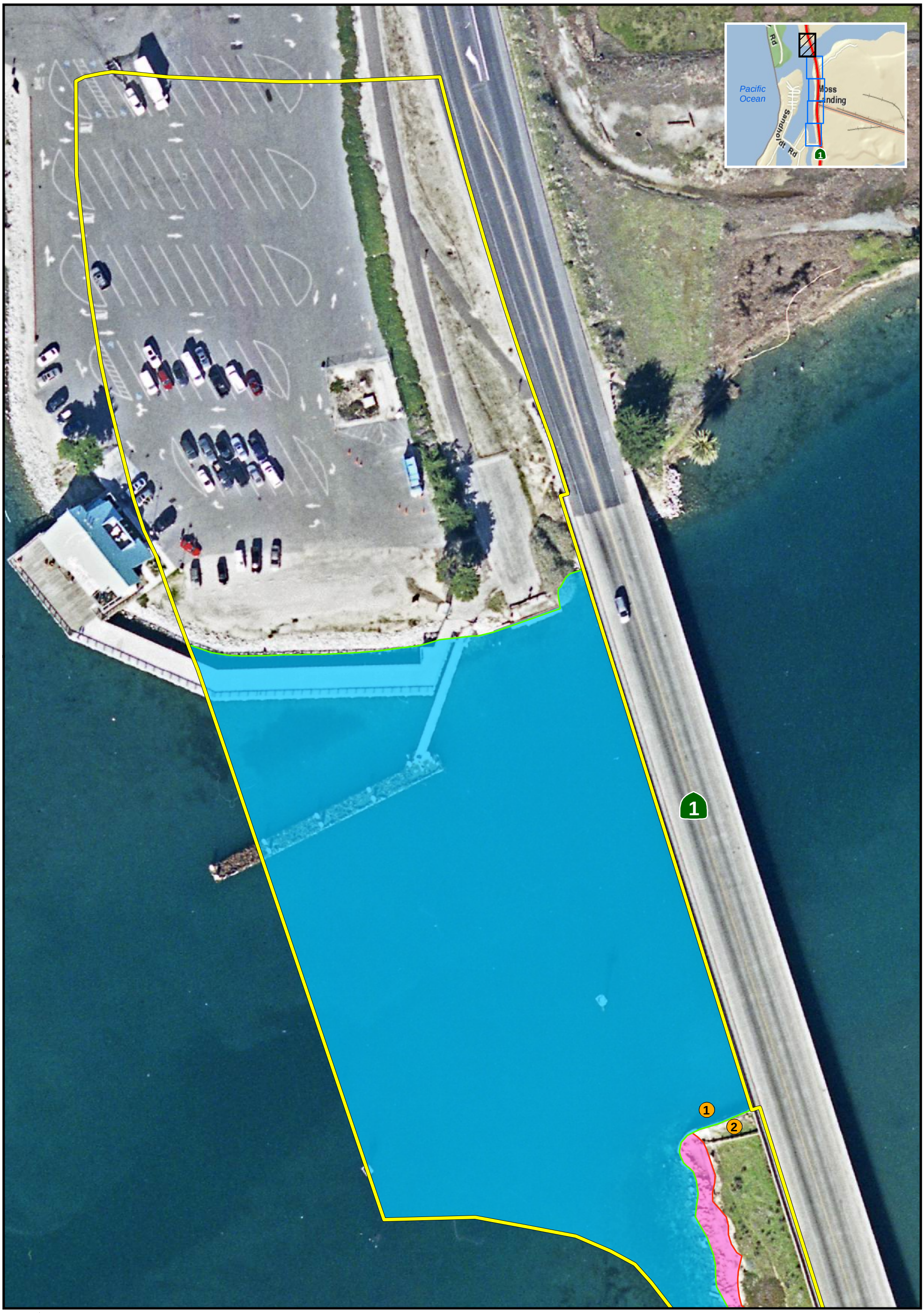
On March 6, 2012 LSA wetland scientist Chip Bouril conducted delineation field work to investigate the area covered by a proposed realignment of a segment of the Monterey Bay Sanctuary Scenic Trail that extends for approximately 350 feet north of the Moss Landing Plant cooling water intake facility. This trail segment was relocated to avoid cultural resources discovered during cultural investigations.

Both the old trail alignment and the realigned trail segment are within the boundaries of the 2010 Biological Study Area which served as the delineation study area. The Biological Study Area has not changed since the 2010 delineation. While the 2010 delineation, verified by the Corps on 8 September 2010, did not map any jurisdictional features within either trail alignment, the 2012 delineation investigation was conducted to place additional sample points specifically within the realigned trail segment to provide supplemental data bolstering the conclusions of the 2010 delineation.

The 2012 sample points were numbered 6 through 9 following the number sequence of the five sample points in the 2010 delineation. Sample Point 6 was placed under eucalyptus trees near the toe of the slope leading down to the Moss Landing Plant cooling water intake facility. No hydrophytic vegetation, hydric soil, or wetland hydrology indicators were observed. Sample Point 7 was placed in open grassland higher on a similar slope. It had a similar lack of any wetland characteristics. Sample Points 8 and 9 were placed at two locations within a linear graded flat area between a large surface cooling water pipe and rock rip-rap shoreline protection. Neither location displayed any wetland indicators, other than non-hydrophytic vegetation cover that includes two facultative grasses, Italian rye (*Festuca perennis*) and creeping wild rye (*Elymus triticoides*). The soil at each of these sample points has a sandy loam to loamy sand texture and is therefore quite permeable. Each location is on or near sloped land and therefore has good drainage. Both these characteristics make wetland hydrology very unlikely at these sample points. The locations of Sample Points 6 through 9 are shown on Sheet 2 of an updated version of the 2010 Appendix C delineation map.

In conclusion, no wetland characteristics and no potential jurisdictional features were observed along the realigned trail segment.

Copies of the four sample point data sheets and the updated version of the Appendix C delineation map are attached to this addendum.



LSA

N

0 30 60
FEET

Biological Study Area (BSA)

Sample Locations

Jurisdictional Waters

Open Waters - Limits of US Army Corps of Engineers (USACE) Section 10 jurisdiction per Rivers and Harbors Act (RHA) (3.5 ac)

Approximately 4 inches above Mean High Tide, Elevation 4.78 feet (NOAA, 2009)

Estuarine Wetland - Limits of USACE Section 404 Jurisdiction per Clean Water Act (CWA) and limits of California Coastal Commission jurisdiction per California Coastal Act (0.3 ac)

High High Water

Other Features

A Concrete Basin

B Roadside Drainage Ditch

C Upland Swale

Culvert

Appendix C
Sheet 1 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Jurisdictional Waters

SOURCE: Imagery: Wood Rodgers (2009); APE: Wood Rodgers (2009)

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LSA

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0 30 60

FEET

SOURCE: Imagery: Wood Rodgers (2009); APE: Wood Rodgers (2009)

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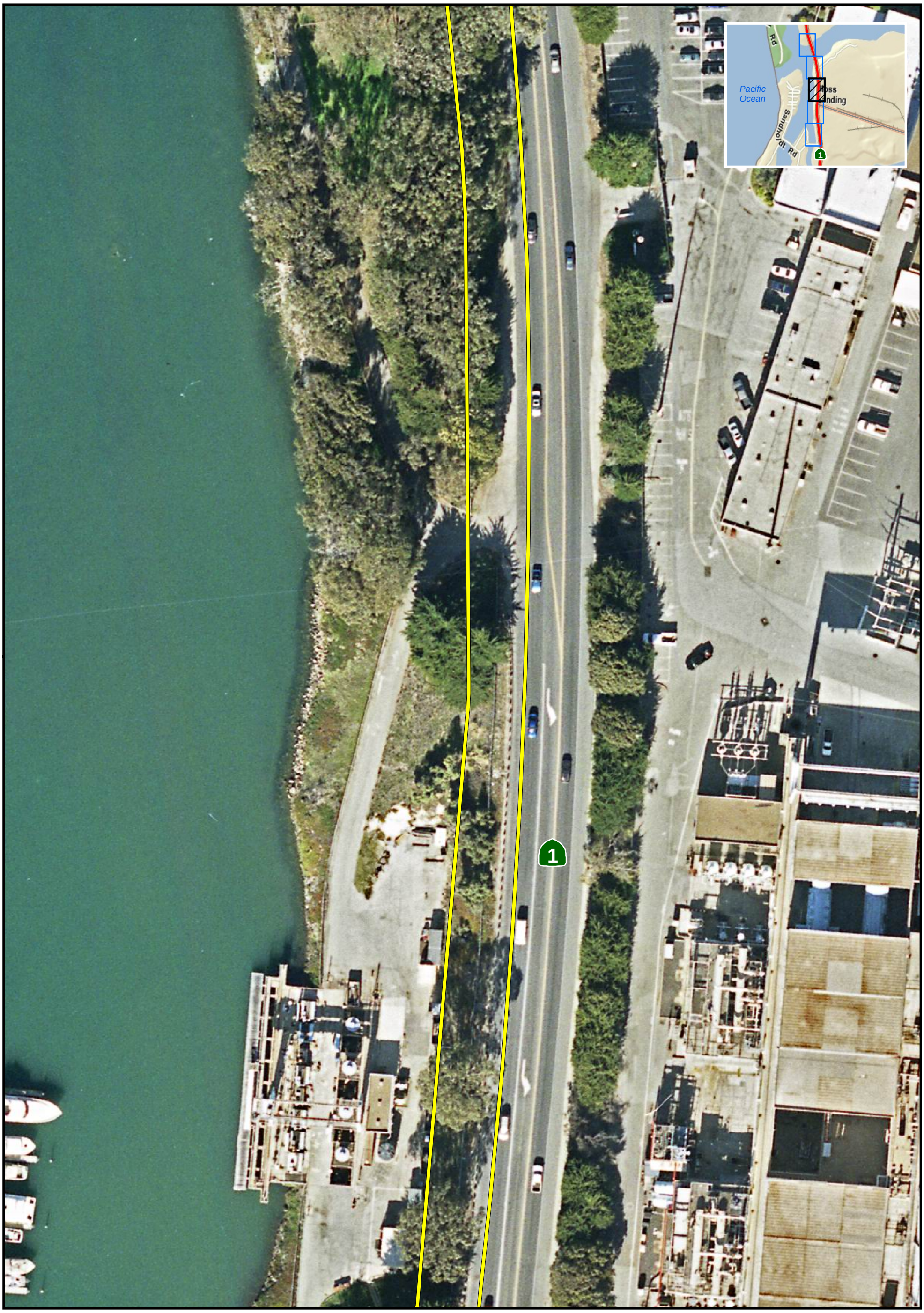
Appendix C

Sheet 2 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Jurisdictional Waters



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0 30 60
FEET

SOURCE: Imagery: Wood Rodgers (2009); APE: Wood Rodgers (2009)

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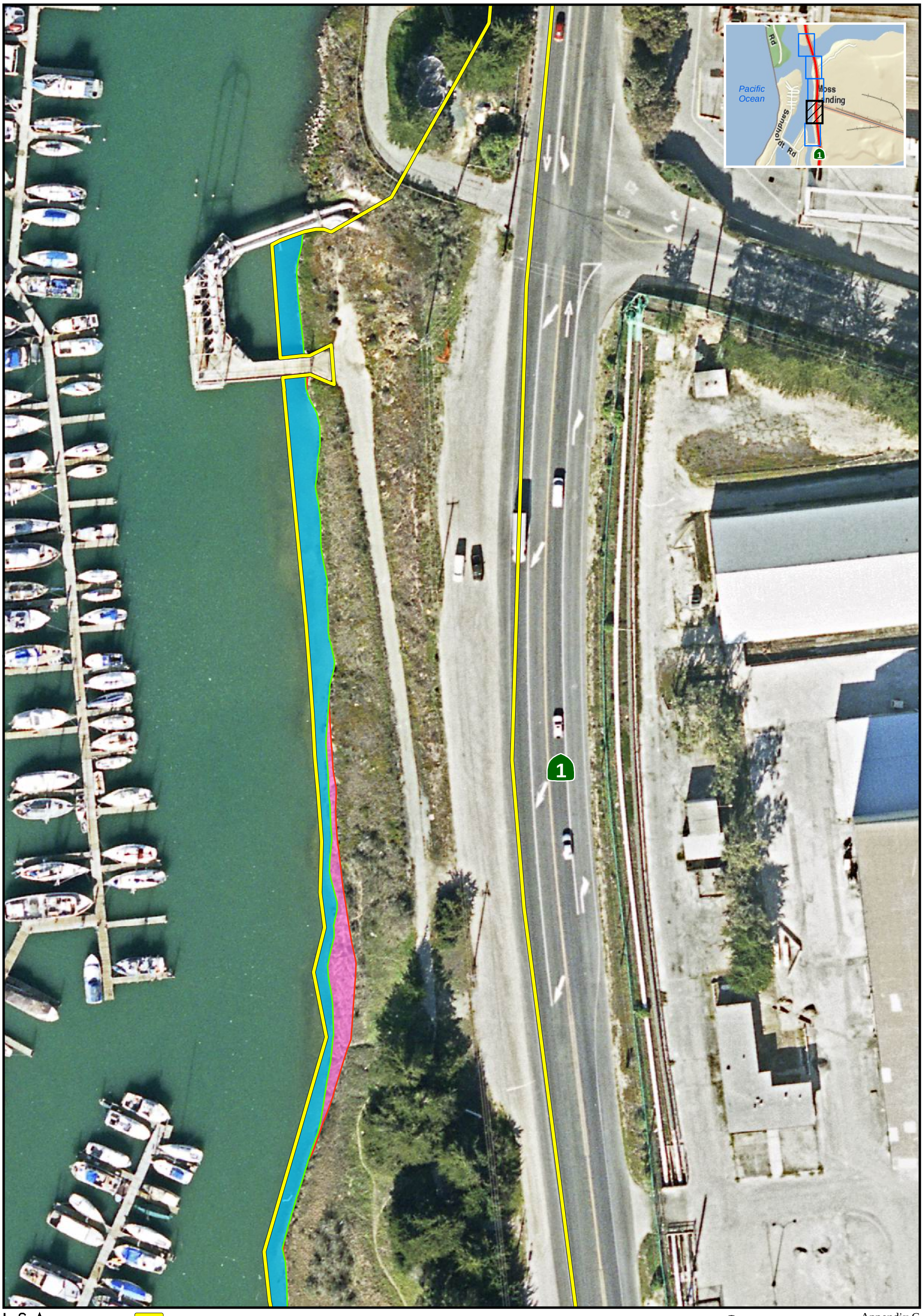
Appendix C
Sheet 3 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Jurisdictional Waters



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0 30 60
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SOURCE: Imagery: Wood Rodgers (2009); APE: Wood Rodgers (2009)

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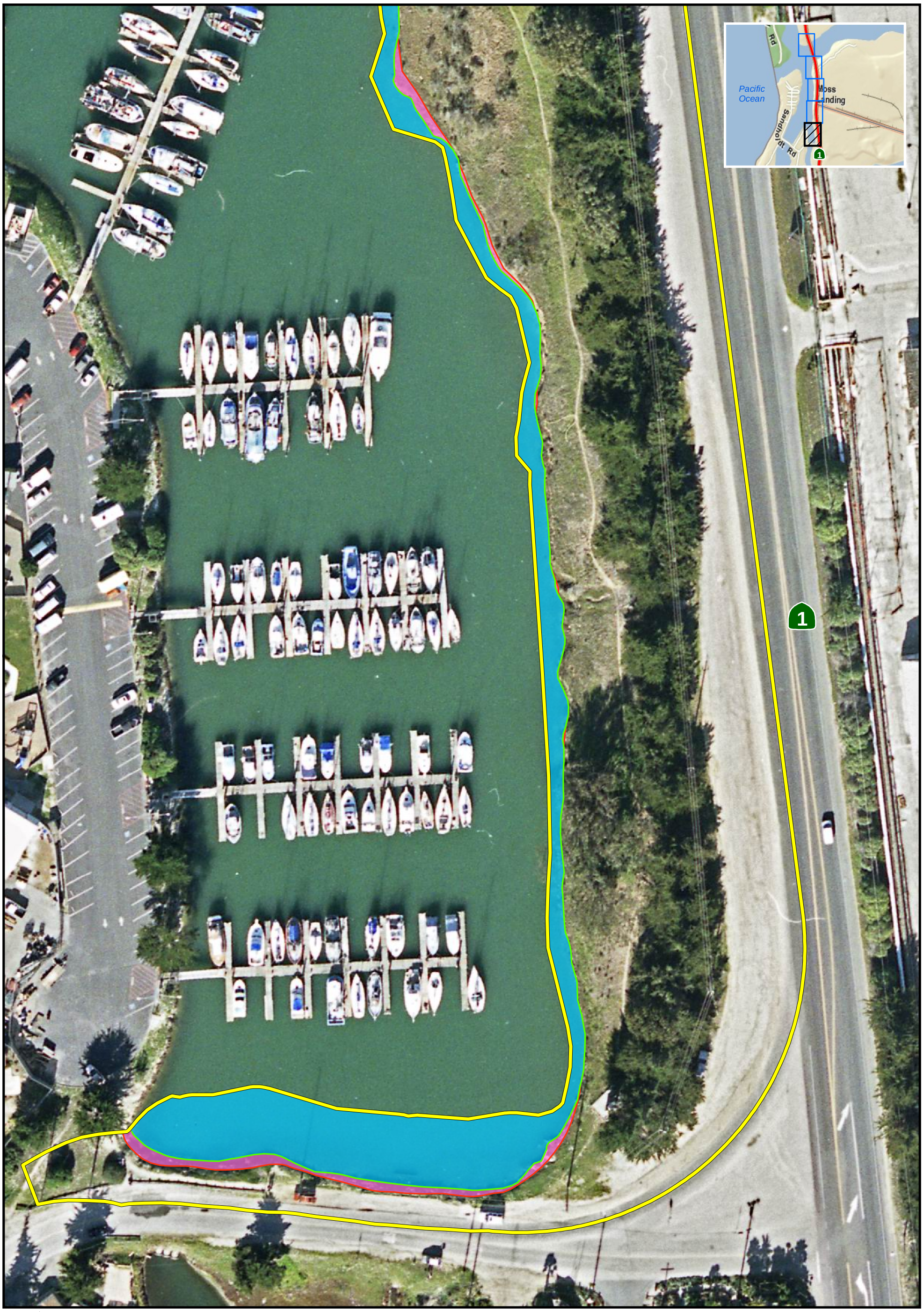
Appendix C
Sheet 4 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Jurisdictional Waters



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Appendix C

Sheet 5 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Jurisdictional Waters

Appendix C Species Observed in the BSA

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MONTEREY BAY SANCTUARY SCENIC TRAIL - VASCULAR PLANT AND ANIMAL SPECIES OBSERVED IN THE BIOLOGICAL STUDY AREA DURING SITE VISITS CONDUCTED ON AUGUST 15, 2007; DECEMBER 17, 2008; JANUARY 19, FEBRUARY 6, MARCH 24, APRIL 8, APRIL 23, MAY 19, JUNE 5, AND AUGUST 7, 2009.

Category		Probability
Obligate Wetland	OBL	Almost always occur in wetlands (estimated probability > 99 percent)
Facultative Wetland	FACW	Usually occur in wetlands (estimated probability 67–99 percent)
Facultative	FAC	Equally likely to occur in wetlands and nonwetlands (estimated probability 34–66 percent)
Facultative Upland	FACU	Usually occur in nonwetlands (estimated probability 67–99 percent)
Obligate Upland	UPL	Almost always occur in nonwetlands (estimated probability > 99 percent)

PLANTS

Scientific Name	Common Name	Family	Indicator Status
Alyssum alyssoides	Alyssum	Brassicaceae	UPL
Ambrosia psilostachya	Western ragweed	Asteraceae	FAC
Anagallis arvensis	Scarlet pimpernel	Myrsinaceae	UPL
Artemesia californica	California sagebrush	Asteraeae	UPL
Atriplex sp.	Saltbush	Chenopodiaceae	-
Avena fatua	Wild oats	Poaceae	UPL
Baccharis pilularis	Coyote brush	Asteraceae	UPL
Brassica rapa	Field mustard	Brassicaceae	UPL
Bromus carinatus	California brome	Poaceae	UPL
Bromus diandrus	Ripgut brome	Poaceae	UPL
Bromus hordeaceus	Soft chess	Poaceae	UPL
Carduus pycnocephalus	Italian thistle	Asteraceae	UPL
Carpobotrys edulus	Hottentot fig	Asteraceae	UPL
Centauria solstitialis	Yellow star thistle	Asteraceae	UPL
Claytonia perfoliata	Miner's lettuce	Rubiaceae	FAC
Conium maculatum	Poison hemlock	Apiaceae	FACW
Conyza canadensis	Canada horseweed	Asteraceae	FAC
Cortaderia selloana	Pampas grass	Poaceae	UPL
Corymbia ficifolia	Red-flowering gum	Myrtaceae	UPL
Cucurbita foeditissima	Wild cucumber	Cucurbitaceae	UPL
Cupressus macrocarpa	Monterey cypress	Cupressaceae	UPL

Scientific Name	Common Name	Family	Indicator Status
Cynodon dactylon	Bermuda grass	Poaceae	FAC
Distichlis spicata	Inland saltgrass	Poaceae	FACW
Elymus glaucus	Blue wildrye	Poaceae	UPL
Enteromorpha intestinalis	Stringy green algae	Class Cholorphyta	OBL
Erodium botrys	Filaree	Geraniaceae	UPL
Eschscholtzia californica	California poppy	Papaveraceae	UPL
Eucalyptus globulus	Blue gum	Myrtaceae	UPL
Galium parisiense	Bedstraw	Rubiaceae	FACU
Garrya flavescens	Ashy silktassel	Garryaceae	UPL
Geranium dissectum	Dissected geranium	Geraniaceae	UPL
Geranium molle	Woodland geranium	Geraniaceae	UPL
Gnaphalium sp.	Cudweed	Asteraceae	-
Gracilariopsis lemaneiformis	Common red algae	Class Rhodophyta	OBL
Grindelia stricta var. *angustifolia*	Marsh Gumplant	Asteraceae	UPL
Hirschfeldia incana	Hirschfeldia	Brassicaceae	UPL
Hordeum murinum var. *leporinum*	Barnyard barley	Poaceae	NI
Lolium multiflorum	Italian ryegrass	Poaceae	UPL
Lupinus succulentus	Succulent lupine	Fabaceae	UPL
Macrocystis pyrifera	Giant sea kelp	Class Phaeophyta	OBL
Medicago polymorpha	California burclover	Fabaceae	UPL
Melilotus indica	Sweet Indian clover	Fabaceae	FAC
Oxalis pes-caprae	Bermuda buttercup	Oxalidaceae	UPL
Picris echioides	Bristly ox-tongue	Asteraceae	FAC*
Pittosporum erioloma	Pittosporum	Pittosporaceae	UPL
Plantago coronopus	Cut-leaved plantain	Plantaginaceae	FAC
Plantago lanceolata	English plantain	Plantaginaceae	FAC-
Plocamium cartilegeneum	Red algae	Class Rhodophyta	OBL
Raphanus sativus	Wild radish	Brassicaceae	UPL
Rumex crispus	Curly dock	Polygonaceae	FACW-
Salicornia virginica	Pickleweed	Amaranthaceae	OBL
Senecio mikanioides	German ivy	Asteraceae	UPL
Senecio vulgaris	Common groundsel	Asteraceae	NI*
Sonchus oleraceus	Common sow thistle	Asteraceae	NI*
Stellaria media	Common chickweed	Caryophyllaceae	FACU
Tanacetum camphoratum	Dune tansy	Asteraceae	UPL
Taraxacum officinalis	Common dandelion	Asteraceae	FACU
Tetragonia tetragonioides	New Zealand spinach	Aizoaceae	UPL
Trifolium hirtum	Rose clover	Fabaceae	UPL
Vicia sativa	Common vetch	Fabaceae	FACU
Vicia villosa	Vetch	Fabaceae	UPL
Vulpia myuros	Rat-tail fescue	Poaceae	FACU*

*Plant names are consistent with Hickman (1993)

ANIMALS

Common Name	Scientific Name	Presumed Seasonal Occurrence/ Nesting Codes[i]
Amphibians		
Gabilan Mountains slender salamander	*Batrachoseps gavilanensis*	R
Reptiles		
Northern alligator lizard	*Elgaria coerulea*	R
Birds		
Surf scoter	*Melanitta perspicillata*	W/M
Long-tailed duck	*Clangula hyemalis*	W/M
Bufflehead	*Bucephala albeola*	W/M
Red-breasted merganser	*Mergus serrator*	W/M
Red-throated loon	*Gavia stellata*	W/M
Common loon	*Gavia immer*	W/M
Eared grebe	*Podiceps nigricollis*	W/M
Western grebe	*Aechmophorus occidentalis*	W/M
Clark's grebe	*Aechmophorus clarkii*	W/M
Brown pelican	*Pelecanus occidentalis*	S/M
Brandt's cormorant	*Phalacrocorax penicillatus*	R
Double-crested cormorant	*Phalacrocorax auritus*	R
Pelagic cormorant	*Phalacrocorax pelagicus*	R
Great blue heron	*Ardea herodias*	R
Snowy egret	*Egretta thula*	R
Osprey	*Pandion haliaetus*	W/M
Black-bellied plover	*Pluvialis squatarola*	W/M
Willet	*Tringa semipalmata*	W/M
Long-billed curlew	*Numenius americanus*	W/M
Marbled godwit	*Limosa fedoa*	W/M
Bonaparte's gull	*Larus philadelphia*	W/M
Heermann's gull	*Larus heermannii*	W/M
Ring-billed gull	*Larus delawarensis*	W/M
California gull	*Larus californicus*	W/M
Herring gull	*Larus argentatus*	W/M
Western gull	*Larus occidentalis*	R
Glaucous-winged gull	*Larus glaucescens*	W/M
Caspian tern	*Hydroprogne caspia*	S/M
Forster's tern	*Sterna forsteri*	R
Elegant tern	*Thalasseus elegans*	S/M
Rock pigeon*	*Columba livia*	R
Killdeer	*Charadrius vociferus*	
Anna's hummingbird	*Calypte anna*	R
Say's phoebe	*Sayornis laya*	R
Black phoebe	*Sayornis nigricans*	R

Common Name	Scientific Name	Presumed Seasonal Occurrence/ Nesting Codes[i]
Chestnut-backed chickadee	*Poecile rufescens*	R
American coot	*Fulica americana*	
Hermit thrush	*Catharus guttatus*	W/M
Yellow rumped warbler	*Dendroica coronata*	W/M
Song sparrow	*Melospiza melodia*	R
Brewer's blackbird	*Euphagus cyanocephalus*	R
House finch	*Carpodacus mexicanus*	R
Mammals		
Virginia opossum*	*Didelphis virginiana*	R
Domestic dog*	*Canis familiaris*	
Western grey squirrel	*Sciurus griseus*	
Botta's pocket gopher	*Thomomys bottae*	R
Sea otter	*Enhydra lutris*	R
California sea lion	*Zalophus californianus*	R
Harbor seal	*Phoca vitulina*	R

[i] The codes refer to the species presumed seasonal occurrence on the site and probable breeding/nesting status (breeding was not confirmed in most cases).

M = Migrant: Occurs in the project area for brief periods during migration, primarily during the spring and fall months.
R = Year-round resident: resident/expected to nest/breed in the project area or in the vicinity.
S = Spring/summer resident: May nest in the project area or in the vicinity.
T = Transient: May occur in the project area sporadically, but unlikely to nest or occur regularly.
W = Winter visitor: Regularly present during winter; does not nest locally.
F = Fly over.
* = Non-native species.

Appendix D Land Uses/Vegetation Communities Identified in the BSA

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LSA

LEGEND

Biological Study Area

Vegetation Communities

Disturbed (4.8 ac)

Dune Scrub (0.4 ac)

Estuarine Wetland / Open Water (3.8 ac)

Eucalyptus / Cypress Woodland (planted) (2.7 ac)

Invaded Dune Mat (2.8 ac)

N

0 30 60

FEET

SOURCE: Imagery: Wood Rodgers (2009); BSA: Wood Rodgers/LSA (2009)

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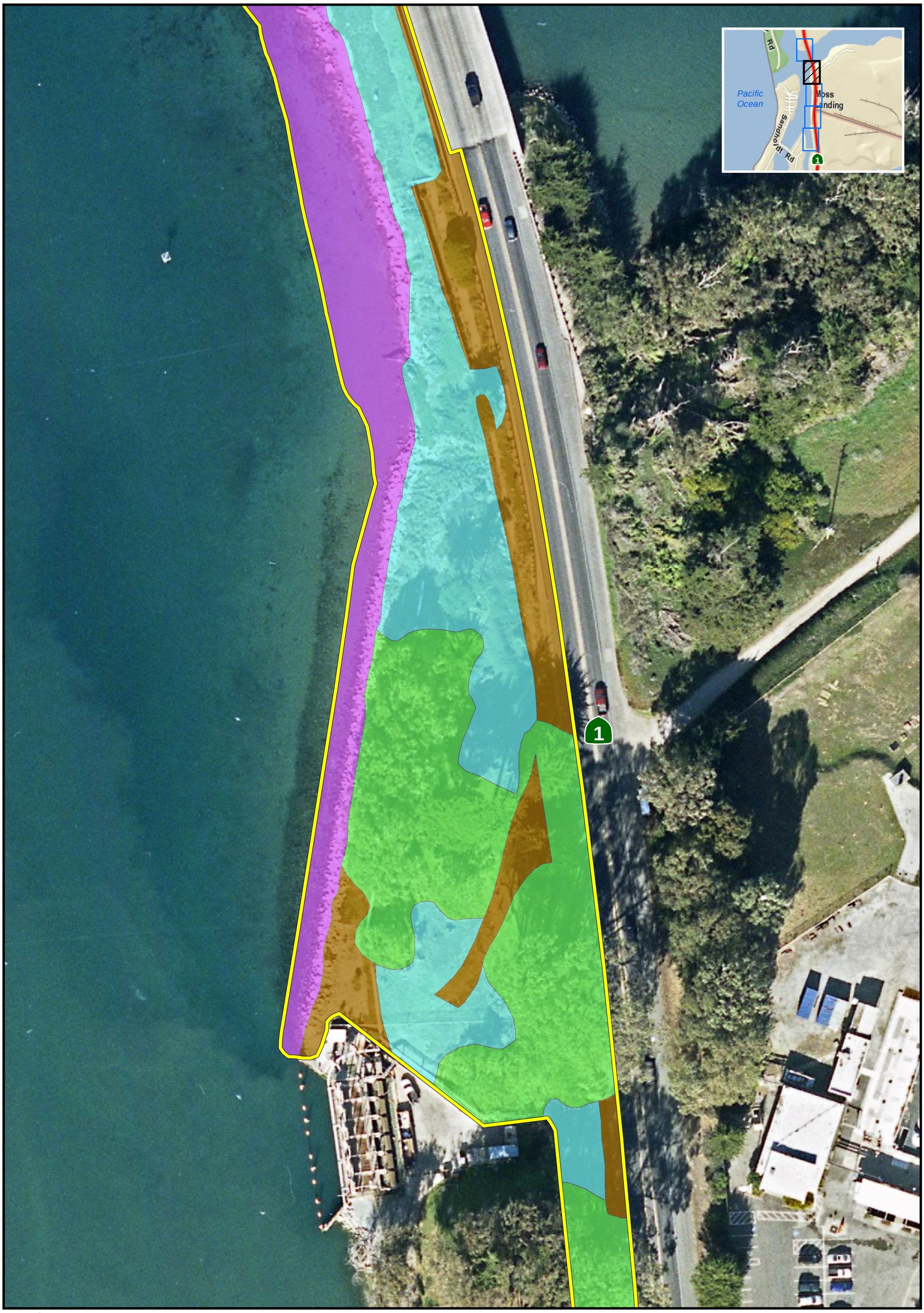
APPENDIX D

Sheet 1 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Land Uses/Vegetation Communities within the Biological Study Area



LSA

LEGEND

- Biological Study Area
- **Vegetation Communities**
- Disturbed (4.8 ac)
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N

0 30 60
FEET

SOURCE: Imagery: Wood Rodgers (2009); BSA: Wood Rodgers/LSA (2009)

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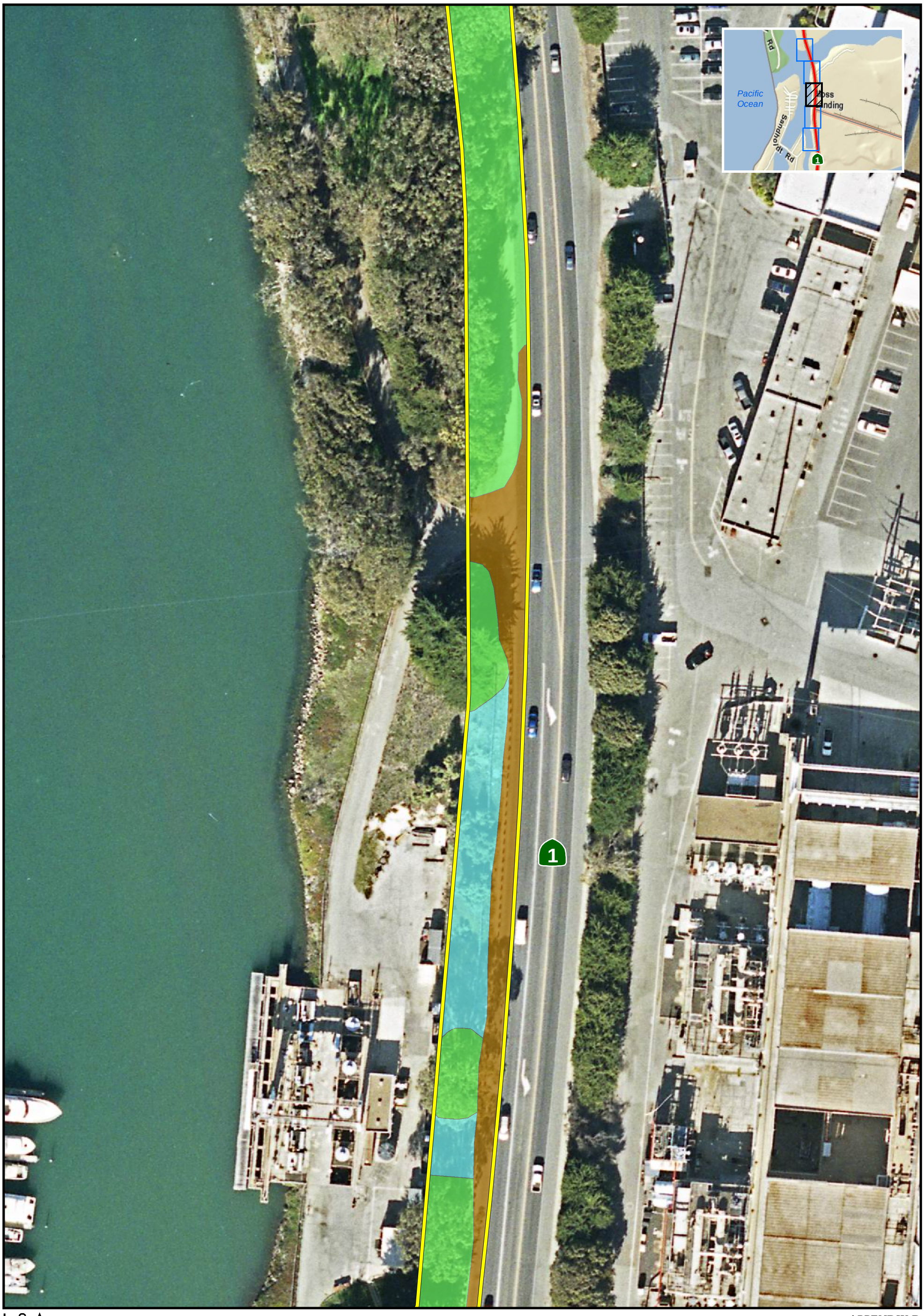
APPENDIX D
Sheet 2 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Land Uses/Vegetation Communities within the Biological Study Area



LSA

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Biological Study Area

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0 30 60
FEET

SOURCE: Imagery: Wood Rodgers (2009); BSA: Wood Rodgers/LSA (2009)

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APPENDIX D
Sheet 3 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Land Uses/Vegetation Communities within the Biological Study Area

LSA

LEGEND

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- **Vegetation Communities**
- Disturbed (4.8 ac)
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0 30 60
FEET

SOURCE: Imagery: Wood Rodgers (2009); BSA: Wood Rodgers/LSA (2009)

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APPENDIX D
Sheet 4 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Land Uses/Vegetation Communities within the Biological Study Area

LSA

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0 30 60

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APPENDIX D

Sheet 5 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Land Uses/Vegetation Communities within the Biological Study Area

Appendix E Selected Photographs of the BSA

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Photograph 1 (above). Looking south across Elkhorn Slough from the northern end of the trail alignment.
Photograph 2 (below). Estuarine wetland/open water at the south end of the proposed crossing over Elkhorn Slough.

Photograph #3 (above). Looking north across invaded dune mat directly south of the proposed bridge crossing Elkhorn Slough. Photograph #4 (below). Looking south with invaded dune mat in the foreground, estuarine wetland/open water on the right, disturbed roadside on the left, and planted Monterey cypress in the background.

Photograph 5 (above). Looking north near the southern end of the alignment. Monterey cypress (planted) is on the right, estuarine wetland/open water is on the left, and invaded dune mat is in the center. The stakes represent the location of the proposed trail centerline. Photograph 6 (below). Looking south from nearly the same location as Photograph 5.

Photograph #7 (above). Looking north from the knoll across invaded dune mat habitat towards the Elkhorn Slough crossing. The cement-lined v-ditch is on the right. Photograph #8 (below). The proposed trail will head west on the north side of Moss Landing Road. A retaining wall will be necessary to support the trail along the shoreline of Moss Landing Harbor.

Appendix F Project Effects to Land Uses/Vegetation

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Description	Impacts by Type		
	Permanent (acres)	Temporary (acres)	Indirect (acres)
Disturbed	0.47	0.45	--
Estuarine Wetland / Open Water	0.273	0.107	0.11
Eucalyptus / Cypress Woodland (planted)	0.59	0.42	--
Invaded Dune Mat	0.41	0.41	0.001
Total	**1.74**	**1.39**	**0.11**

LSA

Biological Study Area

Project Impacts

Permanent Impacts

Limits of Potential Temporary Disturbance (not including staging areas)

Indirect Impacts

Land Uses/Vegetation Communities

Disturbed

Dune Scrub

Estuarine Wetland / Open Water

Eucalyptus / Cypress Woodland (planted)

Invaded Dune Mat

0 30 60

FEET

SOURCE: Imagery: Wood Rodgers (2009); BSA: Wood Rodgers/LSA (2009)

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APPENDIX F

Sheet 1 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Project Effects to Land Uses/Vegetative Communities

Description	Impacts by Type		
	Permanent (acres)	Temporary (acres)	Indirect (acres)
Disturbed	0.47	0.45	--
Estuarine Wetland / Open Water	0.273	0.107	0.11
Eucalyptus / Cypress Woodland (planted)	0.59	0.42	--
Invaded Dune Mat	0.41	0.41	0.001
Total	**1.74**	**1.39**	**0.11**

1

LSA

Biological Study Area

Project Impacts

Permanent Impacts

Limits of Potential Temporary Disturbance (not including staging areas)

Indirect Impacts

Land Uses/Vegetation Communities

Disturbed

Dune Scrub

Estuarine Wetland / Open Water

Eucalyptus / Cypress Woodland (planted)

Invaded Dune Mat

N

0 30 60

FEET

SOURCE: Imagery: Wood Rodgers (2009); BSA: Wood Rodgers/LSA (2009)

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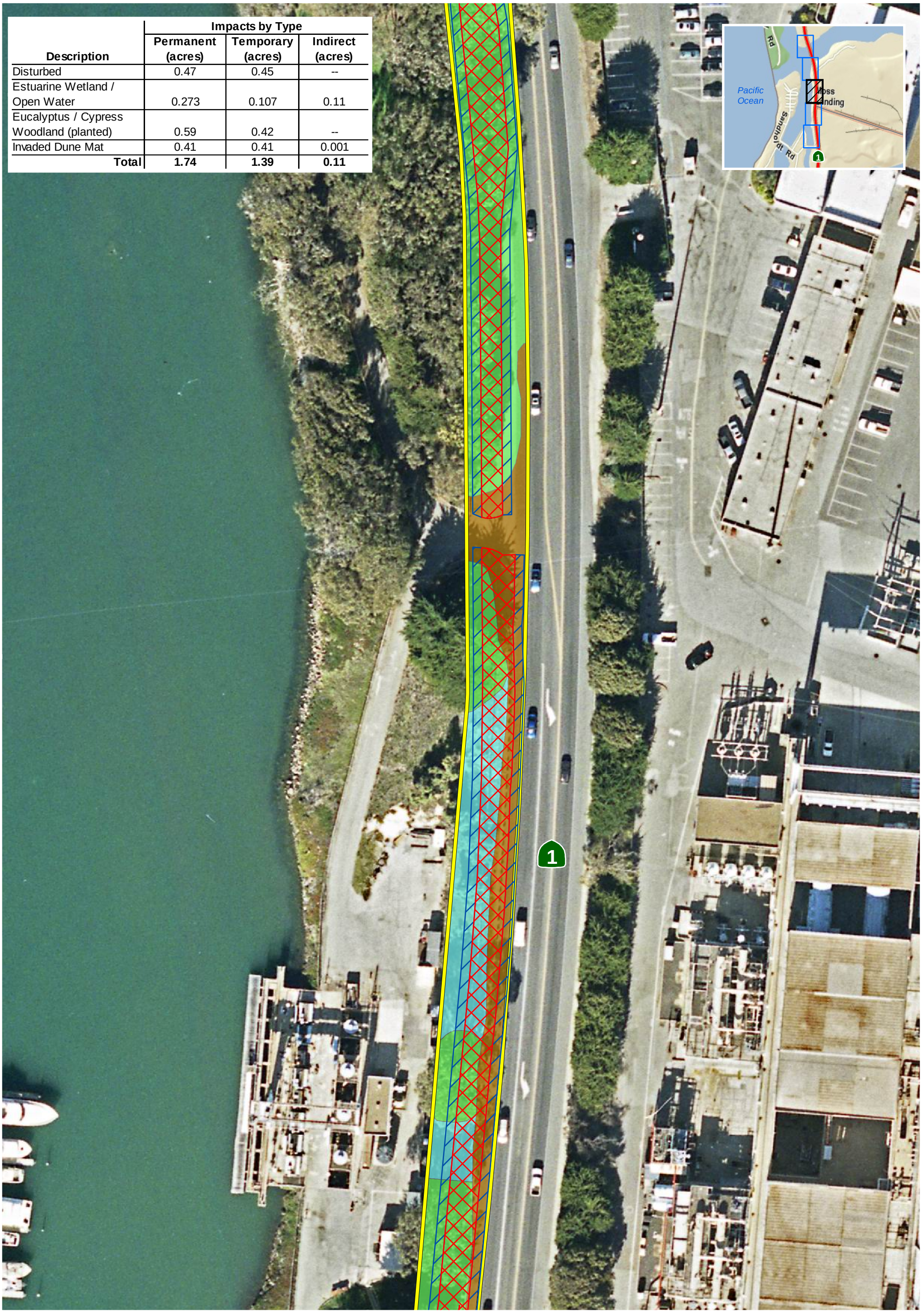
APPENDIX F

Sheet 2 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Project Effects to Land Uses/Vegetative Communities

Description	Impacts by Type		
	Permanent (acres)	Temporary (acres)	Indirect (acres)
Disturbed	0.47	0.45	--
Estuarine Wetland / Open Water	0.273	0.107	0.11
Eucalyptus / Cypress Woodland (planted)	0.59	0.42	--
Invaded Dune Mat	0.41	0.41	0.001
Total	**1.74**	**1.39**	**0.11**



LSA

N

0 30 60
FEET

Biological Study Area

Project Impacts

Permanent Impacts

Limits of Potential Temporary Disturbance (not including staging areas)

Indirect Impacts

Land Uses/Vegetation Communities

Disturbed

Dune Scrub

Estuarine Wetland / Open Water

Eucalyptus / Cypress Woodland (planted)

Invaded Dune Mat

APPENDIX F
Sheet 3 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Project Effects to Land Uses/Vegetative Communities

SOURCE: Imagery: Wood Rodgers (2009); BSA: Wood Rodgers/LSA (2009)

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Description	Impacts by Type		
	Permanent (acres)	Temporary (acres)	Indirect (acres)
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Estuarine Wetland / Open Water	0.273	0.107	0.11
Eucalyptus / Cypress Woodland (planted)	0.59	0.42	--
Invaded Dune Mat	0.41	0.41	0.001
Total	**1.74**	**1.39**	**0.11**

LSA

Biological Study Area

Project Impacts

Permanent Impacts

Limits of Potential Temporary Disturbance (not including staging areas)

Indirect Impacts

Land Uses/Vegetation Communities

Disturbed

Dune Scrub

Estuarine Wetland / Open Water

Eucalyptus / Cypress Woodland (planted)

Invaded Dune Mat

N

0 30 60

FEET

SOURCE: Imagery: Wood Rodgers (2009); BSA: Wood Rodgers/LSA (2009)

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APPENDIX F

Sheet 4 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Project Effects to Land Uses/Vegetative Communities

Description	Impacts by Type		
	Permanent (acres)	Temporary (acres)	Indirect (acres)
Disturbed	0.47	0.45	--
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Eucalyptus / Cypress Woodland (planted)	0.59	0.42	--
Invaded Dune Mat	0.41	0.41	0.001
Total	**1.74**	**1.39**	**0.11**

LSA

Biological Study Area

Project Impacts

Permanent Impacts

Limits of Potential Temporary Disturbance (not including staging areas)

Indirect Impacts

Land Uses/Vegetation Communities

Disturbed

Dune Scrub

Estuarine Wetland / Open Water

Eucalyptus / Cypress Woodland (planted)

Invaded Dune Mat

0 30 60

FEET

SOURCE: Imagery: Wood Rodgers (2009); BSA: Wood Rodgers/LSA (2009)

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APPENDIX F

Sheet 5 of 5

Natural Environment Study
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Project Effects to Land Uses/Vegetative Communities

Appendix G Project Effects to Trees

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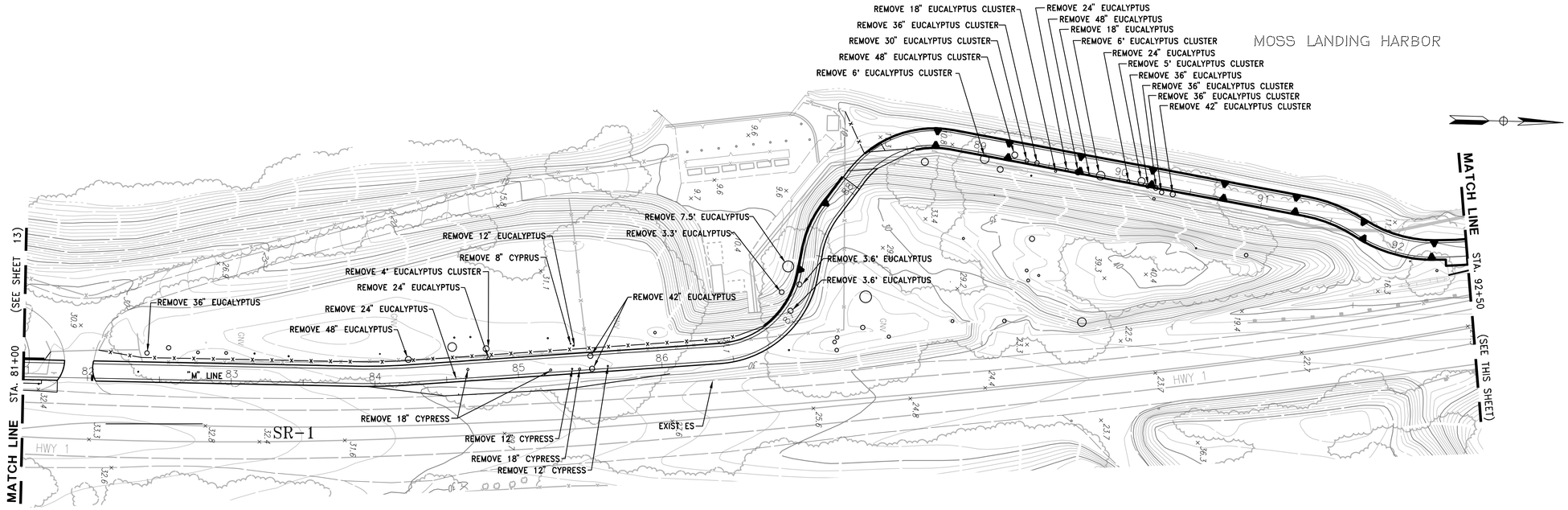

STATION

SUBMITTED BY: KEITH J. HALLSTEN, P.E.	
DESIGN BY: LUCAS J. FUSON, P.E.	CHKD BY: KJH
DRAWN BY: LUCAS J. FUSON, P.E.	CHKD BY: KJH
SPECIFICATIONS WRITTEN BY: KEITH J. HALLSTEN, P.E.	CHKD BY:
APPROVAL RECOMMENDED BY: ALI HEMMATI, P.E.	

REGISTERED PROFESSIONAL ENGINEER
KEITH J. HALLSTEN
No. C50893
Exp. 9-30-11
CIVIL
STATE OF CALIFORNIA

PRELIMINARY

NO.	DATE	REVISION	APPROVED
1			
2			
3			
4			
5			
6			

COUNTY OF MONTEREY
RESOURCE MANAGEMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING SEGMENT

TREE REMOVAL PLAN (STA 81+00.00 TO 101+00.00)

DATE 3/29/13	DRAWING	SHEET 14 OF 31
SCALE 1"=40'	VIEW Layout1	

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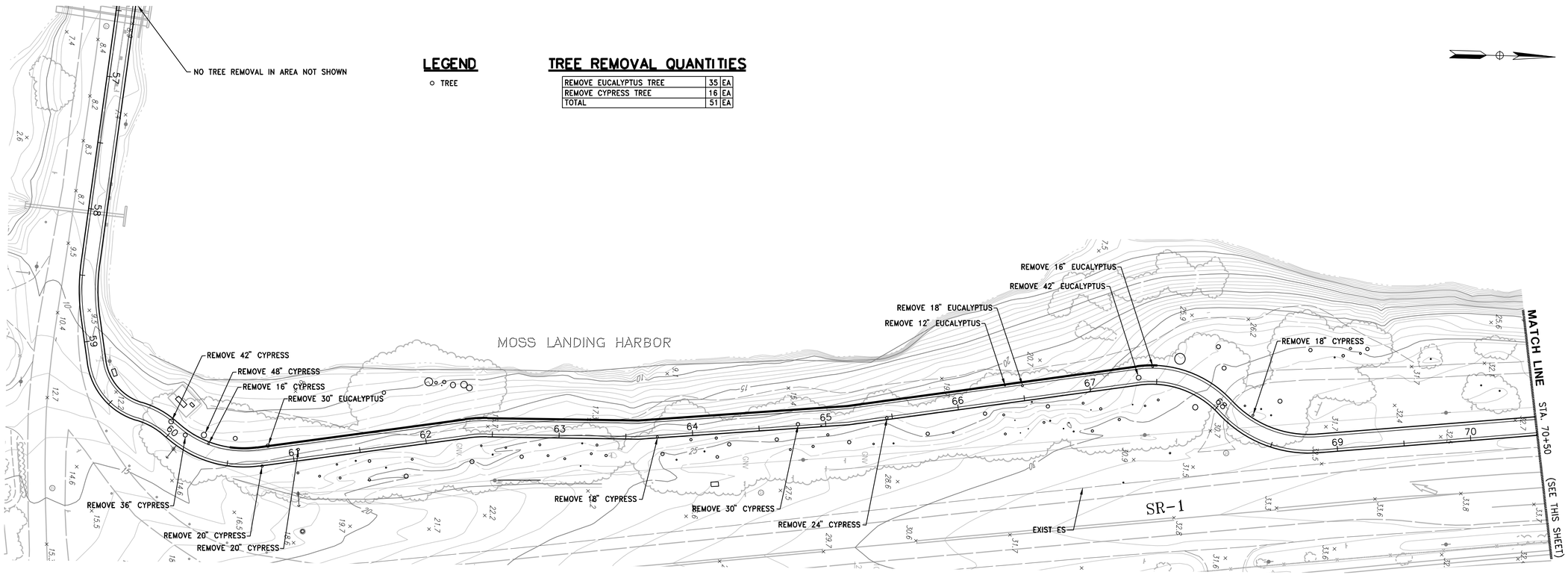

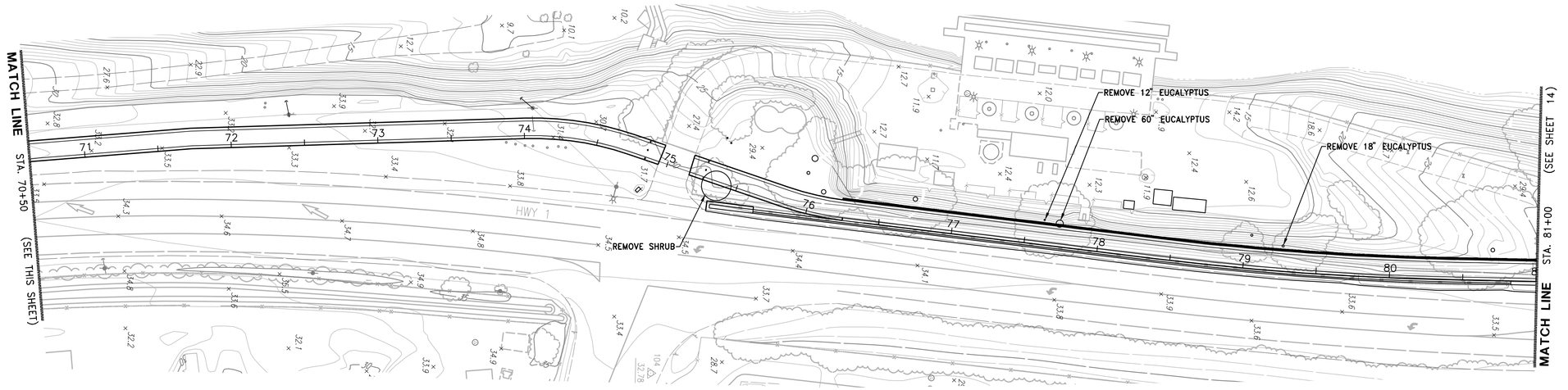

LEGEND

○ TREE

TREE REMOVAL QUANTITIES

REMOVE EUCALYPTUS TREE	35	EA
REMOVE CYPRESS TREE	16	EA
TOTAL	51	EA

STATION

SUBMITTED BY: KEITH J. HALLSTEN, P.E.

DESIGN BY: LUCAS J. FUSON, P.E. CHKD BY KJH

DRAWN BY: LUCAS J. FUSON, P.E. CHKD BY KJH

SPECIFICATIONS WRITTEN BY KEITH J. HALLSTEN, P.E. CHKD BY

APPROVAL RECOMMENDED BY: ALI HEMMATI, P.E.

REGISTERED PROFESSIONAL ENGINEER KEITH J. HALLSTEN No. C50893 Exp. 9-30-11 CIVIL STATE OF CALIFORNIA

PRELIMINARY

NO.	DATE	REVISION	APPROVED

COUNTY OF MONTEREY
RESOURCE MANAGEMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL MOSS LANDING SEGMENT

TREE REMOVAL PLAN (STA 55+82.06 TO 81+00.00)

DATE 3/29/13	DRAWING	SHEET 13 OF 31
SCALE 1"=40'	VIEW Layout1	

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Appendix H NMFS Pile Driving Calculator

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National Marine Fisheries Calculators for Assessing Underwater Sound Produced by Pile Driving

Project Title	**Monterey Bay Sanctuary Scenic Trail**
Pile information (size, type, number, pile strikes, etc.)	The Monterey Sanctuary Scenic Trail (MBSST) project will use two types of piles in the construction of the pedestrian and bicycle bridge. The in-water piles will consist of 18, 36-inch CISS piles in 6 bents with 3 piles per bent. Piles will be driven into the bed of the estuary. During pile driving, the CISS piles will be surrounded by a 5-6 foot diameter steel casing from which water will be pumped creating an air space between the CISS pile and the casing. The project engineers assume 500 strikes per pile for the in-water piles, with a total number of strikes per day being 1500 (9,000 strikes over 6 days). The abutments will consist of an additional 12, 24-inch CISS piles driven into the banks of the estuary with 6 piles per abutment. No attenuation device will be used for piles driven on land in the bank. The engineer assumes 500 strikes per pile for the abutment piles and 3,000 strikes per day for the abutment piles (6,000 strikes over 2 days).

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.

36-inch CISS Piles in the Bents

	Acoustic Metric			
	Peak	SEL	RMS	Effective Quiet
Measured single strike level (dB)	**199**	**176**	**188**	**150**
Distance (m)	**10**	**10**	**10**	

Estimated number of strikes	**1500**

Cumulative SEL at measured distance
208

	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	**3**	**242**	**447**	**3415**

** This calculation assumes that single strike SELs < 150 dB do not accumulate to cause injury (Effective Quiet)

Notes (source for estimates, etc.)

(This model was last updated January 26, 2009) ***For the MBSST project's 36-inch CISS piles, data from the Humboldt Bay Bridges project was used to calculate impacts on fish. This example, contained in the Caltrans 2012 Compendium of Pile Driving Sound Data (Appendix I, Section I.11.1)was applicable because the two sites are similar in that both bridge sites experience strong currents, both sites are located in small relatively shallow water (10-30 ft. (3-9 m)) for the MBSST project, and 26-32 ft. (8-10 m) for the Humboldt Bridges project), and both projects employed (or will employ) an attenuation device consisting of a 60- to 72-inch steel casing placed around the 36-inch CISS during pile driving with the water evacuated to dampen the sound impact. Piles were driven with a diesel impact hammer. The MBSST project may differ from the example in that the steel casing may not be double-walled as this has not been stipulated for the contractor. Also, the type of hammer used to drive the piles is not currently known as it will be left to the contractor. As noted in the example, the evacuated steel casing did not result in the greatest dampening of the sound during pile driving, but instead, the single-walled, 60-inch steel casing with a bubbler at the bottom (Tests 7 and 8) was the attenuation method used for the project. ***The sample data used for the 24-inch CISS piles was the Russian River Bridge project (Caltrans 2012 Compendium of Pile Driving Sound Data, Appendix I, Section I.3.9). In this project, piles were driven right at the shore on the east side of the river in saturated soils as part of an emergency bridge repair. Sound measurements were made close to the source of the sound at about 50 ft. (15 m). This project is also similar to the MBSST project in that 24-inch steel piles were driven in the bank adjacent to the river channel. Due to the limited bank area at the MBSST bridge site, piles will likely be driven close to the water's edge as in the Russian River Bridge project. The projects are also similar in that water flows through both sites rapidly. The Russian River project is different from the MBSST project in that it is not located in a marine estuary and had continuous rather than tidal flow along the bank when piles were being driven and measurements were being made.

Project Title	**Monterey Bay Sanctuary Scenic Trail**
Pile information (size, type, number, pile strikes, etc.)	The Monterey Sanctuary Scenic Trail (MBSST) project will use two types of piles in the construction of the pedestrian and bicycle bridge. The in-water piles will consist of 18, 36-inch CISS piles in 6 bents with 3 piles per bent. Piles will be driven into the bed of the estuary. During pile driving, the CISS piles will be surrounded by a 5-6 foot diameter steel casing from which water will be pumped creating an air space between the CISS pile and the casing. The project engineers assume 500 strikes per pile for the in-water piles, with a total number of strikes per day being 1500 (9,000 strikes over 6 days). The abutments will consist of an additional 12, 24-inch CISS piles driven into the banks of the estuary with 6 piles per abutment. No attenuation device will be used for piles driven on land in the bank. The engineer assumes 500 strikes per pile for the abutment piles and 3,000 strikes per day for the abutment piles (6,000 strikes over 2 days).

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.

24-inch CISS Piles in the Abutments

	Acoustic Metric			
	Peak	SEL	RMS	Effective Quiet
Measured single strike level (dB)	**197**	**173**	**185**	**150**
Distance (m)	**15**	**15**	**15**	

Estimated number of strikes	**3000**

Cumulative SEL at measured distance
208

	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	**4**	**364**	**512**	**3232**

** This calculation assumes that single strike SELs < 150 dB do not accumulate to cause injury (Effective Quiet)

Notes (source for estimates, etc.)

(This model was last updated January 26, 2009) ***For the MBSST project's 36-inch CISS piles, data from the Humboldt Bay Bridges project was used to calculate impacts on fish. This example, contained in the Caltrans 2012 Compendium of Pile Driving Sound Data (Appendix I, Section I.11.1)was applicable because the two sites are similar in that both bridge sites experience strong currents, both sites are located in small relatively shallow water (10-30 ft. (3-9 m)) for the MBSST project, and 26-32 ft. (8-10 m) for the Humboldt Bridges project), and both projects employed (or will employ) an attenuation device consisting of a 60- to 72-inch steel casing placed around the 36-inch CISS during pile driving with the water evacuated to dampen the sound impact. Piles were driven with a diesel impact hammer. The MBSST project may differ from the example in that the steel casing may not be double-walled as this has not been stipulated for the contractor. Also, the type of hammer used to drive the piles is not currently known as it will be left to the contractor. As noted in the example, the evacuated steel casing did not result in the greatest dampening of the sound during pile driving, but instead, the single-walled, 60-inch steel casing with a bubbler at the bottom (Tests 7 and 8) was the attenuation method used for the project. ***The sample data used for the 24-inch CISS piles was the Russian River Bridge project (Caltrans 2012 Compendium of Pile Driving Sound Data, Appendix I, Section I.3.9). In this project, piles were driven right at the shore on the east side of the river in saturated soils as part of an emergency bridge repair. Sound measurements were made close to the source of the sound at about 50 ft. (15 m). This project is also similar to the MBSST project in that 24-inch steel piles were driven in the bank adjacent to the river channel. Due to the limited bank area at the MBSST bridge site, piles will likely be driven close to the water's edge as in the Russian River Bridge project. The projects are also similar in that water flows through both sites rapidly. The Russian River project is different from the MBSST project in that it is not located in a marine estuary and had continuous rather than tidal flow along the bank when piles were being driven and measurements were being made.

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PHASE I ENVIRONMENTAL SITE ASSESSMENT (ISA)
JANUARY 2013

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UPDATED REPORT
PHASE I
ENVIRONMENTAL SITE ASSESSMENT
MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING SEGMENT
MOSS LANDING, CALIFORNIA

January 23, 2013

Prepared for

LSA Associates, Inc.

Prepared by

Earth Systems Pacific
4378 Old Santa Fe Road
San Luis Obispo, CA 93401

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Earth Systems Pacific

4378 Old Santa Fe Road
San Luis Obispo, CA 93401-8116

(805) 544-3276 • FAX (805) 544-1786
E-mail: esp@earthsys.com

January 23, 2013

File No.: SL-15870-EB

Ms. Pam Reading, Project Manager
LSA Associates, Inc.
1998 Santa Barbara Street, Suite 120
San Luis Obispo, CA 93401

PROJECT: MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING SEGMENT
STATE ROUTE 1, FROM MOSS LANDING ROAD
TO ELKHORN SLOUGH
MOSS LANDING, MONTEREY COUNTY, CALIFORNIA

SUBJECT: Updated Report of Phase I Environmental Site Assessment

Dear Ms. Reading:

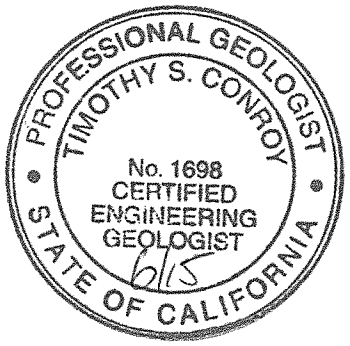
As requested, Earth Systems Pacific has prepared this Updated Phase I Environmental Site Assessment of the above-referenced project. The update was performed to address a change in the alignment of part of the trail, and to account for changes in overall site conditions that may have occurred since our original report was submitted in September 2009. It was prepared to stand as a whole, and no part should be excerpted or used in exclusion of any other part. This project was conducted in accordance with our contract dated October 9, 2012. If you have any questions regarding this report or the information contained herein, please contact the undersigned at your convenience.

I declare that I meet the definition of an Environmental Professional as defined in 40CFR 312.10. I have the specific qualifications based on education, training and experience to assess a property of the nature, history and setting of the subject site. I have endeavored to perform this project in general conformance with the standards and practices set forth in ASTM Standard E1527-05 and Caltrans Initial Site Assessment guidelines.

Sincerely,

Earth Systems Pacific

Timothy Conroy, C.E.G. 1698
Senior Geologist



Doc. No.: 1301-109.RPT/sr

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1.0 INTRODUCTION

1.1 Project Information

This report presents the findings of an updated Phase I Environmental Site Assessment (ESA) conducted by Earth Systems Pacific (ESP) for the Moss Landing Section of the Monterey Bay Sanctuary Scenic Trail (MBSST) in Moss Landing, California. Our original ESA was prepared in September 2009; since that time, a portion of the trail has been realigned to avoid a cultural resource site. This project was conducted for LSA Associates, in accordance with our contract dated October 9, 2012. This ESA was performed with the intent to identify potential effects to the project related to hazardous materials, and will be used in the preparation of the project's environmental documentation. It is our understanding that the project will involve construction of approximately 0.8 miles of a pedestrian/bicycle trail along the east side of Moss Landing Harbor.

1.2 Purpose and Scope of Work

The purpose of an ESA is to evaluate the potential for the presence of soil or groundwater contamination that may be present as a result of the use, handling, storage, or disposal of hazardous materials or petroleum products on or near the property. The scope of work for this evaluation is based on ASTM Standard E1527-05, *Standard Practice for Environmental Site Assessments,* and consisted of the tasks listed below.

Site Reconnaissance: This involved: a visual reconnaissance of the site, noting physical evidence of potential contamination or possible sources of contamination; and observation of adjacent properties to identify readily observable visual evidence of possible impacts to the subject site. Figures depicting the site location and layout are presented in Appendix A. Significant on-site features were photographed to document current conditions. Selected site photographs are presented in Appendix B.

Records Review: Records regarding the regulatory status and history of the site were evaluated regarding the possible presence of Recognized Environmental Conditions (RECs). Regulatory agency records were reviewed by obtaining a report listing known sites that generate, store, use, and/or have released hazardous materials from a firm that specializes in maintaining a database of this type of information. A copy of the agency database search report is presented in Appendix F, and is discussed in Section 5.1. The search radii for the agency database search were in accordance with ASTM E1527-05, as measured from the center of the site.

Other sources of information are listed in the references section of this report and may include the following categories of information (note that each category is utilized at the discretion of the Environmental Professional (EP) until, in the EP's opinion, sufficient data has been obtained):

- Aerial photographs
- Topographic maps
- Oil and gas well location maps
- Fire insurance maps
- Topographic maps
- Land title information
- Local street directories
- Zoning/land use records
- Engineering and institutional controls, such as deed restrictions and restrictive zoning, if contained in publicly available lists/registries
- Tribal records of subject property and adjoining properties (if tribal land)
- Local government records such as building department files
- Environmental cleanup liens

If the property was not previously developed, sources such as building department files and street directories were not reviewed. Relevant supporting documents are provided in appendices to this report.

Interviews: Persons familiar with the site were interviewed (if practical) regarding the potential presence of RECs on the site or in a position to affect the site, including the site owner/operator/occupant, former site owners/operators/occupants (if reasonably accessible), neighboring property occupants (if the site is abandoned), and selected government personnel likely to have information regarding environmental conditions at or near the site.

Report Preparation: This report was prepared to present our findings, conclusions, and recommendations.

1.3 Definitions

ASTM E1527-05 provides definitions of various terms and acronyms used in the ESA process. ESP endeavors to use these terms and acronyms within the meaning provided by the ASTM standard. Most of these terms are either obvious in their meaning or are seldom used in this report, but several are significant enough to warrant defining here:

Recognized Environmental Condition (REC): The presence or likely presence of an existing release, a past release, or a material threat of a release of hazardous substances or petroleum products in structures, or into the ground, groundwater or surface water at a site or on an adjacent site that may affect the site. Note that the legal use of a hazardous material and/or petroleum product is an REC if potential mishandling of the material can result in a release. The term REC is applied when the potential for a release exists, but does not apply when it can be shown that a release did not occur and is unlikely to occur. The term does not include *de minimis* conditions that do not present a threat to human health or the environment, and would not result in an enforcement action if brought to the attention of an appropriate regulatory agency.

Site: The term "site" is used in place of the term "property" as defined by ASTM E1527-05, and is the physical location that is the subject of the assessment. The site can include more than one parcel of land, or only a portion of a parcel of land, depending on the needs of the client. ESAs focus primarily on activities that occur within the boundaries of the site, or that could potentially affect conditions and activities within the boundaries of the site. RECs on off-site properties that are not likely to affect the site are not considered RECs for the subject site.

Environmental Professional (EP): An EP is defined as "a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases (of hazardous substances) on, at, in, or to a property, sufficient to meet the objectives and performance factors (of the rule)." Specific minimum credentials are required by ASTM E1527-05 to be identified as an EP.

User: The "user" of the report is defined by ASTM Practice E1527-05 as the party for whom the ESA is being conducted (the Client), not the EP.

1.4 Qualifications

Work on this project was performed under the direct supervision of an EP, in accordance with ASTM E1527-05 requirements. Mr. Tim Conroy (P.G., C.E.G.) was the EP, the project manager, and conducted the site reconnaissance, historical review, and agency database review. A qualifications statement is presented in Appendix H.

1.5 Exclusions and Data Gaps

The scope of work for this ESA did not include testing air, groundwater, soil, or building materials for the presence of hazardous constituents.

ASTM E1527-05 requires that gaps in the data used to evaluate the site be identified. Data gaps encountered in this project, and their significance to the project, are summarized below:

- Chain-of-title information was not reviewed. Because of the availability of other data sources, the absence of previous ownership information is not considered to be a significant data gap.
- Prior owners of the site were not interviewed. This data gap is not considered significant as multiple sources of information of past site use are available,
- The AAI Rule requires that the purchase price of the property be compared to a similar non-contaminated property, since the price of a property can be an indicator of whether a contaminated condition exists. If a property is listed far below its market value, a reason for the reduced price may be environmental in nature. Because the site is not being purchased, this task was not completed and we do not consider it to be a significant data gap.

In our opinion, further assessment regarding these data gaps is not warranted.

1.6 Limitations and Reliance

This ESA has been prepared for the exclusive use of the County of Monterey. Any other use of or reliance on the information and opinions contained in this report without the express written authorization of ESP is at the sole risk of the user.

The conclusions and recommendations rendered in this report are opinions based on readily available information obtained to date within the scope of the work authorized by the client, and apply only to site conditions as of the date of the site visit. The scope of work for this project was developed to address the needs of Monterey County in support of a project to construct a public-use trail on the site.

A Phase I ESA cannot ascertain that a property is completely free of chemical or toxic substances. We believe the scope of work has been appropriate to allow the client to make an informed business decision. According to ASTM E1527-05, the "shelf life" of an ESA report is six months; an update can be provided to the client within the first year of the report's publication. Changes in site conditions/use could render this report obsolete within a shorter period of time. Use of this report outside of these time frames or after site conditions/uses have changed is at the sole risk of the user.

The results contained in this report are based upon the information acquired during the assessment, including information obtained from third parties. ESP makes no warranty as to the accuracy of the information obtained from others. In addition, it is possible that variations exist beyond or between

points evaluated during this assessment, and that changes in conditions could occur due to the works of man, contaminant migration, variations in rainfall or temperature, changes in regulatory standards, or other circumstances not existent at the time the assessment was prepared.

The services performed by ESP have been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the site vicinity. No other warranty, express or implied, is offered.

2.0 GENERAL SITE INFORMATION

2.1 Size, Location, and Name

The project site is known as the Moss Landing Segment of the Monterey Bay Sanctuary Scenic Trail (in this report, MBSST or the Trail). It consists of an elongated strip of land extending 0.8 miles along the north side of Moss Landing Road and the west side of State Route 1, in the unincorporated Moss Landing area of Monterey County, California. The site location is shown on the Vicinity Map.

2.2 Assessor's Parcel Number

The southern and northern parts of the Trail segment cross two privately owned parcels, which are identified as Monterey County Assessor's Parcel Numbers (APNs) 133-173-005 and 133-181-009. These parcels are associated with the former National Refractories Corporation facility and the Dynegy Corporation Moss Landing Power Plant (MLPP), respectively. The central part and far northern end of the Trail segment (from Stations 76+00 to 86+50 and Stations 92+00 to 101+00) lie within or partially within the right-of-way for State Route 1 (SR1), which does not have an APN assigned. The southernmost end of the trail lies within the County right-of-way for Moss Landing Road, which also does not have an APN assigned to it.

2.3 Township, Range, Section

The site is located in the northeast quarter of Section 18, Township 13 South, Range 2 East, Mount Diablo Base and Meridian.

2.4 Site Boundaries

The project boundaries are generally defined by SR1 to the east, Moss Landing Road to the south, Moss Landing Harbor and the seawater intake facility for the MLPP on the west, and the North Harbor area of Moss Landing Harbor to the north.

2.5 Current Development and Access

The project site is generally undeveloped, except where it lies close to or within the right-of-way for SR1 where it has been improved as a roadway. Elsewhere along the project, the project consists of unpaved ground, with varying amounts of vegetative cover and trees. Access to the project site is generally unhindered from the shoulder of SR1.

2.6 Site Topography

The project crosses level to moderately sloping terrain, with surface elevations along the alignment ranging from 5 to 30 feet above mean sea level. Overall surface drainage is by sheet flow to the west toward Moss Landing Harbor.

2.7 Surface Water Bodies

No man-made surface water bodies are located on the project site. The nearest natural surface water features are Moss Landing Harbor and Elkhorn Slough, which are located immediately west and north of the project. The northern end of the project passes over the mouth of Elkhorn Slough. A small stormwater detention basin is present next to the Trail alignment immediately south of Elkhorn Slough, but did not contain any water at the time of the site reconnaissance.

2.8 Geology and Hydrogeology

Regionally, the subject site is located in the Coast Ranges geomorphic province of California, which extends from the Oregon-California border to the Santa Ynez Mountains. The province is bordered on the west by the Pacific Ocean, on the south by the Transverse Ranges geomorphic province, and on the east by the Great Valley geomorphic province (Norris and Webb, 1990). Northwest-trending ridges and valleys characterize the terrain of the Coast Ranges.

Locally, the site is located at the northern end of the Salinas Valley, a northwest-trending valley typical of the Coast Ranges. The site is underlain by a thick sequence of fluvial/lagunal sediments deposited by the Salinas River. Natural soils at the site consist of fine sandy loam assigned to the Elkhorn and Santa Ynez series by the U.S. Department of Agriculture, (USDA, 1978). Man-made fill is also present at several points along the project, which was placed in conjunction with grading for SR1.

The project is located at the north edge of the 180/400-Foot Aquifer Subbasin of the Salinas Valley Groundwater Basin. As its name implies, the subbasin contains two aquifers at depths of approximately 180 and 400 feet, which are separated by a clay layer known as the Salinas Aquitard. A shallower perched water-bearing zone is not tapped due to its substandard quality. Water-bearing sediments in the subbasin include recent alluvial sediments, the Aromas Red Sands, and sediments

of the Paso Robles and Purisima formations. Estimated storage capacity in the subbasin is about 7.2 million acre-feet (af), with about 6.8 million af in storage; as of 1998, total annual extractions from the basin were about 130,000 af/year (CDWR, 2003). Locally, areas of seawater intrusion are present due to overpumping of the aquifers.

Based on prior work conducted in the area by others, the groundwater flow direction beneath the site is westerly, toward Moss Landing Harbor and Elkhorn Slough. The depth to groundwater along the alignment is estimated to be 8 to 30 feet below ground surface. Due to the brackish water influence from the adjacent estuary and harbor, shallow groundwater quality is relatively poor. Shallow groundwater in the MLPP intake water area west of SR1 has been documented to contain low levels of several chlorinated hydrocarbons, as well as traces of hexavalent chromium, which are interpreted to be the result of plant operations east of SR1 (Arcadis, 2012).

3.0 SITE RECONNAISSANCE

3.1 Site Observations

ESP personnel visited the site on November 20, 2012, to evaluate current site conditions and adjacent land use. Photographs of selected on-site features are presented in Appendix B. A summary of our observations is presented below. Station numbers cited in this report are taken from maps of the project prepared by Wood Rodgers and Monterey County, which are included in Appendix A.

Stations 55+82 to 68+00: In this section, the Trail follows the north shoulder of Moss Landing Road across Moro Cojo Slough, and then traverses a gentle west-facing slope that descends to Moss Landing Harbor. A pad-mounted electrical transformer is present near the south end of this section and appeared to be in good condition, with no indications of spillage or leakage. North of Moss Landing Road, the area is covered with a moderate growth of grasses and weeds, and is separated from SR1 by a stand of cypress trees. Beginning at about Station 67+00, the Trail alignment sweeps east toward SR1. No indications of recognized environmental conditions (RECs) were observed in this section.

Stations 68+00 to 75+80: The Trail in this section trends across a relatively level area parallel to and just west of the SR1 right-of-way (ROW). The ground surface in this area is covered with a thin layer of gravel/road base, and appears to be used as a parking lot/truck turnout area for SR1. No RECs were noted in this section; however, its proximity to the SR1 ROW indicates a potential for aerially deposited lead (ADL) from vehicle traffic to be present.

Stations 75+80 to 86+50: At the intersection of Dolan Road, the Trail sweeps eastward into the SR1 ROW, and trends along the top of a west-facing slope that descends to the cooling water intake works for the MLPP. This reach of the Trail is relatively level along its course, with the west half of the trail alignment sloping to the west. A steel guard rail and low asphalt curb separate the Trail from the traveled way of SR1. The ground surface is covered with base/road fill from the SR1 road bed, and scattered patches of ice plant are present at the top of the slope. A discontinuous screen of trees is present immediately west of the Trail alignment. Due to its location within the SR1 ROW, the potential for ADL is present; no other RECs were observed within the project alignment.

Stations 86+50 to 92+00: This portion of the Trail has been realigned since the time the 2009 ESA report was prepared, in order to avoid a culturally sensitive area. At Station 86+50, the Trail turns westward across a fenced area of the MLPP intake works. The Trail descends gently across a south-facing cut slope and turns north at about Station 88+50, along a level area at the base of a west-facing slope. The Trail follows a northerly course along the base of the slope and re-joins the original trail alignment at about Station 92+00. This section of the Trail is entirely unpaved and covered with a moderate growth of grass and ice plant, with several large eucalyptus trees. RECs in this section include a 24-inch diameter petroleum pipeline, currently idle, that provided fuel to the MLPP and the presence of fill material behind the rip-rap along the shore of Moss Landing Harbor. The pipeline is visible along the base of the west-facing slope for most of the section, and was observed crossing the harbor near Station 92+50. No other RECs were noted in this section.

Stations 92+00 to 101+00: North of Station 92+00 the Trail trends north along a relatively level area that was the former SR1 ROW, and possibly the ROW for the former Pajaro Valley Consolidated Railroad (PVCRR). An old bridge abutment/bulkhead is present at about Station 95+50, at which point the Trail will consist of a bridge over the mouth of Elkhorn Slough. The bridge will span the slough channel to a second bulkhead on the north side of the channel. The Trail will connect with an existing section of the MBSST approximately 250 feet north of the channel. The ground surface along this section south of Elkhorn Slough is unpaved, and covered with a sparse to moderate growth of grass and weeds. The area north of Elkhorn Slough is dirt/gravel and absent of vegetation. No RECs were noted at the ground surface in this section of the project; however, the former road/railroad bed south of Elkhorn Slough appears to have been built on man-made fill, whose source is not known. The presence of undocumented fill comprises an REC to the extent it could affect construction of the trail if it is disturbed.

Photographs of the trail alignment through the project area attached with this report as Appendix B.

3.2 Site Vicinity Observations

The site vicinity consists of commercial/industrial land on all sides. Properties adjacent to the site consisted of the following:

North: The North Harbor area of Moss Landing Harbor, containing boat slips, a guest dock, support buildings, a restaurant and retail stores.

East: Moss Landing Power Plant, an active natural gas-fired electrical power plant, and the former National Refractories Corporation plant, which extracted magnesium oxide from seawater for use in making refractory bricks and other high-temperature specialty products. The plant has been decommissioned, and the property is being converted for use as a business/industrial park.

South: Commercial uses, comprising restaurants and retail stores.

West: Moss Landing Harbor, a commercial/pleasure fishing port.

Aside from the ADL and fill material issues associated with SR1, the environmental concerns or RECs possibly affecting the subject site appear to be related to operations at the MLPP, as discussed in subsequent sections of this report. Other adjacent site uses do not appear to be likely to affect construction of the trail from a hazardous materials standpoint.

4.0 HISTORICAL INFORMATION

Information regarding the history of the site was obtained from various sources. The results of this research are summarized below.

4.1 Sanborn Fire Insurance Maps

To evaluate past site uses, Sanborn Fire Insurance Company maps were requested from Environmental Data Resources (EDR) of Milford, Connecticut. According to EDR, no Sanborn Map coverage is available for the project site. A copy of the No Coverage letter from EDR is attached with this report as Appendix C.

4.2 Aerial Photographs

To determine past uses that could have an environmental impact on the property, historical aerial photographs were reviewed. The information below is a summary of the review of photographs of the site flown in 1937, 1956, 1971, 1981, 1993, 1998, 2001, and 2005.

1937: The area of the project site is undeveloped; the MLPP and National Refractories facility are not present, and these areas are used for agriculture. Moss Landing Harbor has not been developed. SR1 is present, as well as what appears to be the former rail bed for the Pajaro Valley Consolidated Railroad along the east shore of the slough. A remnant of the rail bed is also visible crossing Moro Cojo Slough west of the south end of the project.

1956: The MLPP and National Refractories facility have been built on the east side of SR1. Moss Landing Harbor has been developed, and the harbor entrance has been created opposite the mouth of Elkhorn Slough. The intake facilities for the MLPP on the west side of SR1 have not yet been built. The southern part of the alignment appears to be used for vehicle parking.

1971: The MLPP and National Refractories facility have been expanded since the 1956 photograph, and the intake works for the MLPP has been built on the west side of SR1. The southern part of the alignment opposite the National Refractories plant no longer appears to be used for parking, and this area is now covered with vegetation. Moss Landing Harbor has been further developed with new docks in the south end of the harbor, and more development is present on the sandspit west of the harbor. Other adjacent site uses appear similar to the 1956 photograph.

1981-2005: The project site remains relatively unchanged throughout this period, and conditions appear essentially the same as those observed during the 2009 site reconnaissance.

Copies of the aerial photographs are attached as Appendix D.

4.3 Historic Topographic Maps

Topographic maps published by the U.S. Geological Survey were reviewed to evaluate past land use on the site. The maps available for the Moss Landing area date from 1914, 1954, 1968, 1980 and 1994. The maps indicate a use history similar to that depicted in the aerial photographs; earliest map from 1914 shows a track of the Pajaro Valley Consolidated Railroad (PVCRR) along the east edge of what is now Moss Landing Harbor. The tracks cross Elkhorn Slough at the approximate location of the current SR1 bridge, cross Moro Cojo Slough in the area noted in the 1938 aerial photograph, connecting with the former Sandholdt Pier and continuing south toward Salinas. By 1954, the PVCRR tracks are no longer shown, and the MLPP and National Refractories plant are present. Site uses are consistent with the aerial photograph review, and no new information regarding land use was obtained from the maps. Copies of the topographic maps are attached with this report in Appendix E.

4.4 City Directories

Because of the long history of the MLPP and National Refractories plant, and the lack of a specific address for the Trail project, city directories were not reviewed for this ESA.

5.0 RECORDS REVIEW

5.1 Agency Database Search Report

A report summarizing information available from regulatory agencies regarding sites that generate, store, use, or have released hazardous substances was prepared by Environmental Data Resources (EDR) of Milford, Connecticut. The publications reviewed in the database search are referenced in the database report, which is attached as Appendix F. The search radii used for each list are in accordance with ASTM E1527-05 guidelines as measured from the approximate midpoint of the alignment. The sites, their location and listed database, and distance/direction from the property are tabulated below. A copy of the EDR database report is attached as Appendix F.

Site	Address	Database(s)	Direction
Moss Landing Power Plant	Hwy 1/Dolan Rd	CHMIRS, ERNS, Envirostor, AST, SLIC, UST, TPCA, Hist UST	Project site, N End
National Refractories	Hwy 1/Dolan Rd	Haznet, WDS, LUST	Project site, S End
Moss Landing Commercial Pk.	7969 Highway 1	Haznet	Project site, S End
Moss Landing Harbor	7539 Sandholdt Rd	FINDS	0.10 miles/W
Multiple sites, Moss Landing Hbr.	7881 Sandholdt Rd	CHMIRS, ERNS	0.10 miles/W
Woodward Marine	10930 Clam Wy	Haznet, CHMIRS	0.14 miles/W
Peninsula Diesel	7501 Sandholdt Rd	Haznet	0.15 miles/W
Gravelle's Boatyard	7501 Sandholdt Rd	WDS	0.15 miles/W
No Name Listed	7454 Sandholdt Rd	CHMIRS	0.15 miles/W
MBARI	7700 Sandholdt Rd	ERNS, SWQG, LUST, Haznet	0.15 miles/W
Moonglow Dairy	Dolan Rd, E of SR1	WDS	0.45 miles/E
Moss Landing Marine Lab	7722 Sandholdt Rd	SQG, Haznet	0.65 miles/S

Notes:

Envirostor	California DTSC database of hazardous substance release sites
ERNS	Emergency Response Notification System database
FINDS	Facilities Index System database
Haznet, SQG	Registered Hazardous Waste Generator
Hist UST	Historic UST Site, Water Resources Control Board database
LUST	Leaking Underground Storage Tank site
SLIC	CRWQCB Spills, Leaks, Investigations and Cleanups database
TPCA	Toxic Pits Cleanup Act database
UST	Registered Underground Storage Tank site

Because they have been present since the 1940's, the MLPP and National Refractories sites are listed multiple times in various regulatory databases. The listings are related to operating permits and release incidents for process areas of the facilities, which are located on the east side of SR1. With the exception of the presence of groundwater contamination west of SR1 related to MLPP operations, the database listings for the MLPP and National Refractories sites appear unlikely to affect the Trail alignment.

Several dozen listings are shown for 7881 Sandholdt Road, which is the address for the Moss Landing Harbor District. These listings appear to be related to releases of petroleum products from vessels into harbor waters. Based on report descriptions, the releases were either contained or allowed to dissipate, and their potential to affect the land beneath the project site is nil. The remaining sites are located on the opposite side of the harbor, or more than 0.6 miles distant from the project site. Based on their locations relative to the project site, it is our opinion that the remaining sites listed in the EDR report do not comprise an REC.

The database search report also lists 28 sites classified as 'orphan' sites, due to imprecise address listings or the inability of the geocoding software to accurately identify the site location. A manual search of these listings determined that seven of the 28 sites are duplicate listings for the MLPP and National Refractories sites. Five listings are related to the Moss Landing Harbor District, but do not appear to have a significant potential to affect the project site. A listing for The Whole Enchilada restaurant is shown, which is located just south of the site at the southwest corner of SR1 and Moss Landing Road. The listing indicates that the property is a former Leaking Underground Storage Tank (LUST) site, with a regulatory status of 'case closed,' indicating it has been cleaned up to the satisfaction of regulatory agency personnel. The remaining 15 sites are located more than 0.25 miles distant from the subject property, and do not present a significant environmental concern.

5.2 California State Water Resources Control Board

The California State Water Resources Control Board (SWRCB) GeoTracker website was accessed to research records on file regarding reported hazardous material releases on or near the site. The Whole Enchilada site is listed in GeoTracker as a closed LUST case. The National Refractories site is also listed in the GeoTracker database, as an active LUST cleanup site. A soil and groundwater remediation plan has been submitted for the site, and was implemented in 2009. The remediation plan is discussed in more detail in Section 6 of this report.

5.3 California Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC) Envirostor website was accessed to research records on file regarding known problems at the site or in the site vicinity. The Envirostor database indicates that a Corrective Action is currently underway at the MLPP. The cleanup action is being undertaken at several areas on the plant property; all are located east of SR1, and are not likely to impact construction of the project. As discussed in Section 6, low-level contamination of groundwater has been documented extending beneath the SR1 ROW, extending west beneath the cooling water intake area west of SR1; however, contaminant concentrations in this area are very low and stable, and DTSC has approved the removal of most of the monitoring wells in this area. No other sites in the project area were listed on the Envirostor database.

5.4 Tribal Records

This site is not located within 0.25 miles of tribal land, and therefore Tribal records for the subject property or adjoining properties were not reviewed.

5.5 Environmental Cleanup Liens/Activity and Use Limitations

Recorded Environmental Cleanup Liens (ECLs) on a property are indicators that contamination exists or existed at the site. ECLs are "encumbrances on a property for the recovery of incurred cleanup costs on the part of a state, tribal, or federal government agency or other third party" (EPA, 2005). Activity and Use Limitations (AULs) are recorded documents that limit certain activities on a property to reduce exposure risk to site occupants or users.

No ECLs have been recorded for the site parcels. An AUL has been recorded for the MLPP property that prohibits site development for permanent or transient residential occupancy, as a school, hospital, day-care center, park or playground.

Cleanup and Abatement Orders have been issued for both the MLPP and the National Refractories site by the California Regional Water Quality Control Board and the Department of Toxic Substances Control; however, they are for the active portions of the facilities east of SR1, and do not directly affect the project site.

A copy of the ECL/AUL report is included in Appendix G.

5.6 Oil and Gas Maps

Wildcat Map No. W3-8, published by the California Department of Conservation, Division of Oil, Gas and Geothermal Resources, was reviewed for information regarding historic oil or gas well drilling activities on or near the site. According to the map, no oil or gas wells have been drilled on the project site. The nearest oil well shown is the Bayside Development Company "Vierra No. 1" well, located approximately 0.3 miles north of the north end of the Trail segment, on the east side of SR1. The well is listed as "plugged and abandoned-dry hole."

6.0 PRIOR REPORTS

Both the MLPP and National Refractories sites have undergone a large number of environmental assessments, almost all of which describe conditions on the east side of SR 1 which would not affect the Project. The western edge of the MLPP is known to have areas of groundwater contamination around the intake works area west of the highway. A groundwater monitoring report for the MLPP prepared in January 2012 (Arcadis US, 2012) was reviewed to determine groundwater conditions in this area of the plant and evaluate possible impacts on the MBSST project. According to this report and older documents, low levels of several halogenated hydrocarbon compounds are present in groundwater west of SR1, including trichloroethylene, dichloroethylene, trichloroethane, dichloroethane and Freon. Several of the wells have also been found to contain low levels of

hexavalent chromium. The source of these compounds is believed to be due to plant operations on the east side of SR1. These wells are located in the southern and central intake areas, and do not appear to extend north of the works. Groundwater elevations in the wells west of SR1 were approximately 3 feet above mean sea level, or about 25 feet below the level of SR1 where the proposed MBSST passes this area. According to the report, the concentrations of these compounds have remained stable or are decreasing over the past three years. As of 2010, the California Department of Toxic Substances Control has agreed to suspend monitoring in this area, and is not requiring additional corrective action. As discussed in Section 5.5, a covenant restricting certain land uses and activities has been recorded for the MLPP property to protect sensitive receptors.

ESP also reviewed a soil and groundwater Remedial Action Workplan for the former National Refractories site, prepared in October 2008 by Strategic Engineering and Science (SES). The workplan describes excavation activities planned in an area of soil contamination beneath a former gasoline UST in the northern part of the facility east of SR1. In addition, contaminated groundwater related to the UST release was treated with oxygen-releasing compounds to stimulate bacterial degradation of hydrocarbons. The area that was treated is more than 600 feet from the MBSST alignment, and should not impact the project.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

This report presents the findings of the updated Draft Phase I ESA prepared by ESP for the Moss Landing Segment of the Monterey Bay Sanctuary Scenic Trail, to be built in the community of Moss Landing, California. We have endeavored to perform this ESA in general conformance with the scope and limitations of ASTM Standard E1527-05. Exceptions to or deviations from this scope are described in Section 1.5 of this report. The purpose of this assessment was to evaluate the site for the presence of RECs related to the current or past use, handling, storage, or disposal of hazardous materials or petroleum products on or near the subject property. It is our understanding that construction of the Trail will occur in an easement and will not result in the transfer of real property; consequently, we have evaluated the identified RECs as to their effect on the construction, use and maintenance of the Trail. This is a significant difference from a situation where a property transfer is proposed, as liability for site cleanup is often conveyed with the property title.

The assessment has identified the following information:

- The changes in the alignment of parts of the trail have not had an appreciable effect on the conclusions discussed in our 2009 ESA report; similarly, site conditions along the entire length of the trail remain essentially the same, and our original conclusions and recommendations are unchanged.

- The study area was originally used for agriculture, based on review of aerial photographs. The area along State Route 1 has been used as a road since at least 1914, according to historic topographic maps. The MLPP and National Refractories plant were built in the 1940's; both plants have undergone several expansions over time. The MLPP is still in operation; the National Refractories facility ceased operation in 1999 and is currently used as a business/industrial park.
- The Pajaro Valley Consolidated Railroad operated a rail line along the east side of the Harbor, which served the wharf at Moss Landing and the Salinas area. The railroad ceased operating in the late 1920's, and no visible remnants of its operation are currently present. The precise location of the former rail bed is uncertain; however, excavation in the northern portion of the alignment between about Stations 92+50 to 95+50 could encounter buried remains of the railroad works (track ballast, ties, etc.) during construction.
- Several sections of the Trail lie within or immediately adjacent to the SR1 right-of-way. Caltrans requires that construction projects that will involve the excavation or removal of soil to be assessed for ADL resulting from historic tailpipe emissions.
- Groundwater beneath and west of the SR1 right-of-way around the MLPP cooling water intake area has been documented to contain low levels of several halogenated hydrocarbons and hexavalent chromium. The concentrations of these contaminants are low, and have remained stable over the past several years of groundwater monitoring. The Department of Toxic Substances Control has agreed that contaminant concentrations in this area are low enough that corrective action is no longer necessary. The Trail crosses this area, but is at an elevation approximately 25 feet above the average groundwater level and will not encounter contaminated groundwater during construction.
- The MLPP and National Refractories site are both listed in numerous regulatory databases, due to their long operating history. However, the regulatory listings are related to operations east of SR1, and should not impact construction or maintenance of the Trail. The other sites listed in regulatory agency databases do not present a significant environmental concern or comprise an REC, based on their regulatory status or direction.

7.2 Recommendations

Based on the findings of the ESA, we have the following recommendations:

- Sections of the Trail that lie within or close to the SR1 alignment and will involve disturbance of soil should be assessed for the presence of ADL in accordance with Caltrans guidelines. Caltrans projects have a specific variance in place through the Department of Toxic Substances Control for dealing with ADL. The variance may allow lead-affected soil to remain on-site provided that specific conditions regarding its placement and burial are met. The portion of the Trail that should be assessed for ADL lies between Stations 68+00 and 86+30.

- According to the most recent Project Description, the bridge over Elkhorn Slough will be supported on driven piles, which will not generate construction-related waste in the form of drill cuttings. Construction of the bridge abutments will reportedly require excavations on the order of 3 feet deep on either side of the bridge. Because the abutment areas on both sides of the Elkhorn Slough channel contain fill soils of unknown origin, we recommend that the nature of the fill be determined prior to construction to evaluate whether special disposal measures will be needed for the excess abutment soils.
- Project plans show the construction of retaining walls in several locations along the project. The low segmental retaining wall in the southern part of the project and the low retaining walls between the MLPP and Elkhorn Slough would be founded on conventional footings that would be above groundwater elevations. However, the soldier pile retaining walls along the east side of both MLPP cooling water intake areas would involve deep drilling to place the cast-in-drilled-hole piles, and thus might encounter groundwater. It will be necessary to manage soil excavated or water produced by dewatering the drilled holes to avoid exposure to workers or potential releases of hazardous materials to the environment.

End of text.

REFERENCES

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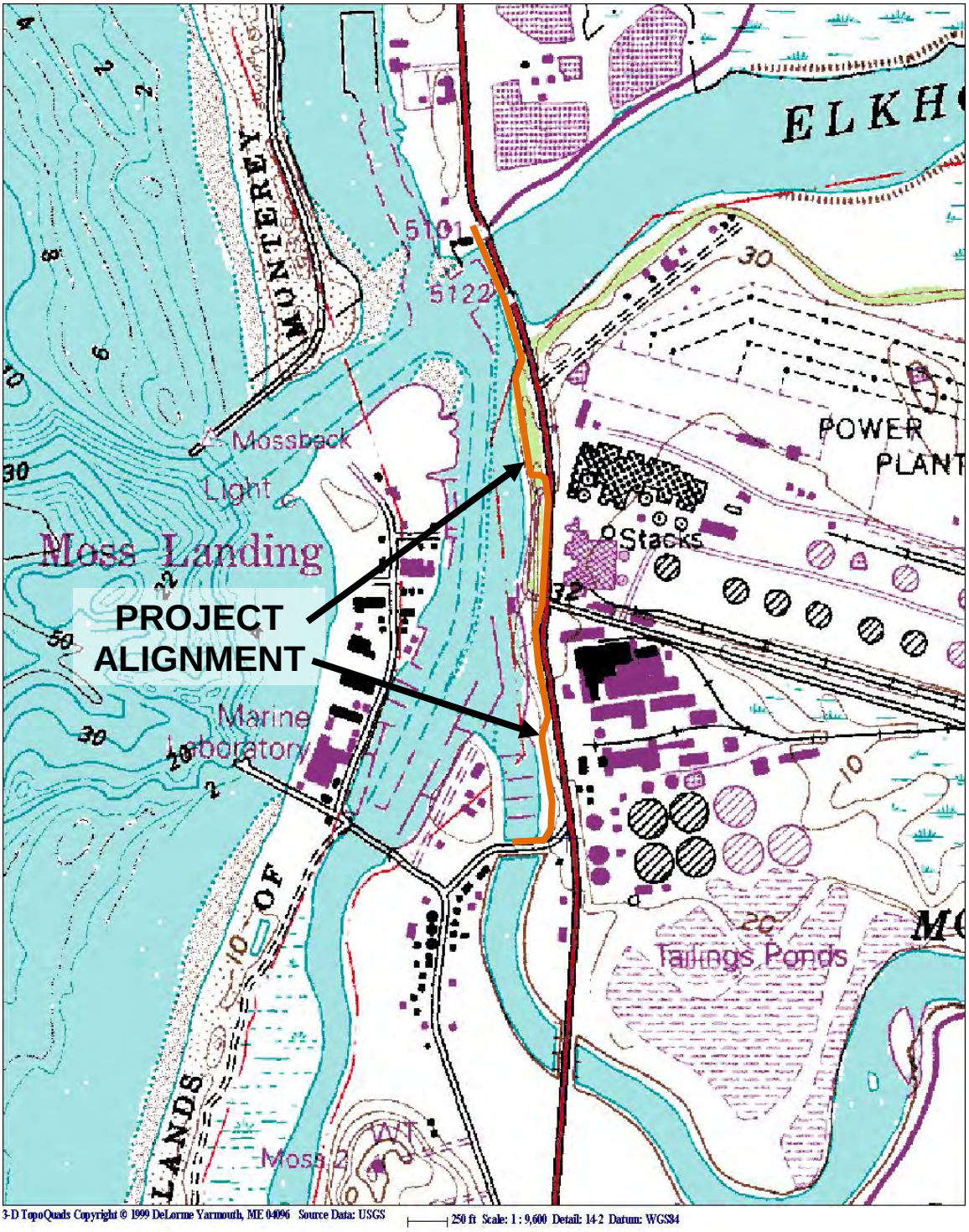
APPENDIX A

FIGURES

VICINITY MAP

Monterey Bay Sanctuary Scenic Trail,
Moss Landing Segment
Moss Landing, California



CONSTRUCTION NOTES

(1) XX

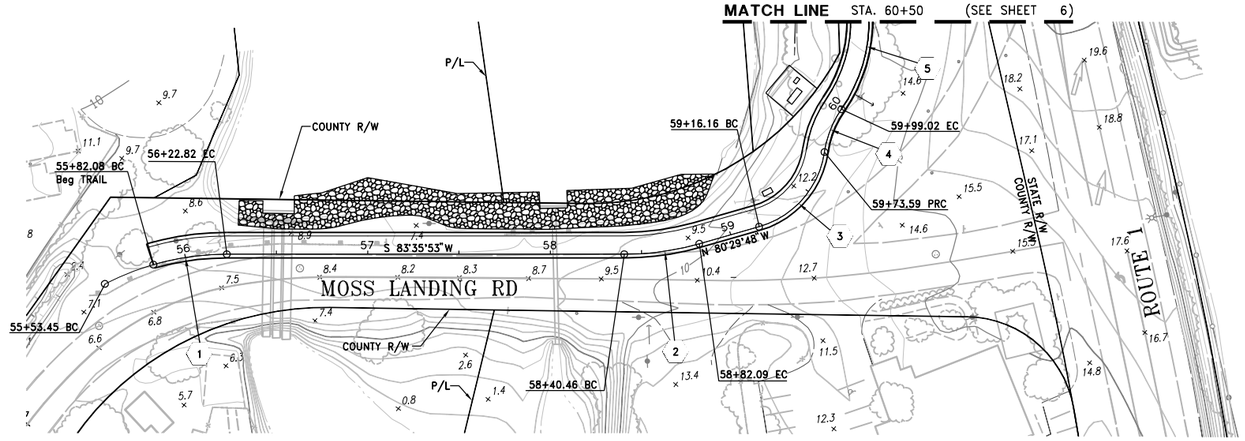
LEGEND

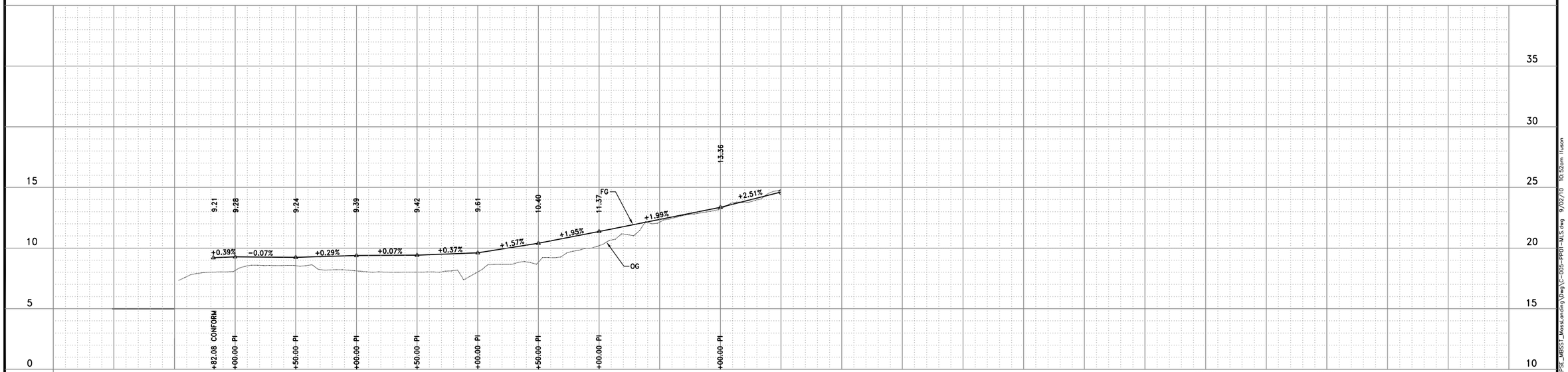
ROCK SLOPE PROTECTION

REMOVE AND REPLACE AC DRIVEWAY

CURVE DATA

#	R	Δ	T	L
1	145.63'	27°17'40"	35.36'	69.37'
2	150.00'	15°54'19"	20.96'	41.64'
3	50.00'	65°48'54"	32.36'	57.47'
4	55.00'	26°29'17"	12.95'	25.43'
5	85.00'	50°23'05"	39.98'	74.75'





SUBMITTED BY: KEITH J. HALLSTEN, P.E.	
DESIGN BY: LUCAS J. FUSON, P.E.	CHKD BY: KJH
DRAWN BY: LUCAS J. FUSON, P.E.	CHKD BY: KJH
SPECIFICATIONS WRITTEN BY: KEITH J. HALLSTEN, P.E.	CHKD BY:
APPROVAL RECOMMENDED BY: ALI HEMMATI, P.E.	

REGISTERED PROFESSIONAL ENGINEER — KEITH J. HALLSTEN — No. C50893 Exp. 9-30-11 — CIVIL — STATE OF CALIFORNIA

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COUNTY OF MONTEREY
RESOURCE MANAGEMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING SEGMENT

PLAN AND PROFILE (STA 55+82.06 TO 60+50.00)

DATE	DRAWING	SHEET
8/31/10		5 OF 32
SCALE 1"=40'	VIEW Layout1	

J:\Jobs\8691-MontereyCounty\010-ED_PSE_MBSST_MossLanding\Dwg\VC-005-PP01-MLS.dwg 9/02/10 10:52am lfuson

CONSTRUCTION NOTES

(1) XX

CURVE DATA

#	R	Δ	T	L
1	85.00'	50°23'05"	39.98'	74.75'
2	100.00'	8°35'20"	7.51'	14.99'
3	70.00'	55°06'36"	36.53'	67.33'
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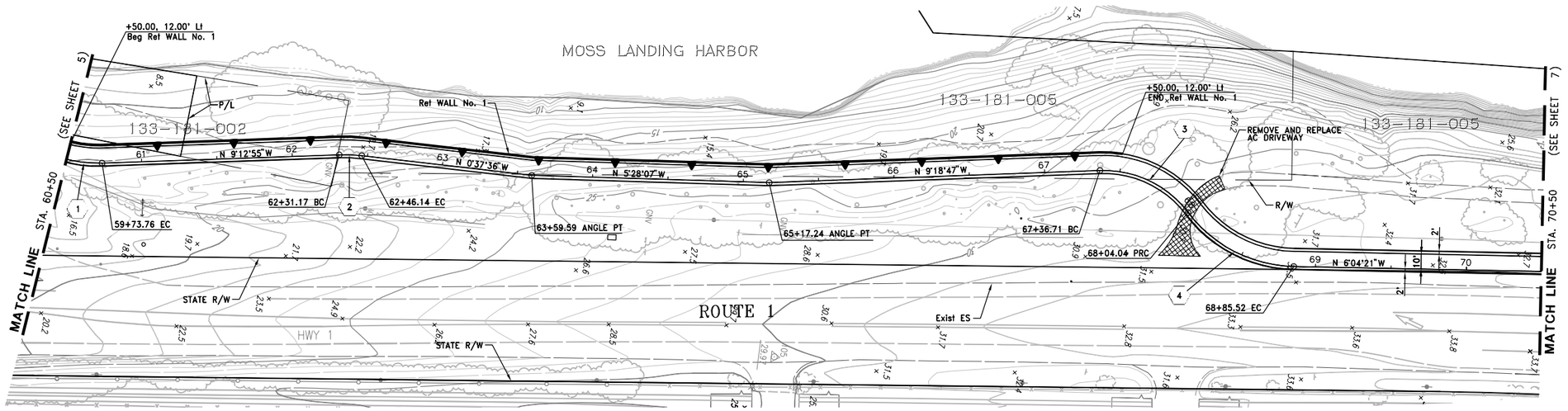
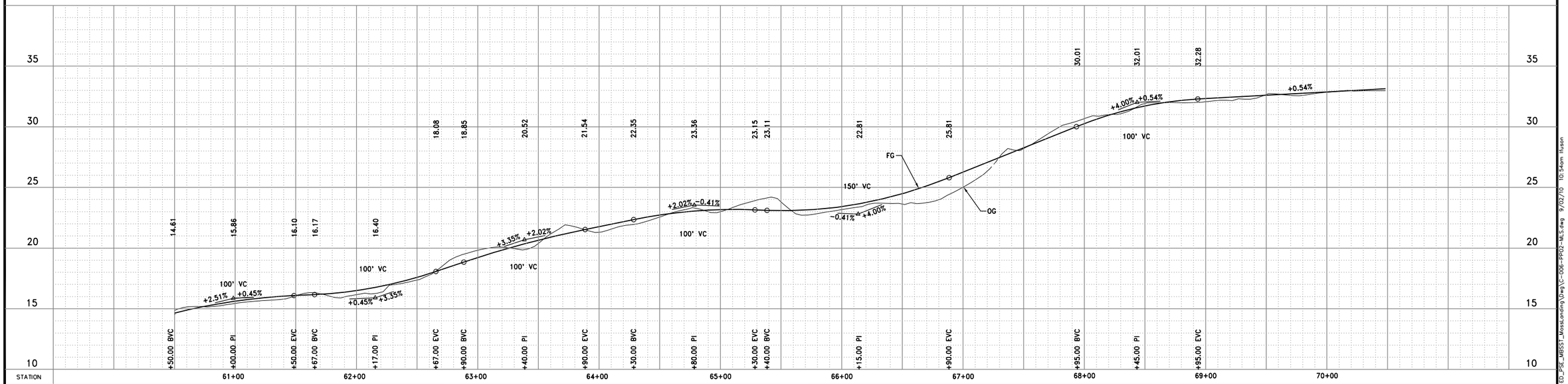


LT EP

RT EP



SUBMITTED BY: KEITH J. HALLSTEN, P.E.			
DESIGN BY: LUCAS J. FUSON, P.E.	CHKD BY: KJH		
DRAWN BY: LUCAS J. FUSON, P.E.	CHKD BY: KJH		
SPECIFICATIONS WRITTEN BY: KEITH J. HALLSTEN, P.E.	CHKD BY:		
APPROVAL RECOMMENDED BY: ALI HEMMATI, P.E.			

REGISTERED PROFESSIONAL ENGINEER — KEITH J. HALLSTEN — No. C50893 Exp. 9-30-11 — CIVIL — STATE OF CALIFORNIA

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SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING SEGMENT

PLAN AND PROFILE (STA 60+50.00 TO 70+50.00)

DATE	DRAWING	SHEET
8/31/10		6 OF 32
SCALE 1"=40'	VIEW Layout1	

J:\Jobs\8691-MontereyCounty\010-ED_PSE_MBSST_MossLanding\Dwg\VC-006-PP02-MLS.dwg 9/02/10 10:54am lfuson

CONSTRUCTION NOTES

CURVE DATA

#	R	Δ	T	L
1	200.00'	20°35'53"	36.34'	71.90'
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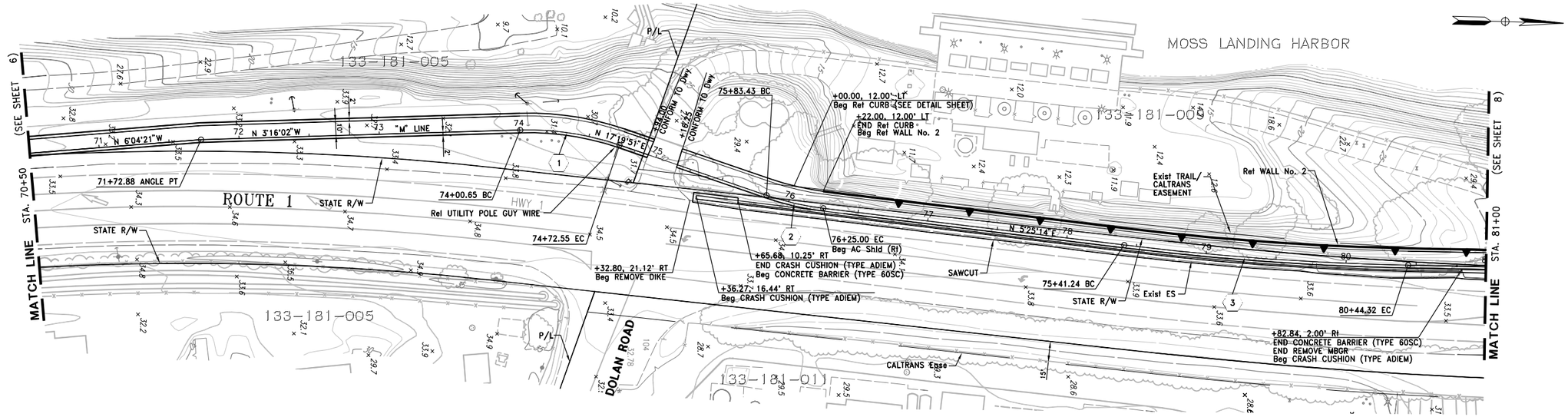

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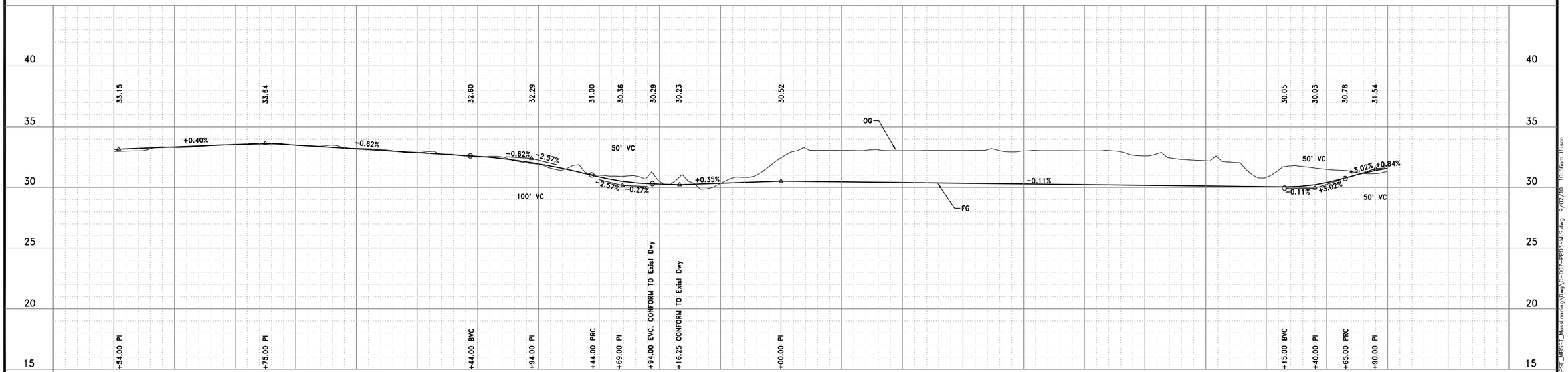

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DRAWN BY: LUCAS J. FUSON, P.E.	CHKD BY: KJH		
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APPROVAL RECOMMENDED BY: ALI HEMMATI, P.E.			

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MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING SEGMENT

PLAN AND PROFILE (STA 70+50.00 TO 81+00.00)

DATE	DRAWING	SHEET
8/31/10		7 OF 32
SCALE 1"=40'	VIEW Layout1	

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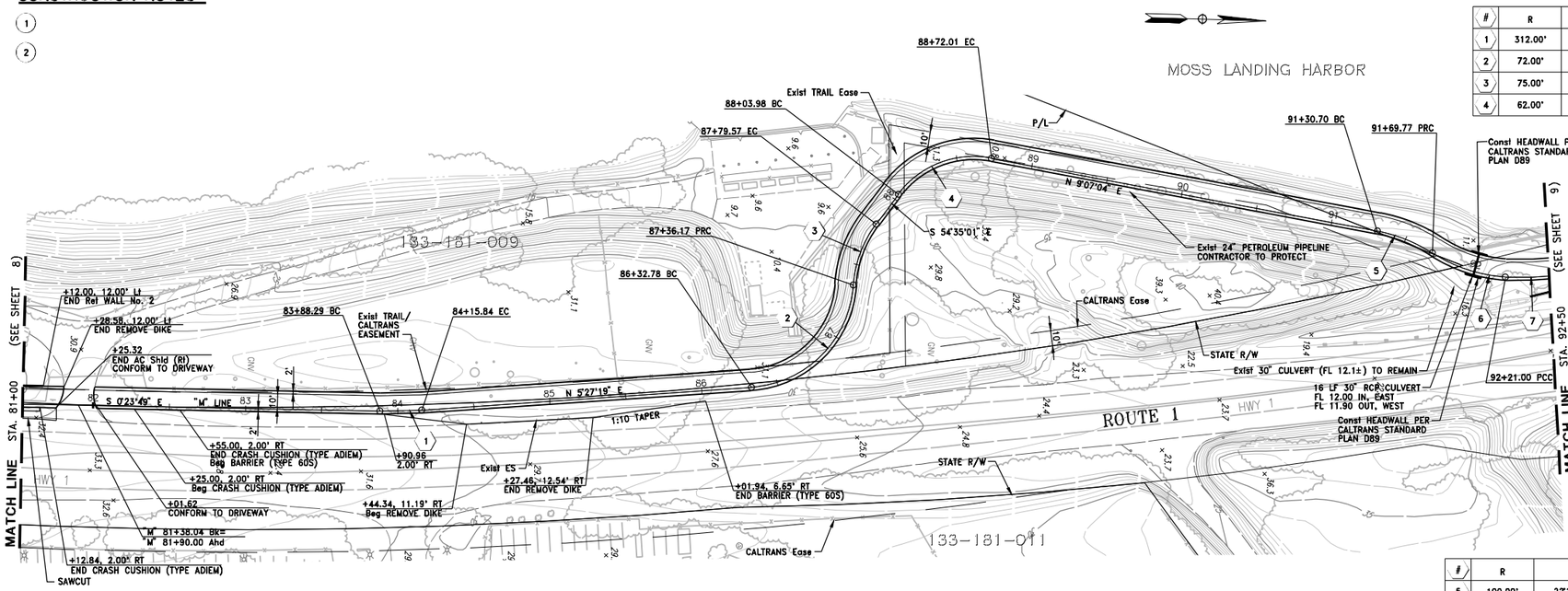
CONSTRUCTION NOTES

1

2



CURVE DATA

#	R	Δ	T	L
1	312.00'	5°03'29"	13.78'	27.54'
2	72.00'	82°16'41"	62.90'	103.39'
3	75.00'	35°08'09"	22.32'	43.39'
4	62.00'	63°42'01"	38.52'	68.93'

CURVE DATA

#	R	Δ	T	L
5	100.00'	22°23'11"	19.79'	39.07'
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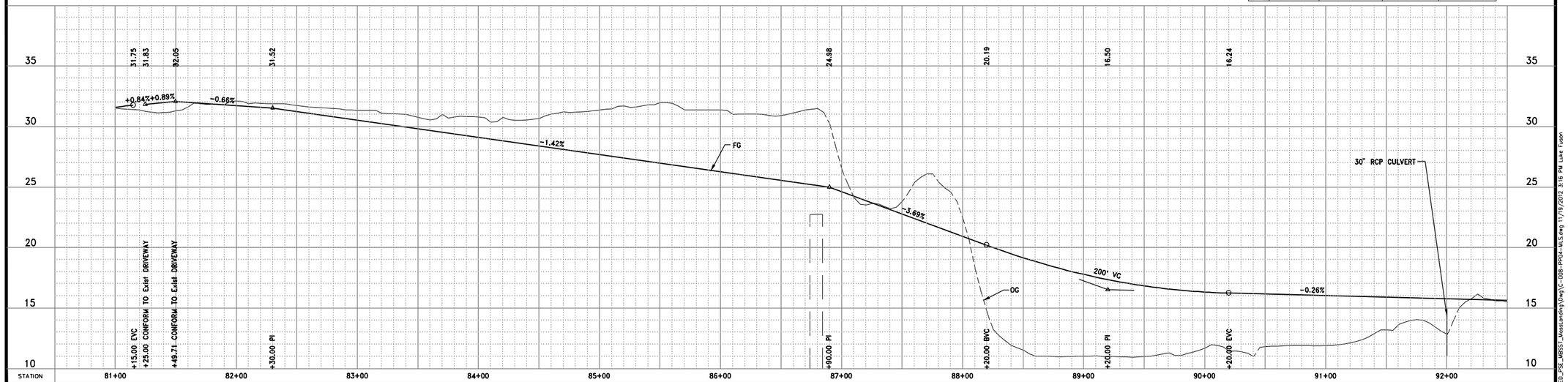

SUBMITTED BY: KEITH J. HALLSTEN, P.E.	
DESIGN BY: LUCAS J. FUSON, P.E.	CHKD BY: KJH
DRAWN BY: LUCAS J. FUSON, P.E.	CHKD BY: KJH
SPECIFICATIONS WRITTEN BY: KEITH J. HALLSTEN, P.E.	CHKD BY:
APPROVAL RECOMMENDED BY: ALI HEMMATI, P.E.	

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(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING SEGMENT

PLAN AND PROFILE (STA 81+00.00 TO 92+50.00)

DATE	DRAWING	SHEET
8/31/10		8 OF 32
SCALE 1"=40'	VIEW Layout1	

J:\Jobs\5891-Monterey\County\010-EG_PSE_MBSST_MossLanding\Dwg\Vc-008-PP04-MLS.dwg 11/19/2012 3:16 PM Luke Fuson

CONSTRUCTION NOTES

(1) XX

CURVE DATA

#	R	Δ	T	L
1	300.00'	17°52'32"	47.18'	93.60'
2	175.00'	16°59'41"	24.80'	49.28'
3	175.00'	17°01'37"	26.20'	52.00'
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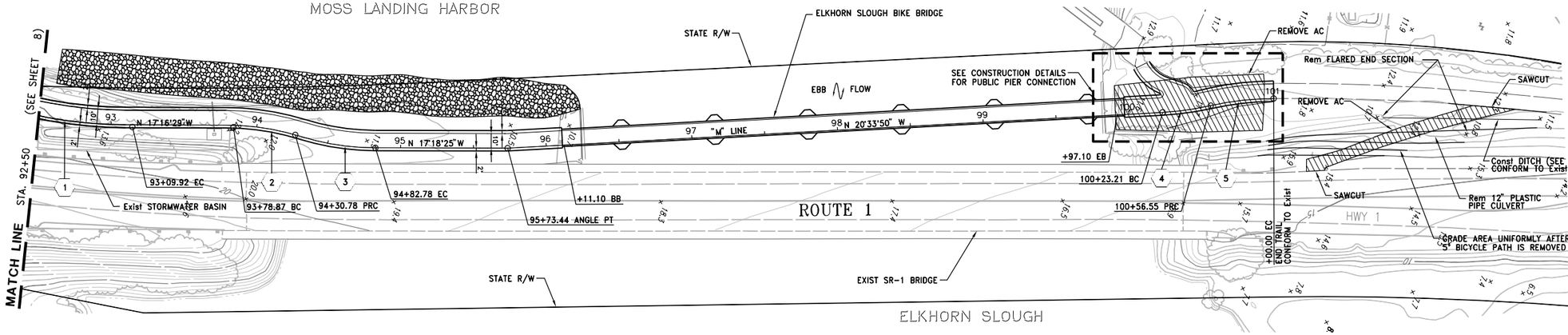

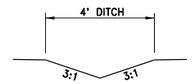

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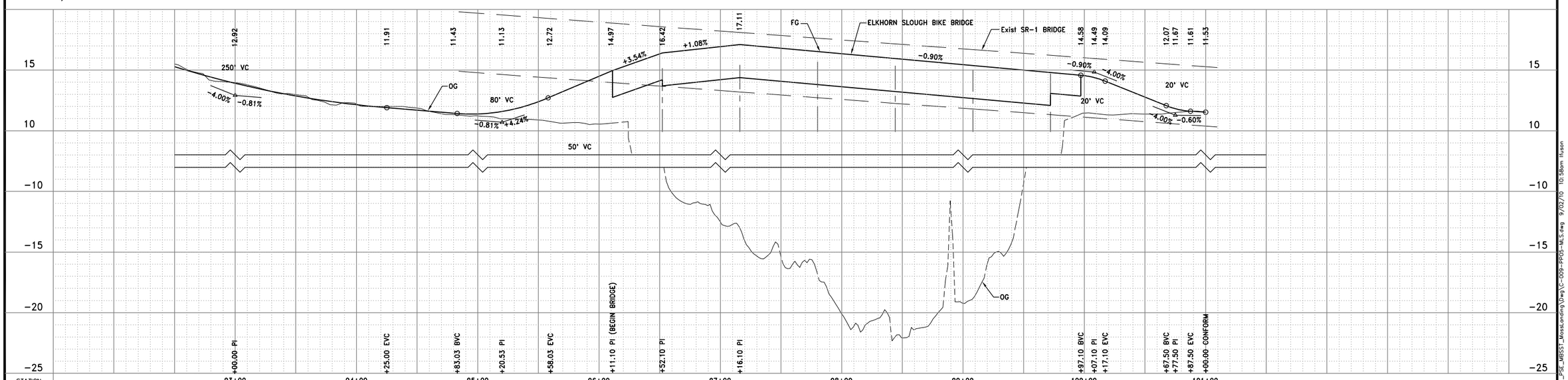

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DESIGN BY: LUCAS J. FUSON, P.E.	CHKD BY: KJH
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SPECIFICATIONS WRITTEN BY: KEITH J. HALLSTEN, P.E.	CHKD BY:
APPROVAL RECOMMENDED BY: ALI HEMMATI, P.E.	

REGISTERED PROFESSIONAL ENGINEER — KEITH J. HALLSTEN — No. C50893 Exp. 9-30-11 — CIVIL — STATE OF CALIFORNIA

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(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING SEGMENT

PLAN AND PROFILE (STA 92+50.00 TO 101+00.00)

DATE 8/31/10	DRAWING	SHEET 9 OF 32
SCALE 1"=40'	VIEW Layout1	

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APPENDIX B

PHOTOGRAPHS

PHOTOGRAPHS

Looking south along southern part of Trail, approximately Station 63+00. Moss Landing Harbor at right, Moss Landing Road in background.

Looking north along southern part of Trail, approximately Station 63+50. Moss Landing Harbor at left.

PHOTOGRAPHS

Looking north along alignment, approximately Station 63+00.

Looking north along alignment, approximately Station 69+50. SR 1 at right.

PHOTOGRAPHS

Looking north along alignment, approximately Station 76+25.

Looking north along alignment, approximately Station 78+50. SR 1 at right.

PHOTOGRAPHS

Looking north along west side of SR1, approximately Station 81+00.

Looking north along Trail, approximately Station 84+00. Fenced area of MLPP intake works at left, SR1 at right.

PHOTOGRAPHS

Looking west along re-aligned portion of Trail above MLPP intake works area, approximately Station 86+50.

Looking west at point where re-aligned Trail leaves fenced intake works area, Station 88+00. Moss Landing Harbor at top of photograph.

PHOTOGRAPHS

Looking north along re-aligned portion of Trail north of MLPP intake works area, approximately Station 88+50. Moss Landing Harbor at left.

Looking north along re-aligned portion of Trail north of MLPP intake works area, approximately Station 89+00. Moss Landing Harbor at left.

PHOTOGRAPHS

Looking north along re-aligned portion of Trail north of MLPP intake works area, approximately Station 90+00. Moss Landing Harbor at left.

Looking south along re-aligned portion of Trail north of MLPP intake works area, approximately Station 91+50. Moss Landing Harbor at right.

PHOTOGRAPHS

Looking north along re-aligned portion of Trail north of MLPP intake works area, approximately Station 91+50. Moss Landing Harbor at left.

Looking north along north end of trail, toward proposed bridge over Elkhorn Slough. Moss Landing Harbor at left, North Harbor area in background.

APPENDIX C

SANBORN MAPS

MBSST
Highway 1
Moss Landing, CA 95039

Inquiry Number: 2366522.3s
November 19, 2008

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

11/19/08

Site Name:
MBSST
Highway 1
Moss Landing, CA 95039

Client Name:
Earth Systems Pacific
4378 Santa Fe Road
San Luis Obispo, CA 93401

EDR Inquiry # 2366522.3s

Contact: Tim Conroy

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Earth Systems Pacific were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: MBSST
Address: Highway 1
City, State, Zip: Moss Landing, CA 95039
Cross Street:
P.O. # SL-15870-EA
Project: MBSST
Certification # B735-47E3-BDE9

Sanborn® Library search results
Certification # B735-47E3-BDE9

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

Total Maps: 0

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APPENDIX D

AERIAL PHOTOGRAPHS

MBSST
Highway 1
Moss Landing, CA 95039

Inquiry Number: 2366522.5
November 19, 2008

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDRs professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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with any questions or comments.

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Date EDR Searched Historical Sources:

Aerial Photography November 19, 2008

Target Property:

Highway 1

Moss Landing, CA 95039

Year	***Scale***	***Details***	***Source***
1937	Aerial Photograph. Scale: 1"=555'	Flight Year: 1937 Best Copy Available from original source	Fairchild
1956	Aerial Photograph. Scale: 1"=555'	Flight Year: 1956	Aero
1971	Aerial Photograph. Scale: 1"=555'	Flight Year: 1971	Western
1981	Aerial Photograph. Scale: 1"=690'	Flight Year: 1981	USGS
1993	Aerial Photograph. Scale: 1"=666'	Flight Year: 1993	USGS
1998	Aerial Photograph. Scale: 1"=666'	Flight Year: 1998	USGS
2001	Aerial Photograph. Scale: 1"=555'	Flight Year: 2001	IK Curtis
2005	Aerial Photograph. Scale: 1"=484'	Flight Year: 2005	EDR

INQUIRY #: 2366522.5
YEAR: 1937
= 555'
N

INQUIRY #: 2366522.5
YEAR: 1956
= 555'
N

INQUIRY #: 2366522.5

YEAR: 1971

= 555'

N

INQUIRY #: 2366522.5
YEAR: 1981
= 690'
N

INQUIRY #: 2366522.5
YEAR: 1993
= 666'
N

INQUIRY #: 2366522.5
YEAR: 1998
= 666'
N

INQUIRY #: 2366522.5
YEAR: 2001
= 555'
N

INQUIRY #: 2366522.5
YEAR: 2005
= 484'
N

APPENDIX E

TOPOGRAPHIC MAPS

MBSST
Highway 1
Moss Landing, CA 95039

Inquiry Number: 2366522.4
November 19, 2008

The EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

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with any questions or comments.

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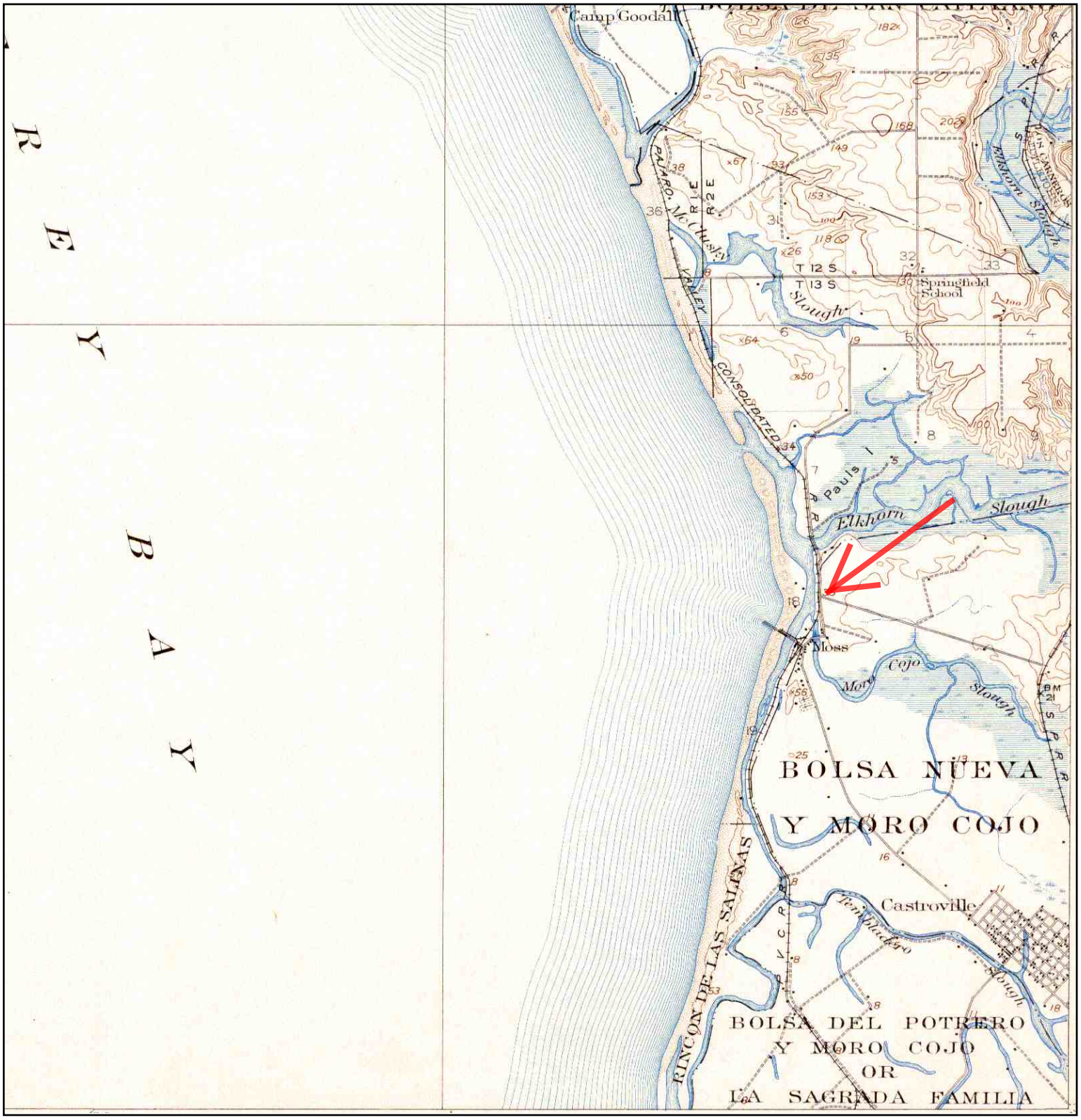
Historical Topographic Map



N	TARGET QUAD NAME: CAPITOLA MAP YEAR: 1914 SERIES: 15 SCALE: 1:62500	SITE NAME: MBSST ADDRESS: Highway 1 Moss Landing, CA 95039 LAT/LONG: 36.8056 / 121.78	CLIENT: Earth Systems Pacific CONTACT: Tim Conroy INQUIRY#: 2366522.4 RESEARCH DATE: 11/19/2008

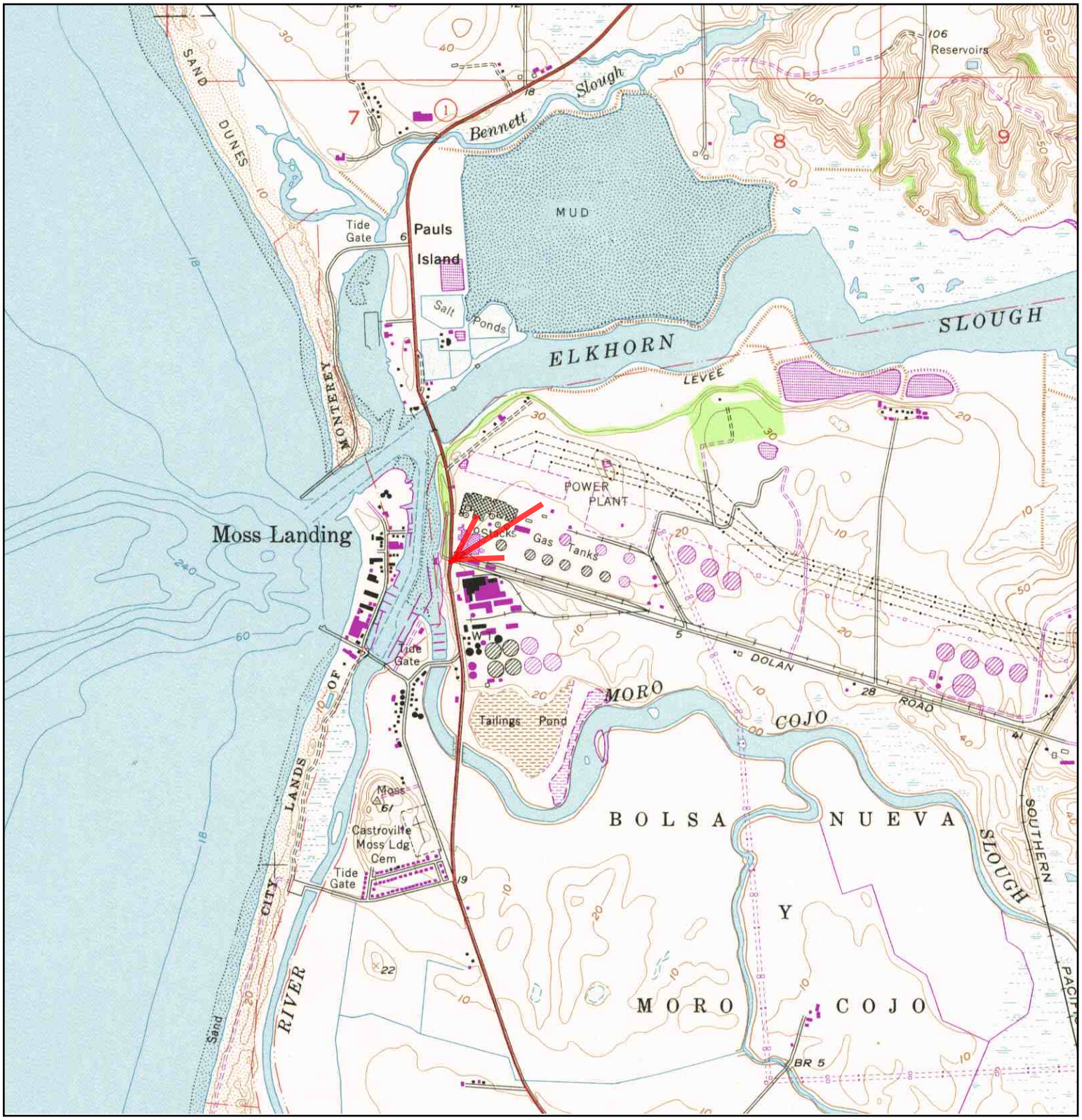
Historical Topographic Map

N	TARGET QUAD NAME: MOSS LANDING MAP YEAR: 1954 SERIES: 7.5 SCALE: 1:24000	SITE NAME: MBSST ADDRESS: Highway 1 Moss Landing, CA 95039 LAT/LONG: 36.8056 / 121.78	CLIENT: Earth Systems Pacific CONTACT: Tim Conroy INQUIRY#: 2366522.4 RESEARCH DATE: 11/19/2008

Historical Topographic Map

N			
	TARGET QUAD NAME: MOSS LANDING MAP YEAR: 1968 PHOTOREVISED FROM:1954 SERIES: 7.5 SCALE: 1:24000	SITE NAME: MBSST ADDRESS: Highway 1 Moss Landing, CA 95039 LAT/LONG: 36.8056 / 121.78	CLIENT: Earth Systems Pacific CONTACT: Tim Conroy INQUIRY#: 2366522.4 RESEARCH DATE: 11/19/2008

Historical Topographic Map



N	TARGET QUAD NAME: MOSS LANDING MAP YEAR: 1980 PHOTOREVISED FROM:1954 SERIES: 7.5 SCALE: 1:24000	SITE NAME: MBSST ADDRESS: Highway 1 Moss Landing, CA 95039 LAT/LONG: 36.8056 / 121.78	CLIENT: Earth Systems Pacific CONTACT: Tim Conroy INQUIRY#: 2366522.4 RESEARCH DATE: 11/19/2008

Historical Topographic Map

N	TARGET QUAD NAME: MOSS LANDING MAP YEAR: 1994 REVISED FROM:1954 SERIES: 7.5 SCALE: 1:24000	SITE NAME: MBSST ADDRESS: Highway 1 Moss Landing, CA 95039 LAT/LONG: 36.8056 / 121.78	CLIENT: Earth Systems Pacific CONTACT: Tim Conroy INQUIRY#: 2366522.4 RESEARCH DATE: 11/19/2008

APPENDIX F

EDR REGULATORY AGENCY
DATABASE SEARCH REPORT

MBSST Moss Landing Segment
Hwy 1
Moss Landing, CA 95039

Inquiry Number: 3441518.1s
October 26, 2012

The EDR Radius Map™ Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

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Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

GeoCheck - Not Requested

Thank you for your business.
Please contact EDR at 1-800-352-0050
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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

HWY 1
MOSS LANDING, CA 95039

COORDINATES

Latitude (North):	36.8073000 - 36° 48' 26.28''
Longitude (West):	121.7842000 - 121° 47' 3.12''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	608454.4
UTM Y (Meters):	4073982.8
Elevation:	21 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	36121-G7 MOSS LANDING, CA
Most Recent Revision:	1994

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	2009, 2010
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List

EXECUTIVE SUMMARY

Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ---------- Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ---------- CERCLIS No Further Remedial Action Planned

Federal RCRA generators list

RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls
LUCIS ---------- Land Use Control Information System

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ---------- State Response Sites

State and tribal landfill and/or solid waste disposal site lists

WDS ---------- Waste Discharge System

State and tribal leaking storage tank lists

INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST ---------- Active UST Facilities
INDIAN UST ---------- Underground Storage Tanks on Indian Land
FEMA UST ---------- Underground Storage Tank Listing

State and tribal voluntary cleanup sites

VCP ---------- Voluntary Cleanup Program Properties
INDIAN VCP ---------- Voluntary Cleanup Priority Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

EXECUTIVE SUMMARY

Local Lists of Landfill / Solid Waste Disposal Sites

ODI	Open Dump Inventory
DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations
SWRCY	Recycler Database
HAULERS	Registered Waste Tire Haulers Listing
INDIAN ODI	Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL	Clandestine Drug Labs
HIST Cal-Sites	Historical Calsites Database
SCH	School Property Evaluation Program
CDL	Clandestine Drug Labs
US HIST CDL	National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

CA FID UST	Facility Inventory Database

Local Land Records

LIENS 2	CERCLA Lien Information
LIENS	Environmental Liens Listing
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing

Other Ascertainable Records

RCRA-NonGen	RCRA - Non Generators
DOT OPS	Incident and Accident Data
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System

RAATS RCRA Administrative Action Tracking System
CA BOND EXP. PLAN Bond Expenditure Plan
NPDES NPDES Permits Listing
UIC UIC Listing
Cortese "Cortese" Hazardous Waste & Substances Sites List
HIST CORTESE Hazardous Waste & Substance Site List
DRYCLEANERS Cleaner Facilities
WIP Well Investigation Program Case List
ENF Enforcement Action Listing
HAZNET Facility and Manifest Data
EMI Emissions Inventory Data
INDIAN RESERV Indian Reservations
SCRD DRYCLEANERS State Coalition for Remediation of Drycleaners Listing
EPA WATCH LIST EPA WATCH LIST
PRP Potentially Responsible Parties
US FIN ASSUR Financial Assurance Information
FINANCIAL ASSURANCE Financial Assurance Information Listing
PCB TRANSFORMER PCB Transformer Registration Database
PROC Certified Processors Database
MWMP Medical Waste Management Program Listing
COAL ASH DOE Steam-Electric Plant Operation Data
COAL ASH EPA Coal Combustion Residues Surface Impoundments List
HWT Registered Hazardous Waste Transporter Database

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA CORRACTS facilities list

CORRACTS: CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 08/19/2011 has revealed that there is 1

CORRACTS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DYNEGY MOSS LANDING LLC	*HWY 1 AND DOLAN RD*	*SE 1/8 - 1/4 (0.199 mi.)*	*A2*	*11*

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRA-TSDF list, as provided by EDR, and dated 03/15/2012 has revealed that there is 1 RCRA-TSDF site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DYNEGY MOSS LANDING LLC	*HWY 1 AND DOLAN RD*	*SE 1/8 - 1/4 (0.199 mi.)*	*A2*	*11*

Federal RCRA generators list

RCRA-LQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

A review of the RCRA-LQG list, as provided by EDR, and dated 03/15/2012 has revealed that there are 2 RCRA-LQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MOSS LANDING POWER PLANT SUBST	*HIGHWAY 1 AND DOLAN RO*	*SE 1/8 - 1/4 (0.199 mi.)*	*A1*	*8*
DYNEGY MOSS LANDING LLC	*HWY 1 AND DOLAN RD*	*SE 1/8 - 1/4 (0.199 mi.)*	*A2*	*11*

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 09/21/2012 has revealed that there are

2 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DYNEGY MOSS LANDING LLC	***HWY 1 AND DOLAN RD***	***SE 1/8 - 1/4 (0.199 mi.)***	***A2***	***11***
Status: Active				
PG&E, MOSS LANDING	STATE HIGHWAY 1 AND DOL	SE 1/8 - 1/4 (0.199 mi.)	A6	73
Status: Refer: RCRA				

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, and dated 08/20/2012 has revealed that there is 1 SWF/LF site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
GABILAN FERTILIZER MOONGLOW DA	357 DOLAN ROAD	SE 1/4 - 1/2 (0.388 mi.)	15	97

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 09/18/2012 has revealed that there is 1 LUST site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
MONTEREY BAY AQUARIUM RESEARCH	***7642 SAND HOLDT RD***	***SSW 1/4 - 1/2 (0.384 mi.)***	***14***	***93***
Status: Completed - Case Closed				

SLIC: SLIC Region comes from the California Regional Water Quality Control Board.

A review of the SLIC list, as provided by EDR, and dated 09/18/2012 has revealed that there are 3 SLIC sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DUKE MOSS LANDING POWER PLANT	HWY 1/DOLAN RD	SE 1/8 - 1/4 (0.199 mi.)	A3	61
MOSS LANDING POWER PLANT	HIGHWAY ONE & DOLAN RD.	SE 1/8 - 1/4 (0.199 mi.)	A10	90
Facility Status: Open - Verification Monitoring				
P G & E - MOSS LANDING POWER P	HWY 1 AND DOLAN ROAD	SE 1/8 - 1/4 (0.199 mi.)	A12	93

State and tribal registered storage tank lists

AST: The Aboveground Storage Tank database contains registered ASTs. The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the AST list, as provided by EDR, and dated 08/01/2009 has revealed that there is 1 AST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
Not reported	10932 CLAM WAY	SW 1/8 - 1/4 (0.228 mi.)	13	93

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: The Waste Management Unit Database System is used for program tracking and inventory of waste management units. The source is the State Water Resources Control Board.

A review of the WMUDS/SWAT list, as provided by EDR, and dated 04/01/2000 has revealed that there is 1 WMUDS/SWAT site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DUKE MOSS LANDING PP	***HWY 1 AND DOLAN RD***	***SE 1/8 - 1/4 (0.199 mi.)***	***A5***	***66***

Local Lists of Hazardous waste / Contaminated Sites

Toxic Pits: The Toxic Pits Cleanup Act Sites database identifies sites suspected of containing hazardous substances where cleanup has not yet been completed. The data come from the State Water Resources Control Board.

A review of the Toxic Pits list, as provided by EDR, and dated 07/01/1995 has revealed that there is 1 Toxic Pits site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PG&E, MOSS LANDING POWER PLANT	***HIGHWAY 1 & DOLAN, PO B***	***SE 1/8 - 1/4 (0.199 mi.)***	***A4***	***62***
Closure Date: / /				

Local Lists of Registered Storage Tanks

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 2 HIST UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MOSS LANDING FACILITY	ROUTE #1	SE 1/8 - 1/4 (0.199 mi.)	A7	74
MOSS LANDING POWER PLANT	HIGHWAY 1 AND DOLAN ROA	SE 1/8 - 1/4 (0.199 mi.)	A8	76

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there is 1 SWEEPS UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MOSS LANDING POWER PLANT	***HIGHWAY 1 & DOLAN RD***	***SE 1/8 - 1/4 (0.199 mi.)***	***A9***	***85***

Other Ascertainable Records

Notify 65: Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

A review of the Notify 65 list, as provided by EDR, and dated 10/21/1993 has revealed that there is 1 Notify 65 site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
NATIONAL REFRACTORIES	ROUTE 1	SE 1/2 - 1 (0.607 mi.)	16	98

2020 COR ACTION: The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

A review of the 2020 COR ACTION list, as provided by EDR, and dated 11/11/2011 has revealed that there is 1 2020 COR ACTION site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DYNEGY MOSS LANDING LLC	***HWY 1 AND DOLAN RD***	***SE 1/8 - 1/4 (0.199 mi.)***	***A2***	***11***

HWP: Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

A review of the HWP list, as provided by EDR, and dated 08/28/2012 has revealed that there are 2 HWP sites within approximately 1 mile of the target property.

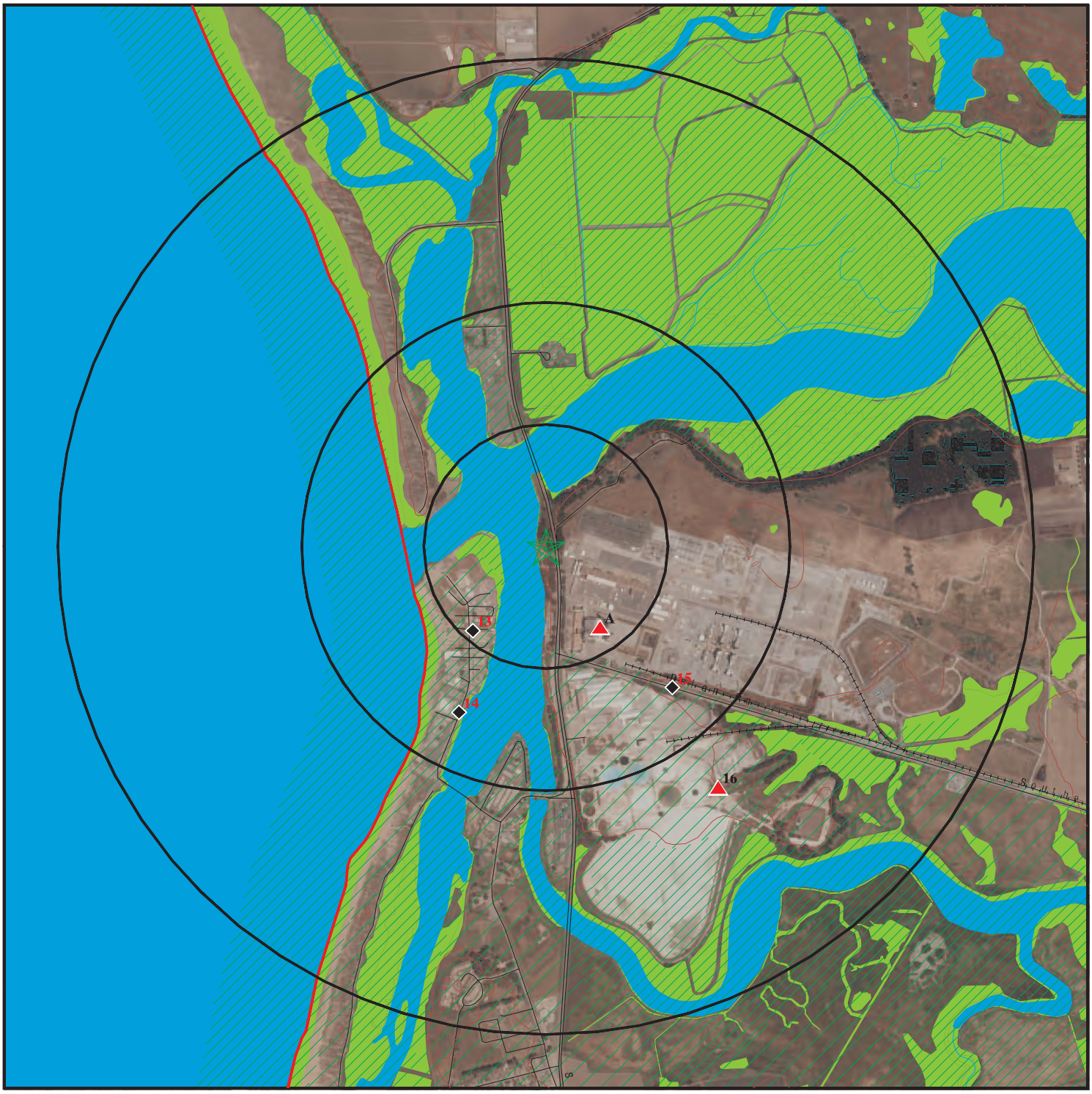
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DYNEGY MOSS LANDING LLC	***HWY 1 AND DOLAN RD***	***SE 1/8 - 1/4 (0.199 mi.)***	***A2***	***11***
PACIFIC GAS & ELECTRIC/ MOSS L	***HWY 1 AT DOLAN RD***	***SE 1/8 - 1/4 (0.199 mi.)***	***A11***	***91***

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 51 records.

Site Name	Database(s)
MOSS LANDING COMMERCIAL PARK - NPD	NPDES, ENF
MOSS LANDING CRAZY HORSE RECONDUCT	NPDES
DNSC MOSS LANDING COMMERCIAL PARK	NPDES
MOSS LANDING POWER PLANT	NPDES
MOSS LANDING BAAH	NPDES
MOSS LANDING PUMP STATION - ST	SWEEPS UST
SEA PRODUCTS COMPANY	SWEEPS UST
MOSS LANDING HARBOR ISLAND	CERC-NFRAP
THE WHOLE ENCHILADA RESTARAUNT	LUST
NATIONAL REFRACTORIES	LUST
THE WHOLE ENCHILADA RESTARAUNT	LUST
SEA PRODUCTS COMPANY	HIST UST
	AST
	AST
	AST
OIL SLUDGE POND	WMUDS/SWAT
H M B Y, INC/MOSS LANDING COMMERCI	HAZNET
MOSS LANDING HARBOR DISTRICT	HAZNET
MOSS LANDING HARBOR	ERNS
MOSS LANDING HARBOR	ERNS
DOCK B SLIP 182 MOSS LANDING HARBO	ERNS
B DOCK MOSS LANDING HARBOR	ERNS
MAIN CHANNEL IVO B DOCK MOSS LANDI	ERNS
MOSS LANDING HARBOR SLIP A95	ERNS
MOSS LANDING HARBOR COMERCIAL PORT	ERNS
MOSS LANDING MARINA	ERNS
MOSS LANDING HARBOR MAIN CHANNEL	ERNS
MOSS LANDING HARBOR C11	ERNS
MOSS LANDING POWER PLANT/OLD VESSE	ERNS
MOSS LANDING HARBOR	ERNS
MOSS LANDING & ZMUDOWSKI (?) STATE	ERNS
MOSS LANDING HARBOR	ERNS
MOSS LANDING HARBOR	ERNS
MOSS LANDING HBR	ERNS
MOSS LANDING HARBOR	ERNS
MOSS LANDING HARBOR	ERNS
MOSS LANDING STATE BEACH	ERNS
MOSS LANDING MARINA	ERNS
MOSS LANDING HARBOR DRY STORAGE YA	ERNS
MOSS LANDING HARBOR B DOCK SLIP 14	ERNS
MOSS LANDING SLIP NO: A 95	ERNS
SALINAS R AT MOSS LANDING	ERNS
5 MILES NORTH OF MOSS LANDING	ERNS
MOSS LANDING	FINDS
CALERA CORPORATION MOSS LANDING CE	SLIC
FORMER NATIONAL REFRACTORIES	SLIC
FORMER NATIONAL REFRACTORIES	SLIC
CHEMICAL LIME CO	MINES
SYAR INDUSTRIES, INC.	MINES
LSP MOSS LANDING LLC	EMI
MOSS LANDING HARBOR ISLAND	ENVIROSTOR

OVERVIEW MAP - 3441518.1s



0 1/4 1/2 1 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	MBSST Moss Landing Segment	CLIENT:	Earth Systems Pacific
ADDRESS:	Hwy 1	CONTACT:	Tim Conroy
	Moss Landing CA 95039	INQUIRY #:	3441518.1s
LAT/LONG:	36.8073 / 121.7842	DATE:	October 26, 2012 1:01 pm

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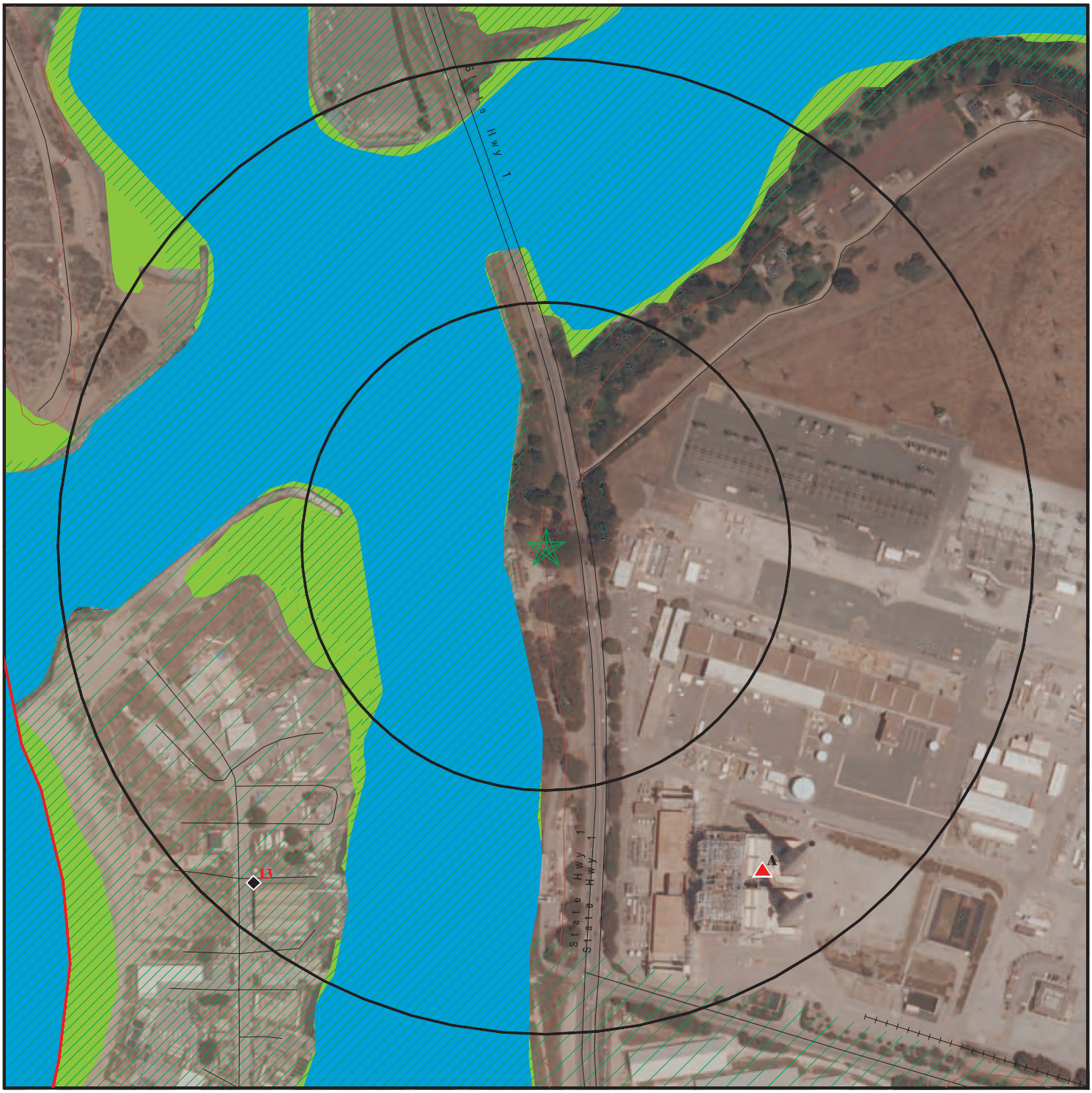
DETAIL MAP - 3441518.1s



0 1/16 1/8 1/4 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	MBSST Moss Landing Segment	CLIENT:	Earth Systems Pacific
ADDRESS:	Hwy 1 Moss Landing CA 95039	CONTACT:	Tim Conroy
LAT/LONG:	36.8073 / 121.7842	INQUIRY #:	3441518.1s
		DATE:	October 26, 2012 1:05 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	1.000		0	0	0	0	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	1	0	0	NR	1
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	1	0	NR	NR	1
Federal RCRA generators list								
RCRA-LQG	0.250		0	2	NR	NR	NR	2
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	2	0	0	NR	2
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	1	NR	NR	1
WDS	TP		NR	NR	NR	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	1	NR	NR	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SLIC	0.500		0	3	0	NR	NR	3
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	1	NR	NR	NR	1
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
WMUDS/SWAT	0.500		0	1	0	NR	NR	1
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	1	0	0	NR	1
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	2	NR	NR	NR	2
SWEEPS UST	0.250		0	1	NR	NR	NR	1
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
LIENS	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MCS	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA-NonGen	0.250		0	0	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
Cortese	0.500		0	0	0	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	1	NR	1
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
HAZNET	TP		NR	NR	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	1	NR	NR	NR	1
FINANCIAL ASSURANCE	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HWP	1.000		0	2	0	0	NR	2
EDR PROPRIETARY RECORDS								
EDR Proprietary Records								
Manufactured Gas Plants	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
SE
1/8-1/4
0.199 mi.
1052 ft.

MOSS LANDING POWER PLANT SUBSTATION
HIGHWAY 1 AND DOLAN ROAD
MOSS LANDING, CA 95039

Site 1 of 12 in cluster A

RCRA-LQG 1000686635
HAZNET CAD983639758

Relative:
Higher

Actual:
31 ft.

RCRA-LQG:

Date form received by agency:	03/01/2008
Facility name:	MOSS LANDING POWER PLANT SUBSTATION
Facility address:	HIGHWAY 1 AND DOLAN ROAD MOSS LANDING, CA 95039
EPA ID:	CAD983639758
Mailing address:	PG&E DIRECTOR OF ENVIRONMENTAL 77 BEALE STREET, MAILCODE B24A SAN FRANCISCO, CA 94105
Contact:	DONALD R GILBERT
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	(925) 974-4170
Contact email:	DRG3@PGE.COM
EPA Region:	09
Classification:	Large Quantity Generator
Description:	Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:

Owner/operator name:	PACIFIC GAS AND ELECTRIC COMPANY
Owner/operator address:	Not reported Not reported
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	01/01/1960
Owner/Op end date:	Not reported

Owner/operator name:	PACIFIC GAS AND ELECTRIC COMPANY
Owner/operator address:	111 ALMADEN BLVD RM 700 SAN JOSE, CA 95115
Owner/operator country:	Not reported
Owner/operator telephone:	(408) 282-7476
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	PACIFIC GAS AND ELECTRIC COMPANY
Owner/operator address:	BEALE STREET

MOSS LANDING POWER PLANT SUBSTATION (Continued) **1000686635**

SAN FRANCISCO, CA 94105
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/01/1960
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 06/09/1992
Facility name: MOSS LANDING POWER PLANT SUBSTATION
Site name: P G AND E MOSS LANDING SWITCHYARD
Classification: Small Quantity Generator

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D008
Waste name: LEAD

Waste code: F003
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

MOSS LANDING POWER PLANT SUBSTATION (Continued) **1000686635**

Corrective Action Summary:
Event date: 12/19/2007
Event: CA029ST

Violation Status: No violations found

HAZNET:
Year: 2002
Gepaid: CAD983639758
Contact: RAY FRIEND
Telephone: --
Mailing Name: Not reported
Mailing Address: PO BOX 604
Mailing City,St,Zip: MOSS LANDING, CA 950390000
Gen County: Monterey
TSD EPA ID: Not reported
TSD County: Alameda
Waste Category: Waste oil and mixed oil
Disposal Method: Recycler
Tons: 23.91
Facility County: Not reported

Year: 2002
Gepaid: CAD983639758
Contact: RAY FRIEND
Telephone: --
Mailing Name: Not reported
Mailing Address: PO BOX 604
Mailing City,St,Zip: MOSS LANDING, CA 950390000
Gen County: Monterey
TSD EPA ID: Not reported
TSD County: Alameda
Waste Category: Waste oil and mixed oil
Disposal Method: Not reported
Tons: 27.93
Facility County: Not reported

Year: 2002
Gepaid: CAD983639758
Contact: RAY FRIEND
Telephone: --
Mailing Name: Not reported
Mailing Address: PO BOX 604
Mailing City,St,Zip: MOSS LANDING, CA 950390000
Gen County: Monterey
TSD EPA ID: Not reported
TSD County: Kings
Waste Category: Other inorganic solid waste
Disposal Method: Transfer Station
Tons: 0.05
Facility County: Not reported

Year: 2002
Gepaid: CAD983639758
Contact: RAY FRIEND
Telephone: --
Mailing Name: Not reported

MOSS LANDING POWER PLANT SUBSTATION (Continued) **1000686635**

Mailing Address: PO BOX 604
Mailing City,St,Zip: MOSS LANDING, CA 950390000
Gen County: Monterey
TSD EPA ID: Not reported
TSD County: Kings
Waste Category: Unspecified oil-containing waste
Disposal Method: Disposal, Land Fill
Tons: 17.22
Facility County: Not reported

Year: 2002
Gepaid: CAD983639758
Contact: RAY FRIEND
Telephone: --
Mailing Name: Not reported
Mailing Address: PO BOX 604
Mailing City,St,Zip: MOSS LANDING, CA 950390000
Gen County: Monterey
TSD EPA ID: Not reported
TSD County: Kings
Waste Category: Polychlorinated biphenyls and material containing PCBs
Disposal Method: Disposal, Land Fill
Tons: 0.26
Facility County: Not reported

Click this hyperlink while viewing on your computer to access
98 additional CA_HAZNET: record(s) in the EDR Site Report.

A2
SE
1/8-1/4
0.199 mi.
1052 ft.

Relative:
Higher

Actual:
31 ft.

DYNEGY MOSS LANDING LLC
HWY 1 AND DOLAN RD
MOSS LANDING, CA

Site 2 of 12 in cluster A

RCRA-TSDF **1000197669**
CORRACTS **CAT080011653**
RCRA-LQG
FINDS
RAATS
HAZNET
ENVIROSTOR
2020 COR ACTION
US FIN ASSUR
HWP
FINANCIAL ASSURANCE

RCRA-TSDF:
Date form received by agency: 08/31/2011
Facility name: DYNEGY MOSS LANDING LLC
Facility address: HWY 1 AND DOLAN RD
SOUTH PROPERTY
MOSS LANDING, CA 95039 0690
EPA ID: CAT080011653
Mailing address: PO BOX 690
MOSS LANDING, CA 95039 0690
Contact: GREGORY J HUGHES
Contact address: PO BOX 690
MOSS LANDING, CA 95039 0690
Contact country: US
Contact telephone: 831-633-6748
Contact email: GREGORY.J.HUGHES@DYNEGY.COM
EPA Region: 09
Land type: Private
Classification: TSDF

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Description: Handler is engaged in the treatment, storage or disposal of hazardous waste
Classification: Large Quantity Generator
Description: Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:
Owner/operator name: DYNEGY MOSS LANDING LLC
Owner/operator address: Not reported
Not reported
Owner/operator country: Not reported
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 07/01/1998
Owner/Op end date: Not reported

Owner/operator name: DUKE ENERGY MOSS LANDING, LLC
Owner/operator address: P.O. BOX 690
MOSS LANDING, CA 95039
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 07/01/1998
Owner/Op end date: Not reported

Owner/operator name: DUKE ENERGY MOSS LANDING, LLC
Owner/operator address: Not reported
Not reported
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 07/01/1998
Owner/Op end date: Not reported

Owner/operator name: DYNEGY MOSS LANDING LLC
Owner/operator address: PO BOX 690
MOSS LANDING, CA 95039
Owner/operator country: US
Owner/operator telephone: 831-633-6748
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 07/01/1998
Owner/Op end date: Not reported

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: Yes
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Universal Waste Summary:
Waste type: Batteries
Accumulated waste on-site: Yes
Generated waste on-site: Yes

Waste type: Lamps
Accumulated waste on-site: Yes
Generated waste on-site: Yes

Waste type: Thermostats
Accumulated waste on-site: No
Generated waste on-site: Yes

Historical Generators:
Date form received by agency: 07/01/2010
Facility name: DYNEGY MOSS LANDING LLC
Site name: MOSS LANDING POWER PLANT
Classification: Large Quantity Generator

Date form received by agency: 04/27/2010
Facility name: DYNEGY MOSS LANDING LLC
Classification: Large Quantity Generator

Date form received by agency: 03/11/2010
Facility name: DYNEGY MOSS LANDING LLC
Classification: Large Quantity Generator

Date form received by agency: 08/26/2009
Facility name: DYNEGY MOSS LANDING LLC
Classification: Large Quantity Generator

Date form received by agency: 02/22/2008
Facility name: DYNEGY MOSS LANDING LLC
Site name: MOSS LANDING POWER PLANT
Classification: Large Quantity Generator

Date form received by agency: 04/04/2007
Facility name: DYNEGY MOSS LANDING LLC
Site name: DYNEGY MOSS LANDING

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Classification: Large Quantity Generator

Date form received by agency: 05/10/2006
Facility name: DYNEGY MOSS LANDING LLC
Site name: LSP MOSS LANDING LLC
Classification: Large Quantity Generator

Date form received by agency: 02/15/2006
Facility name: DYNEGY MOSS LANDING LLC
Site name: DUKE ENERGY MOSS LANDING, LLC
Classification: Large Quantity Generator

Date form received by agency: 02/01/2004
Facility name: DYNEGY MOSS LANDING LLC
Site name: DUKE ENERGY MOSS LANDING LLC
Classification: Large Quantity Generator

Date form received by agency: 02/08/2002
Facility name: DYNEGY MOSS LANDING LLC
Site name: DUKE ENERGY MOSS LANDING, LLC
Classification: Large Quantity Generator

Date form received by agency: 10/12/2000
Facility name: DYNEGY MOSS LANDING LLC
Site name: DUKE ENERGY MOSS LANDING LLC
Classification: Large Quantity Generator

Date form received by agency: 07/01/1998
Facility name: DYNEGY MOSS LANDING LLC
Site name: DUKE ENERGY MOSS LANDING LLC
Classification: Large Quantity Generator

Date form received by agency: 09/01/1996
Facility name: DYNEGY MOSS LANDING LLC
Site name: DUKE ENERGY MOSS LANDING LLC
Classification: Large Quantity Generator

Date form received by agency: 03/06/1996
Facility name: DYNEGY MOSS LANDING LLC
Site name: PG&E MOSS LANDING POWER PLANT
Classification: Large Quantity Generator

Date form received by agency: 03/23/1994
Facility name: DYNEGY MOSS LANDING LLC
Site name: PG&E MOSS LANDING POWER PLANT
Classification: Large Quantity Generator

Date form received by agency: 03/31/1992
Facility name: DYNEGY MOSS LANDING LLC
Site name: PG&E MOSS LANDING POWER PLANT
Classification: Large Quantity Generator

Hazardous Waste Summary:
Waste code: 122
Waste name: 122

Waste code: 151

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Waste name: 151

Waste code: 181
Waste name: 181

Waste code: 214
Waste name: 214

Waste code: 221
Waste name: 221

Waste code: 223
Waste name: 223

Waste code: 261
Waste name: 261

Waste code: 291
Waste name: 291

Waste code: 343
Waste name: 343

Waste code: 352
Waste name: 352

Waste code: 461
Waste name: 461

Waste code: 491
Waste name: 491

Waste code: 571
Waste name: 571

Waste code: 611
Waste name: 611

Waste code: 725
Waste name: 725

Waste code: 791
Waste name: 791

Waste code: 792
Waste name: 792

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D002

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

Waste code: D008
Waste name: LEAD

Waste code: D009
Waste name: MERCURY

Waste code: D010
Waste name: SELENIUM

Waste code: D011
Waste name: SILVER

Waste code: D035
Waste name: METHYL ETHYL KETONE

Waste code: F001
Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE, AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Waste code: F003
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Waste code: F005
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Waste code: 122
Waste name: 122

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Waste code: 151
Waste name: 151

Waste code: 181
Waste name: 181

Waste code: 214
Waste name: 214

Waste code: 221
Waste name: 221

Waste code: 223
Waste name: 223

Waste code: 261
Waste name: 261

Waste code: 343
Waste name: 343

Waste code: 352
Waste name: 352

Waste code: 491
Waste name: 491

Waste code: 611
Waste name: 611

Waste code: 791
Waste name: 791

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

Waste code: D008
Waste name: LEAD

Waste code: D009
Waste name: MERCURY

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Waste code: D011
Waste name: SILVER

Biennial Reports:

Last Biennial Reporting Year: 2011

Annual Waste Handled:

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.
Amount (Lbs): 2151

Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.
Amount (Lbs): 7140

Waste code: D008
Waste name: LEAD
Amount (Lbs): 9062

Waste code: D009
Waste name: MERCURY
Amount (Lbs): 7188

Waste code: D010
Waste name: SELENIUM
Amount (Lbs): 7188

Waste code: D011
Waste name: SILVER
Amount (Lbs): 7188

Waste code: D035
Waste name: METHYL ETHYL KETONE
Amount (Lbs): 1321

Waste code: F001
Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE, AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Amount (Lbs): 188

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Waste code: F003
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Amount (Lbs): 2151

Waste code: F005
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Amount (Lbs): 1661

Corrective Action Summary:

Event date: 09/30/1986
Event: RFA Completed, Assessment was an RFA.

Event date: 09/30/1986
Event: RFA Determination Of Need For An RFI, RFI is Necessary;

Event date: 09/30/1986
Event: RFA Completed

Event date: 09/13/1988
Event: CA021OP

Event date: 09/13/1988
Event: RFI Imposition

Event date: 04/30/1991
Event: RFI Workplan Approved

Event date: 04/30/1991
Event: RFI Workplan Approved

Event date: 11/03/1994
Event: Stabilization Measures Evaluation,This facility is not amenable to stabilization activity at the present time for reasons other than 1- it appears to be technically infeasible or inappropriate (NF) or 2- there is a lack of technical information (IN). Reasons for this conclusion may be the status of closure at the facility, the degree of risk, timing considerations, the status of corrective action work at the facility, or other administrative considerations.

Event date: 11/03/1994
Event: Stabilization Measures Evaluation,This facility is not amenable to

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

stabilization activity at the present time for reasons other than 1- it appears to be technically infeasible or inappropriate (NF) or 2- there is a lack of technical information (IN). Reasons for this conclusion may be the status of closure at the facility, the degree of risk, timing considerations, the status of corrective action work at the facility, or other administrative considerations.

Event date: 11/03/1994
Event: CA Prioritization, Facility or area was assigned a medium corrective action priority.

Event date: 06/28/1996
Event: Date For Remedy Selection (CM Imposed)

Event date: 02/22/2000
Event: RFI Workplan Received

Event date: 11/25/2003
Event: RFI Workplan Received

Event date: 04/11/2005
Event: RFI Report Received

Event date: 06/27/2008
Event: RFI Report Received

Event date: 06/27/2008
Event: RFI Workplan Received

Event date: 07/23/2008
Event: CA805

Event date: 09/16/2008
Event: RFI Approved

Event date: 09/16/2008
Event: RFI Workplan Notice Of Deficiency Issued

Event date: 10/30/2008
Event: CA805

Event date: 11/14/2008
Event: RFI Workplan Approved

Event date: 01/30/2009
Event: CA805

Event date: 08/24/2010
Event: RFI Workplan Received

Event date: 10/07/2010
Event: RFI Workplan Approved

Event date: 05/23/2011
Event: RFI Report Received

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Facility Has Received Notices of Violations:

Regulation violated:	Not reported
Area of violation:	TSD - Financial Requirements
Date violation determined:	05/19/2011
Date achieved compliance:	06/09/2011
Violation lead agency:	State
Enforcement action:	Not reported
Enforcement action date:	Not reported
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	Not reported
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

Regulation violated:	Not reported
Area of violation:	Generators - General
Date violation determined:	06/03/2003
Date achieved compliance:	06/09/2003
Violation lead agency:	State
Enforcement action:	WRITTEN INFORMAL
Enforcement action date:	06/03/2003
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

Regulation violated:	Not reported
Area of violation:	TSD - Financial Requirements
Date violation determined:	10/30/2002
Date achieved compliance:	01/06/2003
Violation lead agency:	State
Enforcement action:	WRITTEN INFORMAL
Enforcement action date:	10/30/2002
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

Regulation violated:	Not reported
Area of violation:	TSD - Container Use and Management
Date violation determined:	05/02/2001
Date achieved compliance:	06/04/2001
Violation lead agency:	State
Enforcement action:	WRITTEN INFORMAL
Enforcement action date:	05/03/2001
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 05/02/2001
Date achieved compliance: 06/04/2001
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/03/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Financial Requirements
Date violation determined: 04/22/1999
Date achieved compliance: Not reported
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/24/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Financial Requirements
Date violation determined: 04/22/1999
Date achieved compliance: 06/29/1999
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/24/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 264.190-201.J
Area of violation: TSD - General
Date violation determined: 06/25/1996
Date achieved compliance: 07/24/1996
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/25/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 264.10-18.B

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Area of violation: TSD - General
Date violation determined: 06/25/1996
Date achieved compliance: 07/24/1996
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/25/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.70-77.E
Area of violation: TSD - General
Date violation determined: 03/30/1995
Date achieved compliance: 06/09/1995
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 04/11/1995
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.10-18.B
Area of violation: TSD - General
Date violation determined: 03/30/1995
Date achieved compliance: 06/09/1995
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 04/11/1995
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.170-177.I
Area of violation: TSD - General
Date violation determined: 03/30/1995
Date achieved compliance: 06/09/1995
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 04/11/1995
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268 ALL
Area of violation: LDR - General

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Date violation determined: 03/30/1995
Date achieved compliance: 06/09/1995
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 04/11/1995
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 262.50-60
Area of violation: Generators - General
Date violation determined: 12/21/1993
Date achieved compliance: 08/16/1994
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/12/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.10-18.B
Area of violation: TSD - General
Date violation determined: 12/21/1993
Date achieved compliance: 08/16/1994
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/12/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 262.10-12.A
Area of violation: Generators - General
Date violation determined: 12/21/1993
Date achieved compliance: 08/16/1994
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/12/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.140-150.H
Area of violation: TSD - Financial Requirements
Date violation determined: 12/21/1993

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Date achieved compliance: 08/16/1994
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/12/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.50-56.D
Area of violation: TSD - General
Date violation determined: 10/23/1991
Date achieved compliance: 03/23/1992
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 04/21/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 35800
Final penalty amount: 15000
Paid penalty amount: Not reported

Regulation violated: FR - 262.20-23.B
Area of violation: Generators - General
Date violation determined: 10/23/1991
Date achieved compliance: 10/26/1993
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 04/21/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 35800
Final penalty amount: 15000
Paid penalty amount: Not reported

Regulation violated: FR - 264.50-56.D
Area of violation: TSD - General
Date violation determined: 10/23/1991
Date achieved compliance: 03/23/1992
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/31/1991
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 262.20-23.B
Area of violation: Generators - General
Date violation determined: 10/23/1991
Date achieved compliance: 10/26/1993

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/31/1991
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.10-18.B
Area of violation: TSD - General
Date violation determined: 10/23/1991
Date achieved compliance: 03/23/1992
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 04/21/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 35800
Final penalty amount: 15000
Paid penalty amount: Not reported

Regulation violated: FR - 264.10-18.B
Area of violation: TSD - General
Date violation determined: 10/23/1991
Date achieved compliance: 03/23/1992
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/31/1991
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 262.50-60
Area of violation: Generators - General
Date violation determined: 10/23/1991
Date achieved compliance: 03/23/1992
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 04/21/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 35800
Final penalty amount: 15000
Paid penalty amount: Not reported

Regulation violated: FR - 262.50-60
Area of violation: Generators - General
Date violation determined: 10/23/1991
Date achieved compliance: 03/23/1992
Violation lead agency: State

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/31/1991
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268 ALL
Area of violation: LDR - General
Date violation determined: 06/14/1991
Date achieved compliance: 08/15/1991
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268.7
Area of violation: LDR - General
Date violation determined: 06/14/1991
Date achieved compliance: 08/15/1991
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 06/14/1991
Date achieved compliance: 08/15/1991
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.90-94.F
Area of violation: TSD IS-Ground-Water Monitoring
Date violation determined: 06/13/1991
Date achieved compliance: 03/23/1992
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Enforcement action date: 10/31/1991
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.90-94.F
Area of violation: TSD IS-Ground-Water Monitoring
Date violation determined: 06/13/1991
Date achieved compliance: 03/23/1992
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 04/21/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 35800
Final penalty amount: 15000
Paid penalty amount: Not reported

Regulation violated: FR - 264.30-37.C
Area of violation: TSD - General
Date violation determined: 07/19/1990
Date achieved compliance: 10/30/1990
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/10/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268.7
Area of violation: LDR - General
Date violation determined: 07/19/1990
Date achieved compliance: 10/30/1990
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/10/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 262.40-43.D
Area of violation: Generators - General
Date violation determined: 07/19/1990
Date achieved compliance: 10/30/1990
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/10/1990

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 07/12/1990
Date achieved compliance: 10/30/1990
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/10/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.70-77.E
Area of violation: TSD - General
Date violation determined: 06/19/1990
Date achieved compliance: 10/30/1990
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/10/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 06/19/1990
Date achieved compliance: 10/30/1990
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/10/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268.7
Area of violation: LDR - General
Date violation determined: 06/14/1989
Date achieved compliance: 10/30/1990
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 01/26/1990
Enf. disposition status: Not reported

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.70-77.E
Area of violation: TSD - General
Date violation determined: 06/14/1989
Date achieved compliance: 10/30/1990
Violation lead agency: State
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268 ALL
Area of violation: LDR - General
Date violation determined: 06/14/1989
Date achieved compliance: 10/30/1990
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 01/26/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 06/14/1989
Date achieved compliance: 10/30/1990
Violation lead agency: State
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268.7
Area of violation: LDR - General
Date violation determined: 06/14/1989
Date achieved compliance: 10/30/1990
Violation lead agency: State
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 06/14/1989
Date achieved compliance: 10/30/1990
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 01/26/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268 ALL
Area of violation: LDR - General
Date violation determined: 06/14/1989
Date achieved compliance: 10/30/1990
Violation lead agency: State
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.70-77.E
Area of violation: TSD - General
Date violation determined: 06/14/1989
Date achieved compliance: 10/30/1990
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 01/26/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268.7
Area of violation: LDR - General
Date violation determined: 02/10/1988
Date achieved compliance: 02/02/1989
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/09/1988
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268 ALL
Area of violation: LDR - General
Date violation determined: 02/10/1988
Date achieved compliance: 02/02/1989
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/09/1988
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.110-120.G
Area of violation: TSD - Closure/Post-Closure
Date violation determined: 02/10/1988
Date achieved compliance: 02/02/1989
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/09/1988
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 02/10/1988
Date achieved compliance: 02/02/1989
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/09/1988
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 05/19/2011
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: TSD - Financial Requirements
Date achieved compliance: 06/09/2011
Evaluation lead agency: State

Evaluation date: 01/20/2011
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Evaluation lead agency: State

Evaluation date: 05/24/2010
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 07/14/2009
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 11/20/2007
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 10/15/2007
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 12/27/2005
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 12/02/2005
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 11/15/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 05/14/2004
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 05/12/2004
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 06/03/2003

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 06/09/2003
Evaluation lead agency: State Contractor/Grantee

Evaluation date: 05/17/2003
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 04/02/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 01/06/2003
Evaluation: NOT A SIGNIFICANT NON-COMPLIER
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 10/30/2002
Evaluation: SIGNIFICANT NON-COMPLIER
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 10/30/2002
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: TSD - Financial Requirements
Date achieved compliance: 01/06/2003
Evaluation lead agency: State

Evaluation date: 04/18/2002
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 03/26/2002
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 05/02/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 06/04/2001
Evaluation lead agency: State

Evaluation date: 05/02/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Container Use and Management
Date achieved compliance: 06/04/2001

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Evaluation lead agency: State

Evaluation date: 01/19/2000
Evaluation: OPERATION AND MAINTENANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 04/22/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Financial Requirements
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 04/22/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Financial Requirements
Date achieved compliance: 06/29/1999
Evaluation lead agency: State

Evaluation date: 04/28/1998
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 04/14/1998
Evaluation: OPERATION AND MAINTENANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 04/15/1997
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 06/25/1996
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 07/24/1996
Evaluation lead agency: State

Evaluation date: 08/16/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 12/01/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State Contractor/Grantee

Evaluation date: 11/23/1993

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Financial Requirements
Date achieved compliance: 08/16/1994
Evaluation lead agency: State

Evaluation date: 11/23/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 08/16/1994
Evaluation lead agency: State

Evaluation date: 11/23/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 08/16/1994
Evaluation lead agency: State

Evaluation date: 03/17/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 06/09/1995
Evaluation lead agency: State

Evaluation date: 03/17/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 06/09/1995
Evaluation lead agency: State

Evaluation date: 03/09/1993
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 08/15/1991
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 03/23/1992
Evaluation lead agency: State

Evaluation date: 08/15/1991
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 03/23/1992
Evaluation lead agency: State

Evaluation date: 08/15/1991
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 10/26/1993
Evaluation lead agency: State

Evaluation date: 08/07/1991
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Evaluation lead agency: State

Evaluation date: 06/14/1991
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 08/15/1991
Evaluation lead agency: EPA

Evaluation date: 06/14/1991
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 08/15/1991
Evaluation lead agency: EPA

Evaluation date: 04/09/1991
Evaluation: OPERATION AND MAINTENANCE INSPECTION
Area of violation: TSD IS-Ground-Water Monitoring
Date achieved compliance: 03/23/1992
Evaluation lead agency: State

Evaluation date: 07/12/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 10/30/1990
Evaluation lead agency: State

Evaluation date: 06/19/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 10/30/1990
Evaluation lead agency: State

Evaluation date: 06/19/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 10/30/1990
Evaluation lead agency: State

Evaluation date: 06/19/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 10/30/1990
Evaluation lead agency: State

Evaluation date: 06/14/1990
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 06/14/1989
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 10/30/1990
Evaluation lead agency: State

Evaluation date: 06/14/1989

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 10/30/1990
Evaluation lead agency: State

Evaluation date: 06/08/1989
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 02/10/1988
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 02/02/1989
Evaluation lead agency: State

Evaluation date: 02/10/1988
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 02/02/1989
Evaluation lead agency: State

Evaluation date: 02/10/1988
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Closure/Post-Closure
Date achieved compliance: 02/02/1989
Evaluation lead agency: State

Evaluation date: 02/02/1988
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 10/31/1987
Evaluation: GROUNDWATER MONITORING EVALUATION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

CORRACTS:

EPA ID: CAT080011653
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 01/30/2009
Action: CA805
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: WESTERN TANK FARM
Actual Date: 02/22/2000

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Action: CA110 - RFI Workplan Received
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: EASTERN TANK
Actual Date: 04/11/2005
Action: CA190 - RFI Report Received
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 04/30/1991
Action: CA150 - RFI Workplan Approved
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: AREA OF CONCERN - CENTRAL TANK FARM
Actual Date: 05/23/2011
Action: CA190 - RFI Report Received
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: 04/29/2011
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: CENTRAL TANK FARM AREA A
Actual Date: 06/27/2008
Action: CA190 - RFI Report Received
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: CENTRAL AND EASTERN TANK FARM
Actual Date: 06/27/2008
Action: CA110 - RFI Workplan Received
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

EPA Region: 09
Area Name: WESTERN TANK FARM
Actual Date: 06/27/2008
Action: CA190 - RFI Report Received
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: POWER BLOCK 1-5
Actual Date: 06/27/2008
Action: CA110 - RFI Workplan Received
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: INACTIVE DRUM STORAGE AREA
Actual Date: 06/28/1996
Action: CA400 - Date For Remedy Selection (CM Imposed)
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: 06/28/1996
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: POWER BLOCK 1-5
Actual Date: 06/30/2009
Action: CA150 - RFI Workplan Approved
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: 11/14/2008
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: EASTERN TANK
Actual Date: 07/07/2005
Action: CA200 - RFI Approved
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: WESTERN TANK FARM
Actual Date: 07/13/2005
Action: CA200 - RFI Approved
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 07/23/2008
Action: CA805
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: AREA OF CONCERN - CENTRAL TANK FARM
Actual Date: 08/24/2010
Action: CA110 - RFI Workplan Received
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 09/13/1988
Action: CA100 - RFI Imposition
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 09/13/1988
Action: CA021OP
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: EASTERN TANK
Actual Date: 09/16/2008
Action: CA200 - RFI Approved
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: POWER BLOCK 1-5
Actual Date: 09/16/2008
Action: CA140 - RFI Workplan Notice Of Deficiency Issued

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: CENTRAL TANK FARM AREA A
Actual Date: 09/16/2008
Action: CA200 - RFI Approved
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 09/30/1986
Action: CA070YE - RFA Determination Of Need For An RFI, RFI is Necessary
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: 09/30/1986
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 09/30/1986
Action: CA050RF - RFA Completed, Assessment was an RFA
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 09/30/1986
Action: CA050 - RFA Completed
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: 09/30/1986
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: AREA OF CONCERN - CENTRAL TANK FARM
Actual Date: 10/07/2010
Action: CA150 - RFI Workplan Approved
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Area Name: ENTIRE FACILITY
Actual Date: 10/30/2008
Action: CA805
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 11/03/1994
Action: CA225NR - Stabilization Measures Evaluation, This facility is, not amenable to stabilization activity at the, present time for reasons other than (1) it appears to be technically, infeasible or inappropriate (NF) or (2) there is a lack of technical, information (IN). Reasons for this conclusion may be the status of, closure at the facility, the degree of risk, timing considerations, the status of corrective action work at the facility, or other, administrative considerations
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 11/03/1994
Action: CA225NR - Stabilization Measures Evaluation, This facility is, not amenable to stabilization activity at the, present time for reasons other than (1) it appears to be technically, infeasible or inappropriate (NF) or (2) there is a lack of technical, information (IN). Reasons for this conclusion may be the status of, closure at the facility, the degree of risk, timing considerations, the status of corrective action work at the facility, or other, administrative considerations
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: 11/03/1994
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 11/03/1994
Action: CA075ME - CA Prioritization, Facility or area was assigned a medium corrective action priority
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: POWER BLOCK 1-5
Actual Date: 11/14/2008

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Action: CA150 - RFI Workplan Approved
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: POWER BLOCK 1-5
Actual Date: 11/14/2008
Action: CA140 - RFI Workplan Notice Of Deficiency Issued
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: POWER BLOCK 1-5
Actual Date: 11/14/2008
Action: CA110 - RFI Workplan Received
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: POWER BLOCK 1-5
Actual Date: 11/14/2008
Action: CA120 - RFI Workplan Modification Requested By Agency
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: CENTRAL AND EASTERN TANK FARM
Actual Date: 11/24/2003
Action: CA150 - RFI Workplan Approved
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 11/25/2003
Action: CA110 - RFI Workplan Received
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 12/18/2003
Action: CA150 - RFI Workplan Approved
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAT080011653
EPA Region: 09
Area Name: WESTERN TANK FARM
Actual Date: 12/19/2003
Action: CA150 - RFI Workplan Approved
NAICS Code(s): 221112
Fossil Fuel Electric Power Generation
Original schedule date: Not reported
Schedule end date: Not reported

FINDS:

Registry ID: 110000876954

Environmental Interest/Information System

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

CAMDBS (Clean Air Markets Division Business System) is a national information system that supports the implementation of market-based air pollution control programs administered by the Clean Air Markets Division, within the Office of Air and Radiation. These programs include the Acid Rain Program, established by Title IV of the Clean Air Act Amendments of 1990, and regional programs designed reduce the transport of ozone. These emissions trading programs allows regulated facilities (primarily electric utilities) to adopt the most cost-effective strategies to reduce emissions at their units. Units that reduce their emissions below the number of allowances they hold -- each allowance is equivalent to one ton of sulfur dioxide or nitrogen oxides -- may trade allowances with other units in their system, sell them to other utilities on the open market or through EPA auctions, or bank them to cover emissions in future years. CAMDBS functions include registering responsible officials, establishing allowance accounts, reporting hourly emissions data, and transferring allowances between accounts.

The NEI (National Emissions Inventory) database contains information on stationary and mobile sources that emit criteria air pollutants and their precursors, as well as hazardous air pollutants (HAPs).

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

US Emissions & Generation Resource Database (EGRID) contains data on emissions and resource mix for virtually every power plant and company that generates electricity in the United States.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

US National Pollutant Discharge Elimination System (NPDES) module of the Compliance Information System (ICIS) tracks surface water permits issued under the Clean Water Act. Under NPDES, all facilities that discharge pollutants from any point source into waters of the United States are required to obtain a permit. The permit will likely contain limits on what can be discharged, impose monitoring and reporting requirements, and include other provisions to ensure that the discharge does not adversely affect water quality.

HAZARDOUS WASTE BIENNIAL REPORTER

ELECTRIC GENERATOR

CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY

US EPA Risk Management Plan (RMP) database stores the risk management plans reported by companies that handle, manufacture, use, or store certain flammable or toxic substances, as required under section 112(r) of the Clean Air Act (CAA).

PCS (Permit Compliance System) is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

HAZNET:

Year:	2011
Gepaid:	CAT080011653
Contact:	GREGORY J. HUGHES/PLANT MGR
Telephone:	8316336700
Mailing Name:	Not reported
Mailing Address:	PO BOX 690
Mailing City,St,Zip:	MOSS LANDING, CA 950390690
Gen County:	Not reported
TSD EPA ID:	CAT000646117
TSD County:	Not reported
Waste Category:	Fly ash, bottom ash and retort ash
Disposal Method:	Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	11.2905

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Facility County: Monterey

Year: 2011
Gepaid: CAT080011653
Contact: GREGORY J. HUGHES/PLANT MGR
Telephone: 8316336700
Mailing Name: Not reported
Mailing Address: PO BOX 690
Mailing City,St,Zip: MOSS LANDING, CA 950390690
Gen County: Not reported
TSD EPA ID: CAD980967418
TSD County: Not reported
Waste Category: Waste oil and mixed oil
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 7.6
Facility County: Monterey

Year: 2011
Gepaid: CAT080011653
Contact: GREGORY J. HUGHES/PLANT MGR
Telephone: 8316336700
Mailing Name: Not reported
Mailing Address: PO BOX 690
Mailing City,St,Zip: MOSS LANDING, CA 950390690
Gen County: Not reported
TSD EPA ID: CAL000190080
TSD County: Not reported
Waste Category: Asbestos containing waste
Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons: 124.4
Facility County: Monterey

Year: 2011
Gepaid: CAT080011653
Contact: GREGORY J. HUGHES/PLANT MGR
Telephone: 8316336700
Mailing Name: Not reported
Mailing Address: PO BOX 690
Mailing City,St,Zip: MOSS LANDING, CA 950390690
Gen County: Not reported
TSD EPA ID: CAL000190080
TSD County: Not reported
Waste Category: Asbestos containing waste
Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons: 124.4
Facility County: Monterey

Year: 2011
Gepaid: CAT080011653
Contact: GREGORY J. HUGHES/PLANT MGR
Telephone: 8316336700
Mailing Name: Not reported
Mailing Address: PO BOX 690
Mailing City,St,Zip: MOSS LANDING, CA 950390690

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Gen County: Not reported
TSD EPA ID: NVD980895338
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.062
Facility County: Monterey

Click this hyperlink while viewing on your computer to access
176 additional CA_HAZNET: record(s) in the EDR Site Report.

ENVIROSTOR:
Site Type: Corrective Action
Site Type Detailed: Corrective Action
Acres: 480
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: WM
Program Manager: John Bystra
Supervisor: Noel Shrum
Division Branch: Cleanup Sacramento
Facility ID: 80001833
Site Code: 201126
Assembly: 29
Senate: 17
Special Program: Not reported
Status: Active
Status Date: 01/01/2008
Restricted Use: NO
Site Mgmt. Req.: NONE SPECIFIED
Funding: Not reported
Latitude: 36.80472
Longitude: -121.7755
APN: NONE SPECIFIED
Past Use: ELECTRIC GENERATION/SUBSTATION, UTILITY - ELECTRIC, ELECTRIC GENERATION/SUBSTATION, ABOVE GROUND STORAGE TANKS, ABOVE GROUND STORAGE TANKS
Potential COC: 30005, 30022, 30024, 3002502, 30027, 30153, 30013, 30018, 30024, 3002502, 30024, 3002502, 30024, 3002502, 30108, 30594
Confirmed COC: , ,30024,3002502,, ,, ,30024-NO,30108-NO,3002502-NO,30594-NO
Potential Description: OTH, SOIL, SOIL, SOIL, OTH, SOIL
Alias Name: CAT080011653
Alias Type: EPA Identification Number
Alias Name: 200186
Alias Type: Project Code (Site Code)
Alias Name: 201126
Alias Type: Project Code (Site Code)
Alias Name: 80001833
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Interim Measures Questionnaire
Completed Date: 11/03/1994
Comments: Not reported

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: INACTIVE DRUM STORAGE AREA
Completed Document Type: Remedy Selection and Statement of Basis
Completed Date: 06/28/1996
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Consent Order
Completed Date: 09/30/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: RCRA Facility Assessment Report
Completed Date: 09/30/1986
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Historical Operating Permit Authority
Completed Date: 03/13/1995
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Historical Operating Permit Authority
Completed Date: 11/27/1988
Comments: Not reported

Completed Area Name: AOCs A, B, ETF and WTF
Completed Sub Area Name: Not reported
Completed Document Type: Remedy Selection and Statement of Basis
Completed Date: 06/15/2010
Comments: The Statement of Basis had no public comments that required DTSC to revise our assessment of no further action for certain areas on site. An Ack. of Satisfaction is being prepared to document this and remove certain areas from CACA.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Consent Order
Completed Date: 09/30/2003
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: Power Block 1-5
Completed Document Type: CEQA - Initial Study/ Neg. Declaration
Completed Date: 06/26/2009
Comments: Signed Final NegDec and NOC sent to Eric Maher on 6/26/09 via email.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 09/06/2012
Comments: Not reported

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Completed Area Name:	Sites With No Operable Unit
Completed Sub Area Name:	Power Block 1-5
Completed Document Type:	Interim Measures Implementation Report
Completed Date:	01/11/2011
Comments:	The draft report was sufficient in presentation and data needs to be considered the final report.

Completed Area Name:	Sites With No Operable Unit
Completed Sub Area Name:	Western Tank Farm
Completed Document Type:	RFI Report
Completed Date:	07/13/2005
Comments:	Not reported

Completed Area Name:	Sites With No Operable Unit
Completed Sub Area Name:	Power Block 1-5
Completed Document Type:	RFI Workplan
Completed Date:	06/30/2009
Comments:	This is an interim measure workplan approval (not a RFI) for the AOC Power Block 1-5, Rock Blotter area. CA140 I/M NOD issued on 9/16/08 Revised I/M Wkplan received on 10/29/08 ps 12/18/08

Completed Area Name:	Sites With No Operable Unit
Completed Sub Area Name:	Western Tank Farm
Completed Document Type:	RFI Workplan
Completed Date:	12/19/2003
Comments:	Not reported

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Monitoring Report
Completed Date:	09/15/2009
Comments:	Approval Letter Dated 9/10/2009

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Monitoring Report
Completed Date:	12/01/2009
Comments:	Not reported

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Monitoring Report
Completed Date:	02/22/2010
Comments:	Not reported

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Monitoring Report
Completed Date:	05/28/2010
Comments:	Both the GSU Memo and the signed DTSC letter went out May 28, 2010.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Monitoring Report
Completed Date:	10/21/2010
Comments:	MLPP made the requested changes to the 2Q2010 GW monitoring report, and thus no additional versions of the report were necessary.

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 12/16/2010
Comments: Completed 12/16/2010.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 03/28/2011
Comments: Finished review of report, and sent letter accepting it 3/28/2011.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 07/26/2011
Comments: Comments on the report only require changes to future reporting, not the present report.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 03/26/2012
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: Central and Eastern Tank Farm
Completed Document Type: Human Health Risk Assessment Workplan
Completed Date: 11/14/2011
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: Area of Concern - Central Tank Farm
Completed Document Type: RFI Workplan
Completed Date: 10/07/2010
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Corrective Measure Implementation Workplan
Completed Date: 08/02/2011
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: Area of Concern - Central Tank Farm
Completed Document Type: RFI Report
Completed Date: 11/14/2011
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: Area of Concern - Central Tank Farm
Completed Document Type: Technical Report
Completed Date: 11/14/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Completed Document Type: Monitoring Report
Completed Date: 03/28/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 03/28/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Corrective Measures Study Report
Completed Date: 10/28/2009
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: Central Tank Farm Area A
Completed Document Type: Ecological Risk Assessment Report
Completed Date: 05/29/2009
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 06/10/2009
Comments: Approved the Quarterly GWM Report with recommendations for future reports

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 06/10/2009
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 10/30/2008
Comments: Q3_2008_GWM Report_103008

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: Eastern Tank
Completed Document Type: RFI Report
Completed Date: 07/07/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 01/30/2009
Comments: Moss Landing Power Plant. PG & E responsble for CA GW reports. GW report dated 1/30/09 and received on 2/02/09 for 4th Qtr October 1 through December 31, 2008. ps 2/17/09

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Completed Document Type: Monitoring Report
Completed Date: 07/23/2008
Comments: 2nd Quarter Groundwater Monitoring Report 2008

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: Central Tank Farm Area A
Completed Document Type: RFI Report
Completed Date: 09/16/2008
Comments: RFI Report Approved. This is a summary report for TPH impacted soil in AOC Central Tank Farm, Area A. Sent comments to facility on 7/31/08. Response to comments received on 9/05/08. ps 9/16/08

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: RFI Workplan
Completed Date: 04/30/1991
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: RFI Workplan
Completed Date: 12/18/2003
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: Central and Eastern Tank Farm
Completed Document Type: RFI Workplan
Completed Date: 11/24/2003
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Sites With No Operable Unit
Schedule Sub Area Name: Area of Concern - Central Tank Farm
Schedule Document Type: RFI Workplan
Schedule Due Date: 02/21/2013
Schedule Revised Date: Not reported
Schedule Area Name: AOCs A, B, ETF and WTF
Schedule Sub Area Name: Not reported
Schedule Document Type: Land Use Restriction
Schedule Due Date: 12/01/2012
Schedule Revised Date: Not reported

2020 COR ACTION:
EPA ID: CAT080011653
Region: 9
Action: Not reported

US FIN ASSUR:
EPA ID: CAT080011653
Provider: CHUBB CUSTOM INS. CO.
EPA region: 9
County: MONTEREY
Mechanism type: INSURANCE

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Mechanism ID: ****0691
Cost estimate: 2000000
Face value: 2000000
Effective date: 5/4/2009

EPA ID: CAT080011653
Provider: CHUBB CUSTOM INS. CO.
EPA region: 9
County: MONTEREY
Mechanism type: INSURANCE
Mechanism ID: ****0691
Cost estimate: 6000000
Face value: 6000000
Effective date: 5/4/2009

EPA ID: CAT080011653
Provider: CREDIT SUISSE
EPA region: 9
County: MONTEREY
Mechanism type: LETTER OF CREDIT
Mechanism ID: TS07003490
Cost estimate: 1020700
Face value: 1021700
Effective date: 7/14/2009

EPA ID: CAT080011653
Provider: CHUBB CUSTOM INS. CO.
EPA region: 9
County: MONTEREY
Mechanism type: INSURANCE
Mechanism ID: Not reported
Cost estimate: 8000000
Face value: 8000000
Effective date: 5/4/2010

EPA ID: CAT080011653
Provider: CREDIT SUISSE
EPA region: 9
County: MONTEREY
Mechanism type: LETTER OF CREDIT
Mechanism ID: TS07003490
Cost estimate: 1578100
Face value: 10823300
Effective date: 2/3/2011

HWP:
EPA Id: CAT080011653
Latitude: 36.80472
Longitude: -121.7755
Facility Type: Permitted - Operating
Cleanup Status: OPERATING PERMIT
Supervisor: WAYNE LORENTZEN
Site Code: 200186, 201126
Assembly District: 29
Senate District: 17
Public Information Officer: Not reported

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Activities:

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Mod Class 2 - 2 or More Units - PUBLIC COMMENT (END)
Actual Date: 04/28/2006

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OSPOND1 (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: New Operating Permit - FINAL PERMIT
Actual Date: 09/13/1988

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - FINAL PERMIT RENEWAL
Actual Date: 04/06/2006

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - RESPONSE TO 3RD NOD RECEIVED
Actual Date: 04/26/1994

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - 1ST NOTICE OF DEFICIENCY ISSUED
Actual Date: 10/25/2004

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OSPOND1 (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: New Operating Permit - 1ST NOTICE OF DEFICIENCY ISSUED
Actual Date: 01/08/1988

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - 1ST NOTICE OF DEFICIENCY ISSUED
Actual Date: 07/13/1993

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OSPOND1 (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: New Operating Permit - FINAL PERMIT (EXPIRES)
Actual Date: 09/13/1993

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - APPLICATION PART B RECEIVED
Actual Date: 07/15/2004

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - RESPONSE TO 1ST NOD RECEIVED
Actual Date: 08/09/1993

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Mod Class 2 - 2 or More Units - FINAL PERMIT MODIFICATION
Actual Date: 04/06/2006

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OSPOND1 (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: New Operating Permit - PUBLIC COMMENT (BEGIN)
Actual Date: 05/18/1988

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - FINAL PERMIT RENEWAL (EXPIRES)
Actual Date: 03/10/2005

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - FINAL PERMIT RENEWAL (EFFECTIVE)
Actual Date: 04/06/2006

EPA Id: CAT080011653

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - APPLICATION PART A RECEIVED
Actual Date: 10/30/1992

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - PUBLIC NOTICE - PERMIT RECEIVED
Actual Date: 10/17/1994

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - PUBLIC COMMENT (BEGIN)
Actual Date: 10/17/1994

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OSPOND1 (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: New Operating Permit - CALL-IN LETTER ISSUED
Actual Date: 05/08/1985

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - FINAL PART A & PART B RECEIVED
Actual Date: 12/28/2005

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - ADMINISTRATIVE REVIEW COMPLETE
Actual Date: 06/28/1994

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - FINAL PERMIT RENEWAL (EXPIRES)
Actual Date: 04/06/2016

EPA Id: CAT080011653
Facility Type: Permitted - Operating

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - PUBLIC COMMENT (BEGIN)
Actual Date: 12/28/2005

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - PUBLIC COMMENT (END)
Actual Date: 02/11/2006

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - PUBLIC COMMENT (PUBLIC HEARING)
Actual Date: 10/17/1994

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - DRAFT PERMIT RENEWAL
Actual Date: 10/17/1994

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - CALL-IN LETTER ISSUED
Actual Date: 06/08/2004

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - RESPONSE TO 2ND NOD RECEIVED
Actual Date: 04/01/1994

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - APPLICATION PART B RECEIVED
Actual Date: 03/17/1993

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit),

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Mod Class 2 - 2 or More Units - PUBLIC COMMENT (BEGIN)
Actual Date: 03/14/2006

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OSPOND1 (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: New Operating Permit - PUBLIC COMMENT (END)
Actual Date: 07/02/1988

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OSPOND1 (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: New Operating Permit - PUBLIC COMMENT (PUBLIC HEARING)
Actual Date: 05/18/1988

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - FINAL PERMIT RENEWAL (EFFECTIVE)
Actual Date: 03/10/1995

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - 2ND NOTICE OF DEFICIENCY ISSUED
Actual Date: 09/13/1993

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OSPOND1 (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: New Operating Permit - FINAL PERMIT (EFFECTIVE)
Actual Date: 10/28/1988

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Mod Class 2 - 2 or More Units - FINAL PERMIT MODIFICATION (EFFECTIVE)
Actual Date: 04/06/2006

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Unit)
Event Description: Renewal - No Changes - FINAL PERMIT RENEWAL
Actual Date: 02/10/1995

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OSPOND1 (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: New Operating Permit - DRAFT PERMIT
Actual Date: 05/18/1988

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OSPOND1 (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: New Operating Permit - APPLICATION PART B RECEIVED
Actual Date: 11/08/1985

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: MCWPOND1 - SURFACE (GPRA Unit), MCWPOND2 - SURFACE (GPRA Unit), MCWPOND3 - SURFACE (GPRA Unit), OTHRTRT1-Filter Press System (GPRA Unit)
Event Description: Renewal - No Changes - 3RD NOTICE OF DEFICIENCY ISSUED
Actual Date: 03/09/1994

Closure:
EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: OSPOND1 (GPRA Unit)
Event Description: Closure - CLOSURE PLAN APPROVED
Actual Date: 09/13/1988

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: OSPOND1 (GPRA Unit)
Event Description: Closure - PUBLIC COMMENT (BEGIN)
Actual Date: 09/08/1987

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: OSPOND1 (GPRA Unit)
Event Description: Closure - CLOSURE PLAN RECEIVED
Actual Date: 05/01/1986

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: OSPOND1 (GPRA Unit)
Event Description: Closure - RESPONSE TO 1ST NOD RECEIVED
Actual Date: 09/08/1987

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: OSPOND1 (GPRA Unit)
Event Description: Closure - RECEIVE CLOSURE CERTIFICATION

DYNEGY MOSS LANDING LLC (Continued) **1000197669**

Actual Date: 06/29/1990

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: OSPOND1 (GPRA Unit)
Event Description: Closure - ISSUE CLOSURE VERIFICATION
Actual Date: 06/29/1990

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Unit Names: OSPOND1 (GPRA Unit)
Event Description: Closure - PUBLIC COMMENT (END)
Actual Date: 10/08/1987

Alias:
EPA Id: CAT080011653
Facility Type: Permitted - Operating
Alias Type: Project Code (Site Code)
Alias: 201126

EPA Id: CAT080011653
Facility Type: Permitted - Operating
Alias Type: Project Code (Site Code)
Alias: 200186

CA FINANCIAL ASSURANCE 1:
EPA ID Number: CAT080011653
Closure Mechanism: LOC
Closure Amount: 1,549,000
Post Clousure Mechanism: LOC
Post Clousure Amount: 999,000
Corrective Action Mechanism: Not reported
Corrective Action Amount: Not reported
Sudden Mecahanism Type: Ins
Sudden Mecahanism Amount: 9,000,000
Non Sudden Mecahanism Type: Ins
Non Sudden Mecahanism Amount: 9,000,000

A3 **DUKE MOSS LANDING POWER PLANT** **SLIC** **S106455234**
SE **HWY 1/DOLAN RD** **N/A**
1/8-1/4 **MOSS LANDING, CA**
0.199 mi.
1052 ft. **Site 3 of 12 in cluster A**

Relative:
Higher

Actual:
31 ft.

SLIC REG 3:
Region: 3
Leak Site Cross Street: Not reported
RB Case In: SL203441378
Entered Into Database: Not reported
Discovered: Not reported
RB Case In: DUKE ENERGY
Responsible Party: LEE GENZ
RP Contact: Not reported
RP Phone: Not reported
RP Number: Not reported
RP Address: PO BOX 690

DUKE MOSS LANDING POWER PLANT (Continued) **S106455234**

RP City,St,Zip:	MOSS LANDING, CA 95039
Date First Reported:	Not reported
Lead Agency:	Not reported
Program Type:	SLIC
Facility Status:	Not reported
Case Type:	Other ground water affected
Case Type Undetermined:	No
Case Type Soil Impacted:	No
Case Type Surface Water:	No
Case Type Drinkin Water Well:	No
Case Type Drinking Water Aqfr:	No
Case Type Other Grnd Wtr:	Yes
PCA:	2034400

A4 **PG&E, MOSS LANDING POWER PLANT** **Toxic Pits** **S100925084**
SE **HIGHWAY 1 & DOLAN, PO BOX 27** **EMI** **N/A**
1/8-1/4 **MOSS LANDING, CA 95039**
0.199 mi.
1052 ft. **Site 4 of 12 in cluster A**

Relative:
Higher

Actual:
31 ft.

Toxic Pits:

Region:	03
Task #:	03007
Owner:	PG&E-MOSS LANDING POWER PLANT
1/2 Mi Limit:	Y
Num. of Pits:	3
Cease Discharge Due:	12/31/88
Cease Discharge Complete:	06/01/88
Closure Due:	06/30/90
Closure Completed:	**/ /**
Status:	ACTIVE
Hydro Geological Assessment Report Due:	/ /
Final Hydro Geological Assessment Review Completed:	12/04/87

EMI:

Year:	1990
County Code:	27
Air Basin:	NCC
Facility ID:	25
Air District Name:	MBU
SIC Code:	4911
Air District Name:	MONTEREY BAY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	136
Reactive Organic Gases Tons/Yr:	92
Carbon Monoxide Emissions Tons/Yr:	11338
NOX - Oxides of Nitrogen Tons/Yr:	5747
SOX - Oxides of Sulphur Tons/Yr:	1217
Particulate Matter Tons/Yr:	294
Part. Matter 10 Micrometers & Smllr Tons/Yr:	291

Year:	1995
County Code:	27
Air Basin:	NCC
Facility ID:	25
Air District Name:	MBU

PG&E, MOSS LANDING POWER PLANT (Continued) **S100925084**

SIC Code:	4911
Air District Name:	MONTEREY BAY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	354
Reactive Organic Gases Tons/Yr:	194
Carbon Monoxide Emissions Tons/Yr:	1619
NOX - Oxides of Nitrogen Tons/Yr:	4037
SOX - Oxides of Sulphur Tons/Yr:	141
Particulate Matter Tons/Yr:	102
Part. Matter 10 Micrometers & Smllr Tons/Yr:	102

Year:	1996
County Code:	27
Air Basin:	NCC
Facility ID:	25
Air District Name:	MBU
SIC Code:	4911
Air District Name:	MONTEREY BAY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	235
Reactive Organic Gases Tons/Yr:	131
Carbon Monoxide Emissions Tons/Yr:	2189
NOX - Oxides of Nitrogen Tons/Yr:	2570
SOX - Oxides of Sulphur Tons/Yr:	976
Particulate Matter Tons/Yr:	152
Part. Matter 10 Micrometers & Smllr Tons/Yr:	149

Year:	1997
County Code:	27
Air Basin:	NCC
Facility ID:	25
Air District Name:	MBU
SIC Code:	4911
Air District Name:	MONTEREY BAY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	312
Reactive Organic Gases Tons/Yr:	156
Carbon Monoxide Emissions Tons/Yr:	2671
NOX - Oxides of Nitrogen Tons/Yr:	1970
SOX - Oxides of Sulphur Tons/Yr:	17
Particulate Matter Tons/Yr:	85
Part. Matter 10 Micrometers & Smllr Tons/Yr:	85

Year:	1998
County Code:	27
Air Basin:	NCC
Facility ID:	25
Air District Name:	MBU
SIC Code:	4911
Air District Name:	MONTEREY BAY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	273
Reactive Organic Gases Tons/Yr:	136

PG&E, MOSS LANDING POWER PLANT (Continued) **S100925084**

Carbon Monoxide Emissions Tons/Yr:	1855
NOX - Oxides of Nitrogen Tons/Yr:	1546
SOX - Oxides of Sulphur Tons/Yr:	15
Particulate Matter Tons/Yr:	184
Part. Matter 10 Micrometers & Smllr Tons/Yr:	184

Year:	1999
County Code:	27
Air Basin:	NCC
Facility ID:	25
Air District Name:	MBU
SIC Code:	4911
Air District Name:	MONTEREY BAY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	323
Reactive Organic Gases Tons/Yr:	137
Carbon Monoxide Emissions Tons/Yr:	4188
NOX - Oxides of Nitrogen Tons/Yr:	2222
SOX - Oxides of Sulphur Tons/Yr:	18
Particulate Matter Tons/Yr:	223
Part. Matter 10 Micrometers & Smllr Tons/Yr:	223

Year:	2000
County Code:	27
Air Basin:	NCC
Facility ID:	25
Air District Name:	MBU
SIC Code:	4911
Air District Name:	MONTEREY BAY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	423
Reactive Organic Gases Tons/Yr:	212
Carbon Monoxide Emissions Tons/Yr:	6546
NOX - Oxides of Nitrogen Tons/Yr:	2831
SOX - Oxides of Sulphur Tons/Yr:	23
Particulate Matter Tons/Yr:	292
Part. Matter 10 Micrometers & Smllr Tons/Yr:	292

Year:	2001
County Code:	27
Air Basin:	NCC
Facility ID:	25
Air District Name:	MBU
SIC Code:	4911
Air District Name:	MONTEREY BAY UNIFIED APCD
Community Health Air Pollution Info System:	Y
Consolidated Emission Reporting Rule:	A
Total Organic Hydrocarbon Gases Tons/Yr:	427
Reactive Organic Gases Tons/Yr:	213
Carbon Monoxide Emissions Tons/Yr:	6708
NOX - Oxides of Nitrogen Tons/Yr:	1878
SOX - Oxides of Sulphur Tons/Yr:	23
Particulate Matter Tons/Yr:	295
Part. Matter 10 Micrometers & Smllr Tons/Yr:	295

PG&E, MOSS LANDING POWER PLANT (Continued) **S100925084**

Year:	2002
County Code:	27
Air Basin:	NCC
Facility ID:	577
Air District Name:	MBU
SIC Code:	4911
Air District Name:	MONTEREY BAY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	210
Reactive Organic Gases Tons/Yr:	86
Carbon Monoxide Emissions Tons/Yr:	1079
NOX - Oxides of Nitrogen Tons/Yr:	297
SOX - Oxides of Sulphur Tons/Yr:	15
Particulate Matter Tons/Yr:	176
Part. Matter 10 Micrometers & Smllr Tons/Yr:	164

Year:	2003
County Code:	27
Air Basin:	NCC
Facility ID:	577
Air District Name:	MBU
SIC Code:	4911
Air District Name:	MONTEREY BAY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	84
Reactive Organic Gases Tons/Yr:	30
Carbon Monoxide Emissions Tons/Yr:	539
NOX - Oxides of Nitrogen Tons/Yr:	193
SOX - Oxides of Sulphur Tons/Yr:	12
Particulate Matter Tons/Yr:	110
Part. Matter 10 Micrometers & Smllr Tons/Yr:	110

Year:	2004
County Code:	27
Air Basin:	NCC
Facility ID:	577
Air District Name:	MBU
SIC Code:	4911
Air District Name:	MONTEREY BAY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	314.911887
Reactive Organic Gases Tons/Yr:	73.6
Carbon Monoxide Emissions Tons/Yr:	400.2
NOX - Oxides of Nitrogen Tons/Yr:	171.2
SOX - Oxides of Sulphur Tons/Yr:	11.3
Particulate Matter Tons/Yr:	111.2
Part. Matter 10 Micrometers & Smllr Tons/Yr:	110.7698

Year:	2005
County Code:	27
Air Basin:	NCC
Facility ID:	577
Air District Name:	MBU
SIC Code:	4911

PG&E, MOSS LANDING POWER PLANT (Continued) **S100925084**

Air District Name:	MONTEREY BAY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	220.5024907046242097
Reactive Organic Gases Tons/Yr:	39.42957
Carbon Monoxide Emissions Tons/Yr:	537.773745
NOX - Oxides of Nitrogen Tons/Yr:	141.02392
SOX - Oxides of Sulphur Tons/Yr:	9.02615
Particulate Matter Tons/Yr:	84.874125
Part. Matter 10 Micrometers & Smllr Tons/Yr:	84.46686465

A5 **DUKE MOSS LANDING PP** **WMUDS/SWAT** **S103438960**
SE **HWY 1 AND DOLAN RD** **HAZNET** **N/A**
1/8-1/4 **MOSS LANDING, CA 0** **WDS**
0.199 mi.
1052 ft. **Site 5 of 12 in cluster A**

Relative:
Higher

Actual:
31 ft.

WMUDS/SWAT:

Edit Date:	Not reported
Complexity:	Category A - Any major NPDES facility, any non-NPDES facility (particularly those with toxic wastes) that would be a major if discharge was made to surface or ground waters, or any Class I disposal site. Includes any small-volume complex facility (particularly those with toxicwastes) with numerous discharge points, leak detection systems or ground water monitoring wells.
Primary Waste:	Process Waste (Waste produced as part of the industrial/manufacturing process)
Primary Waste Type:	Hazardous/Influent or Solid Wastes that contain toxic, corrosive, ignitable or reactive substances and must be managed according to applicable DOHS standards.
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Base Meridian:	Not reported
NPID:	Not reported
Tonnage:	0
Regional Board ID:	Not reported
Municipal Solid Waste:	False
Superorder:	False
Open To Public:	False
Waste List:	False
Agency Type:	Private
Agency Name:	DUKE ENERGY MOSS LANDING LLC
Agency Department:	Not reported
Agency Address:	HWY 1 AND DOLAN RD
Agency City,St,Zip:	MOSS LANDING CA 950390690
Agency Contact:	ELTON E MCCRILLIS
Agency Telephone:	8316336746
Land Owner Name:	Not reported
Land Owner Address:	Not reported
Land Owner City,St,Zip:	Not reported
Land Owner Contact:	Not reported
Land Owner Phone:	Not reported
Region:	3
Facility Type:	Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water

DUKE MOSS LANDING PP (Continued) **S103438960**

pumping.
Facility Description: Not reported
Facility Telephone: Not reported
SWAT Facility Name: Not reported
Primary SIC: 4911
Secondary SIC: Not reported
Comments: Not reported
Last Facility Editors: Not reported
Waste Discharge System: True
Solid Waste Assessment Test Program: False
Toxic Pits Cleanup Act Program: True
Resource Conservation Recovery Act: True
Department of Defence: False
Solid Waste Assessment Test Program: Not reported
Threat to Water Quality: Moderate Threat to Water Quality. A violation could have a major adverse impact on receiving biota, can cause aesthetic impairment to a significant human population, or render unusable a potential domestic or municipal water supply. Awsthetic impairment would include nuisance from a waste treatment facility.
Sub Chapter 15: False
Regional Board Project Officer: DNS
Number of WMUDS at Facility: 1
Section Range: Not reported
RCRA Facility: Yes
Waste Discharge Requirements: A
Self-Monitoring Rept. Frequency: Semiannual Submittal
Waste Discharge System ID: 3 272011002
Solid Waste Information ID: Not reported

Edit Date: Not reported
Complexity: Category B - Any facility having a physical, chemical, or biological waste treatment system (except for septic systems with subsurface disposal), or any Class II or III disposal site, or facilities without treatment systems that are complex, such as marinas with petroleum products, solid wastes, and sewage pump out facilities.
Primary Waste: Process Waste (Waste produced as part of the industrial/manufacturing process)
Primary Waste Type: Designated/Influent or Solid Wastes that pose a significant threat to water quality because of their high concentrations (E.G., BOD, Hardness, TRF, Chloride). 'Manageable' hazardous wastes (E.G., inorganic salts and heavy metals) are included in this category.
Secondary Waste: Not reported
Secondary Waste Type: Not reported
Base Meridian: Not reported
NPID: Not reported
Tonnage: 0
Regional Board ID: Not reported
Municipal Solid Waste: False
Superorder: False
Open To Public: False
Waste List: False
Agency Type: Private
Agency Name: DUKE ENERGY MOSS LANDING LLC
Agency Department: Not reported
Agency Address: HWY 1 AND DOLAN RD
Agency City,St,Zip: MOSS LANDING CA 950390690
Agency Contact: ELTON E MCCRILLIS

DUKE MOSS LANDING PP (Continued) **S103438960**

Agency Telephone: 8316336746
Land Owner Name: Not reported
Land Owner Address: Not reported
Land Owner City,St,Zip: Not reported
Land Owner Contact: Not reported
Land Owner Phone: Not reported
Region: 3
Facility Type: Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water pumping.
Facility Description: Not reported
Facility Telephone: Not reported
SWAT Facility Name: Not reported
Primary SIC: 4911
Secondary SIC: Not reported
Comments: Not reported
Last Facility Editors: Not reported
Waste Discharge System: True
Solid Waste Assessment Test Program: False
Toxic Pits Cleanup Act Program: False
Resource Conservation Recovery Act: False
Department of Defence: False
Solid Waste Assessment Test Program: Not reported
Threat to Water Quality: Moderate Threat to Water Quality. A violation could have a major adverse impact on receiving biota, can cause aesthetic impairment to a significant human population, or render unusable a potential domestic or municipal water supply. Awsthetic impairment would include nuisance from a waste treatment facility.
Sub Chapter 15: True
Regional Board Project Officer: DNS
Number of WMUDS at Facility: 1
Section Range: Not reported
RCRA Facility: No
Waste Discharge Requirements: A
Self-Monitoring Rept. Frequency: No Reporting Requirements
Waste Discharge System ID: 3 272011006
Solid Waste Information ID: Not reported

HAZNET:
Year: 2005
Gepaid: CAT080011653
Contact: TERRY DWAN/ENVTL SCIENTIST
Telephone: 8316336738
Mailing Name: Not reported
Mailing Address: PO BOX 690
Mailing City,St,Zip: MOSS LANDING, CA 950390690
Gen County: Monterey
TSD EPA ID: AZ0000337360
TSD County: 99
Waste Category: Polychlorinated biphenyls and material containing PCBs
Disposal Method: Recycler
Tons: 0.13
Facility County: Not reported

DUKE MOSS LANDING PP (Continued) **S103438960**

Year:	2004
Gepaid:	CAT080011653
Contact:	TERRY DWAN/ENVTL SCIENTIST
Telephone:	8316336738
Mailing Name:	Not reported
Mailing Address:	PO BOX 690
Mailing City,St,Zip:	MOSS LANDING, CA 950390690
Gen County:	Monterey
TSD EPA ID:	AZ0000337360
TSD County:	99
Waste Category:	Polychlorinated biphenyls and material containing PCBs
Disposal Method:	Recycler
Tons:	0.13
Facility County:	Not reported

Year:	2003
Gepaid:	CAT080011653
Contact:	TERRY DWAN/ENVTL SCIENTIST
Telephone:	8316336738
Mailing Name:	Not reported
Mailing Address:	PO BOX 690
Mailing City,St,Zip:	MOSS LANDING, CA 950390690
Gen County:	Monterey
TSD EPA ID:	CAD008302903
TSD County:	Monterey
Waste Category:	Polychlorinated biphenyls and material containing PCBs
Disposal Method:	Recycler
Tons:	187.73
Facility County:	Monterey

Year:	2003
Gepaid:	CAT080011653
Contact:	TERRY DWAN/ENVTL SCIENTIST
Telephone:	8316336738
Mailing Name:	Not reported
Mailing Address:	PO BOX 690
Mailing City,St,Zip:	MOSS LANDING, CA 950390690
Gen County:	Monterey
TSD EPA ID:	CAD009452657
TSD County:	Monterey
Waste Category:	Not reported
Disposal Method:	Recycler
Tons:	Not reported
Facility County:	Monterey

Year:	2003
Gepaid:	CAT080011653
Contact:	TERRY DWAN/ENVTL SCIENTIST
Telephone:	8316336738
Mailing Name:	Not reported
Mailing Address:	PO BOX 690
Mailing City,St,Zip:	MOSS LANDING, CA 950390690
Gen County:	Monterey
TSD EPA ID:	AZ0000337360
TSD County:	Monterey
Waste Category:	781
Disposal Method:	Recycler

DUKE MOSS LANDING PP (Continued) **S103438960**

Tons: 0.02
Facility County: Monterey

Click this hyperlink while viewing on your computer to access
394 additional CA_HAZNET: record(s) in the EDR Site Report.

CA WDS:
Facility ID: Central Coastal 272011001
Facility Type: Other - Does not fall into the category of Municipal/Domestic, Industrial, Agricultural or Solid Waste (Class I, II or III)
Facility Status: Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number: CA0006254 The 1st 2 characters designate the state. The remaining 7 are assigned by the Regional Board
Subregion: 3
Facility Telephone: Not reported
Facility Contact: LEE GENZ
Agency Name: DUKE ENERGY MOSS LANDING LLC
Agency Address: HWY 1 AND DOLAN RD
Agency City,St,Zip: MOSS LANDING 950390690
Agency Contact: ELTON MCCRILLIS
Agency Telephone: 8316336785
Agency Type: Private
SIC Code: 4911
SIC Code 2: Not reported
Primary Waste: Cooling Water: Noncontact
Primary Waste Type: Designated/Influent or Solid Wastes that pose a significant threat to water quality because of their high concentrations (E.G., BOD, Hardness, TRF, Chloride). 'Manageable' hazardous wastes (E.G., inorganic salts and heavy metals) are included in this category.
Secondary Waste: Not reported
Secondary Waste Type: Not reported
Design Flow: 1226
Baseline Flow: 1226
Reclamation: No reclamation requirements associated with this facility.
POTW: The facility is not a POTW.
Treat To Water: Major Threat to Water Quality. A violation could render unusable a ground water or surface water resource used as a significant drink water supply, require closure of an area used for contact recreation, result in long-term deleterious effects on shell fish spawning or growth areas of aquatic resources, or directly expose the public to toxic substances.
Complexity: Category A - Any major NPDES facility, any non-NPDES facility (particularly those with toxic wastes) that would be a major if discharge was made to surface or ground waters, or any Class I disposal site. Includes any small-volume complex facility (particularly those with toxicwastes) with numerous discharge points, leak detection systems or ground water monitoring wells.

Facility ID: Central Coastal 272011002
Facility Type: Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water pumping.
Facility Status: Active - Any facility with a continuous or seasonal discharge that is

DUKE MOSS LANDING PP (Continued) **S103438960**

	under Waste Discharge Requirements.
NPDES Number:	Not reported
Subregion:	3
Facility Telephone:	Not reported
Facility Contact:	ELTON E MCCRILLIS
Agency Name:	DUKE ENERGY MOSS LANDING LLC
Agency Address:	HWY 1 AND DOLAN RD
Agency City,St,Zip:	MOSS LANDING 950390690
Agency Contact:	ELTON MCCRILLIS
Agency Telephone:	8316336785
Agency Type:	Private
SIC Code:	4911
SIC Code 2:	Not reported
Primary Waste:	Process Waste (Waste produced as part of the industrial/manufacturing process)
Primary Waste Type:	Hazardous/Influent or Solid Wastes that contain toxic, corrosive, ignitable or reactive substances and must be managed according to applicable DOHS standards.
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Design Flow:	1
Baseline Flow:	1
Reclamation:	No reclamation requirements associated with this facility.
POTW:	The facility is not a POTW.
Treat To Water:	Moderate Threat to Water Quality. A violation could have a major adverse impact on receiving biota, can cause aesthetic impairment to a significant human population, or render unusable a potential domestic or municipal water supply. Awsthetic impairment would include nuisance from a waste treatment facility.
Complexity:	Category A - Any major NPDES facility, any non-NPDES facility (particularly those with toxic wastes) that would be a major if discharge was made to surface or ground waters, or any Class I disposal site. Includes any small-volume complex facility (particularly those with toxicwastes) with numerous discharge points, leak detection systems or ground water monitoring wells.
Facility ID:	Central Coastal 272011006
Facility Type:	Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water pumping.
Facility Status:	Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number:	Not reported
Subregion:	3
Facility Telephone:	Not reported
Facility Contact:	ELTON E MCCRILLIS
Agency Name:	DUKE ENERGY MOSS LANDING LLC
Agency Address:	HWY 1 AND DOLAN RD
Agency City,St,Zip:	MOSS LANDING 950390690
Agency Contact:	ELTON MCCRILLIS
Agency Telephone:	8316336785
Agency Type:	Private
SIC Code:	4911
SIC Code 2:	Not reported

DUKE MOSS LANDING PP (Continued) **S103438960**

Primary Waste:	Process Waste (Waste produced as part of the industrial/manufacturing process)
Primary Waste Type:	Designated/Influent or Solid Wastes that pose a significant threat to water quality because of their high concentrations (E.G., BOD, Hardness, TRF, Chloride). 'Manageable' hazardous wastes (E.G., inorganic salts and heavy metals) are included in this category.
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Design Flow:	0
Baseline Flow:	0
Reclamation:	No reclamation requirements associated with this facility.
POTW:	The facility is not a POTW.
Treat To Water:	Moderate Threat to Water Quality. A violation could have a major adverse impact on receiving biota, can cause aesthetic impairment to a significant human population, or render unusable a potential domestic or municipal water supply. Awsthetic impairment would include nuisance from a waste treatment facility.
Complexity:	Category B - Any facility having a physical, chemical, or biological waste treatment system (except for septic systems with subsurface disposal), or any Class II or III disposal site, or facilities without treatment systems that are complex, such as marinas with petroleum products, solid wastes, and sewage pump out facilities.
Facility ID:	Central Coastal 270212008
Facility Type:	Other - Does not fall into the category of Municipal/Domestic, Industrial, Agricultural or Solid Waste (Class I, II or III)
Facility Status:	Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number:	Not reported
Subregion:	3
Facility Telephone:	Not reported
Facility Contact:	LEE GENZ
Agency Name:	DUKE ENERGY MOSS LANDING LLC
Agency Address:	HWY 1 AND DOLAN RD
Agency City,St,Zip:	MOSS LANDING 950390690
Agency Contact:	ELTON MCCRILLIS
Agency Telephone:	8316336785
Agency Type:	Private
SIC Code:	9711
SIC Code 2:	Not reported
Primary Waste:	Dredging Spoils
Primary Waste Type:	Designated/Influent or Solid Wastes that pose a significant threat to water quality because of their high concentrations (E.G., BOD, Hardness, TRF, Chloride). 'Manageable' hazardous wastes (E.G., inorganic salts and heavy metals) are included in this category.
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Design Flow:	0
Baseline Flow:	0
Reclamation:	No reclamation requirements associated with this facility.
POTW:	The facility is not a POTW.
Treat To Water:	Moderate Threat to Water Quality. A violation could have a major adverse impact on receiving biota, can cause aesthetic impairment to a significant human population, or render unusable a potential domestic or municipal water supply. Awsthetic impairment would include nuisance from a waste treatment facility.
Complexity:	Category C - Facilities having no waste treatment systems, such as

DUKE MOSS LANDING PP (Continued) **S103438960**

cooling water dischargers or thosewho must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

A6 **PG&E, MOSS LANDING** **ENVIROSTOR** **S101481330**
SE **STATE HIGHWAY 1 AND DOLAN ROAD** **N/A**
1/8-1/4 **MOSS LANDING, CA 95039**
0.199 mi.
1052 ft. **Site 6 of 12 in cluster A**

Relative:
Higher

Actual:
31 ft.

ENVIROSTOR:

Site Type:	Historical
Site Type Detailed:	* Historical
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Referred - Not Assigned
Division Branch:	Cleanup Berkeley
Facility ID:	27490019
Site Code:	Not reported
Assembly:	Not reported
Senate:	Not reported
Special Program:	Not reported
Status:	Refer: RCRA
Status Date:	07/29/1994
Restricted Use:	NO
Site Mgmt. Req.:	NONE SPECIFIED
Funding:	Not reported
Latitude:	0
Longitude:	0
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	10002, 10003, 10009, 10012, 10015, 10034, 10037, 10060, 10067, 10093, 10094, 10095, 10097, 10098, 10119, 40001, 10177, 10196, 10197, 10198, 10199, 20005, 20006, 20012, 20017, 20023, 30013, 30018
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	PACIFIC GAS & ELECTRIC CO - MOSS LANDING
Alias Type:	Alternate Name
Alias Name:	PG&E/MOSS LANDING POWER PLANT
Alias Type:	Alternate Name
Alias Name:	CAT088001653
Alias Type:	EPA Identification Number
Alias Name:	27490019
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Screening
Completed Date:	12/07/1987
Comments:	SITE SCREENING DONE OIL FIRED POWER STATION. ONSITE TRMT SYSTEM (OIL/WATER SEPARATOR). CO HAS ISD GW MON PROGRAM IN PROGRESS. RWQCB INV- OLVED. SPILL OF BOILER CLEANING SOL'N (ACID & METALS),

PG&E, MOSS LANDING (Continued) **S101481330**

NEUTRALIZED ONSITE.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 09/01/1981
Comments: FACILITY IDENTIFIED ID'ED FROM CO ENV HLTH MONTEREY AIR BOARD FILES SEARCHED

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

A7 **MOSS LANDING FACILITY** **HIST UST** **U001601642**
SE **ROUTE #1** **N/A**
1/8-1/4 **MOSS LANDING, CA 95039**
0.199 mi.
1052 ft. **Site 7 of 12 in cluster A**

Relative:
Higher

Actual:
31 ft.

HIST UST:
Region: STATE
Facility ID: 00000009683
Facility Type: Other
Other Type: MANUFACTURE OF REFRA
Total Tanks: 0008
Contact Name: T.H. MATHIS
Telephone: 4086332413
Owner Name: KAISER REFRACTORIES, A DIVISIO
Owner Address: ROUTE #1
Owner City,St,Zip: MOSS LANDING, CA 95039

Tank Num: 001
Container Num: 001
Year Installed: Not reported
Tank Capacity: 00001000
Tank Used for: PRODUCT
Type of Fuel: UNLEADED
Tank Construction: Not reported
Leak Detection: Stock Inventor, 10

Tank Num: 002
Container Num: 002
Year Installed: Not reported
Tank Capacity: 00000350
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Tank Construction: Not reported
Leak Detection: Stock Inventor, 10

Tank Num: 003
Container Num: 003
Year Installed: Not reported

MOSS LANDING FACILITY (Continued) **U001601642**

Tank Capacity: 00000250
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Tank Construction: Not reported
Leak Detection: Stock Inventor, 10

Tank Num: 004
Container Num: 004
Year Installed: Not reported
Tank Capacity: 00000350
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Tank Construction: Not reported
Leak Detection: Stock Inventor, 10

Tank Num: 005
Container Num: 005
Year Installed: Not reported
Tank Capacity: 00000295
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Tank Construction: Not reported
Leak Detection: Stock Inventor, 10

Tank Num: 006
Container Num: 006
Year Installed: Not reported
Tank Capacity: 00002000
Tank Used for: PRODUCT
Type of Fuel: UNLEADED
Tank Construction: Not reported
Leak Detection: Stock Inventor

Tank Num: 007
Container Num: 007
Year Installed: 1983
Tank Capacity: 00001000
Tank Used for: PRODUCT
Type of Fuel: UNLEADED
Tank Construction: 10 gauge
Leak Detection: Stock Inventor, 10

Tank Num: 008
Container Num: 008
Year Installed: 1983
Tank Capacity: 00001000
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Tank Construction: 10 gauge
Leak Detection: Stock Inventor

A8
SE
1/8-1/4
0.199 mi.
1052 ft.

MOSS LANDING POWER PLANT
HIGHWAY 1 AND DOLAN ROAD
MOSS LANDING, CA 95039

Site 8 of 12 in cluster A

HIST UST **U001601643**
N/A

Relative:
Higher

Actual:
31 ft.

HIST UST:

Region:	STATE
Facility ID:	00000008388
Facility Type:	Other
Other Type:	ELECTRIC GENERATION
Total Tanks:	0055
Contact Name:	MARK H. SAMII
Telephone:	4086332401
Owner Name:	PACIFIC GAS AND ELECTRIC COMPA
Owner Address:	HIGHWAY 1 AND DOLAN ROAD
Owner City,St,Zip:	MOSS LANDING, CA 95309
Tank Num:	001
Container Num:	1
Year Installed:	1978
Tank Capacity:	00750000
Tank Used for:	WASTE
Type of Fuel:	Not reported
Tank Construction:	5/64 inches
Leak Detection:	Groundwater Monitoring Well
Tank Num:	002
Container Num:	2
Year Installed:	1978
Tank Capacity:	00750000
Tank Used for:	WASTE
Type of Fuel:	Not reported
Tank Construction:	5/64 inches
Leak Detection:	Groundwater Monitoring Well
Tank Num:	003
Container Num:	3
Year Installed:	1968
Tank Capacity:	00230000
Tank Used for:	WASTE
Type of Fuel:	Not reported
Tank Construction:	0.23 centimeters
Leak Detection:	Groundwater Monitoring Well
Tank Num:	004
Container Num:	4
Year Installed:	1965
Tank Capacity:	00005300
Tank Used for:	WASTE
Type of Fuel:	Not reported
Tank Construction:	8 inches
Leak Detection:	Groundwater Monitoring Well
Tank Num:	005
Container Num:	5
Year Installed:	1965
Tank Capacity:	00024000
Tank Used for:	WASTE

MOSS LANDING POWER PLANT (Continued) **U001601643**

Type of Fuel: Not reported
Tank Construction: 8 inches
Leak Detection: Groundwater Monitoring Well

Tank Num: 006
Container Num: 6
Year Installed: 1965
Tank Capacity: 00024000
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 8 inches
Leak Detection: Groundwater Monitoring Well

Tank Num: 007
Container Num: 7
Year Installed: 1979
Tank Capacity: 00001000
Tank Used for: PRODUCT
Type of Fuel: UNLEADED
Tank Construction: 1/2 inches
Leak Detection: Stock Inventor

Tank Num: 008
Container Num: 8
Year Installed: 1984
Tank Capacity: 00001125
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 10 inches
Leak Detection: Not reported

Tank Num: 009
Container Num: 9
Year Installed: 1977
Tank Capacity: 00019055
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 0.5 centimeters
Leak Detection: Not reported

Tank Num: 010
Container Num: 10
Year Installed: 1967
Tank Capacity: 00016460
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: .23 centimeters
Leak Detection: Not reported

Tank Num: 011
Container Num: 11
Year Installed: 1950
Tank Capacity: 00000600
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 8 inches
Leak Detection: Not reported

MOSS LANDING POWER PLANT (Continued) **U001601643**

Tank Num: 012
Container Num: 12
Year Installed: 1950
Tank Capacity: 00000600
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 8 inches
Leak Detection: Not reported

Tank Num: 013
Container Num: 13
Year Installed: 1954
Tank Capacity: 00003830
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 10 inches
Leak Detection: Not reported

Tank Num: 014
Container Num: 17
Year Installed: 1954
Tank Capacity: 00003830
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 10 inches
Leak Detection: Not reported

Tank Num: 015
Container Num: 15
Year Installed: 1967
Tank Capacity: 00000851
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 016
Container Num: 16
Year Installed: 1967
Tank Capacity: 00001033
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 017
Container Num: 17
Year Installed: 1967
Tank Capacity: 00001033
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 018
Container Num: 18
Year Installed: 1967

MOSS LANDING POWER PLANT (Continued) **U001601643**

Tank Capacity: 00000790
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 019
Container Num: 19
Year Installed: 1967
Tank Capacity: 00002244
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 3 inches
Leak Detection: Groundwater Monitoring Well

Tank Num: 020
Container Num: 20
Year Installed: 01
Tank Capacity: 00005865
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 12 inches
Leak Detection: Not reported

Tank Num: 021
Container Num: 21
Year Installed: 1973
Tank Capacity: 00005745
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 12 inches
Leak Detection: Not reported

Tank Num: 022
Container Num: 22
Year Installed: 1973
Tank Capacity: 00134650
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 3 inches
Leak Detection: Not reported

Tank Num: 023
Container Num: 23
Year Installed: 1974
Tank Capacity: 00001033
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 024
Container Num: 24
Year Installed: 1974
Tank Capacity: 00228978
Tank Used for: WASTE
Type of Fuel: Not reported

MOSS LANDING POWER PLANT (Continued) **U001601643**

Tank Construction: 3 inches
Leak Detection: Not reported

Tank Num: 025
Container Num: 25
Year Installed: 1984
Tank Capacity: 00001100
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 8 inches
Leak Detection: Not reported

Tank Num: 026
Container Num: 26
Year Installed: 1967
Tank Capacity: 00002334
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 027
Container Num: 27
Year Installed: 1967
Tank Capacity: 00002334
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 028
Container Num: 28
Year Installed: 1967
Tank Capacity: 00018000
Tank Used for: PRODUCT
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 029
Container Num: 29
Year Installed: 1967
Tank Capacity: 00002618
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 030
Container Num: 30
Year Installed: 1967
Tank Capacity: 00002618
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

MOSS LANDING POWER PLANT (Continued) **U001601643**

Tank Num: 031
Container Num: 31
Year Installed: 1967
Tank Capacity: 00013693
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 032
Container Num: 32
Year Installed: 1967
Tank Capacity: 00013693
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 033
Container Num: 33
Year Installed: 1950
Tank Capacity: 00000253
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 034
Container Num: 34
Year Installed: 1950
Tank Capacity: 00000748
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 035
Container Num: 35
Year Installed: 1950
Tank Capacity: 00023500
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 12 inches
Leak Detection: Not reported

Tank Num: 036
Container Num: 36
Year Installed: 1950
Tank Capacity: 00023500
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 12 inches
Leak Detection: Not reported

Tank Num: 037
Container Num: 37
Year Installed: 1950

MOSS LANDING POWER PLANT (Continued) **U001601643**

Tank Capacity: 00023500
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 12 inches
Leak Detection: Not reported

Tank Num: 038
Container Num: 38
Year Installed: 1950
Tank Capacity: 00000075
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 12 inches
Leak Detection: Not reported

Tank Num: 039
Container Num: 30
Year Installed: 1950
Tank Capacity: 00000075
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 12 inches
Leak Detection: Not reported

Tank Num: 040
Container Num: 40
Year Installed: 1950
Tank Capacity: 00005050
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 unknown
Leak Detection: Not reported

Tank Num: 041
Container Num: 41
Year Installed: 1950
Tank Capacity: 00004900
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 042
Container Num: 42
Year Installed: 1954
Tank Capacity: 00033326
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 12 inches
Leak Detection: Not reported

Tank Num: 043
Container Num: 43
Year Installed: 1954
Tank Capacity: 00033326
Tank Used for: WASTE
Type of Fuel: Not reported

MOSS LANDING POWER PLANT (Continued) **U001601643**

Tank Construction: 12 inches
Leak Detection: Not reported

Tank Num: 044
Container Num: 44
Year Installed: 1954
Tank Capacity: 00000878
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 045
Container Num: 45
Year Installed: 1954
Tank Capacity: 00000878
Tank Used for: WASTE
Type of Fuel: Not reported
Tank Construction: 7 inches
Leak Detection: Not reported

Tank Num: 046
Container Num: 46
Year Installed: 1954
Tank Capacity: 00000079
Tank Used for: PRODUCT
Type of Fuel: Not reported
Tank Construction: 1/4 inches
Leak Detection: Not reported

Tank Num: 047
Container Num: 47
Year Installed: 1954
Tank Capacity: 00000079
Tank Used for: PRODUCT
Type of Fuel: Not reported
Tank Construction: 1/4 inches
Leak Detection: Not reported

Tank Num: 048
Container Num: 48
Year Installed: 1950
Tank Capacity: 00004000
Tank Used for: PRODUCT
Type of Fuel: Not reported
Tank Construction: 1/4 inches
Leak Detection: Visual

Tank Num: 049
Container Num: 49
Year Installed: 1950
Tank Capacity: 00004000
Tank Used for: PRODUCT
Type of Fuel: Not reported
Tank Construction: 1/4 inches
Leak Detection: Visual

MOSS LANDING POWER PLANT (Continued) **U001601643**

Tank Num: 050
Container Num: 50
Year Installed: 1950
Tank Capacity: 00004000
Tank Used for: PRODUCT
Type of Fuel: Not reported
Tank Construction: 1/4 inches
Leak Detection: Visual

Tank Num: 051
Container Num: 51
Year Installed: 1950
Tank Capacity: 00002700
Tank Used for: PRODUCT
Type of Fuel: Not reported
Tank Construction: 1/4 inches
Leak Detection: Visual

Tank Num: 052
Container Num: 52
Year Installed: 1950
Tank Capacity: 00002700
Tank Used for: PRODUCT
Type of Fuel: Not reported
Tank Construction: 1/4 inches
Leak Detection: Visual

Tank Num: 053
Container Num: 53
Year Installed: 1950
Tank Capacity: 00002700
Tank Used for: PRODUCT
Type of Fuel: Not reported
Tank Construction: 1/4 inches
Leak Detection: Visual

Tank Num: 054
Container Num: 54
Year Installed: 1954
Tank Capacity: 00013633
Tank Used for: PRODUCT
Type of Fuel: Not reported
Tank Construction: 1/4 inches
Leak Detection: Visual

Tank Num: 055
Container Num: 55
Year Installed: 1954
Tank Capacity: 00013633
Tank Used for: PRODUCT
Type of Fuel: Not reported
Tank Construction: 1/4 inches
Leak Detection: Visual

A9
SE
1/8-1/4
0.199 mi.
1052 ft.

MOSS LANDING POWER PLANT
HIGHWAY 1 & DOLAN RD
MOSS LANDING, CA 95039

Site 9 of 12 in cluster A

NPDES **S106929638**
SWEEPS UST **N/A**
ENF

Relative:
Higher

Actual:
31 ft.

NPDES:

Npdes Number:	CA0006254
Facility Status:	Active
Agency Id:	13290
Region:	3
Regulatory Measure Id:	141448
Order No:	R3-2000-0041
Regulatory Measure Type:	NPDES Permits
Place Id:	220809
WDID:	3 272011001
Program Type:	NPDES
Adoption Date Of Regulatory Measure:	10/27/2000
Effective Date Of Regulatory Measure:	10/27/2000
Expiration Date Of Regulatory Measure:	10/27/2000
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Moss Landing Power Plant
Discharge Address:	Dolan Road
Discharge City:	Moss Landing
Discharge State:	CA
Discharge Zip:	95039-0690

SWEEPS UST:

Status:	A
Comp Number:	8388
Number:	9
Board Of Equalization:	44-014786
Ref Date:	07-01-85
Act Date:	Not reported
Created Date:	07-31-88
Tank Status:	A
Owner Tank Id:	7
Swrcb Tank Id:	27-000-008388-000003
Actv Date:	07-01-85
Capacity:	1000
Tank Use:	M.V. FUEL
Stg:	P
Content:	REG UNLEADED
Number Of Tanks:	2

Status:	A
Comp Number:	8388
Number:	9
Board Of Equalization:	44-014786
Ref Date:	07-01-85
Act Date:	Not reported
Created Date:	07-31-88
Tank Status:	A
Owner Tank Id:	54
Swrcb Tank Id:	27-000-008388-000020
Actv Date:	07-01-85
Capacity:	13633
Tank Use:	UNKNOWN
Stg:	P

MOSS LANDING POWER PLANT (Continued) **S106929638**

Content: Not reported
Number Of Tanks: Not reported

ENF:

Region:	3
Facility Id:	220809
Agency Name:	Moss Landing Power Plant
Place Type:	Facility
Place Subtype:	Power Plant
Facility Type:	All other facilities
Agency Type:	Privately-Owned Business
# Of Agencies:	1
Place Latitude:	Not reported
Place Longitude:	Not reported
SIC Code 1:	4911
SIC Desc 1:	Electric Services
SIC Code 2:	9711
SIC Desc 2:	National Security
SIC Code 3:	Not reported
SIC Desc 3:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
NAICS Code 3:	Not reported
NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Reg Meas
Design Flow:	1226
Threat To Water Quality:	1
Complexity:	A
Pretreatment:	X - Facility is not a POTW
Facility Waste Type:	Designated cooling water: Noncontact
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported
Program:	NPDES
# Of Programs:	1
WDID:	3 272011001
Reg Measure Id:	146981
Reg Measure Type:	NPDES Permits
Region:	3
Order #:	95-022
Npdes# CA#:	CA0006254
Major-Minor:	Major
Npdes Type:	OTH
Reclamation:	N - No
Dredge Fill Fee:	Not reported
301H:	N
Application Fee Amt Received:	Not reported
Status:	Historical
Status Date:	02/10/1995
Effective Date:	02/10/1995
Expiration/Review Date:	09/16/2000
Termination Date:	10/26/2000
WDR Review - Amend:	Not reported
WDR Review - Revise/Renew:	1/28/2000

MOSS LANDING POWER PLANT (Continued) **S106929638**

WDR Review - Rescind:	Not reported
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	N
Individual/General:	I
Fee Code:	Not reported
Direction/Voice:	Passive
Enforcement Id(EID):	245037
Region:	3
Order / Resolution Number:	R3-2003-0063
Enforcement Action Type:	Admin Civil Liability
Effective Date:	04/21/2003
Adoption/Issuance Date:	Not reported
Achieve Date:	Not reported
Termination Date:	Not reported
ACL Issuance Date:	Not reported
EPL Issuance Date:	Not reported
Status:	Withdrawn
Title:	Enforcement - 3 272011001
Description:	Discharger violated permit by backflushing three billion gallons of cooling water to Elkhorn Slough.
Program:	NPDES
Latest Milestone Completion Date:	07/01/2003
# Of Programs1:	1
Total Assessment Amount:	0
Initial Assessed Amount:	0
Liability $ Amount:	0
Project $ Amount:	0
Liability $ Paid:	0
Project $ Completed:	0
Total $ Paid/Completed Amount:	0

Region:	3
Facility Id:	220809
Agency Name:	Moss Landing Power Plant
Place Type:	Facility
Place Subtype:	Power Plant
Facility Type:	All other facilities
Agency Type:	Privately-Owned Business
# Of Agencies:	1
Place Latitude:	Not reported
Place Longitude:	Not reported
SIC Code 1:	4911
SIC Desc 1:	Electric Services
SIC Code 2:	9711
SIC Desc 2:	National Security
SIC Code 3:	Not reported
SIC Desc 3:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
NAICS Code 3:	Not reported
NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Reg Meas

MOSS LANDING POWER PLANT (Continued) **S106929638**

Design Flow:	1226
Threat To Water Quality:	1
Complexity:	A
Pretreatment:	X - Facility is not a POTW
Facility Waste Type:	Designated cooling water: Noncontact
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported
Program:	NPDES
# Of Programs:	1
WDID:	3 272011001
Reg Measure Id:	146981
Reg Measure Type:	NPDES Permits
Region:	3
Order #:	95-022
Npdes# CA#:	CA0006254
Major-Minor:	Major
Npdes Type:	OTH
Reclamation:	N - No
Dredge Fill Fee:	Not reported
301H:	N
Application Fee Amt Received:	Not reported
Status:	Historical
Status Date:	02/10/1995
Effective Date:	02/10/1995
Expiration/Review Date:	09/16/2000
Termination Date:	10/26/2000
WDR Review - Amend:	Not reported
WDR Review - Revise/Renew:	1/28/2000
WDR Review - Rescind:	Not reported
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	N
Individual/General:	I
Fee Code:	Not reported
Direction/Voice:	Passive
Enforcement Id(EID):	244300
Region:	3
Order / Resolution Number:	R3-2003-0063
Enforcement Action Type:	Admin Civil Liability
Effective Date:	04/21/2003
Adoption/Issuance Date:	Not reported
Achieve Date:	Not reported
Termination Date:	Not reported
ACL Issuance Date:	Not reported
EPL Issuance Date:	Not reported
Status:	Historical
Title:	Enforcement - 3 272011001
Description:	Discharger violated permit by backflushing three billion gallons of cooling water to Elkhorn Slough.
Program:	NPDES
Latest Milestone Completion Date:	08/12/2003
# Of Programs1:	1
Total Assessment Amount:	250000
Initial Assessed Amount:	0
Liability $ Amount:	10000

MOSS LANDING POWER PLANT (Continued) **S106929638**

Project $ Amount:	0
Liability $ Paid:	10000
Project $ Completed:	0
Total $ Paid/Completed Amount:	250000
Region:	3
Facility Id:	220809
Agency Name:	Moss Landing Power Plant
Place Type:	Facility
Place Subtype:	Power Plant
Facility Type:	All other facilities
Agency Type:	Privately-Owned Business
# Of Agencies:	1
Place Latitude:	Not reported
Place Longitude:	Not reported
SIC Code 1:	4911
SIC Desc 1:	Electric Services
SIC Code 2:	9711
SIC Desc 2:	National Security
SIC Code 3:	Not reported
SIC Desc 3:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
NAICS Code 3:	Not reported
NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Reg Meas
Design Flow:	1226
Threat To Water Quality:	1
Complexity:	A
Pretreatment:	X - Facility is not a POTW
Facility Waste Type:	Designated cooling water: Noncontact
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported
Program:	NPDES
# Of Programs:	1
WDID:	3 272011001
Reg Measure Id:	141448
Reg Measure Type:	NPDES Permits
Region:	3
Order #:	R3-2000-0041
Npdes# CA#:	CA0006254
Major-Minor:	Major
Npdes Type:	OTH
Reclamation:	N - No
Dredge Fill Fee:	Not reported
301H:	N
Application Fee Amt Received:	Not reported
Status:	Active
Status Date:	07/13/2010
Effective Date:	10/27/2000
Expiration/Review Date:	10/27/2000
Termination Date:	Not reported
WDR Review - Amend:	Not reported

MOSS LANDING POWER PLANT (Continued) **S106929638**

WDR Review - Revise/Renew:	Not reported
WDR Review - Rescind:	Not reported
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	N
Individual/General:	I
Fee Code:	66 - NPDES Based on Flow
Direction/Voice:	Passive
Enforcement Id(EID):	353209
Region:	3
Order / Resolution Number:	SWB-2008-3-0010
Enforcement Action Type:	Admin Civil Liability
Effective Date:	11/19/2008
Adoption/Issuance Date:	11/19/2008
Achieve Date:	Not reported
Termination Date:	01/07/2009
ACL Issuance Date:	07/01/2008
EPL Issuance Date:	Not reported
Status:	Historical
Title:	Expedited Payment Letter for Moss Landing Power Plant
Description:	MMP for 3 violations: Mandatory Minimum Penalty Amount Owed for Effluent Violations (3 Serious Violations + 0 Chronic Violations) $3,000 = $9,000 to the Cleanup & Abatement Account
Program:	NPDES
Latest Milestone Completion Date:	01/09/2009
# Of Programs1:	1
Total Assessment Amount:	9000
Initial Assessed Amount:	9000
Liability $ Amount:	9000
Project $ Amount:	0
Liability $ Paid:	9000
Project $ Completed:	0
Total $ Paid/Completed Amount:	9000

A10 **MOSS LANDING POWER PLANT** **SLIC** **S109349207**
SE **HIGHWAY ONE & DOLAN RD.** **N/A**
1/8-1/4 **MOSS LANDING, CA 95039**
0.199 mi.
1052 ft. **Site 10 of 12 in cluster A**

Relative:
Higher

Actual:
31 ft.

SLIC:

Region:	STATE
Facility Status:	**Open - Verification Monitoring**
Status Date:	11/17/2005
Global Id:	SL203111247
Lead Agency:	DEPARTMENT OF TOXIC SUBSTANCES CONTROL
Lead Agency Case Number:	201126
Latitude:	36.78600532
Longitude:	-121.7669087
Case Type:	Cleanup Program Site
Case Worker:	Not reported
Local Agency:	DEPARTMENT OF TOXIC SUBSTANCES CONTROL
RB Case Number:	SL203111247
File Location:	DTSC
Potential Media Affected:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Not reported
Site History:	DTSC is Lead Agency. Project information available on Envirostor at:

MOSS LANDING POWER PLANT (Continued) **S109349207**

Not reported
http://www.envirostor.dtsc.ca.gov/public/hwmp_profile_report.asp?global_id=CAT080011653

Click here to access the California GeoTracker records for this facility:

A11 **PACIFIC GAS & ELECTRIC/ MOSS LANDING SWITCHYARD** **HAZNET** **S109467281**
SE **HWY 1 AT DOLAN RD** **HWP** **N/A**
1/8-1/4 **MOSS LANDING, CA 95012**
0.199 mi.
1052 ft. **Site 11 of 12 in cluster A**

Relative:
Higher

Actual:
31 ft.

HAZNET:

Year:	2011
Gepaid:	CAD983639758
Contact:	RON MIRANDA
Telephone:	8314793136
Mailing Name:	Not reported
Mailing Address:	3401 CROW CANYON RD
Mailing City,St,Zip:	SAN RAMON, CA 945830000
Gen County:	Not reported
TSD EPA ID:	CAT000646117
TSD County:	Not reported
Waste Category:	Unspecified organic liquid mixture
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.075
Facility County:	Monterey

Year:	2011
Gepaid:	CAD983639758
Contact:	RON MIRANDA
Telephone:	8314793136
Mailing Name:	Not reported
Mailing Address:	3401 CROW CANYON RD
Mailing City,St,Zip:	SAN RAMON, CA 945830000
Gen County:	Not reported
TSD EPA ID:	CAT000646117
TSD County:	Not reported
Waste Category:	Unspecified organic liquid mixture
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.075
Facility County:	Monterey

Year:	2011
Gepaid:	CAD983639758
Contact:	RON MIRANDA
Telephone:	8314793136
Mailing Name:	Not reported
Mailing Address:	3401 CROW CANYON RD
Mailing City,St,Zip:	SAN RAMON, CA 945830000
Gen County:	Not reported
TSD EPA ID:	CAT000646117
TSD County:	Not reported
Waste Category:	Off-specification, aged or surplus organics
Disposal Method:	Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)

PACIFIC GAS & ELECTRIC/ MOSS LANDING SWITCHYARD (Continued) **S109467281**

Tons: 0.0075
Facility County: Monterey

Year: 2011
Gepaid: CAD983639758
Contact: RON MIRANDA
Telephone: 8314793136
Mailing Name: Not reported
Mailing Address: 3401 CROW CANYON RD
Mailing City,St,Zip: SAN RAMON, CA 945830000
Gen County: Not reported
TSD EPA ID: CAT000646117
TSD County: Not reported
Waste Category: Off-specification, aged or surplus organics
Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons: 0.0075
Facility County: Monterey

Year: 2011
Gepaid: CAD983639758
Contact: RON MIRANDA
Telephone: 8314793136
Mailing Name: Not reported
Mailing Address: 3401 CROW CANYON RD
Mailing City,St,Zip: SAN RAMON, CA 945830000
Gen County: Not reported
TSD EPA ID: CAT000646117
TSD County: Not reported
Waste Category: Polychlorinated biphenyls and material containing PCBs
Disposal Method: Other Treatment
Tons: 1.7
Facility County: Monterey

Click this hyperlink while viewing on your computer to access
81 additional CA_HAZNET: record(s) in the EDR Site Report.

HWP:
EPA Id: CAD983639758
Latitude: 36.86895
Longitude: -121.7848
Facility Type: Historical - Non-Operating
Cleanup Status: UNKNOWN
Supervisor: Not reported
Site Code: 200186
Assembly District: 29
Senate District: 17
Public Information Officer: Not reported

Alias:
EPA Id: CAD983639758
Facility Type: Historical - Non-Operating
Alias Type: Project Code (Site Code)
Alias: 200186

A12
SE
1/8-1/4
0.199 mi.
1052 ft.

P G & E - MOSS LANDING POWER PLANT
HWY 1 AND DOLAN ROAD
MOSS LANDING, CA 93443

Site 12 of 12 in cluster A

SLIC **S106982333**
N/A

Relative:
Higher

Actual:
31 ft.

SLIC REG 3:

Region:	3
Leak Site Cross Street:	Not reported
RB Case In:	SL203111247
Entered Into Database:	1995-07-01 00:00:00
Discovered:	UNK
RB Case In:	PACIFIC GAS AND ELECTRIC
Responsible Party:	FRED FLINT
RP Contact:	Not reported
RP Phone:	Not reported
RP Number:	Not reported
RP Address:	3400 CROW CANYON ROAD
RP City,St,Zip:	SANTA MARIA, CA 94583
Date First Reported:	Not reported
Lead Agency:	Not reported
Program Type:	SLIC
Facility Status:	Post Remediation Action Monitoring
Case Type:	Other ground water affected
Case Type Undetermined:	No
Case Type Soil Impacted:	No
Case Type Surface Water:	No
Case Type Drinkin Water Well:	No
Case Type Drinking Water Aqfr:	No
Case Type Other Grnd Wtr:	Yes
PCA:	2031100

13
SW
1/8-1/4
0.228 mi.
1205 ft.

10932 CLAM WAY
MOSS LANDING, CA

AST **A100325386**
N/A

Relative:
Lower

Actual:
9 ft.

AST:

Owner:	WOODWARD MARINE
Total Gallons:	25,650
Certified Unified Program Agencies:	Monterey

14
SSW
1/4-1/2
0.384 mi.
2026 ft.

MONTEREY BAY AQUARIUM RESEARCH
7642 SAND HOLDT RD
MOSS LANDING, CA 95039

RCRA-SQG **1000401876**
FINDS **CAD982401283**
LUST

Relative:
Lower

Actual:
6 ft.

RCRA-SQG:

Date form received by agency:	09/01/1996
Facility name:	MONTEREY BAY AQUARIUM RESEARCH
Facility address:	7642 SAND HOLDT RD MOSS LANDING, CA 95039
EPA ID:	CAD982401283
Mailing address:	160 CENTRAL AVE PACIFIC GROVE, CA 93950
Contact:	Not reported

MONTEREY BAY AQUARIUM RESEARCH (Continued) **1000401876**

Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: MONTEREY BAY AQUARIUM
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 11/28/1989
Facility name: MONTEREY BAY AQUARIUM RESEARCH
Classification: Large Quantity Generator

MONTEREY BAY AQUARIUM RESEARCH (Continued) **1000401876**

Violation Status: No violations found

FINDS:

Registry ID: 110002804243

Environmental Interest/Information System

California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

LUST:

Region:	STATE
Global Id:	T0605300113
Latitude:	36.8025599
Longitude:	-121.7873401
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	10/06/2006
Lead Agency:	CENTRAL COAST RWQCB (REGION 3)
Case Worker:	WNL
Local Agency:	MONTEREY COUNTY
RB Case Number:	2467
LOC Case Number:	Not reported
File Location:	Not reported
Potential Media Affect:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Diesel
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

LUST:

Global Id:	T0605300113
Contact Type:	Local Agency Caseworker
Contact Name:	CORY WELCH
Organization Name:	MONTEREY COUNTY
Address:	1270 NATIVIDAD ROAD, RM 301
City:	SALINAS
Email:	welchc@co.monterey.ca.us
Phone Number:	8317554570

Global Id:	T0605300113
Contact Type:	Regional Board Caseworker
Contact Name:	WEI LIU
Organization Name:	CENTRAL COAST RWQCB (REGION 3)
Address:	895 AEROVISTA PLACE, SUITE 101
City:	SAN LUIS OBISPO
Email:	wnliu@waterboards.ca.gov
Phone Number:	8055493147

MONTEREY BAY AQUARIUM RESEARCH (Continued) **1000401876**

LUST:

Global Id:	T0605300113
Action Type:	RESPONSE
Date:	09/28/2006
Action:	Other Report / Document
Global Id:	T0605300113
Action Type:	ENFORCEMENT
Date:	01/01/1999
Action:	* No Action
Global Id:	T0605300113
Action Type:	Other
Date:	01/01/1950
Action:	Leak Reported
Global Id:	T0605300113
Action Type:	Other
Date:	01/01/1950
Action:	Leak Discovery

LUST REG 3:

Region:	3
Regional Board:	Central Coast Region
Facility County:	Monterey
Status:	Preliminary site assessment workplan submitted
Case Number:	2467
Local Case Num:	Not reported
Case Type:	O
Substance:	Diesel
Quantity:	Not reported
Abatement Method:	Excavate and Dispose - remove contaminated soil and dispose in approved site
Global ID:	T0605300113
Leak Source:	Tank
Leak Cause:	Other Cause
How Stopped:	Not reported
How Discovered:	OM
Release Date:	06/13/1994
Discovered Date:	2/24/94
Enter Date:	07/26/1994
Stop Date:	Not reported
Review Date:	07/26/1994
Enforce Date:	Not reported
Close Date:	Not reported
Enforcement Type:	Not reported
Responsible Party:	DAVID KRASOWSKI
RP Address:	PO BOX 628, 7642 SANDHOLDT RD
Contact:	Not reported
Cross Street:	MOSS LANDING RD
Local Agency:	27000
Lead Agency:	Regional Board
Staff Initials:	BUC
Confirm Leak:	Not reported
Workplan:	6/13/94
Prelim Assess:	Not reported

MONTEREY BAY AQUARIUM RESEARCH (Continued) **1000401876**

Pollution Char:	/ /
Remedial Plan:	Not reported
Remedial Action:	Not reported
Monitoring:	/ /
Pilot Program:	UST
Interim Action:	0
Funding:	Not reported
MTBE Class:	*
Max MTBE Grnd Wtr:	Not reported
Max MTBE Soil:	Not reported
Max MTBE Data:	/ /
MTBE Tested:	NRQ
Lat/Long:	36.8049559 / -121.787062
Soil Qualifier:	Not reported
Grnd Wtr Qualifier:	Not reported
Mtbe Concentratn:	0
Mtbe Fuel:	0
Org Name:	Not reported
Basin Plan:	9.10
Beneficial:	Not reported
Priority:	2A4
UST Cleanup Fund ID:	Not reported
Suspended:	Not reported
Operator:	Not reported
Water System:	Not reported
Well Name:	WELL 01
Distance From Well:	0
Assigned Name:	13S/02E-07A01 M
Summary:	06/13/94 - SOILS APPEAR TO HAVE BEEN CLEANED UP. HOWEVER, MONITORING WELLS MAYBE NECESSARY SINCE WATER APPEARS TO BE AFFECTED.

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15 **GABILAN FERTILIZER MOONGLOW DAIRY** **SWF/LF** **S105964579**
SE **357 DOLAN ROAD** **N/A**
1/4-1/2 **MOSS LANDING, CA**
0.388 mi.
2049 ft.

Relative:
Lower

Actual:
8 ft.

SWF/LF (SWIS):

Region:	STATE
Facility ID:	27-AA-0096
Lat/Long:	36.8017499 / -121.77637
Owner Name:	Calcagno, Louis R.
Owner Telephone:	8316332289
Owner Address:	Not reported
Owner Address2:	P.O. Box 62
Owner City,St,Zip:	Moss Landing, CA 95034
Operator:	Gabilan Fertilizer
Operator Phone:	8317710126
Operator Address:	Keith day
Operator Address2:	1091 Madson Lane
Operator City,St,Zip:	Salinas, CA 93907
Operator's Status:	Active
Permit Date:	05/20/2003
Permit Status:	Notification
Permitted Acreage:	Not reported
Activity:	Composting Operation (Ag)
Regulation Status:	Notification
Landuse Name:	Not reported

GABILAN FERTILIZER MOONGLOW DAIRY (Continued) **S105964579**

GIS Source:	Map
Category:	Composting
Unit Number:	01
Inspection Frequency:	Quarterly
Accepted Waste:	Agricultural
Closure Date:	Not reported
Closure Type:	Not reported
Disposal Acreage:	Not reported
SWIS Num:	27-AA-0096
Waste Discharge Requirement Num:	Not reported
Program Type:	Not reported
Permitted Throughput with Units:	10000
Actual Throughput with Units:	Cubic Yards
Permitted Capacity with Units:	6000
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Cu Yards/year

---

16 **NATIONAL REFRACTORIES** **Notify 65** **S100178092**
SE **ROUTE 1** **N/A**
1/2-1 **MOSS LANDING, CA 93066**
0.607 mi.
3205 ft.

Relative:
Higher

Actual:
23 ft.

Notify 65:

Date Reported:	Not reported
Staff Initials:	Not reported
Board File Number:	Not reported
Facility Type:	Not reported
Discharge Date:	Not reported
Incident Description:	93066

Count: 51 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
MONTEREY	S110734759	MOSS LANDING CRAZY HORSE RECONDUCT	MOSS LNDG	95039	NPDES
MONTEREY COUNTY	2009906111	MOSS LANDING HARBOR	MOSS LANDING HARBOR		ERNS
MONTEREY COUNTY	2008906111	MOSS LANDING HARBOR	MOSS LANDING HARBOR		ERNS
MONTEREY COUNTY	M300002400	CHEMICAL LIME CO	NATIVIDAD LIME PLANT		MINES
MONTEREY COUNTY	M300006782	SYAR INDUSTRIES, INC.	SOLEDAD QUARRY		MINES
MOSS LANDING	1014868884	MOSS LANDING	HWY 1 & AMP DOLAN RD	95039	FINDS
MOSS LANDING	S109451166	MOSS LANDING COMMERCIAL PARK - NPD	HWY 1	95039	NPDES, ENF
MOSS LANDING	S109281951	LSP MOSS LANDING LLC	HIGHWAY 1	95039	EMI
MOSS LANDING	S111012717	CALERA CORPORATION MOSS LANDING CE	7696 HWY 1	95039	SLIC
MOSS LANDING	A100340312		HWY 1		AST
MOSS LANDING	A100340265		8850 HWY 1		AST
MOSS LANDING	A100324444		7696 HWY 1		AST
MOSS LANDING	S109521373	FORMER NATIONAL REFRACTORIES	HWY 1	95039	SLIC
MOSS LANDING	S110654713	THE WHOLE ENCHILADA RESTARAUNT	HWY 1	95039	LUST
MOSS LANDING	S110654733	NATIONAL REFRACTORIES	HWY 1 & DOLAN RD	95039	LUST
MOSS LANDING	S102438914	THE WHOLE ENCHILADA RESTARAUNT	HWY 1	95039	LUST
MOSS LANDING	93347387	DOCK B SLIP 182 MOSS LANDING HARBO	DOCK B SLIP 182 MOSS LANDING H		ERNS
MOSS LANDING	99628433	B DOCK MOSS LANDING HARBOR	B DOCK MOSS LANDING HARBOR	95039	ERNS
MOSS LANDING	S108208372	H M B Y, INC/MOSS LANDING COMMERCI	7697 DOLAN RD	95039	HAZNET
MOSS LANDING	S109441933	DNSC MOSS LANDING COMMERCIAL PARK	DOLAN RD & HWY 1	95039	NPDES
MOSS LANDING	S111292188	MOSS LANDING POWER PLANT	HWY	95039	NPDES
MOSS LANDING	S108214372	MOSS LANDING HARBOR DISTRICT	W LONG 12178570	95039	HAZNET
MOSS LANDING	99637488	MAIN CHANNEL IVO B DOCK MOSS LANDI	MAIN CHANNEL IVO B DOCK MOSS L		ERNS
MOSS LANDING	99627460	MOSS LANDING HARBOR SLIP A95	MOSS LANDING HARBOR SLIP A95	95039	ERNS
MOSS LANDING	93351003	MOSS LANDING HARBOR COMERCIAL PORT	MOSS LANDING HARBOR COMERCIAL		ERNS
MOSS LANDING	S106929639	MOSS LANDING PUMP STATION - ST	MOSS LANDING RD	95039	SWEEPS UST
MOSS LANDING	93339694	MOSS LANDING MARINA	MOSS LANDING MARINA	95039	ERNS
MOSS LANDING	93327911	MOSS LANDING HARBOR MAIN CHANNEL	MOSS LANDING HARBOR MAIN CHANN	95039	ERNS
MOSS LANDING	92296214	MOSS LANDING HARBOR C11	MOSS LANDING HARBOR C11	95039	ERNS
MOSS LANDING	92257350	MOSS LANDING POWER PLANT/OLD VESSE	MOSS LANDING POWER PLANT/OLD V		ERNS
MOSS LANDING	93312727	MOSS LANDING HARBOR	MOSS LANDING HARBOR		ERNS
MOSS LANDING	92297734	MOSS LANDING & ZMUDOWSKI (?) STATE	MOSS LANDING & ZMUDOWSKI (?) S	95039	ERNS
MOSS LANDING	8719863	MOSS LANDING HARBOR	MOSS LANDING HARBOR		ERNS
MOSS LANDING	2000532896	MOSS LANDING HARBOR	MOSS LANDING HARBOR	95039	ERNS
MOSS LANDING	2000522018	MOSS LANDING HBR	MOSS LANDING HBR	0	ERNS
MOSS LANDING	2000540263	MOSS LANDING HARBOR	MOSS LANDING HARBOR	0	ERNS
MOSS LANDING	2000528123	MOSS LANDING HARBOR	MOSS LANDING HARBOR	0	ERNS
MOSS LANDING	2004727800	MOSS LANDING STATE BEACH	MOSS LANDING STATE BEACH		ERNS
MOSS LANDING	96510020	MOSS LANDING MARINA	MOSS LANDING MARINA		ERNS
MOSS LANDING	99650532	MOSS LANDING HARBOR DRY STORAGE YA	MOSS LANDING HARBOR DRY STORAG		ERNS
MOSS LANDING	98464232	MOSS LANDING HARBOR B DOCK SLIP 14	MOSS LANDING HARBOR B DOCK SLI		ERNS
MOSS LANDING	98465661	MOSS LANDING SLIP NO: A 95	MOSS LANDING SLIP NO: A 95		ERNS
MOSS LANDING	S106916831	FORMER NATIONAL REFRACTORIES	HWY ONE / DOLAN ROAD		SLIC

Count: 51 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
MOSS LANDING	94362164	SALINAS R AT MOSS LANDING	SALINAS R AT MOSS LANDING	95039	ERNS
MOSS LANDING	1003879284	MOSS LANDING HARBOR ISLAND	SANDHOLT RD OPPOSITE 7532 SAND	95039	CERC-NFRAP
MOSS LANDING	S101481325	MOSS LANDING HARBOR ISLAND	SANDHOLT RD	95039	ENVIROSTOR
MOSS LANDING	S106931996	SEA PRODUCTS COMPANY	SANDHOLT RD	95039	SWEEPS UST
MOSS LANDING	U001601645	SEA PRODUCTS COMPANY	SANDHOLT ROAD	95039	HIST UST
MOSS LANDING	S111292186	MOSS LANDING BAAH	STHY 1 ATDOLAN ROAD	95039	NPDES
MOSS LANDING	S104156293	OIL SLUDGE POND	P. O. BOX 27	95039	WMUDS/SWAT
MOSS LANDING (NR)	90167211	5 MILES NORTH OF MOSS LANDING	5 MILES NORTH OF MOSS LANDING	95039	ERNS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 06/07/2012
Date Data Arrived at EDR: 07/05/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 75

Source: EPA
Telephone: N/A
Last EDR Contact: 10/11/2012
Next Scheduled EDR Contact: 01/21/2013
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 06/07/2012
Date Data Arrived at EDR: 07/05/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 75

Source: EPA
Telephone: N/A
Last EDR Contact: 10/11/2012
Next Scheduled EDR Contact: 01/21/2013
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 06/07/2012
Date Data Arrived at EDR: 07/05/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 75

Source: EPA
Telephone: N/A
Last EDR Contact: 10/11/2012
Next Scheduled EDR Contact: 01/21/2013
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 12/27/2011
Date Data Arrived at EDR: 02/27/2012
Date Made Active in Reports: 03/12/2012
Number of Days to Update: 14

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 10/18/2012
Next Scheduled EDR Contact: 12/10/2012
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/10/2010
Date Data Arrived at EDR: 01/11/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 10/09/2012
Next Scheduled EDR Contact: 01/21/2013
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 12/28/2011
Date Data Arrived at EDR: 02/27/2012
Date Made Active in Reports: 03/12/2012
Number of Days to Update: 14

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 10/18/2012
Next Scheduled EDR Contact: 12/10/2012
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 08/19/2011
Date Data Arrived at EDR: 08/31/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 132

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 08/07/2012
Next Scheduled EDR Contact: 11/26/2012
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/15/2012
Date Data Arrived at EDR: 04/04/2012
Date Made Active in Reports: 05/15/2012
Number of Days to Update: 41

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 10/04/2012
Next Scheduled EDR Contact: 01/14/2013
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/15/2012
Date Data Arrived at EDR: 04/04/2012
Date Made Active in Reports: 05/15/2012
Number of Days to Update: 41

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 10/04/2012
Next Scheduled EDR Contact: 01/14/2013
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/15/2012
Date Data Arrived at EDR: 04/04/2012
Date Made Active in Reports: 05/15/2012
Number of Days to Update: 41

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 10/04/2012
Next Scheduled EDR Contact: 01/14/2013
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/15/2012
Date Data Arrived at EDR: 04/04/2012
Date Made Active in Reports: 05/15/2012
Number of Days to Update: 41

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 10/04/2012
Next Scheduled EDR Contact: 01/14/2013
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 12/30/2011
Date Data Arrived at EDR: 12/30/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 09/05/2012
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 12/30/2011
Date Data Arrived at EDR: 12/30/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 09/05/2012
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/21/2012
Next Scheduled EDR Contact: 09/03/2012
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 04/02/2012
Date Data Arrived at EDR: 04/03/2012
Date Made Active in Reports: 06/14/2012
Number of Days to Update: 72

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 10/02/2012
Next Scheduled EDR Contact: 01/14/2013
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 09/21/2012
Date Data Arrived at EDR: 09/21/2012
Date Made Active in Reports: 10/23/2012
Number of Days to Update: 32

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/21/2012
Next Scheduled EDR Contact: 11/19/2012
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 09/21/2012
Date Data Arrived at EDR: 09/21/2012
Date Made Active in Reports: 10/23/2012
Number of Days to Update: 32

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/21/2012
Next Scheduled EDR Contact: 11/19/2012
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 08/20/2012
Date Data Arrived at EDR: 08/20/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 44

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/20/2012
Next Scheduled EDR Contact: 12/03/2012
Data Release Frequency: Quarterly

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 08/28/2012
Next Scheduled EDR Contact: 12/10/2012
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 09/18/2012
Date Data Arrived at EDR: 09/18/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 15

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 10/18/2012
Next Scheduled EDR Contact: 12/31/2012
Data Release Frequency: Quarterly

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/18/2012
Date Data Arrived at EDR: 09/18/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 15

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 10/18/2012
Next Scheduled EDR Contact: 12/31/2012
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 09/06/2012
Date Data Arrived at EDR: 09/07/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/26/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 08/01/2012
Date Data Arrived at EDR: 08/02/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 75

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/26/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/12/2012
Date Data Arrived at EDR: 05/09/2012
Date Made Active in Reports: 07/10/2012
Number of Days to Update: 62

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/03/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 12/14/2011
Date Data Arrived at EDR: 12/15/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 26

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 07/26/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Semi-Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/26/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/26/2012
Next Scheduled EDR Contact: 11/26/2012
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 08/17/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/26/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/18/2012
Date Data Arrived at EDR: 09/18/2012
Date Made Active in Reports: 10/04/2012
Number of Days to Update: 16
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 10/18/2012
Next Scheduled EDR Contact: 12/31/2012
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
Registered Aboveground Storage Tanks.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21
Source: State Water Resources Control Board
Telephone: 916-327-5092
Last EDR Contact: 10/22/2012
Next Scheduled EDR Contact: 01/21/2013
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 08/01/2012
Date Data Arrived at EDR: 08/02/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 75
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/26/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 09/06/2012
Date Data Arrived at EDR: 09/07/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 39
Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 07/26/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 07/26/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 08/17/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/26/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011
Date Data Arrived at EDR: 05/11/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 34

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/26/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 02/28/2012
Date Data Arrived at EDR: 02/29/2012
Date Made Active in Reports: 05/15/2012
Number of Days to Update: 76

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 07/26/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 12/14/2011
Date Data Arrived at EDR: 12/15/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 26

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 07/26/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/12/2012
Date Data Arrived at EDR: 05/02/2012
Date Made Active in Reports: 07/16/2012
Number of Days to Update: 75

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/03/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 10/15/2012
Next Scheduled EDR Contact: 01/28/2013
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 09/21/2012
Date Data Arrived at EDR: 09/21/2012
Date Made Active in Reports: 10/23/2012
Number of Days to Update: 32

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/21/2012
Next Scheduled EDR Contact: 11/19/2012
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/28/2012
Date Data Arrived at EDR: 10/02/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 14

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 10/02/2012
Next Scheduled EDR Contact: 01/14/2013
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/25/2012
Date Data Arrived at EDR: 06/25/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/24/2012
Next Scheduled EDR Contact: 01/07/2013
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39
Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137
Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/03/2012
Next Scheduled EDR Contact: 10/08/2012
Data Release Frequency: No Update Planned

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30
Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 08/07/2012
Next Scheduled EDR Contact: 11/26/2012
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 09/17/2012
Date Data Arrived at EDR: 09/19/2012
Date Made Active in Reports: 10/12/2012
Number of Days to Update: 23
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/19/2012
Next Scheduled EDR Contact: 12/31/2012
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 07/09/2012
Date Data Arrived at EDR: 07/12/2012
Date Made Active in Reports: 09/06/2012
Number of Days to Update: 56
Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 10/22/2012
Next Scheduled EDR Contact: 12/03/2012
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52
Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 08/03/2012
Next Scheduled EDR Contact: 11/19/2012
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 03/16/2012
Date Data Arrived at EDR: 06/12/2012
Date Made Active in Reports: 07/16/2012
Number of Days to Update: 34
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 09/05/2012
Next Scheduled EDR Contact: 12/17/2012
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21
Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 09/21/2012
Date Data Arrived at EDR: 09/21/2012
Date Made Active in Reports: 10/23/2012
Number of Days to Update: 32
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/21/2012
Next Scheduled EDR Contact: 11/19/2012
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27
Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2012
Date Data Arrived at EDR: 09/12/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 21
Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 10/01/2012
Next Scheduled EDR Contact: 01/14/2013
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 09/23/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 08/29/2012
Next Scheduled EDR Contact: 12/17/2012
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/16/2012
Date Data Arrived at EDR: 03/26/2012
Date Made Active in Reports: 06/14/2012
Number of Days to Update: 80

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 07/27/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Varies

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 09/18/2012
Date Data Arrived at EDR: 09/19/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 14

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/05/2012
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 09/10/2012
Date Data Arrived at EDR: 09/11/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 22

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/11/2012
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 04/01/2012
Date Data Arrived at EDR: 04/03/2012
Date Made Active in Reports: 06/14/2012
Number of Days to Update: 72

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 10/02/2012
Next Scheduled EDR Contact: 01/14/2013
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 03/28/2012
Date Data Arrived at EDR: 05/01/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 24

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 08/03/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 09/18/2012
Date Data Arrived at EDR: 09/18/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 15

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 10/18/2012
Next Scheduled EDR Contact: 12/31/2012
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 09/18/2012
Date Data Arrived at EDR: 09/18/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 15

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 10/18/2012
Next Scheduled EDR Contact: 12/31/2012
Data Release Frequency: Quarterly

Other Ascertainable Records

RCRA-NonGen: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/15/2012
Date Data Arrived at EDR: 04/04/2012
Date Made Active in Reports: 05/15/2012
Number of Days to Update: 41

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 10/04/2012
Next Scheduled EDR Contact: 01/14/2013
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/07/2012
Next Scheduled EDR Contact: 11/19/2012
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/18/2012
Next Scheduled EDR Contact: 01/28/2013
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 08/12/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 112

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/10/2012
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/01/2012
Date Data Arrived at EDR: 07/24/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 56

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 10/01/2012
Next Scheduled EDR Contact: 01/14/2013
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 02/27/2012
Date Data Arrived at EDR: 03/14/2012
Date Made Active in Reports: 06/14/2012
Number of Days to Update: 92

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/12/2012
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/28/2012
Next Scheduled EDR Contact: 12/10/2012
Data Release Frequency: Varies

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/18/2011
Date Data Arrived at EDR: 09/08/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 21

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 09/04/2012
Next Scheduled EDR Contact: 12/17/2012
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 09/01/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 131

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 09/20/2012
Next Scheduled EDR Contact: 12/10/2012
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 06/29/2012
Next Scheduled EDR Contact: 01/07/2013
Data Release Frequency: Every 4 Years

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/22/2012
Next Scheduled EDR Contact: 12/10/2012
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/22/2012
Next Scheduled EDR Contact: 12/10/2012
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/27/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011
Date Data Arrived at EDR: 11/10/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 10/19/2012
Next Scheduled EDR Contact: 01/28/2013
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2010
Date Data Arrived at EDR: 11/10/2010
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 98

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/19/2012
Next Scheduled EDR Contact: 01/28/2013
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/21/2011
Date Data Arrived at EDR: 07/15/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 60

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 09/05/2012
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/10/2012
Date Data Arrived at EDR: 01/12/2012
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 49

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 10/02/2012
Next Scheduled EDR Contact: 01/21/2013
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 10/23/2011
Date Data Arrived at EDR: 12/13/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 79

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 09/11/2012
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 08/31/2012
Next Scheduled EDR Contact: 12/10/2012
Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 08/20/2012
Date Data Arrived at EDR: 08/20/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 44

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/20/2012
Next Scheduled EDR Contact: 12/03/2012
Data Release Frequency: Quarterly

UIC: UIC Listing

A listing of underground control injection wells.

Date of Government Version: 08/14/2012
Date Data Arrived at EDR: 09/19/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 14

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 09/19/2012
Next Scheduled EDR Contact: 12/31/2012
Data Release Frequency: Varies

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 10/01/2012
Date Data Arrived at EDR: 10/02/2012
Date Made Active in Reports: 10/23/2012
Number of Days to Update: 21

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 10/02/2012
Next Scheduled EDR Contact: 01/14/2013
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 09/24/2012
Next Scheduled EDR Contact: 01/07/2013
Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 01/19/2012
Date Data Arrived at EDR: 01/19/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 33

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 10/11/2012
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Annually

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 10/01/2012
Next Scheduled EDR Contact: 01/14/2013
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 08/15/2011
Date Data Arrived at EDR: 08/23/2011
Date Made Active in Reports: 10/03/2011
Number of Days to Update: 41

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 09/05/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 06/22/2012
Date Made Active in Reports: 07/06/2012
Number of Days to Update: 14

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 10/15/2012
Next Scheduled EDR Contact: 01/28/2013
Data Release Frequency: Annually

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 10/18/2010
Number of Days to Update: 19
Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/28/2012
Next Scheduled EDR Contact: 01/07/2013
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34
Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/18/2012
Next Scheduled EDR Contact: 01/28/2013
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54
Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 10/22/2012
Next Scheduled EDR Contact: 02/04/2013
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information
All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 05/24/2012
Date Data Arrived at EDR: 06/05/2012
Date Made Active in Reports: 06/14/2012
Number of Days to Update: 9
Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 08/14/2012
Next Scheduled EDR Contact: 12/03/2012
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST
EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/13/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 36
Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 08/07/2012
Next Scheduled EDR Contact: 11/26/2012
Data Release Frequency: Quarterly

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 06/07/2012
Date Data Arrived at EDR: 07/02/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 106

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 10/04/2012
Next Scheduled EDR Contact: 01/14/2013
Data Release Frequency: Quarterly

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/18/2012
Next Scheduled EDR Contact: 01/28/2013
Data Release Frequency: N/A

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/16/2012
Next Scheduled EDR Contact: 11/26/2012
Data Release Frequency: Varies

FINANCIAL ASSURANCE 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 06/01/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 28

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 08/03/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Varies

FINANCIAL ASSURANCE 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 08/14/2012
Date Data Arrived at EDR: 08/20/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 44

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/14/2012
Next Scheduled EDR Contact: 12/03/2012
Data Release Frequency: Varies

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 08/28/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 36

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/28/2012
Next Scheduled EDR Contact: 12/10/2012
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 07/16/2012
Date Data Arrived at EDR: 07/17/2012
Date Made Active in Reports: 09/06/2012
Number of Days to Update: 51

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 10/16/2012
Next Scheduled EDR Contact: 01/28/2013
Data Release Frequency: Quarterly

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 09/14/2012
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 10/16/2012
Next Scheduled EDR Contact: 01/28/2013
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 09/06/2012
Date Data Arrived at EDR: 09/12/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 21

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 09/10/2012
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/03/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Varies

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 09/17/2012
Date Data Arrived at EDR: 09/19/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 14

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/19/2012
Next Scheduled EDR Contact: 12/31/2012
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 04/03/2012
Date Data Arrived at EDR: 04/04/2012
Date Made Active in Reports: 05/08/2012
Number of Days to Update: 34

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/27/2012
Next Scheduled EDR Contact: 10/15/2012
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/09/2012
Date Data Arrived at EDR: 10/12/2012
Date Made Active in Reports: 10/24/2012
Number of Days to Update: 12

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/27/2012
Next Scheduled EDR Contact: 10/15/2012
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 06/13/2012
Date Data Arrived at EDR: 06/14/2012
Date Made Active in Reports: 07/06/2012
Number of Days to Update: 22

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 08/06/2012
Next Scheduled EDR Contact: 11/19/2012
Data Release Frequency: Semi-Annually

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 08/31/2010
Date Data Arrived at EDR: 09/01/2010
Date Made Active in Reports: 09/30/2010
Number of Days to Update: 29

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 08/16/2012
Next Scheduled EDR Contact: 11/26/2012
Data Release Frequency: Quarterly

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 09/24/2012
Next Scheduled EDR Contact: 01/07/2013
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 06/28/2012
Date Data Arrived at EDR: 09/25/2012
Date Made Active in Reports: 10/23/2012
Number of Days to Update: 28

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 07/16/2012
Next Scheduled EDR Contact: 10/26/2012
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/23/2012
Date Data Arrived at EDR: 07/26/2012
Date Made Active in Reports: 09/06/2012
Number of Days to Update: 42

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/23/2012
Next Scheduled EDR Contact: 02/04/2013
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 09/13/2012
Next Scheduled EDR Contact: 12/03/2012
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 12/29/2011
Date Data Arrived at EDR: 02/02/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 19

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 10/22/2012
Next Scheduled EDR Contact: 02/04/2013
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 07/24/2012
Date Data Arrived at EDR: 07/27/2012
Date Made Active in Reports: 09/14/2012
Number of Days to Update: 49

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/22/2012
Next Scheduled EDR Contact: 02/04/2013
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003
Date Data Arrived at EDR: 10/23/2003
Date Made Active in Reports: 11/26/2003
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 07/26/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 07/12/2012
Date Data Arrived at EDR: 07/23/2012
Date Made Active in Reports: 08/02/2012
Number of Days to Update: 10

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 10/15/2012
Next Scheduled EDR Contact: 01/28/2013
Data Release Frequency: Semi-Annually

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 07/24/2012
Date Data Arrived at EDR: 07/31/2012
Date Made Active in Reports: 09/14/2012
Number of Days to Update: 45

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 10/22/2012
Next Scheduled EDR Contact: 01/21/2013
Data Release Frequency: Semi-Annually

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/29/2012
Next Scheduled EDR Contact: 12/17/2012
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 12/05/2012
Next Scheduled EDR Contact: 12/17/2012
Data Release Frequency: No Update Planned

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 08/02/2012
Date Data Arrived at EDR: 08/13/2012
Date Made Active in Reports: 09/06/2012
Number of Days to Update: 24
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2012
Next Scheduled EDR Contact: 11/26/2012
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 08/02/2012
Date Data Arrived at EDR: 08/13/2012
Date Made Active in Reports: 09/06/2012
Number of Days to Update: 24
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2012
Next Scheduled EDR Contact: 11/26/2012
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 08/02/2012
Date Data Arrived at EDR: 08/13/2012
Date Made Active in Reports: 09/14/2012
Number of Days to Update: 32
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2012
Next Scheduled EDR Contact: 11/26/2012
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/05/2012
Date Data Arrived at EDR: 09/11/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 22
Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 09/05/2012
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 07/18/2012
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 09/06/2012
Number of Days to Update: 49
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/24/2012
Next Scheduled EDR Contact: 01/07/2013
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/18/2012
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/06/2012
Number of Days to Update: 18
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/24/2012
Next Scheduled EDR Contact: 01/07/2013
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/07/2012
Date Data Arrived at EDR: 04/16/2012
Date Made Active in Reports: 05/08/2012
Number of Days to Update: 22

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/09/2012
Next Scheduled EDR Contact: 01/21/2013
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 02/02/2012
Date Data Arrived at EDR: 04/17/2012
Date Made Active in Reports: 05/08/2012
Number of Days to Update: 21

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/09/2012
Next Scheduled EDR Contact: 01/21/2013
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 08/29/2012
Date Data Arrived at EDR: 08/30/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 34

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 08/13/2012
Next Scheduled EDR Contact: 11/26/2012
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 08/17/2012
Date Data Arrived at EDR: 08/20/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 44

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 09/05/2012
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2011
Date Data Arrived at EDR: 11/04/2011
Date Made Active in Reports: 12/13/2011
Number of Days to Update: 39

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 07/26/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 09/05/2012
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 08/07/2012
Next Scheduled EDR Contact: 11/26/2012
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 08/07/2012
Next Scheduled EDR Contact: 11/26/2012
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 09/24/2012
Date Data Arrived at EDR: 09/25/2012
Date Made Active in Reports: 10/23/2012
Number of Days to Update: 28

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 09/24/2012
Next Scheduled EDR Contact: 01/07/2013
Data Release Frequency: Semi-Annually

SAN MATEO COUNTY:

Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 07/09/2012
Date Data Arrived at EDR: 07/16/2012
Date Made Active in Reports: 09/06/2012
Number of Days to Update: 52

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/18/2012
Next Scheduled EDR Contact: 12/31/2012
Data Release Frequency: Annually

Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 09/13/2012
Date Data Arrived at EDR: 09/18/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 15

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/13/2012
Next Scheduled EDR Contact: 12/31/2012
Data Release Frequency: Semi-Annually

SANTA CLARA COUNTY:

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22
Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 09/04/2012
Date Data Arrived at EDR: 09/06/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 27
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 09/04/2012
Next Scheduled EDR Contact: 12/17/2012
Data Release Frequency: Annually

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 08/08/2012
Date Data Arrived at EDR: 08/16/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 48
Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 08/07/2012
Next Scheduled EDR Contact: 11/26/2012
Data Release Frequency: Annually

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 09/14/2012
Date Data Arrived at EDR: 10/05/2012
Date Made Active in Reports: 10/23/2012
Number of Days to Update: 18
Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 09/13/2012
Next Scheduled EDR Contact: 12/31/2012
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/14/2012
Date Data Arrived at EDR: 10/09/2012
Date Made Active in Reports: 10/23/2012
Number of Days to Update: 14
Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 09/13/2012
Next Scheduled EDR Contact: 12/31/2012
Data Release Frequency: Quarterly

SONOMA COUNTY:

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 10/02/2012
Date Data Arrived at EDR: 10/03/2012
Date Made Active in Reports: 10/23/2012
Number of Days to Update: 20
Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 10/01/2012
Next Scheduled EDR Contact: 01/14/2013
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 09/06/2012
Date Data Arrived at EDR: 09/11/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 22

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 09/05/2012
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Semi-Annually

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 03/30/2012
Date Data Arrived at EDR: 05/25/2012
Date Made Active in Reports: 07/06/2012
Number of Days to Update: 42

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/24/2012
Next Scheduled EDR Contact: 12/03/2012
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 10/04/2012
Next Scheduled EDR Contact: 01/21/2013
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/14/2012
Next Scheduled EDR Contact: 12/03/2012
Data Release Frequency: Quarterly

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 06/28/2012
Date Data Arrived at EDR: 08/02/2012
Date Made Active in Reports: 09/06/2012
Number of Days to Update: 35

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 07/30/2012
Next Scheduled EDR Contact: 11/12/2012
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 09/20/2012
Date Made Active in Reports: 10/23/2012
Number of Days to Update: 33

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/18/2012
Next Scheduled EDR Contact: 12/31/2012
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 10/02/2012
Date Data Arrived at EDR: 10/04/2012
Date Made Active in Reports: 10/23/2012
Number of Days to Update: 19

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 09/24/2012
Next Scheduled EDR Contact: 01/07/2013
Data Release Frequency: Annually

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 08/20/2012
Date Data Arrived at EDR: 08/20/2012
Date Made Active in Reports: 09/20/2012
Number of Days to Update: 31

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/20/2012
Next Scheduled EDR Contact: 12/03/2012
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/16/2012
Next Scheduled EDR Contact: 01/28/2013
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 08/01/2012
Date Data Arrived at EDR: 08/09/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 55

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/09/2012
Next Scheduled EDR Contact: 11/19/2012
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/23/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 57

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/22/2012
Next Scheduled EDR Contact: 02/04/2013
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 06/22/2012
Date Made Active in Reports: 07/31/2012
Number of Days to Update: 39

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/23/2012
Next Scheduled EDR Contact: 12/10/2012
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 09/27/2012
Number of Days to Update: 70

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/18/2012
Next Scheduled EDR Contact: 12/31/2012
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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APPENDIX G

ENVIRONMENTAL CLEANUP LIEN/ ACTIVITY AND USE LIMITATION REPORT

MBSST Moss Landing Segment
Hwy 1
Moss Landing, CA 95039

Inquiry Number: 3441518.2S
November 05, 2012

The EDR Environmental LienSearch™ Report

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Environmental LienSearch™ Report

The EDR Environmental LienSearch Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EDR Environmental LienSearch™ Report

TARGET PROPERTY INFORMATION

ADDRESS

MBSST Moss Landing Segment
Hwy 1
Moss Landing, CA 95039

RESEARCH SOURCE

Source 1: Monterey County, California Assessor

Source 2: Monterey County, California Recorder

PROPERTY INFORMATION

Deed 1:

Type of Deed: Grant Deed

Title is vested in: Duke Energy Moss Landing, LLC, a Delaware limited liability company

Title received from: Pacific Gas and Electric Company, a California corporation

Deed Dated: 06/30/1998

Deed Recorded: 07/02/1998

Instrument: 9843402

Comments: A Certified Copy of Certificate of Amendment to Certificate of Formation was filed 05/26/2006 as Instrument Number 2006047327 wherein Duke Energy Moss Landing, LLC changed its name to LSP Moss Landing, LLC and in April 2007, merged with Dynegy, Inc.

Legal Description: All that certain piece or parcel of land being Parcel B, as shown upon the Parcel Map filed for record in Volume 20 of Parcel Maps at Page 64, situate and lying in the County of Monterey, State of California.

Legal Current Owner: Dynegy, Inc.

Property Identifiers: 133-181-009

EDR Environmental LienSearch™ Report

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

If found:

1st Party:

2nd Party:

Dated:
Recorded:
Book:
Page:
Docket:
Volume:
Instrument:
Comments:
Miscellaneous:

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

Other AUL's: Found ☒ Not Found ☐

If found:

1st Party: Pacific Gas and Electric Company, a California corporation

2nd Party: Duke Energy Moss Landing, LLC, a Delaware limited liability company

Dated: 06/30/1998
Recorded: 07/02/1998
Instrument: 9843405
Comments: Duke Energy Moss Landing, LLC, a Delaware limited liability company will not develop the Property or any portion thereof for use as a permanent or temporary lodging (including hotels, motels, and the like), hospital or other health-care facility, school, day care center for children, park, playground or other recreational use.

The subject property is a part of the Western Tank Farm of the Moss Landing Power Plant and contains a tank as well as groundwater monitoring wells on it. The constituents of concern at the Facility are Total Petroleum Hydrocarbons (TPH), Total Extractable Hydrocarbons (TEH), volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), metals (Inorganics), polychlorinated biphenyls (PCBs), and asbestos.

In 2000, demolition and remediation of Western Tank Farm was initiated. A total of 12,900 cubic yards of soil were removed and DTSC approved the closure report. On July 13, 2005, DTSC confirmed that no further soil removal or investigation was needed and Groundwater was not impacted.

APPENDIX H

QUALIFICATIONS STATEMENT

Earth Systems Pacific

4378 Old Santa Fe Road
San Luis Obispo, CA 93401-8116

(805) 544-3276 • FAX (805) 544-1786
E-mail: esp@earthsys.com

EARTH SYSTEMS PACIFIC
QUALIFICATIONS STATEMENT FOR ENVIRONMENTAL WORK

The Environmental Professional who provided oversight for this project meets the qualifications specified by ASTM E1527-05. An EP is defined as "a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases (of hazardous substances) on, at, in, or to a property, sufficient to meet the objectives and performance factors (of the rule)." In addition, an environmental professional must have:

- A state, tribal, or territory-issued certification or license (Professional Engineer or Professional Geologist) and three years of relevant full-time work experience; or
- A Baccalaureate degree or higher in science or engineering and five years of relevant full-time work experience; or
- Ten years of relevant full-time work experience.

The following resume(s) describe the credentials of the professionals who performed field, research and/or report preparation work on the project.

TIMOTHY S. CONROY

Years Experience: 28

Senior Geologist

QUALIFICATIONS

Professional Geologist, California, No. 4813
Certified Engineering Geologist, California, No. 1698
BA, Geological Sciences, 1984, University of California at Santa Barbara

PROFESSIONAL EXPERIENCE

Mr. Conroy has over 25 years of professional experience in the fields of engineering geology and environmental geology. He has extensive experience in subsurface exploration throughout Southern and Central California, encompassing exploratory drilling, monitoring well installation, soil and groundwater assessments, and geologic mapping. These exploratory investigations have been performed to identify the extent of a variety of compounds, including petroleum hydrocarbons, metals, solvents, pesticides, and asbestos. Mr. Conroy has completed over 300 Phase I environmental assessments for a wide range of projects throughout Southern and Central California, and portions of Arizona.

PROFESSIONAL AFFILIATIONS

Central Coast Geologic Society, Founding Member
Association of Engineering Geologists, Member

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SECTION 4(F) MEMORANDUM
OCTOBER 2009

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LSA ASSOCIATES, INC.
1998 SANTA BARBARA STREET, SUITE 120
SAN LUIS OBISPO, CALIFORNIA 93401
805.782.0745 TEL
805.782.0796 FAX

BERKELEY
CARLSBAD
FORT COLLINS
FRESNO
IRVINE
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROCKLIN
SO. SAN FRANCISCO

MEMORANDUM

DATE: October 14, 2009

TO: Gary Ruggerone, Caltrans Local Assistance, District 5

FROM: Pamela Reading, Senior Planner, LSA Associates, Inc.

SUBJECT: Applicability of Section 4(f) to the Proposed Moss Landing Trail Segment of the Monterey Bay Sanctuary Scenic Trail (MBSST) Project, Monterey County, California

INTRODUCTION

The County of Monterey Department of Public Works, in cooperation with the California Department of Transportation (Caltrans) District 5, proposes to construct an approximately 0.86 mile (4,500 foot) long segment of the Monterey Bay Sanctuary Scenic Trail (MBSST) in the community of Moss Landing, County of Monterey, California. As part of the environmental analyses for this proposed project, the project was evaluated to determine whether it could affect any properties or cultural resources that are protected under the requirements of Section 4(f).

This memo documents that there are no properties or cultural resources that would trigger the requirements for protection under Section 4(f) within the limits of or immediately adjacent to the proposed project.

REQUIREMENTS OF SECTION 4(f)

This memo was prepared in accordance with 49 United States Code (USC) 303 and the Federal Highway Administration (FHWA) regulations for Section 4(f) compliance codified at 23 Code of Federal Regulations (CFR) Section 771.135.

Section 4(f) of the Department of Transportation Act of 1966, codified at 49 USC Section 303, declares that "...[i]t is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Section 4(f) specifies that:

> [t]he Secretary [of Transportation] may approve a transportation program or project... requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of a historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if
>
> (1) there is no prudent and feasible alternative to using that land; and

(2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) further requires consultation with the United States Department of the Interior and, as appropriate, the involved offices of the United States Department of Agriculture and the United States Department of Housing and Urban Development, as well as relevant State and local officials, in developing transportation projects and programs that use lands protected by Section 4(f).

The Federal Highway Administration (FHWA) regulations for Section 4(f) compliance, which are codified at 23 Code of Federal Regulations (CFR) Section 771.135, define the use of a protected Section 4(f) property as that which occurs when any of the following conditions are met:

- Land is permanently incorporated into a transportation facility through partial or full acquisition (i.e., direct use).
- There is a temporary occupancy of land that is adverse in terms of the preservationist purposes of Section 4(f) (i.e., temporary use).
- There is no permanent incorporation of land, but the proximity of a transportation facility results in impacts so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired (i.e., constructive use).

Because the design and/or the construction of the proposed Moss Landing segment of the MBSST may receive federal funding and/or discretionary approvals through the United States Department of Transportation (DOT) FHWA, documentation of compliance with Section 4(f) is required for the project.

PROPOSED PROJECT

The County of Monterey Department of Public Works, in cooperation with Caltrans, proposes to construct an approximately 0.86 mile (4,500 foot) segment of the MBSST in the community of Moss Landing, County of Monterey, California. The project area is approximately 5 miles northwest of the City of Castroville and 26 miles south of the City of Santa Cruz, near the mouth of Elkhorn Slough. Monterey Bay is just west of the project area. The proposed project is part of the larger MBSST corridor, which will span the entire coast of the Monterey Bay National Marine Sanctuary from Lovers Point in Pacific Grove to Wilder Ranch north of Santa Cruz. Completion of all the proposed segments of the MBSST corridor would result in a continuous bicycle and pedestrian pathway along Monterey Bay.

The Moss Landing Trail segment would run from the north side of Moss Landing Road on the west side of Moro Cojo Slough east to State Route 1 (SR-1), then turn north along the west side of SR-1, cross Elkhorn Slough on a new bridge parallel to the existing vehicular bridge, and join the existing segment of the MBSST adjacent to the North Harbor facilities in the Moss Landing Harbor District on the north side of Elkhorn Slough. The Moss Landing Trail segment would be constructed within the County and State rights-of-way and some private property easements. The regional location of the proposed project and the project vicinity are shown in Figure 1. The proposed trail alignment is provided in Figure 2.

The proposed project area is dominated by several distinct landmarks including the Moss Landing Power Plant (now operated by Dynegy), with its tall stacks and large buildings; the Moss Landing Harbor, with its recreational fishing village, commercial fishery, and marine research station; the 350-foot-wide mouth

of Elkhorn Slough, a major wetland and recreational area; and the SR-1 bridge over Elkhorn Slough (Bridge #44-0074).

The proposed project area can generally be described as four distinct segments. Segment 1 consists of undeveloped, varying terrain near Moss Landing Road in the southern portion of the project area, rising up to a bluff near the intersection of SR-1 and Dolan Road. Segment 2 is an industrial area consisting of the Moss Landing Power Plant, which occupies land on both the east and west sides of SR-1 from Dolan Road north to the Elkhorn Slough bridge and includes a security fence located along the State right of way on both sides of SR-1. The terrain along Segment 2 is characterized by a low knoll on the west side of SR-1 that rises up on the north end approaching the Elkhorn Slough Bridge and slopes steeply towards the harbor to the west. Segment 3 consists of the Elkhorn Slough Bridge as well as remnants of old SR-1 and the abutments of the original highway bridge on the west side of the existing bridge. Segment 4, north of the slough, is characterized by flat terrain, where approximately 100 feet of trail will be built to meet the existing section of the MBSST.

SECTION 4(F) PROPERTIES IN THE PROJECT AREA

On January 26, 2004, Caltrans District 5 completed a Preliminary Environmental Studies (PES) Form for the proposed project indicating the potential occurrence of Section 4(f) properties within or adjacent to the project limits of the proposed Moss Landing Segment of the MBSST. The potential occurrence of Section 4(f) properties adjacent to but not necessarily within the limits of a proposed project must also be considered because constructive (indirect) uses, if severe enough, could be considered adverse impacts to Section 4(f) properties.

Based on review of existing public maps and a field review of the project limits and the immediately surrounding areas by Pam Reading, LSA Associates, Inc., it was determined that there are no publicly owned parks, recreation resources, or wildlife or waterfowl refuges within the project limits or immediately adjacent to the proposed Moss Landing Trail segment.

Existing segments of the MBSST are located south and west of the project segment. The project includes eventually joining the proposed Moss Landing Trail segment to those existing trail segments as well as continuing the trail north to Santa Cruz. The proposed project will add nearly a mile of trail to the existing trail system, which is a beneficial effect which would enhance the recreation value of the trail system.

Based on the findings of the *Historic Resources Evaluation Report* (LSA Associates, Inc., 2009) for the proposed project, there are no historic sites of national, state, or local significance. According to the *Archeological Survey Report* (LSA Associates, Inc., 2009), there is one archeological site – CA-MNT-229 – that has been determined eligible for listing in the National and California registers under Criterion D. Archeological site CA-MNT-229 consists of a dense midden site with a diversity of artifacts and features, and contains human burials. However, to trigger Section 4(f), archeological sites must warrant preservation in place as determined by the Department (Caltrans) and the State Historic Preservation Officer (SHPO). According to the *Archeological Survey Report* (LSA Associates, Inc., 2009) "[n]umerous researchers have conducted excavations there" and "a number of burials have been removed from [the] site", which supports the determination that CA-MNT-229 is not a site that warrants preservation in place. In addition, much of the original archeological site has been disturbed by road and railroad construction, further supporting the determination that archeological site CA-MNT-229 does not require in situ protection.

As a result, it was determined that the proposed Moss Landing Trail segment would not result in the use of or indirect impacts on any Section 4(f) properties (publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance), or cultural resources (land or a historic site of national, state, or local significance). Therefore, the proposed project does not trigger the requirements for protection of properties and cultural resources under Section 4(f).

Because the Moss Landing Trail segment does not trigger the requirements for protection of properties and cultural resources under Section 4(f), no further evaluation or documentation of the project effects related to Section 4(f) are required.

REFERENCES

LSA Associates, Inc. September 2009. *Historic Resources Evaluation Report*.
LSA Associates, Inc. September 2009. *Archeological Survey Report*.

ATTACHMENTS

Figure 1: Project Vicinity
Figure 2: Proposed Project Alignment

Cc: Stephen J. Leiker, P.E., Project Manager, County of Monterey, Department of Public Works
Keith Hallsten, Senior Civil Engineer/Project Manager, Wood Rodgers, Inc.

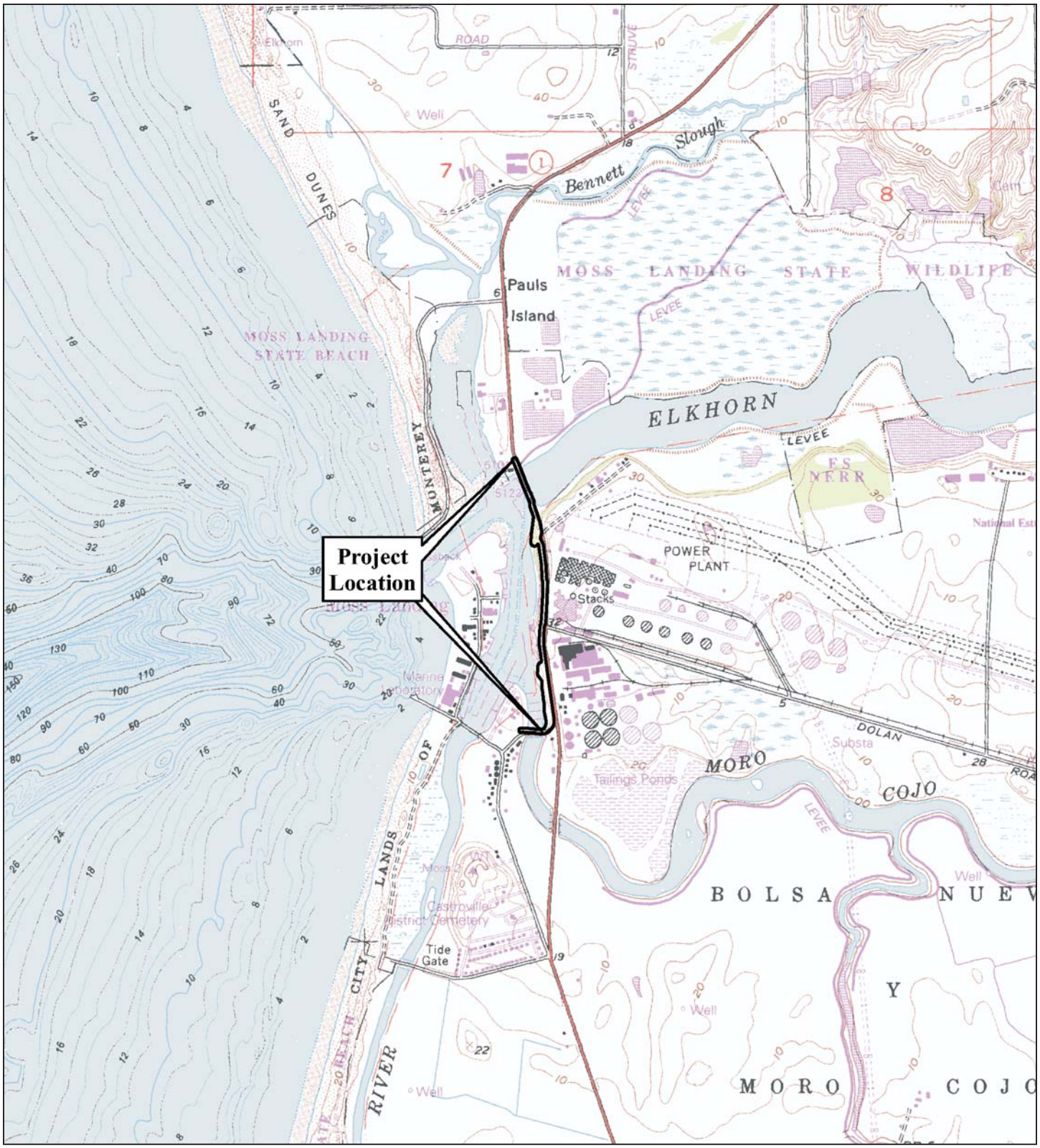

FIGURE 1

N

0 1000 2000

FEET

SOURCE: USGS 7.5' Quad - Moss Landing Calif. 19893

Section 4(f) Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Project Vicinity

I:\WRS0803\G\4(f)\Project Area.cdr (10/9/09)

LSA

FIGURE 2

LEGEND

– Project Alignment

N

0 150 300

FEET

SOURCE: Wood Rogers, 2009

I:\WRS0803\G\4(f)\Project Alignment.cdr (10/9/09)

Section 4 (f) Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Project Alignment

SHORELINE PROTECTION AND SEA LEVEL RISE
FEBRUARY 2014

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Sea Engineering, Inc.
200 Washington Street, Suite 101
Santa Cruz, CA 95060
PH 831-421-0871 FX 831-421-0875
www.seaengineering.com

February 27, 2014

Wood Rogers, Inc.
3301 C Street, Bldg. 100-B
Sacramento, CA 95816

Attention: Ali A. Hemmati, P.E. – Vice President

Re: Monterey Bay Sanctuary Scenic Trail Shore Protection (MBSST) - Response to California Coastal Commission (CCC) Comments

Dear Mr. Ali,

Sea Engineering, Inc. (SEI) is pleased to present the following response for CCC's December 19, 2013 comments regarding Rip-Rap and Debris and Sea Level Rise as they relate to SEI's shore protection design for the MBSST area adjacent to the Highway 1 Bridge in Moss Landing, CA. Our response includes an alternative analysis for shoreline protection strategies as well as a crest elevation for the proposed revetment.

Response: Rip-Rap and Debris

CCC's 12/19/13 comments related to Rip-Rap and Debris state that "Per the Coastal Act, revetments and other armoring structures are allowed in limited circumstances only after an evaluation of feasible alternatives…" and that CCC "strongly encourage(s) that the IS/MND include an analysis of all feasible alternatives including the "no shoreline armoring" alternative, as well as other forms of shoreline protection such as a vertical bulkhead wall and sheet pile wall.." and further states that "Armoring devices that have the potential to inhibit tidal exchange or would prevent/hinder adaptation strategies to address sea level rise must be avoided."

At the encouragement of CCC and in response to 12/19/13 comments, the project team presents an alternative analysis of shoreline protection options for the harbor shoreline near the Elkhorn Bridge abutment. The following alternatives are included in this analysis:

- Revetment (Riprap)
- Seawall (Gravity Wall)
- Bulkhead (Sheet Pile Wall)
- "Soft" Structures
- No Shoreline Armoring

The project team utilized general and project specific engineering principles, as well as Coastal Act Sections 30235 and 30253 as the guiding references for this analysis. As such, the above alternatives are compared using the following criteria:

- Ability of structure/alternative to protect the shoreline and existing or planned public structures (near the Elkhorn Bridge abutment) from erosion
- Environmental Impact
    - Impact on natural sediment transport system
    - Effect on tidal exchange
    - Influence on adaptation strategies to address seal level rise
- Aesthetics, including public access

- Cost (Relative to other options)

Revetment (Riprap)

Ability of Structure to Protect the Shoreline

Revetments are shoreline armoring structures which are common in intermediate (fetch, water body, and wave height) situations such as that which exists in Moss Landing Harbor. Revetments mimic the natural slope of the shoreline and dissipate wave energy as waves are directed up the slope. The proposed riprap revetment will protect the shoreline along a similar slope as the existing non-engineered rubble/debris revetment and will mitigate further erosion of the shoreline in the immediate vicinity of the proposed scenic trail. Riprap revetments are currently the dominant shoreline protection device within the harbor, including the shoreline immediately south of the proposed revetment.

Environmental Impact

- *Impact on Natural Sediment Transport System*

When exposed to wave conditions, armoring structures such as revetments often have a negative influence on the adjacent shorelines even while they serve their designed purpose including: loss of beach where the armoring structure is placed; erosion, over time, of the strip of beach immediately offshore of the armoring structure; and loss of material which would have been supplied to the beach if the shoreline were to erode naturally.

However, installation of the proposed riprap revetment structure would essentially be in-kind replacement of the existing non-engineered rubble/debris revetment. As such, there should be no significant change in sediment transport. The rip rap revetment alternative will not result in additional impacts to sediment transport when compared to the existing armoring.

- *Effect on Tidal Exchange*

No structures or devices which would restrict tidal exchange such as culverts, tide-gates, or dikes are planned or proposed as part of the proposed shoreline armoring effort. Revetments, when built parallel along an existing shoreline, are not known to inhibit tidal exchange. Therefore, construction of a riprap revetment on the site is expected to have no (negative or positive) effect on tidal exchange.

- *Influence on Adaptation Strategies to Address Sea Level Rise*

The proposed revetment design crest elevation utilizes CCC's draft guidance on sea level rise. Due to the location of the proposed trail immediately adjacent to the shoreline, its specified purpose to provide public coastal access, and the close inshore proximity of the adjacent Hwy 1; MBSST is not a likely candidate for other adaptation strategies such as planned retreat or relocation.

Aesthetics

Riprap revetments are the typical shoreline armoring structure within Moss Landing Harbor; including the west facing shore immediately south of the proposed revetment area, the shoreline under and behind the wharf on the north side of Elkhorn Bridge, across the harbor at Gravelle's Boat Works, and along the majority of the south harbor shoreline. The addition of the proposed revetment will be in keeping with the appearance of the local shoreline. Construction of any new

armoring structure in this area, including the proposed revetment, will allow a greater degree of public access due to protection of the shoreline in the immediate vicinity of the multiuse pathway.

Cost

The cost to build a riprap revetment is in the intermediate range when compared to other options. It is more costly than the "No Shoreline Armoring" alternative, but significantly less expensive than Seawall or Bulkhead options and similar in cost to some "Soft" structures.

Seawall (Gravity Wall)

Ability of Structure to Protect the Shoreline

Seawalls are large, gravity based structures typically constructed to protect the shoreline from erosion and flooding due to large waves. They are often common in high impact (fetch, water body, wave height) situations such as along portions of the California coastline which are exposed to the open ocean.

Seawalls often are impermeable structures, which unlike a riprap revetments, would have a tendency to reflect waves back into the harbor. This wave reflection could lead to unsafe navigation for vessels traveling in front of the wall due to creation of standing waves. In addition, reflected waves may exacerbate erosion elsewhere as the wave energy is reflected and travels to another location in the harbor before dissipating.

The two most like configurations for a seawall would be at the crest of the existing shoreline or at the toe of the existing shoreline. Either configuration has significant issues. Crest installation would require substantial excavation and potentially complicated construction methods due to placement within the slope of the existing shoreline. Toe installation would require a very large volume of fill in harbor waters.

The optimal foundation for a seawall is hard sediment or rock. Foundation substrate in Moss Landing Harbor is most likely to be sand, which is easily erodible by the effects of waves, tides, and currents; all of which are present at this location near the mouth of the harbor. Erosion of the foundation material would lead to instability of the wall, unless the design seawall toe elevation is significantly below the influence of scour.

Environmental Impact

- *Impact on Natural Sediment Transport System*

  When exposed to wave conditions, armoring structures such as seawalls often have a negative influence on the adjacent shorelines even while they serve their designed purpose including: loss of beach where the armoring structure is placed; erosion, over time, of the strip of beach immediately offshore of the armoring structure; and loss of material which would have been supplied to the beach if the shoreline were to erode naturally. In addition, impermeable structures, like some seawalls, tend to reflect waves, which may exacerbate erosion elsewhere as the wave energy is reflected and travels to another location in the harbor before dissipating. However, any proposed armoring at this site would be replacing an existing shoreline protection structure. As such, the extent of actual changes in sediment transport is questionable.

- *Effect on Tidal Exchange*

Seawalls, when built parallel along an existing shoreline, are not known to inhibit tidal exchange. Therefore, construction of a seawall on the site would be expected to have no effect on tidal exchange.

- *Influence on Adaptation Strategies to Address Sea Level Rise*

Any seawall design crest elevation would require utilization of CCC's draft guidance on sea level rise.

Aesthetics

Seawalls are large vertical structures, which would more starkly contrast with the existing sloped shorelines of Moss Landing Harbor. There are currently no seawalls within Moss Landing Harbor. Construction of any new armoring structure in this area, including a seawall, will allow a greater degree of public access due to protection of the shoreline in the immediate vicinity of the multiuse pathway.

Cost

The cost to build a seawall is high, when compared to most other options analyzed herein.

Bulkhead (Sheet Pile Wall)

Ability of Structure to Protect the Shoreline

Bulkheads are sheet pile walls, typically built using steel, precast concrete, timber, or composite (plastic) sheet pile. The main purpose of a bulkhead is to reduce land erosion and loss to the sea, not to mitigate coastal flooding and wave damage. However, a secondary purpose is to protect the upland area from wave attack, though the strength to do so is provided almost entirely by fill behind the bulkhead. Bulkheads are often common in low to intermediate impact (fetch, body, and wave height) situations such as along riverfronts and other inshore waterways, or in protected areas of bays and harbors.

Bulkheads are impermeable structures, which unlike a riprap revetment, would have a tendency to reflect waves back into the harbor. This wave reflection could lead to unsafe navigation for vessels traveling in front of the wall due to creation of standing waves. In addition, reflected waves may exacerbate erosion elsewhere as the wave energy is reflected and travels to another location in the harbor before dissipating.

As with seawalls, the two most likely configurations for a bulkhead would be at the crest of the existing shoreline or at the toe of the existing shoreline. Toe installation would require a very large volume of fill in harbor waters.

The remaining north and south bridge abutments from the previous walking bridge, adjacent to the shoreline proposed for armoring, also consist of steel sheet pile. In this case, the sheet pile was installed primarily to hold back fill and support surcharge loads from the previous bridge structure. Furthermore, unlike the shoreline proposed for armoring, the abutments are not typically subject to the full strength of harbor waves, as they are parallel to the dominant wave direction.

Environmental Impact

- *Impact on Natural Sediment Transport System*

When exposed to wave conditions, armoring structures such as bulkheads often have a negative influence on the adjacent shorelines even while they serve their designed purpose including: loss

of beach where the armoring structure is placed; erosion, over time, of the strip of beach immediately offshore of the armoring structure; and loss of material which would have been supplied to the beach if the shoreline were to erode naturally. In addition, impermeable structures such as bulkheads tend to reflect waves, which may exacerbate erosion elsewhere as the wave energy is reflected and travels to another location in the harbor before dissipating. However, any proposed armoring at this site would be replacing an existing shoreline protection structure. As such, the extent of actual changes in sediment transport is questionable.

- *Effect on Tidal Exchange*

  Bulkheads, when built parallel along an existing shoreline, are not known to inhibit tidal exchange. Therefore, construction of a bulkhead on the site would be expected to have no effect on tidal exchange.

- *Influence on Adaptation Strategies to Address Sea Level Rise*

  Any bulkhead design crest elevation would require utilization of CCC's draft guidance on sea level rise.

Aesthetics

Bulkheads are large vertical structures, often made of steel or other industrial materials such as vinyl, that would more starkly contrast with the existing sloped and rocky shorelines of Moss Landing Harbor Other than the steel sheet pile abutments from the previous walking bridge, there currently are very few bulkhead structures within Moss Landing Harbor, and those that exist are in more protected areas of the harbor. Construction of any new armoring structure in this area, including a bulkhead, will allow a greater degree of public access due to protection of the shoreline in the immediate vicinity of the multiuse pathway.

Cost

The cost to build a bulkhead is high, when compared to most other options analyzed herein.

"Soft" Structures

Ability of Structure to Protect the Shoreline

"Soft" structures typically include vegetative berms or fixes such as beach nourishment. "Soft" structures are often common in low impact (fetch, body, and wave height) situations such as within coastal marshes and sloughs, or along inshore waterways like lakes and reservoirs.

"Soft" structures are not suitable for shore protection at this location near the harbor entrance channel where wave action, scour, and tidal surges are the strongest.

Environmental Impact

- *Impact on Natural Sediment Transport System*

  "Soft" structures or fixes would likely have minimal negative impact on the natural sediment transport system.

- *Effect on Tidal Exchange*

  "Soft" structures or fixes would be expected to have no effect on tidal exchange.

- *Influence on Adaptation Strategies to Address Sea Level Rise*

Any "soft" structure design would require utilization of CCC's draft guidance on sea level rise. However, due to the expected short service life of "soft" structures in this location due to the effects of wave action, scour, and tidal surges; erosion of the immediate shoreline would continue and the effects of sea level rise on the upland area would be exacerbated.

Aesthetics

"Soft" structures or fixes are typically designed to mimic the natural shoreline. As such, any "soft" design would likely be visibly pleasing in the short term following installation. However, due to expected damage from wave action, scour and tidal surge; aesthetics would be expected to diminish quickly without constant maintenance of the structure.

Cost

The cost to build "soft" structures or fixes is relatively low, when compared to most other options analyzed herein.

"No Shoreline Armoring"

Please note that due to the deteriorated condition of the existing "revetment" from the effects of erosion, a "No Action" alternative (leave the site as is) is similar to the "No Shoreline Armoring" alternative.

Ability of Structure to Protect the Shoreline

The "No Shoreline Armoring" alternative includes removal of the existing deteriorated non-engineered rubble/debris revetment and leaving the remaining shoreline to erode naturally over time through wave action, scour, and tidal surge. In this scenario, the proposed scenic trail would be threatened due to its immediate proximity to the shoreline.

Environmental Impact

- *Impact on Natural Sediment Transport System*

The "No Shoreline Armoring" alternative would have a positive impact on the natural sediment transport system by providing new sediment (sand) through erosion of the shoreline.

- *Effect on Tidal Exchange*

The "No Shoreline Armoring" alternative would be expected to have no effect on tidal exchange.

- *Influence on Adaptation Strategies to Address Sea Level Rise*

If the "No Shoreline Armoring" alternative was chosen, erosion of the immediate shoreline would continue and the effects of sea level rise on the upland area would be exacerbated.

Aesthetics

An un-armored natural shoreline would likely be visibly pleasing in the short term. However, due to expected damage from erosion caused by wave action, scour and tidal surge; aesthetics would be expected to diminish relatively quickly, in particular due the resulting damage to the proposed

scenic trail and other adjacent structures such as the sheet-pile abutment and the Hwy 1 bridge drainage structure.

Cost

The cost to remove the existing non-engineered deteriorated rubble/debris revetment and allow the shoreline to erode naturally ("No Shoreline Armoring" alternative) is low, when compared to most other options analyzed herein.

Conclusion

In accordance with general and project specific engineering principals, as well as Coastal Act Sections 30235 and 30253, the most preferable alternative would protect the shoreline and any existing or planned public structures from damage or erosion due to the effects of wave, scour, and tidal surge; have minimal impact on the local shoreline environment including the natural sediment transportation system and tidal exchange mechanism; allow for potential adaptation strategies to address sea level rise; be aesthetically pleasing to the public, including allowing for public access; and of relatively low cost.

While the "No Shoreline Armoring" option allows for local sediment transport, it only does so through erosion of the very shoreline that the project team is seeking to protect. "Soft" structures or fixes are also unsuitable for shoreline protection at this site due to the exposed location. Adequate shoreline protection is a requirement of any chosen alternative, due to proximity of the existing SR-1 as well as the planned scenic trail to the shore of Moss Landing Harbor. As such, any alternative which amounts to "managed retreat" is not acceptable and it is therefore reasonable to eliminate from further consideration the "No Shoreline Armoring" and "Soft" structure alternatives.

All of the armoring options would, to varying degree, protect the shoreline from erosion. In addition, any proposed armoring at this site would be replacing an existing (deteriorated) shoreline protection structure. In fact, the proposed rip rap revetment is essentially an in-kind replacement of the existing rubble/debris revetment. As such, the rip rap revetment alternative will not result in additional impacts to sediment transport when compared to the existing armoring and therefore will not further alter natural shoreline processes.

The remaining variances between the three armoring options are aesthetics and cost. In each of these two criteria, the riprap revetment option is the preferred alternative. For this location, the revetment is more aesthetically pleasing than a bulkhead or seawall, simply because it matches the typical local shoreline. Seawalls and bulkheads are large vertical structures that would more starkly contrast with the existing sloped and rocky shorelines of Moss Landing Harbor. The proposed revetment is the most feasible alternative that will allow a greater degree of public access via the multiuse pathway. In addition, a revetment provides the required shoreline protection at a much lower cost than either a seawall or a bulkhead. For these reasons, the project team proposes a riprap revetment for this location.

Response: Sea Level Rise

CCC's 12/19/13 comments related to Sea Level Rise (SLR) state "The Commission's draft guidance on sea level rise recommends using the National Research Council's (NRC) Sea Level Rise projections. These projections were also adopted in 2013 by the Ocean Protection Council and are consistent with the approach taken by other state agencies. In accordance with the NRC report and recommendations, final pathway elevations must be designed to address future sea level rise scenarios including over a minimum of 75 years, and preferably 100 years."

The following analysis focuses on potential SLR as it may affect the proposed rip rap revetment in the vicinity of the south end of the Elkhorn Bridge. It should be noted that the effects of SLR do not impact the design elevations for the planned MBSST Bridge and associated multiuse trail. The design bridge deck elevation is above the projected 100 year storm wave elevation (not including surge and runup, as they are not considered for free standing structures such as bridge spans). In addition, the south bridge landing and the trail will be 6-7 ft inshore of the revetment crest, which is far enough to be considered outside the influence of wave overtopping.

The project team is aware of two locations where the existing infrastructure does not allow for crest or deck elevations that are in keeping with the following SLR analysis. The first is the north landing of the planned MBSST Bridge, where the elevations of the surrounding land and nearby structures (parking lot area in Moss Landing North Harbor at approximately elevation +12' (NAVD 88) and crest elevation of revetment inshore of the North Harbor Wharf at approximately +9' (NAVD 88)) are well below the 50, 75 and 100 year crest elevations calculated in the analysis. The second location is the planned revetment at the south end of the harbor near Moss Landing Rd; where the existing elevations of the road and adjacent land (low of approximately +8.9' (NAVD88) are also well below the calculated crest elevations. In order for the existing infrastructure to support adaptation to SLR, and for the corresponding adaptation of the planned structures at each of these locations, significant changes would have to made; including but not limited to a substantial increase in the elevations of the wharf deck and associated revetment crest, north harbor parking lot area, as well as the south harbor roadway and adjacent land.

The project team believes the following analysis addresses the CCC's comments related to sea-level rise. It should be noted, however, that the design service-life of a typical revetment and structures such as the MBSST trail are in the range of 25 to 50 years, not the 75 year to 100 year window prescribed. In addition, while the scenic trail is an avenue for public access that we hope is still in place and available for use in 50 years, significant changes in related local infrastructure (such as Hwy 1, Elkhorn Bridge, and the land & structures surrounding Moss Landing Harbor) will likely be required for adaptation to sea level rise, for that to be the case. It is also possible that such changes will affect the location and/or configuration of the proposed trail.

Appendix B of CCC Draft Sea-Level Rise Policy Guidance document provides guidance for determining local hazards from future sea level conditions. The above-mentioned guidance is detailed in the following steps:

1. Determine appropriate planning horizon or expected project life.
2. Determine regional sea level projections for planning horizon or expected project life.
3. Modify regional sea-level rise projects for local vertical land motion.
4. Project tidal elevations and future inundation.
5. Determine water level changes from surge, El Niños, PDOs, etc.
6. Estimate beach, bluff, and dune change from erosion
7. Determine potential flooding, wave impacts and runup
8. Examine potential flooding from extreme events
9. Repeat as necessary

In order to fulfill CCC's request, the project team herein re-evaluates the proposed riprap revetment design crest elevation. Following the above mentioned steps, the results are as follows:

1. Determine appropriate planning horizon or expected project life.

The design team believes that due to the elevations of existing local infrastructure and the anticipated service life of the revetment and MBSST trail; a 50 year planning horizon is the appropriate planning horizon for this project. As CCC comments recommend minimum of 75 year, and preferably 100 year planning horizon, these are included in the analysis as well.

2. Determine regional sea level projections for planning horizon or expected project life.

Appendix B allows the use of linear interpolation for determining range of sea level rise projections for years other than those provided in NRC 2012 (2030, 2050, and 2100) as well as after 2100.

Assuming construction of the proposed revetment is completed in 2015; 50, 75 year and 100 year sea level projections are as follows:

> Note: Due to increased uncertainty in sea level rise projections, and the related escalation in the range between high and low projections over the longer time spans, the project team will use median values for 50, 75 year and 100 year projections.

50 year

2016 + 50 = 2066

SLR (2066) = SLR (2050) + ((SLR(2100) – SLR(2050)) x (2066 – 2050)/(2100-2050))

Thus, for the high-end projection; SLR (2066) = 2.0’ + (5.48’-2.0’)*(16/50) = 3.11’
And for the low-end projection, SLR (2066) = .39’ + (1.38’-.39’)*(16/50) = 0.71’

The median value for 50 year SLR projection is, (3.11’+0.71’)/2 = **1.91’**

75 year

2016 + 75 = 2091

High-end projection, SLR (2091) = 2.0’ + (5.48’-2.0’)*(41/50) = 4.85’
Low-end projection, SLR (2091) = .39’ + (1.38’-.39’)*(41/50) = 1.20’

Median = (4.85’+1.20’)/2 = 3.03’

100 year

2015+100 = 2115

High-end projection, SLR (2115) = 2.0’ + (5.48’-2.0’)*(65/50) = 6.52’

Low-end projection, SLR (2115) = .39’ + (1.38’-.39’)*(65/50) = 1.68’

Median = (6.52’+1.68’)/2 = 4.13’

3. Modify regional sea-level rise projects for local vertical land motion.

As the project location does not lie in the area between Humboldt Bay, CA and Crescent City, CA (where local modification is recommended in Appendix B) the project team will use sea-level rise values calculated in Step 2, above.

4. Project tidal elevations and future inundation.

Future Water Elevation = Current Water Elevation + Projected Sea-level Rise

Current MHHW Elev. (Mean Higher High Water, Relative to NAVD88, NOAA Tide Station 9413450, Monterey, CA) = 5.48'

Future Higher High Tide Elevation (50 year) = 5.48' + 1.91' = **7.39'**

Future Higher High Tide Elevation (75 year) = 5.48' + 3.03' = 8.51'

Future Higher High Tide Elevation (100 year) = 5.48' + 4.13' = 9.61'

5. Determine water level changes from surge, El Niños, PDOs, etc.

There is insufficient information to predict temporary changes in local water level caused by oceanographic phenomena such as El Niños and PDOs (Pacific Decadal Oscillation). However, the 2012 NRC document states that "Short-period fluctuations of sea level may sometimes exceed 20 cm (7.9 in.), and storm-driven wave heights of 1 m (3.28 ft) or even higher amplitudes than are seen in the historical record could easily occur."

The project team rounds up to the nearest 6 in. for flood elevation to achieve the proposed revetment crest design elevation (see discussion following Step 9, below) and uses a design wave of 3 ft, both of which are well within the range of values described in the 2012 NRC.

6. Estimate beach, bluff, and dune change from erosion

N/A – Proposed revetment is designed to armor shoreline from erosion.

7. Determine potential flooding, wave impacts and runup

Future Flooding = Future Higher High Tide + Surge + Forcing + Wave Runup

From March, 2011 Basis of Design (SEI): Surge + Forcing = 1.5'
Wave Runup = 5.95'

Future Flooding (50 year) = 7.39' + 1.5' + 5.95' = **14.84'**

Future Flooding (75 year) = 8.51' + 1.5' + 5.95' = 15.96'

Future Flooding (100 year) = 9.61' + 1.5' + 5.95' = 17.06'

8. Examine potential flooding from extreme events

The proposed revetment (and scenic trail) location lies within a USGS Tsunami inundation area. As such, the potential for overtopping of the proposed revetment and subsequent flooding of the immediate upland (including the scenic trail) during extreme events (like Tsunamis) area does exist, particularly toward the end of the time horizon for the 75 year and 100 year sea level rise projections. While it is not possible to pre-determine the exact nature and extent of damage such an event would cause to the revetment and scenic trail, a short examination of the likely consequences to the proposed configuration is warranted.

The worse-case scenario during an extreme event, such as a Tsunami, for the proposed revetment is an extreme wave overtopping the crest of the revetment. It is possible for a very large overtopping wave to scour the area immediately inshore of the crest, leading to collapse of the top of the revetment. Due to the close proximity of the scenic trail to the revetment crest, such a collapse may damage portions of the scenic trail. There would be costs (potentially significant) to repair the revetment and trail following the event.

Since there is typically a period of warning prior to extreme events, like Tsunamis, there may be time to prepare preventative measures for overtopping such as the temporary installation of sand bags or other readily available barriers.

9. Repeat as necessary

N/A

Revetment Crest Design Elevation

For simplicity and to maintain the revetment as a non-overtopping structure (as was completed in the March, 2011 Basis of Design), the crest elevation will be the Future Flooding elevation (calculated in Step 7 above) rounded up to the nearest half foot.

Crest Elevation (50 year) = **+15.0 (NAVD88)**

Crest Elevation (75 year) = +16.0’ (NAVD88)

Crest Elevation (100 year) = +17.5’ (NAVD88)

Please don’t hesitate to contact me if you have any questions.

Very truly yours,

SEA ENGINEERING, INC.

Paul L. Roberts, P.E.
proberts@seaengineering.com
(831)421-0871

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VISUAL IMPACT ASSESSMENT REPORT
OCTOBER 2013

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Visual Impact Assessment

Bicycle/Pedestrian Path & Bridge Project

Moss Landing Road to Elkhorn Slough Crossing

Stations 59+00 to 101+00

County of Monterey Project No. 866865

Caltrans Location 05-MON-1-0-CR

Federal Aid Number HPLU-5944(108)

October 2013

Approved By: Patricia A Lopez Date: 10/8/13

County of Monterey
Department of Public Works
168 West Alisal Street, 2nd Floor
Salinas, California 93901
(831) 755-4800

Approved By: Robert G. Carr Date: 10/8/13

Robert G. Carr RLA 3473
Visual Resource Specialist
Landscape Architecture Branch
Caltrans District 5 – San Luis Obispo

FINAL
VISUAL IMPACT ASSESSMENT

MONTEREY BAY SANCTUARY SCENIC TRAIL – MOSS LANDING BICYCLE/PEDESTRIAN PATH & BRIDGE PROJECT

05-MON-1-95.8/96.7

COUNTY OF MONTEREY, CALIFORNIA

Prepared for:

State of California
Department of Transportation, District 5
50 Higuera Street
San Luis Obispo, California 93401-5415
(805) 549-3677

and

County of Monterey
Department of Public Works
168 West Alisal Street, 2nd Floor
Salinas, California 93901
(831) 755-4800

Under contract to:

Wood Rodgers
3301 C Street, Building 100-B
Sacramento, California 95816
(916) 440-9519

Prepared by:

LSA Associates, Inc.
1998 Santa Barbara Street, Suite 120
San Luis Obispo, California 93401
(805) 782-0745

October 2013

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MONTEREY BAY SANCTUARY SCENIC TRAIL – MOSS LANDING VISUAL IMPACT ASSESSMENT

1.0 INTRODUCTION

Purpose of Study

The purpose of this Visual Impact Assessment (VIA) is to determine the visual and aesthetic compatibility of the Moss Landing segment of the Monterey Bay Sanctuary Scenic Trail (MBSST) – a bicycle/pedestrian path and bridge project in the County of Monterey – with the surrounding development and natural areas. The "project area" refers to the project's proposed alignment (see Preliminary Plans and Profiles provided in Attachment B) and surrounding sensitive viewer areas.

Project Location and Description

The proposed MBSST corridor would span the entire coast of the Monterey Bay National Marine Sanctuary from Lovers Point in Pacific Grove to Wilder Ranch north of Santa Cruz. Construction of all proposed segments of the MBSST corridor would result in a continuous bicycle and pedestrian pathway along Monterey Bay. The proposed project objective is to construct the Moss Landing segment of the MBSST.

The County of Monterey Department of Public Works Department, in cooperation with State of California Transportation District 5 (Caltrans) proposes to construct an approximately 0.85 mile (4,466 feet) segment of the MBSST in the Moss Landing area, County of Monterey, California. The project area is approximately 5 miles northwest of Castroville and 26 miles south of Santa Cruz, near the mouth of Elkhorn Slough. Monterey Bay is just to the west of the project area. The regional location of the proposed project and the project vicinity are shown in Figure 1.

The Moss Landing Trail segment would run along the north side of Moss Landing Road on the west side of Moro Cojo Slough eastward to State Route 1 (SR-1), then turn northward along the west side of SR-1, cross Elkhorn Slough on a new bicycle/pedestrian bridge, and join the existing segment of the MBSST adjacent to the North Harbor facilities of the Moss Landing Harbor District on the north side of Elkhorn Slough. The proposed project would be constructed within the County right of way, State right of way parallel to SR-1, and in private property easements. The alignment of the proposed project is shown in Figure 2. As noted above, Preliminary Plans and Profiles are provided in Attachment B.

The proposed project area is dominated by several distinct landmarks including the Moss Landing Power Plant (now operated by Dynegy), with its tall stacks and large buildings; the Moss Landing Harbor, with its recreational fishing village, commercial fishery, and marine research station; the 350-foot-wide mouth of Elkhorn Slough, a major wetland and recreational area; and the SR-1 bridge over Elkhorn Slough (Bridge #44-0074).

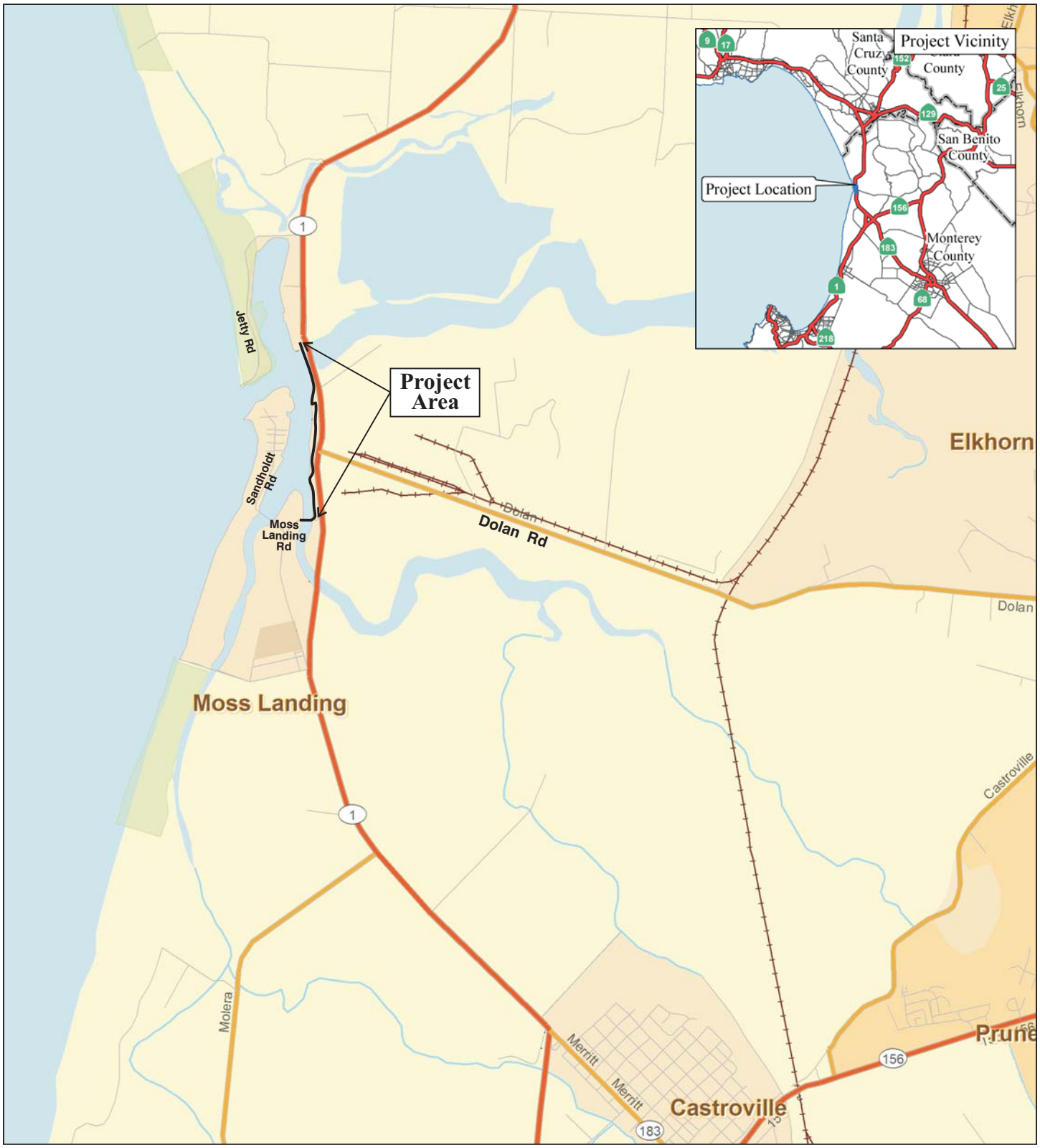

FIGURE 1

SOURCE: StreetMap_USA

Visual Impact Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Project Location Map

I:\WRS0803\G\Project Location.cdr (9/16/09)

FIGURE 2

N

0 250 500

FEET

PHOTO SOURCE: Wood Rodgers, 2009

Visual Impact Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Project Alignment

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For the purposes of this visual assessment, the proposed project area can be subdivided into five distinct segments. Segment 1 consists of undeveloped, varying terrain near Moss Landing Road in the southern portion of the project area, rising up to a bluff near the intersection of SR-1 and Dolan Road. Segment 2 is an industrial area consisting of the Moss Landing Power Plant, which occupies land on both the east and west sides of SR-1 from Dolan Road north to the north end of the Moss Landing Power Plant property and includes a security fence located along the State right of way on both sides of SR-1. Segment 2 is characterized by the Moss Landing Power Plant facility and areas of Bluegum Eucalyptus and Cypress Trees. Segment 3 consists of undeveloped, varying terrain on an embankment running along the Moss Landing Harbor shoreline from the north end of the MLPP property north to the Elkhorn Slough bridge. The terrain along Segment 3 is characterized by gentle terrain running along an old embankment that is between a knoll on the west side of SR-1 and the Moss Landing Harbor. Segment 4 consists of the Elkhorn Slough Bridge as well as remnants of old SR-1 and the abutments of the original highway bridge on the west side of the existing bridge. Segment 5, north of the slough, is characterized by flat terrain, a large paved parking area, and a restaurant and several other small structures to the west of SR-1.

Specific proposed improvements for each segment are described in detail below.

Segment 1 - Moss Landing Road to Moss Landing Power Plant (Station 55+82 to Station 75).
Along the north side of Moss Landing Road along the south shore of Moss Landing Harbor, the trail would be constructed along the north side of a curb and gutter to be constructed by a separate project along the edge of the roadway. The trail pavement would be 10 feet wide, with a 2-foot-wide decomposed granite shoulder along the north side. The north side of the trail shoulder would be supported by an embankment slope between the trail and the harbor. The embankment slope would extend into the tidal zone, and would be stabilized with rock slope protection. The area of rock slope protection would be about 250 feet long and would vary between 10 feet and 25 feet in width.

From Moss Landing Road to a point opposite Dolan Road, the slopes in the project area are gentle, and the trail can be constructed with minimal grading. A low retaining wall, approximately 700 feet long and typically 2 feet high but up to 3 feet 6 inches high in one location, would be constructed, primarily below the current grade of SR-1, along the west side of the trail in order to support the harbor-side edge of the trail. Additionally, some tree trimming and removal of several trees to provide space for the trail would be required.

Segment 2 – Through Moss Landing Power Plant (Station 75 to Station 88).
North of Dolan Road, along the southern seawater intake facility for the Moss Landing Power Plant (MLPP), the trail would be constructed near the west edge of SR-1. The existing metal guardrail would be replaced with a concrete barrier between the trail and the highway. A retaining wall of the soldier-pile type, approximately 490 feet long, would be required to support the west side of the trail. The existing 6 foot chain-link security fence along the intake facility would be replaced with an 8 foot chain-link fence relocated onto the new retaining wall.

The trail segment grade to the north of the driveway into the northern seawater intake facility for the MLPP would slope gently to the north at about the same grade as the adjacent SR-1 lanes, which would require excavation. To separate the trail from the adjacent southbound SR-1, a concrete barrier would be constructed. The existing 6-foot chain-link security fence around the intake facility would

be replaced with 8-foot chain-link fence. Removal of several eucalyptus trees and a few cypress trees would be necessary to provide sufficient width for the trail.

Just north of the power plant's existing northern pedestrian tunnel, the trail would turn west and slope downhill at less than 4 percent grade for approximately 100 feet, adjacent to the northern seawater intake facility for the MLPP. A retaining wall of the soldier-pile type with 8-foot chain-link fence on top would be constructed along the west side of the trail to provide a retaining-fill bench of sufficient width for the trail. View-obscuring slats would be installed in the chain-link fabric to screen the industrial facility from the trail. The trail would pass over an existing pipeline, then turn northward along the shoreline, continuing to descend to the north at a profile grade of not more than 4 percent on fill retained by gabions. No fence is planned to the north of the pipeline crossing, but either stainless steel or galvanized steel railings may be required to prevent falls.

Segment 3 - Moss Landing Power Plant to Elkhorn Slough Bridge (Station 88 to Station 96). At the north end of the MLPP property, the trail alignment would cross an existing drainage in a 30-inch concrete culvert and pass into State right of way controlled by Caltrans. Approaching Elkhorn Slough from the south, the trail would be constructed on the old embankment of SR-1. The profile grade would be at or above an elevation of 15 feet, and the slope would be less than 1 percent, except at the approach to the bridge abutment. Some fill retained by gabions would be required, and the failed broken concrete shore protection would be replaced with rock slope protection that extends through the tidal zone. Either stainless steel or galvanized steel railings may be required to prevent falls along the edge of the gabions retaining the fill on which the trail is constructed. The area of new rock slope protection would be approximately 375 feet long and 20 to 25 feet wide. An existing concrete stormwater settling basin would remain in place and not be disturbed by construction of the trail.

Segment 4 - Elkhorn Slough Bridge (Station 96 to Station 100). A new pedestrian/bicycle bridge, 386 feet in length, would be constructed across Elkhorn Slough. The new bridge would be constructed entirely within existing Caltrans right of way along the alignment of the previous SR-1 bridge that was replaced by the current SR-1 bridge to the east. The new bridge abutments would be constructed inland of the old bridge abutments, requiring excavation of up to 3 feet below the existing grade. The bridge piers would be constructed of driven cast-in-steel-shell concrete piles and would be aligned with the existing piers, allowing watercraft to navigate through the channel without additional obstruction. These pier piles would be driven into the slough bottom with a pile driver; dewatering and excavation in the Elkhorn Slough channel would not be required. The new bridge soffit elevation (i.e., the underside of the bridge) would be set at or above the soffit elevation of the existing SR-1 bridge and the span lengths would match. The piers supporting the bridge, each consisting of three 3-foot-diameter piles, would be aligned with those of the adjacent SR-1 bridge to facilitate navigation by boats. The bridge deck would be constructed with pre-cast concrete slab elements, and would provide a clear deck width of 12 feet between railings. Additional deck width would be provided on either side of the bridge deck at each pier to create overlook areas. There would be a total of 12 overlook areas, six on either side of the bridge. Each overlook area would provide space for trail users to stop on the bridge without causing interference with other trail users. From the bridge, trail users would have an opportunity to observe the Moss Landing Harbor, the Pacific Ocean, and Elkhorn Slough, particularly the abundant marine wildlife that inhabits the immediate vicinity. Railings on the bridge would be either stainless steel or galvanized steel to minimize maintenance.

Segment 5 - North Harbor (Station 100 to Station 101+50). North of the new bridge, approximately 100 feet of trail would be built to meet the existing section of the MBSST, which was constructed in 2007 along the east side of the North Harbor facilities of the Moss Landing Harbor District. Minimal grading would be necessary, but some fill would be required to raise the trail to the grade of the bridge. An existing temporary paved 5-foot-wide trail connection to the shoulder of southbound SR-1, located mostly on imported fill for the current SR-1 approach to the Elkhorn Slough Bridge, would be removed. All of the work for this segment of the trail would to be confined to the area of the old SR-1 alignment west of the current SR-1 and would be within existing Caltrans right of way.

Construction Staging Area. The precise location of staging area has not yet been determined. However, all construction staging areas are proposed to be located primarily within disturbed areas of Caltrans right-of-way or in private property easements from adjacent property owners. Pending landowner permission, staging areas are currently proposed for the flat graveled area opposite Dolan Road near the south end of the trail alignment, and on the paved parking area just north of the planned bridge over Elkhorn Slough. An additional staging area in the open water of Elkhorn Slough, west of the proposed bridge, would also be necessary since the pile driving activities must be completed from the water. One or two barges, each estimated to be 60-feet by 150-feet (9,000-square feet) with a crane/pile driver would be anchored within the staging area west of the existing SR-1 bridge during pile driving activities and construction of the bridge.

Construction Program. Pending secured funding, construction is anticipated to begin in 2014 with a duration of about 9 months. The length of time required for pile driving activities in Elkhorn Slough is anticipated to be no more than one week. The estimated construction cost (only) of the project is approximately $3.6 million and federal funds would be the primary source of funding. The project is included in the 2008 Transportation Agency of Monterey County's (TAMC) Final Monterey Bay Sanctuary Scenic Trail Master Plan (Master Plan) and the 2011 Transportation Agency for Monterey County Bicycle and Pedestrian Master Plan and the 2008 Monterey County General Bikeways Plan (Monterey County, 2008), and is consistent with projects contained in those plans. Upon completion, the Moss Landing segment of the MBSST would also become part of the California Coastal Trail and Pacific Coast Bikeway.

2.0 PURPOSE AND NEED

The purpose of the project is to construct the proposed 0.86 mile Moss Landing segment of the MBSST along the north side of Moss Landing Road on the west side of Moro Coho Slough eastward to SR-1 and then turn northward along the west side of SR-1 between Moss Landing Road and an existing section of the Trail at Moss Landing's North Harbor. Construction of all planned segments of the MBSST would result in a continuous bicycle and pedestrian trail along Monterey Bay from Pacific Grove to Santa Cruz. The primary purpose of the MBSST is to enhance appreciation, understanding, and protection of the Monterey Bay National Marine Sanctuary by promoting public use and enjoyment at its shoreline without harming sensitive resources.

Construction of the Moss Landing segment of the MBSST is a high priority for the following reasons:

- The Moss Landing area poses one of the most significant constraints for bicyclists and pedestrians in the proposed MBSST corridor. Currently the only alternative for bicycle and

pedestrian traffic in this area is along the shoulders of SR-1, which has high traffic volumes and highway speeds.

- The Moss Landing area already has visitor activity, which is likely to continue increasing as a result of the redevelopment of the North Harbor area that was completed in 2007. Therefore, pedestrian and bicycle activity along this portion of the MBSST corridor would increase as overall visitor levels increase.
- The Moss Landing area is one of the few places along SR-1 between Santa Cruz and Monterey that motorists have a close-up view of Monterey Bay. Therefore, the Moss Landing area offers one of the best opportunities along the MBSST corridor to view Coastal California marine life, a working commercial harbor and recreational fishing village, and the ecologically and recreationally valuable wetland area of Elkhorn Slough.

3.0 ENVIRONMENTAL CONSIDERATIONS

Responsible Agencies and Lead Agencies

Under the requirements of the California Environmental Quality Act (CEQA), the County of Monterey Department of Public Works is the Lead Agency for environmental review of the proposed project and must evaluate the potentially significant environmental effects. The County is the responsible agency under CEQA. The County of Monterey Public Works Department has determined that an Initial Study/Mitigated Negative Declaration (IS/MND) must be prepared to assess the proposed project's effects on the environment. The IS/MND must identify potentially significant impacts, to identify feasible mitigation measures to reduce or eliminate potentially significant environmental impacts, and to discuss feasible alternatives to the project that may accomplish basic project objectives while lessening or eliminating any potentially significant project impacts.

The proposed project will be funded with local, state, and federal funds. Because the proposed project has federal funding, the project must comply with the National Environmental Policy Act (NEPA) as well as CEQA. The Federal Highway Administration (FHWA) acts under the environmental guidance of NEPA. FHWA has delegated its responsibilities under NEPA to Caltrans, therefore, Caltrans is the Lead Agency for the proposed project with regards to NEPA compliance. A Categorical Exclusion (CE) will be prepared for NEPA compliance.

Applicable Environmental Planning Laws and Policies

The following laws and regulations pertain to visual environmental studies of highway projects. The guidelines under these laws are used to determine potential effects of a project on the visual and aesthetic environment.

NEPA. NEPA (1969, as amended) applies environmental awareness policies to all types of federally supported projects in all types of project settings. Visual resources are an integral part of the environment, and therefore, the topic of aesthetics is included under NEPA. This national policy directs that we carefully consider existing visual resources which are high in quality and that we enhance the built environment by good project planning and design. NEPA requires that proposed

federal projects consider potential effects that the project will likely have on the environment. Specifically, NEPA is concerned with the protection of the existing visual appearance of:

- Scenic highways
- Section 4(f) lands (public parks, recreation areas, wildlife and waterfowl refuges, and historic sites)
- Lands managed by the United States Forest Service and the Bureau of Land Management (in general, areas with high visual quality)
- Significant cultural and historic resources
- Lands associated with the National Wild and Scenic Rivers system

CEQA. Appendix G of the State CEQA Guidelines (2009) presents the following questions to assist in determining potential adverse visual impacts of a project:

- Would the project have a substantial adverse effect on a scenic vista?
- Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
- Would the project substantially degrade the existing visual character or quality of the site and its surroundings?
- Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The relationship between the severity of impacts related to specific visual characteristics, the location of the visual impacts relative to sensitive land uses, and the length of time these visual impacts are visible are the criteria for evaluating the significance of project impacts on visual resources in a particular area. The permanent removal and conversion of a natural area to an urban land use (i.e., commercial) or the modification of an existing urban facility (i.e., state highway) could have a significant visual impact when these areas are in the foreground of sensitive viewer groups.

State Scenic Highway Program. A State Scenic Highway is any freeway, highway, road, or other public right-of-way designated through legislation that traverses an area of exceptional scenic quality. Suitability for designation as a State Scenic Highway is based on three visual concepts:-vividness, intactness, and unity (source: Caltrans Guidelines for Official Designation of Scenic Highways, 1995). Although eligible for State Scenic Highway status, SR-1 is not an officially designated State Scenic Highway from SR-68 north to the Monterey-Santa Cruz County line, which includes the portions of SR-1 within the project study area (www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm). Therefore, the State Scenic Highway Program does not apply to the proposed project.

County of Monterey General Plan. The County of Monterey General Plan (adopted by County Board of Supervisors on October 26, 2010) contains the following goals and policies that are relevant to the proposed project:

Policy LU-1.13 All exterior lighting shall be unobtrusive and constructed or located so that only the intended area is illuminated, long range visibility is reduced of the lighting source, and off-site glare is fully controlled. Criteria to guide the review and approval of exterior lighting shall be developed by the County in the form of enforceable design guidelines, which shall include but not be limited to guidelines for the direction of light, such as shields, where lighting is allowed.

Goal C-4. Provide a public road and highway network for the efficient and safe movements of people and commodities.

> **Policy C-4.3.** The needs of bicyclists and pedestrians, as well as provisions for utilities and drainage, shall be considered and, where appropriate, provided in all public rights of way in a manner that minimizes impacts to adjacent land uses.
>
> **Policy C-4.7.** Where appropriate and sufficient public rights-of-way is available, bicycle paths shall be separated from major roads and highways and be provided between adjacent communities.

Goal C-9. Promote a safe, convenient bicycle transportation system integrated as part of the public roadway system.

> **Policy C-9.1.** The County shall coordinate with TAMC and all appropriate private and public interests and agencies to develop an integrated, comprehensive bicycle plan.

County of Monterey Zoning Ordinance. County Ordinance 21.64.260—Preservation of Oak and Other Protected Trees, has an exemption in Section F for tree removal activities as follows:

> "2. Tree removal pursuant to Public Utilities Commission General Order 95 or by governmental agencies within public rights of way."

The proposed project is a government project a portion of which would take place within public rights of way. Any tree removal activities within the existing or new public right of way would be exempt from the requirements of the County's tree ordinance.

North County Local Coastal Plan (Local Coastal Program Certified June 1982)/Moss Landing Community Plan

General Policy

1. Views to and along the ocean shoreline from SR-1, Molera Road, Struve Road, and public beaches, and to and along the shoreline of Elkhorn Slough from public vantage points shall be protected.

2. The coastal dunes and beaches, estuaries, and wetlands, should be designated for recreation or environmental conservation land uses that are compatible with protection of scenic resources. Facilities that are provided to accompany such uses shall be designed and sited to be unobtrusive and compatible with the visual character of the area.

Specific Policies

1. Structures shall generally be sited so as not to block public views of the shoreline; development proposals shall be revised if necessary to accomplish this goal. Necessary structures in public view between the road and shoreline (such as agricultural buildings) shall be functionally designed, and sited so as to protect the maximum possible open views. Other development in public view between the road and shoreline (such as residential or commercial structures) shall be designed with materials, colors, landscaping and fencing appropriate to the rural setting.

2. Existing native trees and other significant vegetation shall be retained to the maximum extent possible, as an essential element of the scenic beauty and character of the North County coastal area. Removal of native trees and vegetation and landmark trees shall be permitted in accordance with Sections 2.3.2, 2.3.3, 2.6.2, and 2.6.3 of this plan and other policies that may apply. In addition, A Tree Ordinance shall be developed and rigorously enforced that will regulate removal of trees and other significant vegetation throughout the North County Coastal Zone.

3. The beaches, dunes, estuaries, and wetlands should be zoned with a district that allows structures associated with the recreations, educational and aquacultural uses of the areas … No uses or structures should be allowed that are unnecessarily visible or that significantly detract from the scenic character of the visual resources.

4. Elkhorn Slough should be officially designated as a State Scenic waterway and the visual character of the adjacent scenic corridor should be preserved and where feasible, restored.

6.2 Key Policy

Public access to the shoreline and along the coast shall be protected and provided, and opportunities for recreational hiking access shall be enhanced. The provision of all future access and improvements to existing access areas must be consistent with the overriding objective of protecting coastal agriculture, environmentally sensitive habitats and other sensitive coastal resource areas. The beauty of the coast, its tranquility, and the health of its environment must not be marred by public overuse or carelessness. Visual access as well as physical access should be emphasized as an appropriate response to the needs of the public.

Specific Policies

1. Visual access from the nearest public road to the shoreline of Elkhorn Slough and other wetlands shall be maintained and enhanced for the enjoyment of the public in a manner compatible with other land uses permitted in the plan. Visual access to Moss Landing Harbor shall be retained as part of improvements to SR-1 and adjacent properties. The development of scenic viewpoints where physical access is not appropriate is encouraged.

2. New trails and access improvements, including boardwalks, signs, gates, restrooms and parking facilities, should be sited and designed or screened in a manner compatible with the goal of visual

resource protection. Trails should be located out of public view and should blend with the surrounding environment and natural terrain features wherever possible. The location of the trailheads, however, should be apparent to the public and situated to facilitate supervision.

4.0 VISUAL ASSESSMENT METHODOLOGY

For this visual impact assessment, the "study area" refers to the project limits described in Section 1.0 and depicted on the Preliminary Plans and Profiles provided in Attachment B and the surrounding sensitive viewer areas as described below in Section 5.0.

Project impacts to visual resources were determined by utilizing the NEPA and CEQA guidelines referenced in Section 3.0, and following the steps provided in the publication "Visual Impact Assessment for Highway Projects," Federal Highway Administration (FHWA), March 1981. Four principal steps required to assess visual impacts were carried out: (1) define the existing visual resources; (2) identify key views for visual assessment; (3) analyze existing visual resources and viewer response; and (4) propose methods to mitigate adverse visual impacts.

Views from a road shape the overall visual image of an urban or rural area and often form the first impression of a particular viewer. Therefore, FHWA guidelines include analyzing changes to views from the road. The points of view of the roadway traveler (from the road) are the primary focus of this particular visual analysis because the proposed project is a trail located within the road corridor and therefore the key view points of the proposed trail are all located along SR-1 looking west towards the proposed trail or from Sandholdt Road looking east towards the proposed trail.

Visual quality is evaluated by identifying the vividness, intactness, and unity present in the viewshed. The FHWA states that this method should correlate with public judgments of visual quality well enough to predict those judgments. This approach is particularly useful in highway planning because it does not presume that a highway project is necessarily an eyesore. This approach to evaluating visual quality can also help identify specific methods for mitigating specific adverse impacts that may occur as a result of a project.

5.0 EXISTING VISUAL RESOURCES, KEY VIEWS, AND VIEWER RESPONSE

Visual character definitions establish an existing condition that can be discussed in general terms and then can be compared to the post project development visual character so that any differences can be identified.

The predominant existing visual character of the study area and surrounding landscape is a mix of industrial and coastal. The study area is distinguished by the industrial Moss Landing Power Plant, the commercial and recreational fishing village of Moss Landing Harbor, a small amount of commercial development at the north end of the proposed trail alignment, and the Elkhorn Slough estuary.

Elkhorn Slough, one of California's principal remaining estuaries, is the most significant natural feature in the North County area. The slough and the coastline in the project area are visible from a

few different vantage points. The views of the slough and coastline generally are composites of scenic ingredients, such as landform, water, and varieties of vegetation, mixed with more industrial and commercial ingredients, such as the Moss Landing Power Plant and the Moss Landing Marina.

Sensitive View Groups/Viewer Response

Sensitive viewers in the project study area include motorists, bicyclists, and pedestrians traveling north and south along SR-1, recreationalists using the marina and Elkhorn Slough, businesses and recreationalists using Moss Landing and Sandholdt Road, and diners at the restaurant on the north shore of Elkhorn Slough.

Vegetation and Topography

The majority of the project area is relatively flat. The elevation varies between six and 34 feet above mean sea level. From Moss Landing Road, on the west side of Moro Cojo Slough, to a point just opposite Dolan Road, the slopes in the project area are gentle and include scattered cypress trees with an understory of grasses. North of Dolan Road to the north end of the Moss Landing Power Plant, the grade is also gentle and the vegetation is characterized by either gravel or grasses characteristic of a roadside environment. Just north of the Moss Landing Power Plant, the trail would turn west (south of the southern end of a steep knoll) and slope downhill for approximately 100 feet, adjacent to the northern seawater intake facility for the Moss Landing Power Plant. The trail would pass over an existing pipeline, then turn northward along the shoreline on the west side of the knoll. The knoll contains dense areas of Bluegum Eucalyptus and Cypress trees, with an understory characterized by non-native grasses and forbs typically of those found in disturbed habitats in the vicinity. The profile of the proposed trail would be at or above 15 feet mean sea level (msl) elevation and would be situated on gentle terrain, less than 1 percent slope, except at the approach to the bridge abutment. Vegetation along this segment of the trail is dominated by non-native crystalline ice plant with the occasional native Marsh gumplant. North of the bridge, the topography is relatively flat, primarily with hardscapes next to the existing SR-1 bridge, although an isolated native shrub (ashy silktassle) is found north of the bridge.

Barriers, Guardrails, Fences, Retaining Walls, Bridges

Barriers and Guardrails

The SR-1 bridge over Elkhorn Slough has an existing concrete barrier with metal tubular hand railing that stands 4 feet 4 inches above the adjacent bridge deck. At the southern end of the bridge, approximately 270 feet of existing metal beam guardrail extends south along SR-1 on the west side of the highway. A second existing metal guardrail starts at Station 75 and extends north approximately 240 feet on the west side of SR-1. Both guardrails are supported by wood posts. There are also two sections of existing metal beam guardrail that run along the north side of Moss Landing Road. The first section begins on the Moss Landing Road curve prior to the beginning of the bike trail and continues around the curve and terminates at station 57.09. This section is approximately 167 feet long. The second section of metal beam guard rail begins at station 57.76 and terminates at station 58.26 and is approximately 50 feet long.

Fences

There is currently an existing 6-foot chain link security fence with three strands of barbed wire around the sea water intake facilities for the power plant. The chain link fence starts at a point opposite Dolan Road on the west site of SR-1 at approximately Station 75 and runs along the east side of the Moss Landing Power Plant intake facilities to approximately Station 97 where the fence turns towards the west at a 90 degree angle and runs along the north side of the sea water intake facility terminating at the edge of the Moss Landing Harbor.

Retaining Walls

There are currently no retaining walls within the proposed project area.

Bridges

The northern portion of the project area includes a bridge that carries SR-1 across Elkhorn Slough. That bridge is approximately 643 foot long and 52-feet wide, with a 5-foot wide sidewalk and concrete parapet (concrete barrier type 26) with tubular hand railing along both sides. The top of the concrete barrier stands 3 feet higher than the adjacent bridge deck, and the tubular handrailing adds another 1 foot, 4 inches of height.

Key Views

Key views of the project site from eight vantage points – one along Moss Landing Road, six along SR-1, and one vantage point from Sandholdt Road, were selected in that they most clearly display the visual effects of the proposed project. In addition, one visual simulation was prepared from a viewpoint at the north end of the existing bridge over Elkhorn Slough. This key view was important enough to merit a view simulation because this location is one of the few places where an observer can see Monterey Bay when traveling along SR-1 between Santa Cruz and Castroville. It is important to determine whether or not the addition of a pedestrian bridge would significantly impact that key view.

Photographs of eight key views are shown in Figures 3 through 11. The first key view (Key View 1, Figure 4)) provides the perspective of an observer looking directly north from the south side of Moss Landing Road toward Moss Landing Harbor. Four of the key views (Views 2 through 5 (Figures 5 through 8) provide the perspective of an observer looking directly west from SR-1 towards Monterey Bay (Moss Landing Harbor), approaching the project site from both the northbound and southbound lanes of SR-1. Key view 6 (Figure 9) depicts the view from Sandholdt Road looking east from the marina toward the knoll and the Moss Landing Power Plant's northern seawater intake facility. Key View 7 (Figure 10) depicts views of the SR-1 Elkhorn Slough Bridge looking southeast from the parking lot near the public pier and restaurant at North Harbor. Key View 8 (Figure 11) depicts the view to the southwest towards Moss Landing Harbor and Monterey Bay from the north end of the SR-1 Elkhorn Slough Bridge. These eight views were selected because they best represent the visual quality of typical existing viewsheds in the Moss landing Road/SR-1 corridor study area that would be modified by the proposed project.

FIGURE 3

LEGEND

3 - Key View Locations

N

0 250 500

FEET

PHOTO SOURCE: Wood Rodgers, 2009

Visual Impact Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Key View Locations

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View looking directly north from the eastbound lane of Moss Landing Road between Sta 55.81 to Sta 59.

FIGURE 4

Visual Impact Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Key View 1

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View looking directly west from the northbound lane of SR-1 along the proposed trail between Sta 59 and Sta 69.

View looking directly west from the southbound lane of SR-1 along the proposed trail between Sta 59 and Sta 69.

FIGURE 5

Visual Impact Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Key View 2

View looking directly west from the northbound lane of SR-1 along the proposed trail between Sta 69 and Sta 75 opposite Dolan Road.

View looking directly west from the southbound lane of SR-1 along the proposed trail between Sta 75 opposite Dolan Road and Sta 69.

FIGURE 6

Visual Impact Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Key View 3

View looking directly west from the northbound lane of SR-1 along the Moss Landing Power Plant's southern seawater intake facility between Sta 75 opposite Dolan Road and Sta 82.

View looking directly west from the southbound lane of SR-1 along the Moss Landing Power Plant's southern seawater intake facility between Sta 82 and Sta 75 opposite Dolan Road.

FIGURE 7

Visual Impact Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Key View 4

View looking directly west from the northbound lane of SR-1 along the Moss Landing Power Plant's northern seawater intake facility between Sta 82 and Sta 87.

View looking directly west from the southbound lane of SR-1 along the Moss Landing Power Plant's northern seawater intake facility between Sta 87 and Sta 82.

FIGURE 8

Visual Impact Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Key View 5

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View of the knoll and Moss Landing Power Plant's northern seawater intake facility between Sta 85 and Sta 92 looking east from the beach at the end of Sandholdt Road.

FIGURE 9

Visual Impact Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

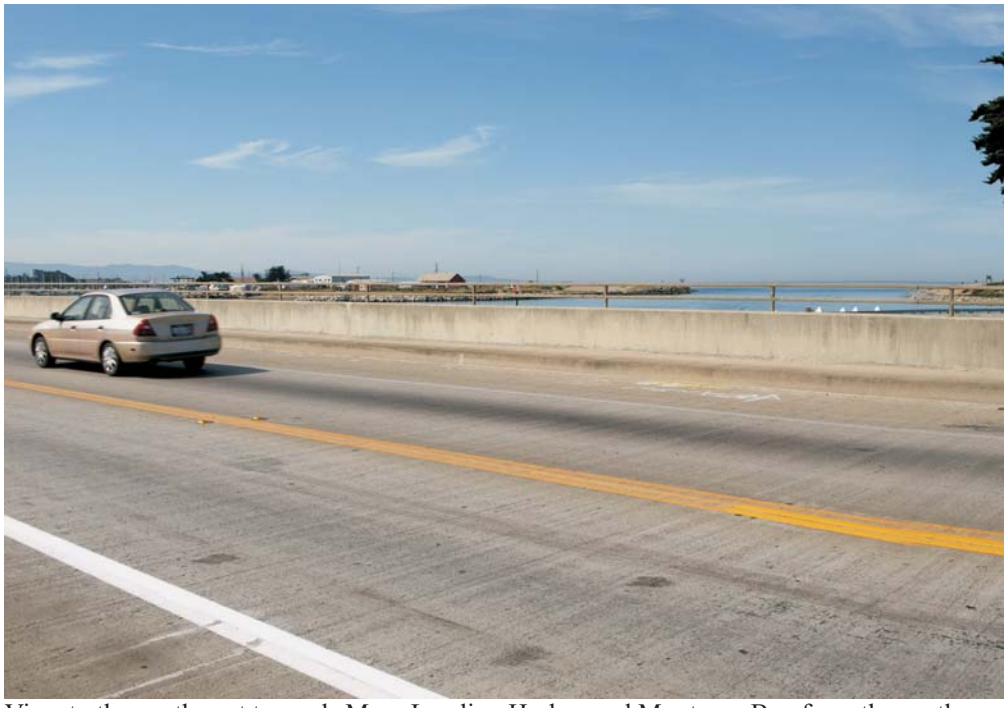
Key View 6

View of the SR-1 Elkhorn Slough Bridge between Sta 99 and Sta 89, looking southeast from the parking lot near the public pier and restaurant at North Harbor.

FIGURE 10

Visual Impact Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Key View 7



View to the southwest towards Moss Landing Harbor and Monterey Bay from the north end of the SR-1 bridge crossing Elkhorn Slough.

FIGURE 11

Visual Impact Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Key View 8

Key View 1. Figure 4 depicts the existing view from the south side of Moss Landing Road looking directly north toward the Moss Landing Harbor. The foreground view includes Moss Landing Road and the road shoulder to the north, which are primarily asphalt or gravel. The middleground view includes the marina and boat docks. The background view, which is mostly hidden by the marina, includes Moss Landing Harbor and Monterey Bay. Key View 1 is a typical foreground, middleground, and background view for an observer (pedestrian, motorist, or bicyclist) traveling east or west on Moss Landing Road in the section from the west side of Moro Cojo Slough to the intersection of SR-1.

Key View 2. Figure 5 depicts the existing view from the northbound and southbound lanes of SR-1 looking directly west toward the marina approximately half way between Moss Landing Road and Dolan Road (Station 63). The foreground view includes the shoulder of SR-1 which is characterized by mature Monterey Cypress trees with occasional Bluegum Eucalyptus trees and an understory dominated by ruderal (disturbed) vegetation. The middleground view, which is hidden from view in the photos by the existing trees, includes the marina and boat docks. The background view, also hidden from view, includes the marina and the commercial fishing village of Moss Landing Harbor. Key View 2 is a typical foreground, middleground, and background view for an observer (pedestrian, motorist, or bicyclist) traveling north or south on SR-1 between Moss Landing Road and Dolan Road.

Key View 3. Figure 6 depicts the existing view from the northbound and southbound lanes of SR-1 looking directly west toward the marina approximately 210 feet south of Dolan Road (Station 73). The foreground view includes the shoulder of SR-1 which is characterized by low growing ruderal vegetation and gravel. The middleground view includes the marina and boat docks, and the background view includes the marina and the commercial fishing village of Moss Landing Harbor. Key View 3 is a typical foreground, middleground, and background view for an observer (pedestrian, motorist, or bicyclist) traveling north or south on SR-1 approximately 200 feet south of Dolan Road to Dolan Road.

Key View 4. Figure 7 depicts the existing view from the northbound and southbound lanes of SR-1 looking directly west towards the Moss Landing Power Plant's southern seawater intake facility approximately 195 feet north of Dolan Road (Station 77). The foreground view includes the existing guardrail along the shoulder of SR-1, mature trees including Bluegum Eucalyptus, Red-flowering Gum Eucalyptus, ruderal vegetation, and gravel. The middleground view includes a Moss Landing Power Plant facility and the boat docks. The background view includes the marina and the commercial fishing village of Moss Landing Harbor. Key View 4 is a typical view for an observer (pedestrian, motorist, or bicyclist) traveling north or south on SR-1 between Dolan Road and the north end of the southern seawater intake facility for the Moss Landing Power Plant.

Key View 5. Figure 8 depicts the existing view from the northbound and southbound lanes of SR-1 looking directly west towards the Moss Landing Power Plant's northern seawater intake facility (Station 86). The foreground view includes the shoulder of SR-1, a six-foot high chain link fence, ruderal vegetation and mature Bluegum Eucalyptus and Cypress trees. The middleground view includes a Moss Landing Power Plant facility and open water of the harbor. The background view includes the northern end of Sandholdt Road and the northern end of the commercial fishing village of Moss Landing Harbor. Key View 5 is a typical view for an observer (pedestrian, motorist, or bicyclist) traveling north or south from the north end of a Moss Landing Power Plant's southern seawater intake facility to the prominent knoll on the west side of SR-1, which starts at Station 87.

Key View 6. Figure 9 depicts the existing view looking east across the harbor from the northern end of Sandholdt Road. The foreground view includes the sandy shore of the harbor and the middleground view includes the open water of the harbor. The background view includes the west portion of the knoll at Station 87 with dense stands of mature Bluegum Eucalyptus trees and Cypress trees, shoreline rock protection, harbor facilities, and industrial facilities (e.g., seawater intake, massive power plant stacks, boiler structure, and electrical transmission lines) associated with the Moss Landing Power Plant. Key View 6 is a typical view for an observer (pedestrian, motorist, or bicyclist) at the northern end of Sandholdt Road.

Key View 7. Figure 10 depicts the existing view looking south across the mouth of Elkhorn Slough from the parking lot of the restaurant located to the west of SR-1 at the north end of the SR-1 bridge over Elkhorn Slough (Station 100) The foreground view includes the open water of Elkhorn Slough. The middleground view includes the bridge across Elkhorn Slough and the open water. The background view includes the north portion of the knoll and the Moss Landing Power Plant facility smokestacks. Key View 7 is a typical view for an observer (pedestrian, motorist, or bicyclist) looking south from the north side of Elkhorn Slough.

Key View 8. Figure 11 depicts the existing view from the northern end of the SR-1 bridge spanning Elkhorn Slough. The foreground of the existing view includes the concrete barrier topped by a tubular hand railing along the shoulder of the bridge. The middle ground view includes the open water of the bay and the northern end of Sandholdt Road. The background view includes the open water of the bay. Key View 8 is a typical view for an observer (pedestrian, motorist, or bicyclist) traveling on the SR-1 bridge over Elkhorn Slough.

6.0 PROJECT VISUAL IMPACTS

This visual impact analysis is based on the project limits and sensitive viewing areas as discussed in Section 1.0 and presented on the Preliminary Plans and Profiles in Attachment B.

Visual Quality Ratings

Table A, Existing and Proposed Visual Quality, provides visual quality ratings of the key views. The overall visual quality rating (from 1 to 7 or very low to very high) is an average of the three criteria ratings (vividness, intactness, and unity), as defined below:

Table A: Existing and Proposed Visual Quality

	Existing Visual Quality				Visual Quality with the Proposed Project				
Key View	Vividness (V)	Intactness (I)	Unity (U)	Existing (E) Overall ([V+I+U]/3	Vividness (V)	Intactness (I)	Unity (U)	Proposed (P) Overall ([V+I+U]/3)	Difference from Existing (P-E)
1	4.0	4.0	4.0	4.0	3.7	3.7	3.7	3.7	-0.3
2	2.0	4.0	5.0	3.7	2.0	4.0	5.0	3.7	0
3	3.0	2.0	3.0	2.7	3.0	2.0	3.0	2.7	0
4	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.6	-0.4
5	2.0	4.0	5.0	3.7	2.0	4.0	5.0	3.7	0
6	3.0	3.0	5.0	3.7	2.8	2.8	4.8	3.5	-0.2
7	4.0	2.0	3.0	3.0	3.7	2.0	2.0	2.6	-0.4
8	4.0	4.0	5.0	4.3	3.0	3.0	4.5	3.5	-0.8

Rating Scale: 1.0–7.0 (1 = very low; 2 = low; 3 = moderately low; 4 = moderate; 5 = moderately high; 6 = high; 7 = very high)

Vividness. The extent to which the landscape is memorable. This is associated with distinctiveness, diversity and contrast of visual elements. A vivid landscape makes an immediate and lasting impression on the viewer.

Intactness. The integrity of visual order in the landscape and the extent to which the natural landscape is free from visual intrusions.

Unity. The extent to which intrusions are sensitive to and in visual harmony with the environment.

A viewshed containing many pleasing features will typically have a higher vividness rating (6 or 7). Encroachment refers to elements in the viewshed that encroach upon the intactness of the view, such as utility lines, excessive traffic, and graffiti. A view that contains a high number of encroachments will typically have a lower intactness rating (1 or 2). Unity refers to the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape. If the components of a view are few, defined, and complimentary to one another (balanced), the view will be given a higher unity rating.

The use of this evaluative criterion helps to establish a baseline for effects on visual quality. “Very low” visual quality is a view lacking pleasing features, and “very high” is the opposite—an aesthetically pleasing view.

The *proposed* visual quality ratings are based on a conceptual idea of what the views will look like with implementation of the project. Potential visual impacts of the project are expressed in the final column of the Table A “Difference from Existing”. The change in overall visual character at project build out is the difference between the existing visual quality rating and the “Proposed Overall” rating. For example, if the overall existing visual quality *view of* rating was 4.0 and the proposed *view of* rating is 3.0, then the difference from existing would be -1.0. A negative number indicates potential visual impact to the existing viewshed. The greater the negative number, the more significant the visual impact. For example, -3.1 would have more visual impact than -0.4. A positive number represents a potential improvement in the visual setting with implementation of the project.

Key View 1. In Key View 1 (Figure 4) from the north side of Moss Landing Road on the west side of Moro Cojo Slough eastward to SR-1, the approximately 10 foot wide paved trail would be constructed at the back of a curb to be constructed by a separate Moss Landing Road improvement project. Rock shore protection would be constructed on the slope to the north of the trail. There are no existing trees along this section of the trail. Observers traveling Moss Landing Road, either by vehicle, bicycle or foot, are most likely drawn to the middleground view of the boats in the harbor and less so to the foreground view of the gravel shoulder and existing guardrail. Because the existing view includes a metal guardrail, the proposed trail pavement and rock shore protection would be only a slight alteration to the existing visual character of this section of Moss Landing Road. Therefore, replacing some of the existing graveled road shoulder with a paved surface, including rock shore protection along the north edge, for a multi-use pathway would not change the existing overall visual character and experience for observers; there would be only a minor perceptible visual impact from construction of this segment of the proposed trail. Therefore, with implementation of the proposed project, there would be only slight changes to the visual quality of Key View 1 and there would be no change in the overall visual character and experience for the sensitive viewer groups from that of the existing setting. Therefore, adverse visual impacts to Key View 1 are not anticipated with implementation of the proposed project.

Key View 2. In Key View 2 (Figure 5) from Moss Landing Road to a few hundred feet south of Dolan Road, the approximately 10-foot-wide paved trail would be constructed at grade to the west of the existing stand of trees. Some tree trimming and tree removal to provide space for the trail would be required. However, tree removal would consist of approximately 10 scattered individual trees along this segment of the proposed alignment (see Attachment A, Tree Removal Plan) and no large stands or clusters of trees would be removed. Therefore, even if individual trees are trimmed or removed, the proposed trail would still be concealed behind the existing stands of trees and out of sight from observers traveling north and south along SR-1. In addition, a low retaining wall, approximately 700 feet long and typically 2 feet high but up to 3'-6" high in one location, would be constructed along the west side of the trail in order to support the harbor-side edge of the trail. The retaining wall would be constructed primarily below the current grade of SR-1 and so would, for the most part, not be visible to observers traveling north and south along SR-1.Therefore, with implementation of the proposed project, the visual quality of Key View 2 would not change and there would be no change in the overall visual character and experience for the sensitive viewer groups from that of the existing setting. Therefore, adverse visual impacts to Key View 2 are not anticipated with implementation of the proposed project.

Key View 3. In Key View 3 (Figure 6), from a point a few hundred feet south of Dolan Road to Dolan Road, the approximately 10-foot-wide paved trail would be constructed at grade along what is currently an existing gravel road shoulder. A low cable barrier with wood posts may be constructed along the trail to keep motor vehicles off of the pedestrian/bicycle trail. There are no existing trees along this section of the trail. Observers traveling SR-1, either by vehicle, bicycle or foot, are most likely drawn to the middleground view of the boats in the harbor and the associated fishing village and less so to the foreground view of the gravel shoulder. Therefore, replacing some of the existing gravel with a paved surface for a multi-use pathway and possibly adding a cable barrier would not change the existing overall visual character and experience for observers; there would be only slight

perceptible visual impacts from construction of this segment of the proposed trail. Therefore, adverse visual impacts to Key View 3 are not anticipated with implementation of the proposed project.

Key View 4. In Key View 4 (Figure 7) from Dolan Road to just beyond the southern seawater intake facility for the power plant, the trail would be constructed behind a 32-inch high concrete barrier, which would replace the existing 28-inch-high metal beam guardrail. The trail would be approximately 3 feet lower than the grade of adjacent SR-1. A retaining wall, approximately 475 feet long, would be required along the west side of the trail, and the security fence for the southern seawater intake facility would be relocated onto the westerly retaining wall. The retaining wall in this section of trail would be a "soldier pile" wall consisting of cast-in-drilled-hole (CIDH) concrete piles approximately 8 feet on-center with pressure treated timber lagging spanning between steel "H" pile extensions to hold the soil in place.

Because the proposed trail would be constructed at the existing level of the natural ground, which is currently approximately 3 feet below the existing grade of SR-1, it is unlikely that observers would catch more than just a brief glimpse of the proposed trail. The concrete barrier proposed for the east side of the trail would be visible to observers traveling along SR-1. While observers would experience a minor change in the existing visual character with the addition of a concrete barrier, the change would not be significant because the new barrier would take the place of the existing guardrail.

A soldier pile wall would be constructed on the west side of this segment of the proposed trail. The wall would be constructed to a maximum height of four (4) feet six (6) inches and the existing security fence for the southern seawater intake facility would be relocated on top of the retaining wall. The wall would get shorter towards its terminus because the difference in grade recedes until the wall disappears altogether. Observers would not be able to see the retaining wall from SR-1 because the wall would be below the existing road grade. The wall would only be seen from points west of the trail (e.g., Sandholdt Road or from a boat in the Harbor) through the existing industrial facility. Given the existing industrial nature of the view, the change in visual character and quality would be minor. Therefore, adverse visual impacts to Key View 4 are not anticipated with implementation of the proposed project.

Key View 5. In Key View 5 (Figure 8), from the north end of the southern seawater intake facility to just north of the northern seawater intake facility the trail segment grade would slope gently to the north at about the same grade as the adjacent SR-1 lanes, which would require excavation. A concrete barrier would be constructed where needed to separate the two-way trail from the adjacent southbound SR-1 lane. A retaining wall of the soldier-pile type, approximately 490-feet-long, would be constructed at the northern seawater intake facility along the west edge of the trail and the existing 6-foot chain-link security fence would be replaced with an 8-foot chain-link fence relocated onto the new retaining wall. View-obscuring slats would be installed in the chain-link fence where needed to screen the industrial facility from the proposed trail. Observers would not be able to see the retaining wall from SR-1 because the wall would be below the existing road grade. The wall would only be seen from points west of the trail (e.g., Sandholdt Road or from a boat in the Harbor) through the existing industrial facility. Given the existing industrial nature of the view, the change in visual character and quality would be minor.

Because the foreground view in this location is dominated by mature trees and an existing chain link fence, the addition of a barrier would have a slight impact on the visual quality of Key View 5. However, barriers and guardrails are already scattered along SR-1 and the addition of a section of barrier would be imperceptible to an observer traveling north or south along SR-1. Furthermore, the presence of intermittent barriers and/or guardrails is consistent with the character of this type of roadway. Therefore, constructing approximately 470 feet of additional barrier would not change the existing overall visual character and experience for observers of this segment of the proposed project.

It would be necessary to remove approximately seven Eucalyptus and five Cypress trees to provide sufficient width for this segment of the trail. Tree removal to accommodate the proposed trail and wall would consist of removing individual trees along this segment of the proposed alignment of the trail and would not require the removal of large stands or clusters of trees (see Attachment A: Tree Removal Plan). Although the proposed project would require removing only a small number of trees, the gaps left from removing individual trees could expose observers to views of the power plant's industrial facilities, which were otherwise screened from view by the existing trees. The project proposes to install view obscuring slats in the chain-link fence constructed atop the retaining wall to screen both trail users and highway users from the industrial facilities. The fencing and slats would have a slight impact on the visual quality of this segment of the proposed project but is not anticipated to result in adverse visual impacts within this key view. Given the existing rural mixed with industrial nature of the view, the change in visual character and quality from the proposed trail, retaining wall, tree removal and 2-foot higher chain link fence, would be minor. Therefore, adverse visual impacts to Key View 5 are not anticipated with implementation of the proposed project.

Key View 6. In Key View 6 (Figure 9), at the north end of the Moss Landing Power Plant property, the trail would cross an existing drainage in a 30-inch concrete culvert and be constructed on the old embankment of SR-1. The profile grade would be at or above an elevation of 15 feet, and the slope would be less than 1 percent, except at the approach to the bridge abutment. Some fill retained by gabions or low retaining walls would be required. Either stainless steel or galvanized steel railings may be required to prevent falls along the edge of the gabions or walls retaining the fill on which the trail is constructed. The proposed trail along on the old embankment of SR-1 would be at the base of the west slope of the knoll and therefore would not be visible to observers traveling north or south along SR-1 because the knoll itself would block views of it. The base of the west side of the knoll, where the proposed trail would be constructed, is visible from Key View 6. However, given the low profile of the trail, it would barely be visible. A dense stand of approximately 16 Bluegum Eucalyptus trees standing along the west side of the 24" pipeline running along the base of the knoll would be removed to provide space for the trail. The trail may require safety railings, but they would also be low profile and given the background of Bluegum Eucalyptus and Cypress trees to remain along the western slope of the knoll, the railings would barely be visible to an observer looking from Key View 6. Furthermore, the existing view, which includes harbor and industrial facilities, is already highly disturbed and industrial in nature; the addition of a low profile trail with safety railings and removal of the row of eucalyptus trees at the base of the knoll would not significantly alter the existing visual setting. Implementation of the proposed project would result in only minor changes to the existing visual quality and character of Key View 6. Therefore, adverse visual impacts to Key View 6 are not anticipated with implementation of the proposed project.

Key View 7. In Key View 7 (Figure 10), at the north end of the Moss Landing Power Plant property, the trail alignment would cross an existing drainage in a 30-inch concrete culvert and be constructed on the old embankment of SR-1. The profile grade would be at or above an elevation of 15 feet, and the slope would be less than 1 percent, except at the approach to the bridge abutment. Some fill retained by gabions or low retaining walls would be required, and the failed broken concrete shore protection would be replaced with rock slope protection that extends through the tidal zone. Either stainless steel or galvanized steel railings may be required to prevent falls along the edge of the gabions or walls retaining the fill on which the trail is constructed. The area of new rock slope protection would be approximately 330 feet long and 45 feet wide, and would match the existing rock slope protection further to the south and along the harbor entrance.

The proposed bridge over Elkhorn Slough would be visible in the foreground of Key View 7. The proposed bridge is a concrete structure on steel pipe pilings, very similar to the existing SR-1 bridge to which it would be parallel. The new bicycle/pedestrian bridge soffit elevation would be set at or slightly above the soffit elevation of the existing bridge. Because the superstructure of the SR-1 bridge is 4 feet thick whereas the superstructure of the bicycle/pedestrian bridge would be 2 feet thick, the deck of the bicycle/pedestrian bridge would be lower than the deck of the existing SR-1 bridge. The bicycle/pedestrian bridge would have open metal railings 3 feet 6 inches high. The metal railings on the existing SR-1 bridge are 4 feet 4 inches high on solid concrete barriers. Overall, observers would experience minimal change in the overall visual character of the existing setting. Therefore, adverse visual impacts to Key View 7 are not anticipated with implementation of the proposed project.

Key View 8. In Key View 8 (Figure 12) the bicycle/pedestrian bridge would be constructed to the west of the existing SR-1 bridge over Elkhorn Slough. The top of the railings on the bicycle/pedestrian bridge would be approximately two feet below the top of the existing railing on the SR-1 bridge. Observers traveling on SR-1 would primarily see the top rail of the metal railings of the pedestrian bridge and the view of Moss Landing Harbor and Monterey Bay would be only partially obstructed. Therefore, adverse visual impacts to Key View 8 are not anticipated with implementation of the proposed project.

Summary of Key Project Features

Vegetation and Tree Removal. The proposed project would preserve existing vegetation to the maximum extent practicable and the proposed trail would be fitted to the existing ground contours as much as practicable in order to minimize cuts and fills. The proposed project may require the removal of up to thirty-two (34) mature Cypress or Bluegum Eucalyptus trees along the entire length of the proposed trail. These trees would be removed, as necessary, on an individual basis and no large stands of trees are proposed for removal.

Barriers and Guardrails. The existing metal beam guardrail north of Dolan Road would be replaced with a concrete barrier of similar height at about the same location. A new barrier or guardrail would also be constructed between Station 82 and 85 to separate the trail from the adjacent highway.

Fences. The existing 6 foot high chain-link security fence for the southern sea water intake facility would be replaced with an 8 foot high chain-link fence relocated onto the new retaining wall on the west side of the proposed trail. The proposed project would also replace the existing 6-foot high chain-link fence around the northern sea water intake facility with a new 8-foot high chain-link fence. All existing chain-link fences are topped with 3 strands of barbed wire, and the proposed fences would also be topped with 3 strands of barbed wire.

Retaining Walls. A retaining wall, approximately 3 feet high and 300 feet long, would be required along the north side of Moss Landing Road to support the north edge of the trail so that fill would not be placed into Moss Landing Harbor. A second retaining wall would be required along the segment of trail that runs from the intersection of Moss Landing Road and SR-1 to a point opposite Dolan Road. This would be a low retaining wall, approximately 700 feet long and typically 2 feet high but up to 3'-6" high in one location, and would be constructed primarily below the current grade of SR-1 and along the west side of the trail in order to support the harbor-side edge of the trail. Because the retaining wall would be primarily below the current grade of SR-1, most of it would not be visible from SR-1. A third retaining wall, approximately 475 feet long, would be required along the west side of the trail north of Dolan Road (Station 76.50 to 81.25) This retaining wall would be a "soldier pile" wall consisting of pressure-treated timber lagging spanning between steel "H" piles. This wall would not be visible from SR-1 but would only be visible from across the harbor through the southern seawater intake facilities. The proposed project would also require construction of a fourth 490-foot long retaining wall just north of the northern sea water intake facility where the trail turns west south of the southern edge of the knoll. The proposed wall would also be a "soldier pile" retaining wall consisting of pressure-treated timber lagging spanning between steel "H" piles. This wall would not be visible from SR-1 but would only be visible from across the harbor through the northern seawater intake facilities.

Bridges. The proposed project would require the construction of a 380-foot long bridge over Elkhorn Slough for the proposed trail. The superstructure would be constructed with pre-cast slab elements. Railings on the bridge would be either stainless steel or galvanized steel to minimize maintenance and allow views through the railings.

NEPA. Under NEPA criteria, implementation of the proposed project would not result in adverse visual impacts relating to existing visual resources. The following impact discussion provides answers to the visual resources of most concern under NEPA as provided in Section 3.0, Environmental Considerations.

> **Scenic highways.** The proposed project is not being proposed along a designated scenic highway. Therefore implementing the proposed project would not have a significant adverse impact on scenic highways.
>
> **Section 4(f) lands.** The proposed project would not use a Section 4(f) property or resource. Therefore, implementing the proposed project would not have a significant adverse impact on Section 4(f) properties or resources.

View looking southwest towards Moss Landing Harbor and Monterey Bay from the north end of the existing SR-1 bridge crossing Elkhorn Slough.

View of proposed project from same location as described above.

FIGURE 12

Visual Impact Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

View Simulation for Key View 8

Lands managed by the United States Forest Service and the Bureau of Land Management. The project is not being proposed on lands currently managed by the United States Forest Service and the Bureau of Land Management. Therefore, implementing the proposed project would not result in substantial damage to lands managed by the United States Forest Service and the Bureau of Land Management.

Significant cultural and historic resources. Although the project lies within the boundaries of CA-MNT-229, the proposed trail alignment has been shown to pass through a portion of the site that does not contribute to the eligibility of the site as a whole. For this reason, ground disturbance in the Area of Direct Impact, which would not disturb eligible cultural deposits, would not result in an effect to CA-MNT-229. In addition, the eligibility of CA-MNT-229 rests on its ability to convey information that is currently contained in buried deposits, and, as such, these buried deposits are not subject to visual effects.

Lands associated with the National Wild and Scenic Rivers system. The project is not being proposed on lands currently part of the National Wild and Scenic River system. Therefore, implementing the proposed project would not result in substantial damage to lands or waters associated with the National Wild and Scenic River system.

CEQA. Under CEQA criteria, implementation of the proposed project would not result in significant adverse visual impacts relating to scenic vistas and other sensitive resources. The following impact discussion provides answers to the CEQA checklist questions provided in Section 3.0, Environmental Considerations.

Scenic Vista. Scenic vistas of Moss Landing Harbor and Monterey Bay are visible from the project area. The trail is proposed to follow the natural grade of the existing terrain and be constructed adjacent to existing SR-1 and the existing bridge over Elkhorn Slough. Proposed structures, such as fences, guardrails, retaining walls and bridges, would not obstruct the scenic vista of Moss Landing Harbor and Monterey Bay. Therefore, the project would not have a substantial adverse effect on a scenic vista.

Scenic Resources. The project would not result in the removal of any scenic resources. Therefore, implementing the proposed project would not result in substantial damage to any scenic resources.

Visual Character. The proposed project would add a nominal amount of additional pavement for approximately 0.86 (4,500 feet) along a portion of the north side of Moss Landing Road and along the west side of the existing SR-1 corridor. The proposed pathway would result in only minimal changes to the overall visual character of the project area and to the visual experience for observers. Therefore, implementing the proposed project is not anticipated to result in adverse visual impacts.

Light and Glare. It is not anticipated that the proposed project would include new lighting. Therefore, no new light and glare impacts are anticipated to result from implementation of the proposed project.

Summary of Project Specific Impacts

The proposed trail in Moss Landing would result in little overall visual change to the existing site; the project area would remain a mix of coastal and industrial with views of the surrounding marina, fishing village, commercial and industrial development and surrounding estuary dominating an observer's visual experience.

No Build Alternative. Under the No Build Alternative, there would not be a change in land use and therefore there would not be a change in the aesthetic environment. The No Build Alternative would not result in a significant adverse impact to visual resources within the project area.

Cumulative Visual Impacts to the State Route 1 Corridor in Moss Landing

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions combined with the potential impacts of the proposed Monterey Bay Sanctuary Scenic Trail – Moss Landing Segment project. A cumulative effects assessment evaluates the collective impacts posed by individual projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

In the short term, improvements are proposed for **Moss Landing Road**. The improvements include installation of storm drain pipes, sidewalks with curb and gutter, undergrounding all the pole mounted utilities, and other assorted street improvements. Improvements to Moss Landing Road would occur in phases as funds become available. The first phase of improvements would include the stretch of Moss Landing Road from the intersection of SR-1 to the west end of the Sandholdt bridge and would coincide with the proposed trail construction for that same stretch of road. This first phase of improvements to Moss Landing Road is planned for 2014.

In addition, three other potential development projects are being anticipated in the near term for Sandholdt Road, including:

- 57,000 square foot research facility at 7700 Sandholdt Road
- 34,000 square foot replacement of an existing building at 7600 Sandholdt Road
- 36,000 square feet of warehouse, offices, shops, and off loading facilities and 15,000 square feet of dock/wharf area at 7539 Sandholdt Road

All of the above projects are located along the southern reaches of Sandholdt Road towards the Sandholdt bridge. These cumulative projects are planned to be developed within the next five years.

The improvements to Moss Landing Road are minor and would not impact the existing visual character of the area. In fact, the proposal to underground all the pole mounted utilities would improve the existing visual character and setting.

Sandholdt Road is currently lined with both industrial and commercial development. The projects anticipated along Sandholdt Road appear to be consistent with the existing character of the road and the existing maritime development/industry within the project area. Furthermore, many of the projects anticipated along Sandholdt Road are currently planned for the southern portion of Sandholdt Road.

Similar to the southern portion of the proposed trail, development along Sandholdt Road would also be partially or fully concealed from observers travelling along SR-1 because of the existing stands of Cypress trees in the foreground and the existing harbor and boats in the middleground view. While proposed new development along Sandholdt Road would increase the development component of the project area, the proposed trail represents a minimal visual intrusion within the proposed project area. Therefore, even when considered in combination with the anticipated additional development projects along Sandholdt Road and the proposed Moss Landing Road improvements, the proposed trail would not result in substantial adverse cumulative visual impacts within the project area.

7.0 CONCLUSION

The post-project visual character of the study area would remain a mix of coastal and industrial. The proposed trail would be developed at the natural grade of the existing landscape and therefore would be only partially visible to observers along Moss Landing Road and SR-1. Where the proposed trail is visible to observers along Moss Landing Road and SR-1, it would be in keeping with the existing visual character of the project area. Nevertheless, there would be some degree of change to the visual environment associated with tree removal and the construction of barriers, guardrails, fences, retaining walls or bridges. Therefore, minimization measures would be required to ameliorate the change in this highly sensitive coastal setting to the maximum extent practicable. With incorporation of the following measures the proposed project is not anticipated to result in substantial adverse visual impacts within the project area.

8.0 VISUAL MINIMIZATION MEASURES

Caltrans and the FHWA mandate that a qualitative/aesthetic approach should be taken to mitigate for visual quality loss in the proposed project area. This approach fulfills the letter and the spirit of FHWA requirements because it addresses the actual cumulative loss of visual quality that will occur in the project viewshed when the project is implemented.

Visual minimization measures for project related changes to the visual environment as are described in the key view assessments and summarized in the previous section will consist of adhering to the following design requirements in consultation with the District 5 Landscape Architect. The proposed visual minimization measures are being proposed as project features to avoid potential adverse impacts.

Minimization Measure 1: **Concrete Roadside Barrier.** All concrete roadside barrier shall include aesthetic treatment and/or color, to be developed in consultation with the local community and approved by the Caltrans Landscape Architecture department.

Minimization Measure 2: **Bridge Design.** The pedestrian/bicycle bridge over Elkhorn Slough shall be designed to complement the seaside character of the Moss Landing Harbor through consultation with the Moss Landing community.

Minimization Measure 3: **Railing Design.** All railings developed as part of the proposed project, including bridge and retaining wall railings, shall be designed to be as open as possible and to compliment the aesthetic treatments of the new bridge and retaining walls.

Minimization Measure 4: **End Treatments.** End treatments associated with the proposed project shall be designed to appear similar to metal beam guardrails. ADIEM end-treatments shall not be used for end treatments associated with the proposed project.

9.0 REFERENCES

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Appendix G, California Environmental Quality Act.

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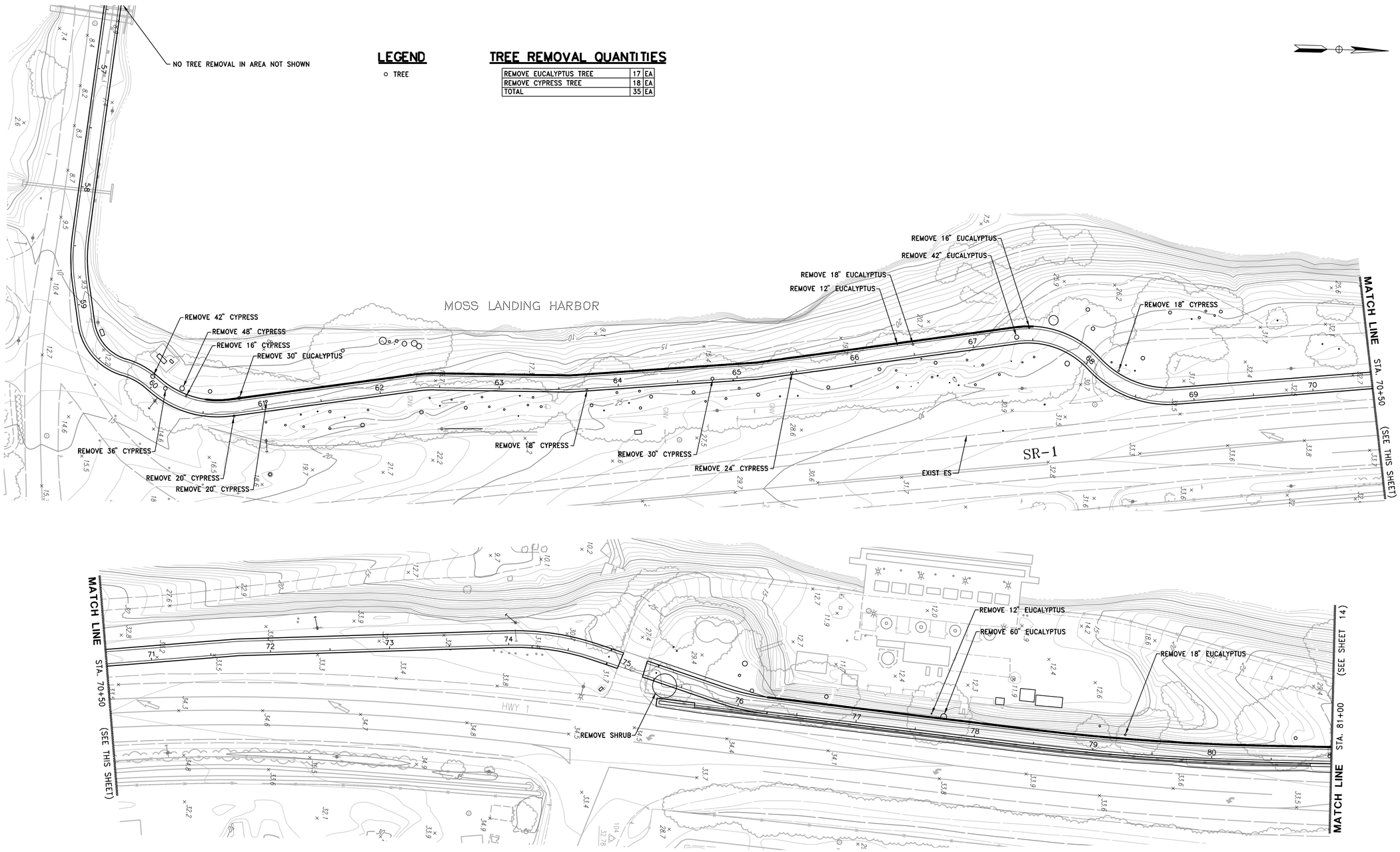
The National Environmental Policy Act (NEPA) (1969, as amended).

Tree Removal Plan, Wood Rodgers Inc., December 7, 2012.

"Visual Impact Assessment for Highway Projects," Federal Highway Administration, March 1981.

ATTACHMENT A:

TREE REMOVAL PLAN



STATION

SUBMITTED BY: KEITH J. HALLSTEN, P.E.

DESIGN BY: LUCAS J. FUSON, P.E. CHKD BY KJH

DRAWN BY: LUCAS J. FUSON, P.E. CHKD BY KJH

SPECIFICATIONS WRITTEN BY KEITH J. HALLSTEN, P.E. CHKD BY

APPROVAL RECOMMENDED BY: ALI HEMMATI, P.E.

REGISTERED PROFESSIONAL ENGINEER KEITH J. HALLSTEN No. C50893 Exp. 9-30-11 CIVIL STATE OF CALIFORNIA

PRELIMINARY

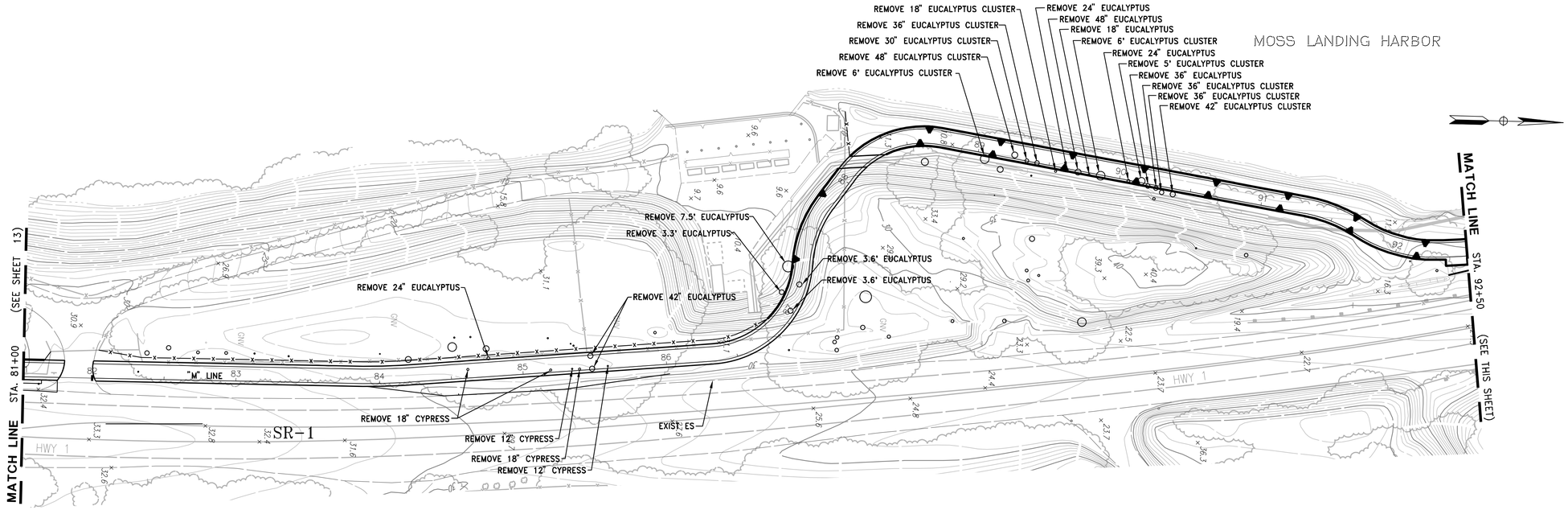
NO.	DATE	REVISION	APPROVED

COUNTY OF MONTEREY
RESOURCE MANAGEMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL MOSS LANDING SEGMENT

TREE REMOVAL PLAN (STA 55+82.06 TO 81+00.00)

DATE	DRAWING	SHEET
3/29/13		13 OF 31
SCALE 1"=40'	VIEW Layout1	



STATION

SUBMITTED BY: KEITH J. HALLSTEN, P.E.	
DESIGN BY: LUCAS J. FUSON, P.E.	CHKD BY: KJH
DRAWN BY: LUCAS J. FUSON, P.E.	CHKD BY: KJH
SPECIFICATIONS WRITTEN BY: KEITH J. HALLSTEN, P.E.	CHKD BY:
APPROVAL RECOMMENDED BY: ALI HEMMATI, P.E.	

REGISTERED PROFESSIONAL ENGINEER
KEITH J. HALLSTEN
No. C50893
Exp. 9-30-11
CIVIL
STATE OF CALIFORNIA

PRELIMINARY

NO.	DATE	REVISION	APPROVED

COUNTY OF MONTEREY
RESOURCE MANAGEMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL
MOSS LANDING SEGMENT

TREE REMOVAL PLAN (STA 81+00.00 TO 101+00.00)

DATE: 3/29/13	DRAWING:	SHEET 14 OF 31
SCALE: 1"=40'	VIEW: Layout1	

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ATTACHMENT B:

PRELIMINARY PLANS AND PROFILES

CONSTRUCTION NOTES

(1) XX

LEGEND

ROCK SLOPE PROTECTION

REMOVE AND REPLACE AC DRIVEWAY

CURVE DATA

#	R	Δ	T	L
1	145.63'	27°17'40"	35.36'	69.37'
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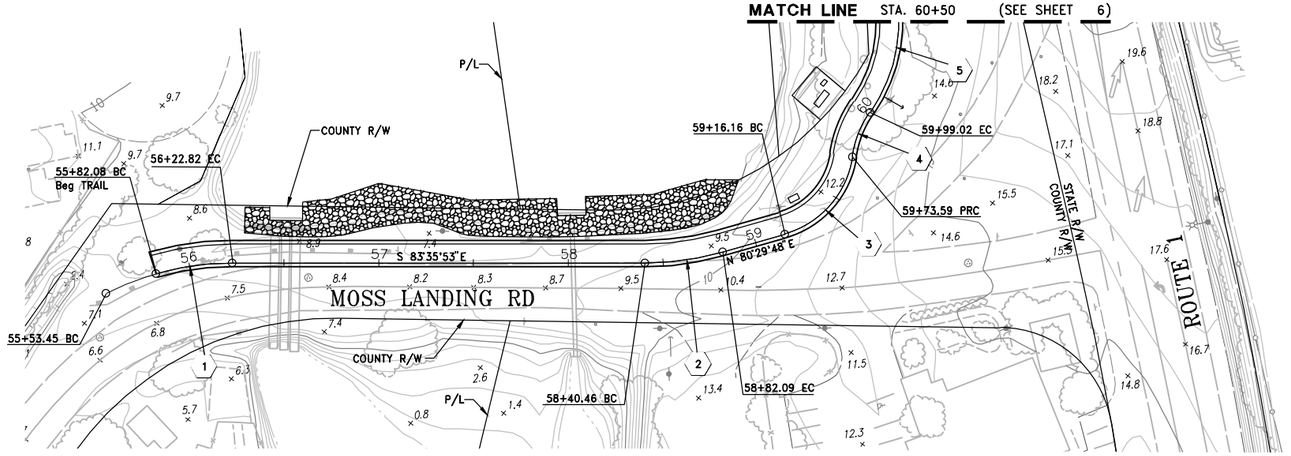

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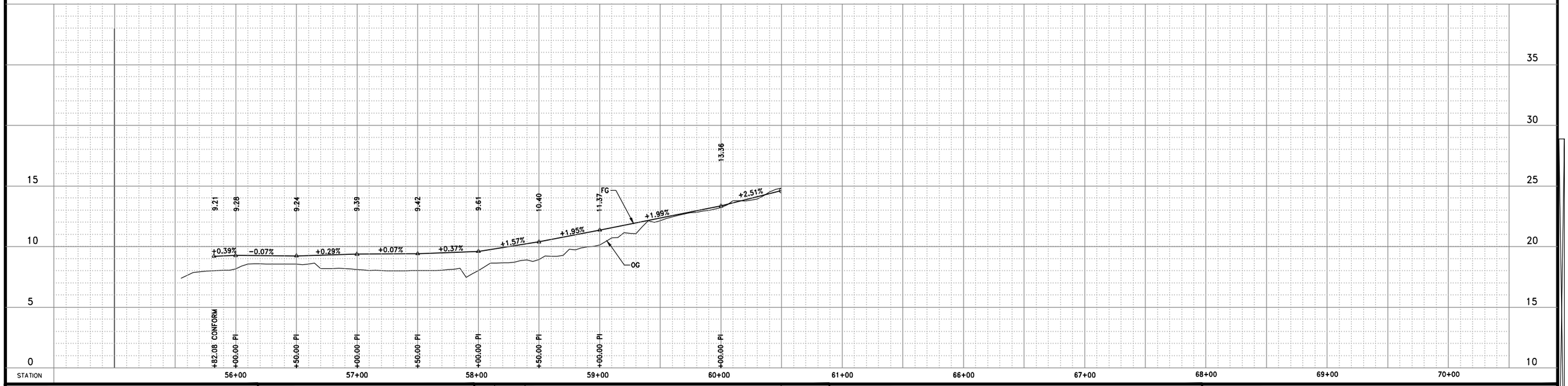

SUBMITTED BY: KEITH J. HALLSTEN, P.E.

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SPECIFICATIONS WRITTEN BY: KEITH J. HALLSTEN, P.E. CHKD BY:

APPROVAL RECOMMENDED BY: ALI HEMMATI, P.E.

REGISTERED PROFESSIONAL ENGINEER KEITH J. HALLSTEN No. C50893 Exp. 9-30-11 CIVIL STATE OF CALIFORNIA

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DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL MOSS LANDING SEGMENT

PLAN AND PROFILE (STA 55+82.06 TO 60+50.00)

DATE 3/29/13

SCALE 1"=40'

DRAWING

VIEW Layout1

CONSTRUCTION NOTES

(1) XX

CURVE DATA

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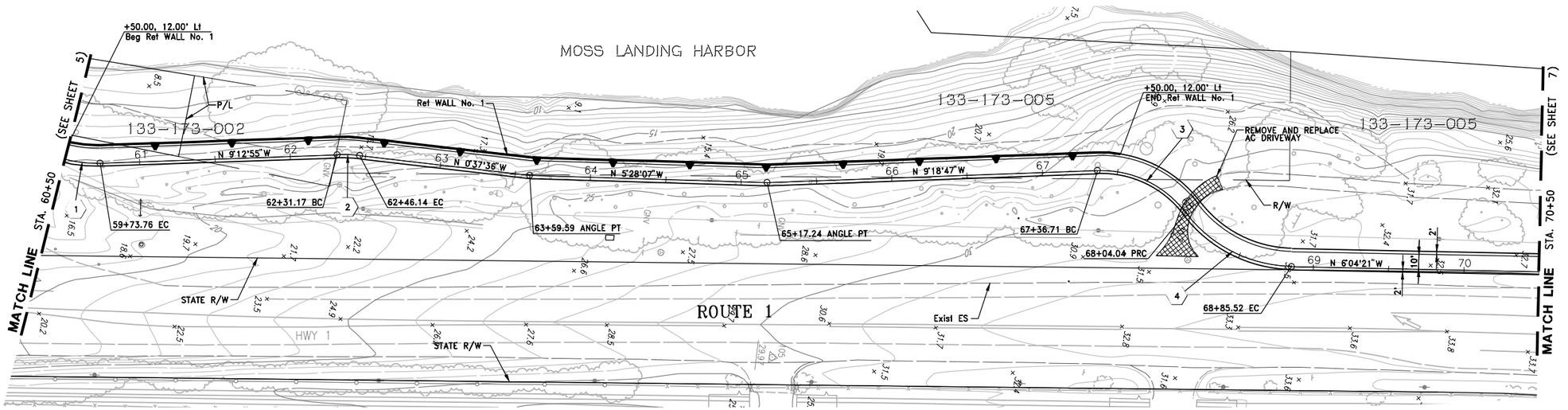

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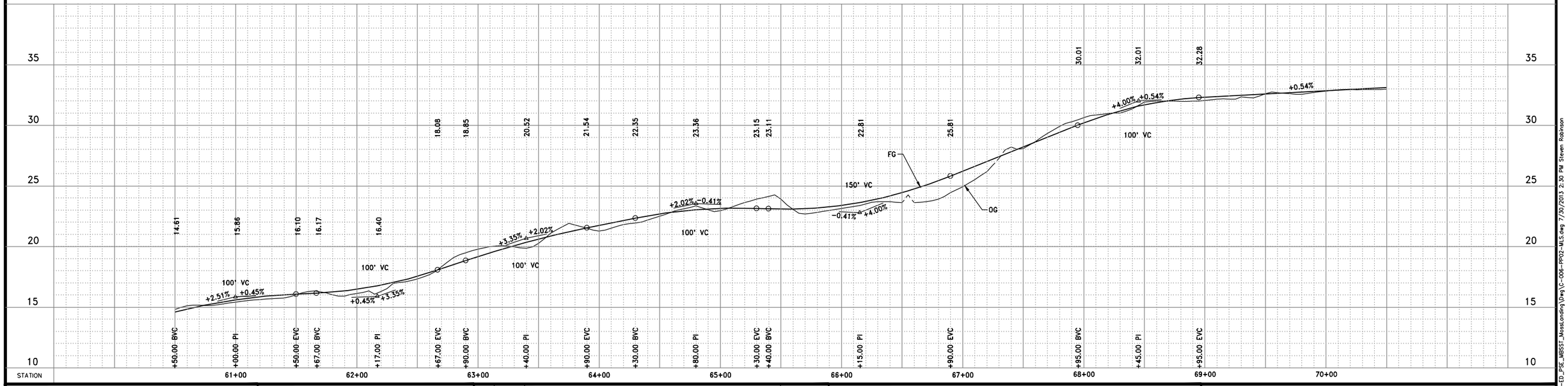

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DESIGN BY: LUCAS J. FUSON, P.E. CHKD BY: KJH

DRAWN BY: LUCAS J. FUSON, P.E. CHKD BY: KJH

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APPROVAL RECOMMENDED BY: ALI HEMMATI, P.E.

REGISTERED PROFESSIONAL ENGINEER KEITH J. HALLSTEN No. C50893 Exp. 9-30-11 CIVIL STATE OF CALIFORNIA

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DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL MOSS LANDING SEGMENT

PLAN AND PROFILE (STA 60+50.00 TO 70+50.00)

DATE	DRAWING	SHEET
3/29/13		6 OF 31
SCALE 1"=40'	VIEW Layout1	

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CONSTRUCTION NOTES

CURVE DATA

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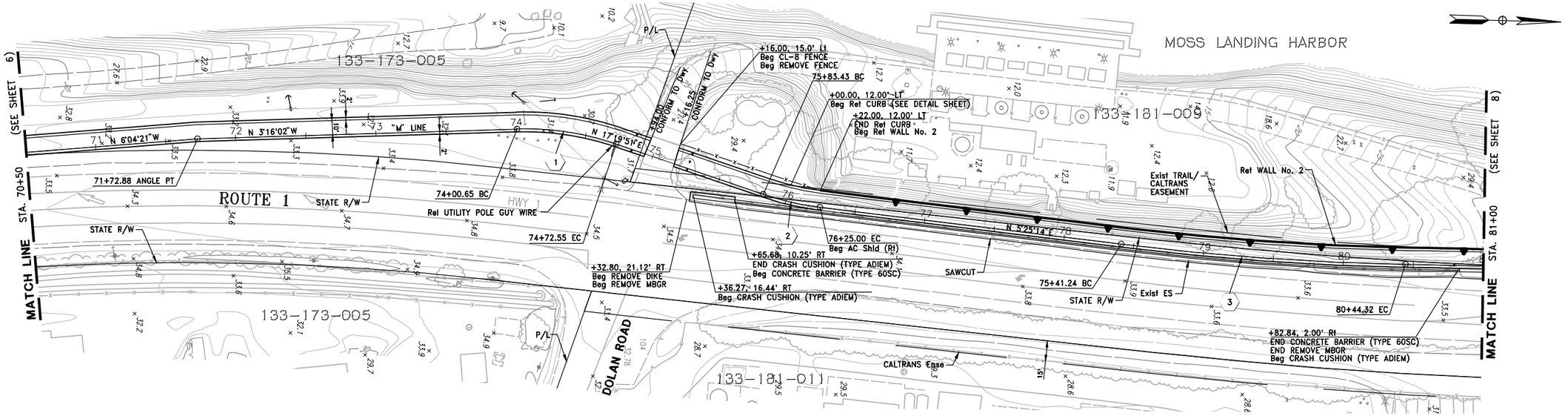

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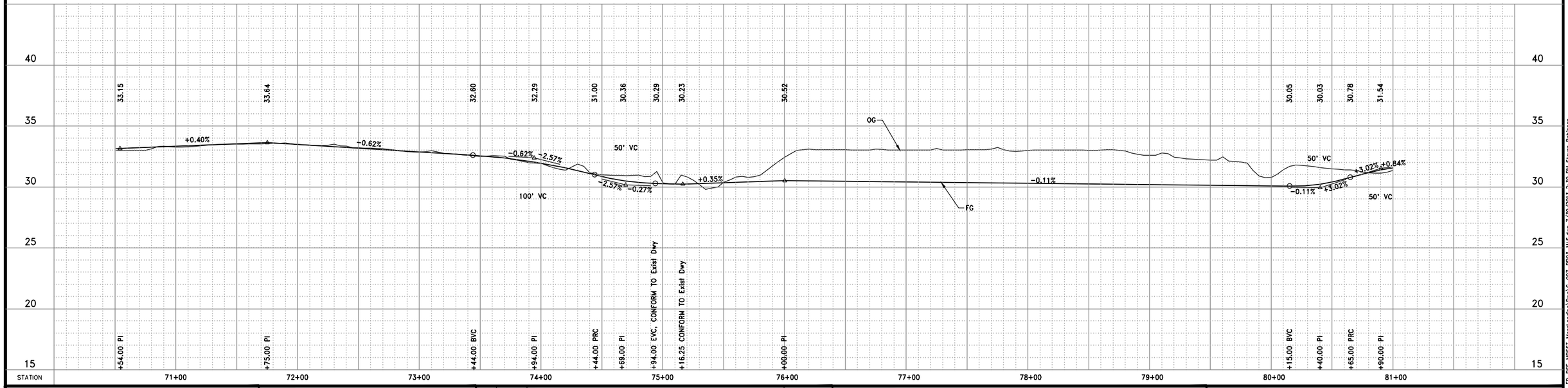

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REGISTERED PROFESSIONAL ENGINEER KEITH J. HALLSTEN No. C50893 Exp. 9-30-11 CIVIL STATE OF CALIFORNIA

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RESOURCE MANAGEMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL MOSS LANDING SEGMENT

PLAN AND PROFILE (STA 70+50.00 TO 81+00.00)

DATE 3/29/13	DRAWING	SHEET 7 OF 31
SCALE 1"=40'	VIEW Layout1	

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CONSTRUCTION NOTES

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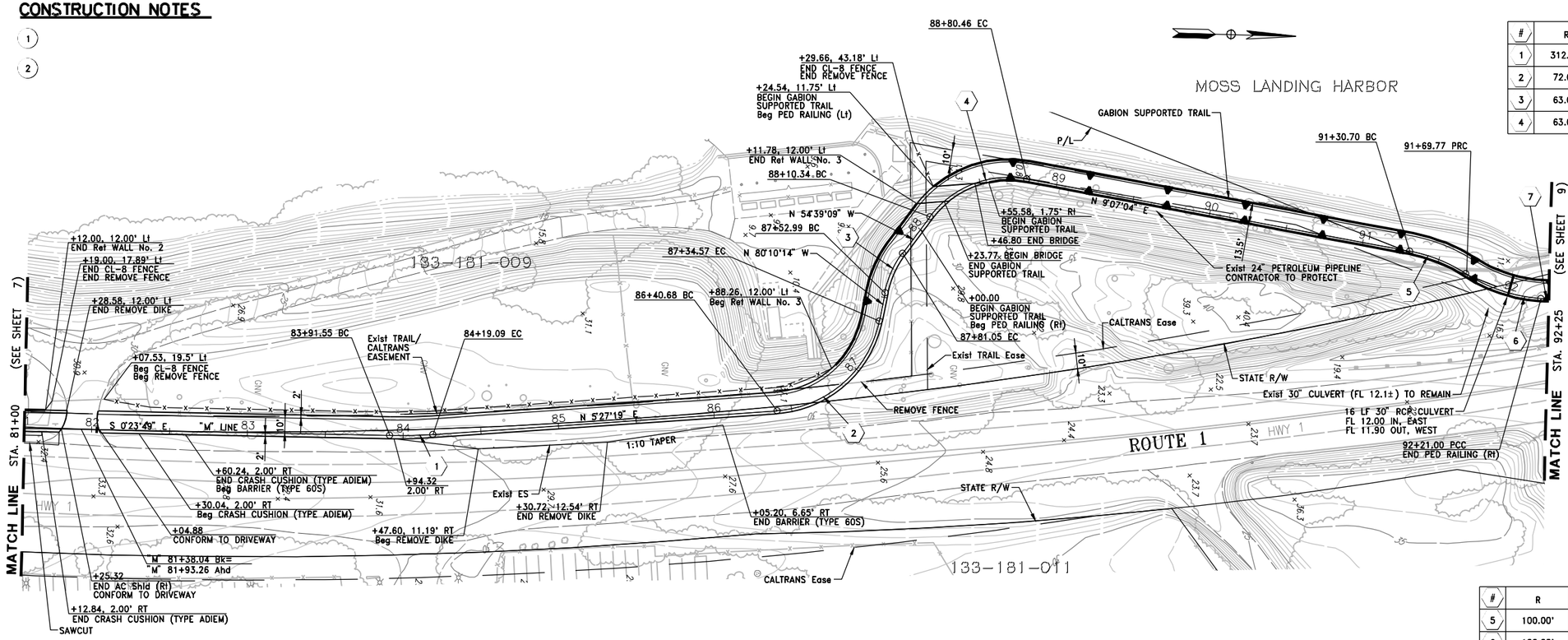

CURVE DATA

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3	63.00'	25°31'05"	14.27'	28.06'
4	63.00'	63°46'12"	39.19'	70.12'

CURVE DATA

#	R	Δ	T	L
5	100.00'	22°23'11"	19.79'	39.07'
6	100.00'	29°21'11"	26.19'	51.23'
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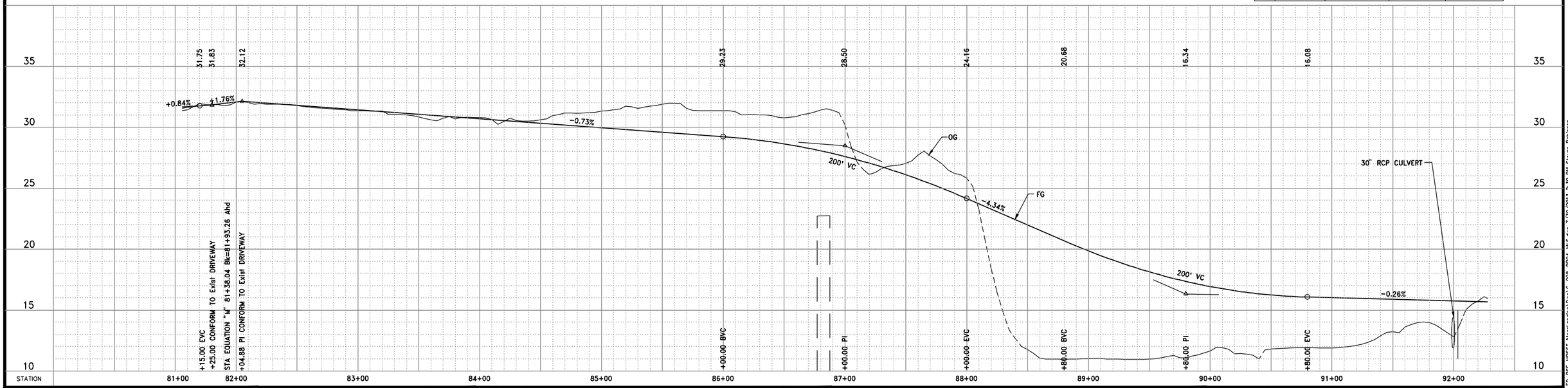

SUBMITTED BY: KEITH J. HALLSTEN, P.E.

DESIGN BY: LUCAS J. FUSON, P.E. CHKD BY: KJH

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SPECIFICATIONS WRITTEN BY: KEITH J. HALLSTEN, P.E. CHKD BY:

APPROVAL RECOMMENDED BY: ALI HEMMATI, P.E.

REGISTERED PROFESSIONAL ENGINEER KEITH J. HALLSTEN No. C50893 Exp. 9-30-11 CIVIL STATE OF CALIFORNIA

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COUNTY OF MONTEREY
RESOURCE MANAGEMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL MOSS LANDING SEGMENT

PLAN AND PROFILE (STA 81+00.00 TO 92+50.00)

DATE 3/29/13

SCALE 1"=40'

DRAWING

VIEW Layout1

SHEET 8 OF 31

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CONSTRUCTION NOTES

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CURVE DATA

#	R	Δ	T	L
1	300.00'	17°52'32"	47.18'	93.60'
2	175.00'	16°59'41"	24.80'	49.28'
3	175.00'	17°01'37"	26.20'	52.00'
4	200.00'	9°33'06"	16.71'	33.34'
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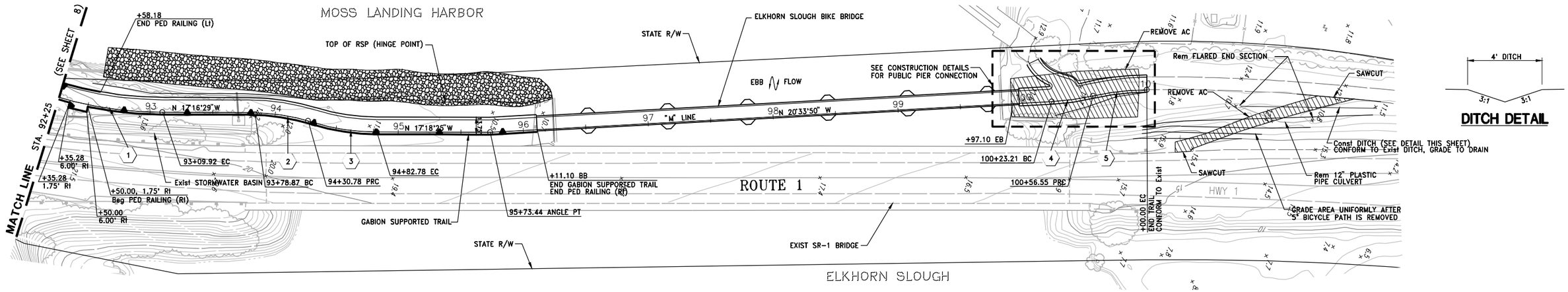

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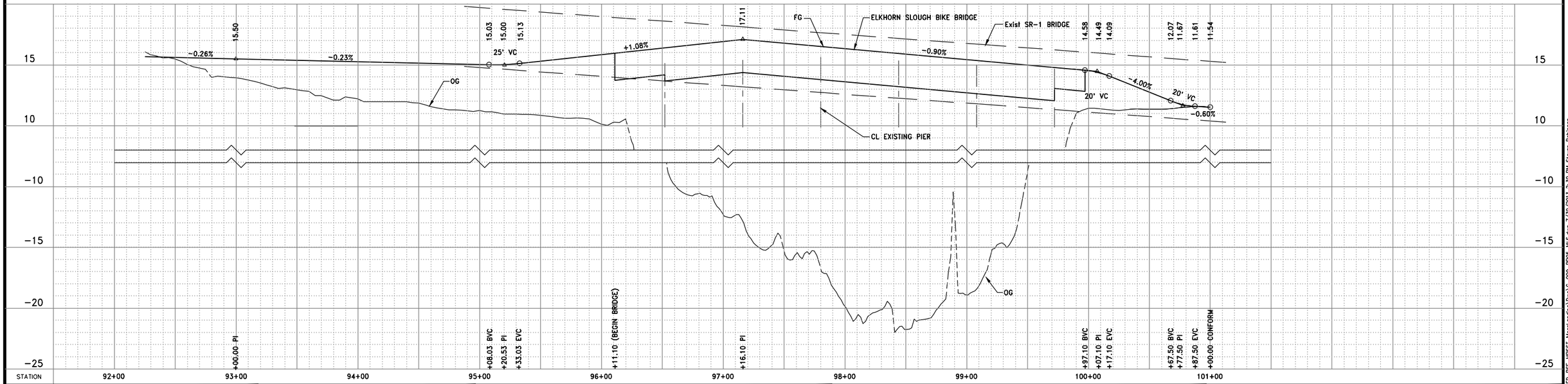

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APPROVAL RECOMMENDED BY: ALI HEMMATI, P.E.	

REGISTERED PROFESSIONAL ENGINEER — KEITH J. HALLSTEN — No. C50893 Exp. 9-30-11 — CIVIL — STATE OF CALIFORNIA

PRELIMINARY

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COUNTY OF MONTEREY
RESOURCE MANAGEMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING SECTION
168 WEST ALISAL STREET
SALINAS, CALIFORNIA 93901-2680
(831) 755-4800/FAX (831) 755-4958

MONTEREY BAY SANCTUARY SCENIC TRAIL MOSS LANDING SEGMENT

PLAN AND PROFILE (STA 92+50.00 TO 101+00.00)

DATE 3/29/13	DRAWING	SHEET 9 OF 31
SCALE 1"=40'	VIEW Layout1	

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WATER QUALITY ASSESSMENT REPORT
NOVEMBER 2012

WATER QUALITY ASSESSMENT REPORT

MONTEREY BAY SANCTUARY SCENIC TRAIL

MOSS LANDING SEGMENT

MOSS LANDING, MONTEREY COUNTY, CALIFORNIA

November 2012

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LIST OF ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
ac	acre/acres
ACOE	United States Army Corps of Engineers
Basin Plan	Central Coast RWQCB Water Quality Control Plan
BAT	Best Available Technology
BCT	Best Control Technology
bgs	below ground surface
BMPs	Best Management Practices
Caltrans	California Department of Transportation
CDFG	California Department of Fish and Game
COMM	Commercial and Sport Fishing
CTR	California Toxics Rule
CWA	Clean Water Act
DDD	p,p'-Dichlorodiphenyl dichloroethane
DDE	1,1-Dichloro-2,2-bis(p-chlorophenyl) ethylene
DDT	Dichloro-diphenyl-trichloroethane
EPA	United States Environmental Protection Agency
ESNERR	Elkhorn Slough National Estuarine Research Reserve
ESF	Elkhorn Slough Foundation
ft	foot/feet
IND	Industrial Service Supply
JTU	Jackson Turbidity Units
MAR	Marine Habitat
MBSST	Monterey Bay Sanctuary Scenic Trail
MEP	maximum extent practicable
mg/L	milligram/milligrams per liter
mi	mile/miles
mL	milliliter/milliliters

NAV	Navigation
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NWP	Nationwide Permit
PCB	Polychlorinated biphenyls
PCN	Preconstruction Notification
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
RARE	Rare, Threatened or Endangered Species
REC-1	Contact Water Recreation
REC-2	Noncontact Water Recreation
RWQCB	Regional Water Quality Control Board
SC	Source Control
SD	Site Design
SHELL	Shellfish Harvesting
SR-1	State Route 1
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
µg/L	micrograms per liter
WDR	Waste Discharge Requirements
WILD	Wildlife Habitat

1.0 EXECUTIVE SUMMARY

The proposed project area is 5 miles (mi) northwest of Castroville and 26 mi south of Santa Cruz, at the mouth of Elkhorn Slough. Construction of all planned segments of the Monterey Bay Sanctuary Scenic Trail (MBSST) would result in a continuous bicycle and pedestrian trail along Monterey Bay from Lovers Point in Pacific Grove to Wilder Ranch in Santa Cruz.

The Moss Landing Trail segment would run along the north side of Moss Landing Road on the west side of Moro Cojo Slough eastward to State Route 1 (SR-1), then turn northward along the west side of SR-1, cross Elkhorn Slough on a new bridge, and join the existing segment of the MBSST adjacent to the North Harbor facilities of the Moss Landing Harbor District on the north side of Elkhorn Slough. The Moss Landing Trail segment is approximately 4,500 feet (ft) (0.86 mi) long, and would be constructed within the County right of way, State right of way for SR-1, and in private property easements.

During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion compared to existing conditions. In addition, chemicals, liquid products, petroleum products (such as paints, solvents, and fuels), and concrete-related waste may be spilled or leaked, and they have the potential to be transported via storm runoff into receiving waters. The total disturbed area during construction of the Build Alternative would be approximately 1.4 acres (ac).

A Storm Water Pollution Prevention Plan (SWPPP) would be prepared and implemented during construction of the proposed project. The construction SWPPP identifies the specific Best Management Practices (BMPs) to be implemented during project construction so as not to cause or contribute to an exceedance of any applicable water quality standard contained in the Central Coast Regional Water Quality Control Board (RWQCB) Basin Plan. These BMPs would be designed to meet the technology requirement as stipulated in the General Construction Activity National Pollutant Discharge Elimination System (NPDES) Permit. In addition to a SWPPP, an Erosion Control Plan would be prepared in accordance with the requirements of the County of Monterey (County) Municipal Code.

Implementation of the Build Alternative would result in a permanent increase of impervious surfaces and a permanent increase in runoff volume and pollutant loading to surface waters. Total new pavement area would be approximately 1.0 acre. Pollutants of concern during operation of the trail include sediments, trash and debris, and pathogens. Increased erosion due to increased runoff would have the potential to increase sediment in storm water runoff. Pedestrians and pets utilizing the trail would be a potential source of trash and pathogens.

Selected Source Control and Site Design BMPs would be incorporated into the design of the proposed project, where feasible, to address pollutants of concern. BMPs would be consistent with the County Municipal Code. The BMPs would be designed to target pollutants of concern.

When the Erosion Control Plan, SWPPP, and BMPs are implemented in accordance with NPDES Permit requirements as stipulated in Measures WQ-1, WQ-2, WQ-3 and WQ-4, the proposed project would not result in adverse impacts to water quality.

2.0 INTRODUCTION

The purpose of this report is to evaluate impacts of the proposed project on potentially affected receiving waters and their beneficial uses. This report is intended to address the existing surface and groundwater resources and the potential effects of the project on the existing water resources, and to support the project's environmental document.

2.1 PROJECT DESCRIPTION

2.1.1 Project Location

The proposed project area is 5 mi northwest of Castroville and 26 mi south of Santa Cruz, at the mouth of Elkhorn Slough. Monterey Bay is just to the west of the project area. Figures 1 and 2 show the project location and vicinity. Construction of all planned segments of the MBSST would result in a continuous bicycle and pedestrian trail along Monterey Bay from Lovers Point in Pacific Grove to Wilder Ranch in Santa Cruz.

The Moss Landing Trail segment would run from the north side of Moss Landing Road on the west side of Moro Cojo Slough eastward to State Route 1 (SR-1), then turn northward along the west side of SR-1, cross Elkhorn Slough on a new bridge, and join the existing segment of the MBSST adjacent to the North Harbor facilities of the Moss Landing Harbor District on the north side of Elkhorn Slough. The Moss Landing Trail segment is approximately 4,500 feet (ft) (0.86 mi) long, and would be constructed within the County right of way, State right of way for SR-1, and in private property easements. The project alignment is shown in Figure 3.

2.1.2 Project Description

Moss Landing Road to Moss Landing Power Plant. Along the north side of Moss Landing Road along the south shore of Moss Landing Harbor, the trail will be constructed along the north side of a curb and gutter to be constructed by a separate project along the edge of the roadway. The trail pavement will be 10 feet wide, with a 2-foot-wide decomposed granite shoulder along the north side. The north side of the trail shoulder will be supported by an embankment slope between the trail and the harbor. The embankment slope will extend into the tidal zone, and will be stabilized with rock slope protection. The area of rock slope protection will be about 250 feet long and will vary between 10 feet and 25 feet in width.

From Moss Landing Road to a point opposite Dolan Road, the slopes in the project area are gentle and the trail can be constructed with minimal grading. A low retaining wall, approximately 700-feet-long and typically 2-feet-high but up to 3 feet, 6-inch-high in one location, will be constructed below the current grade of SR 1 along the west side of the trail in order to support the harbor side edge of the trail. Additionally, some tree trimming and/or removal to provide space for the trail will be required.

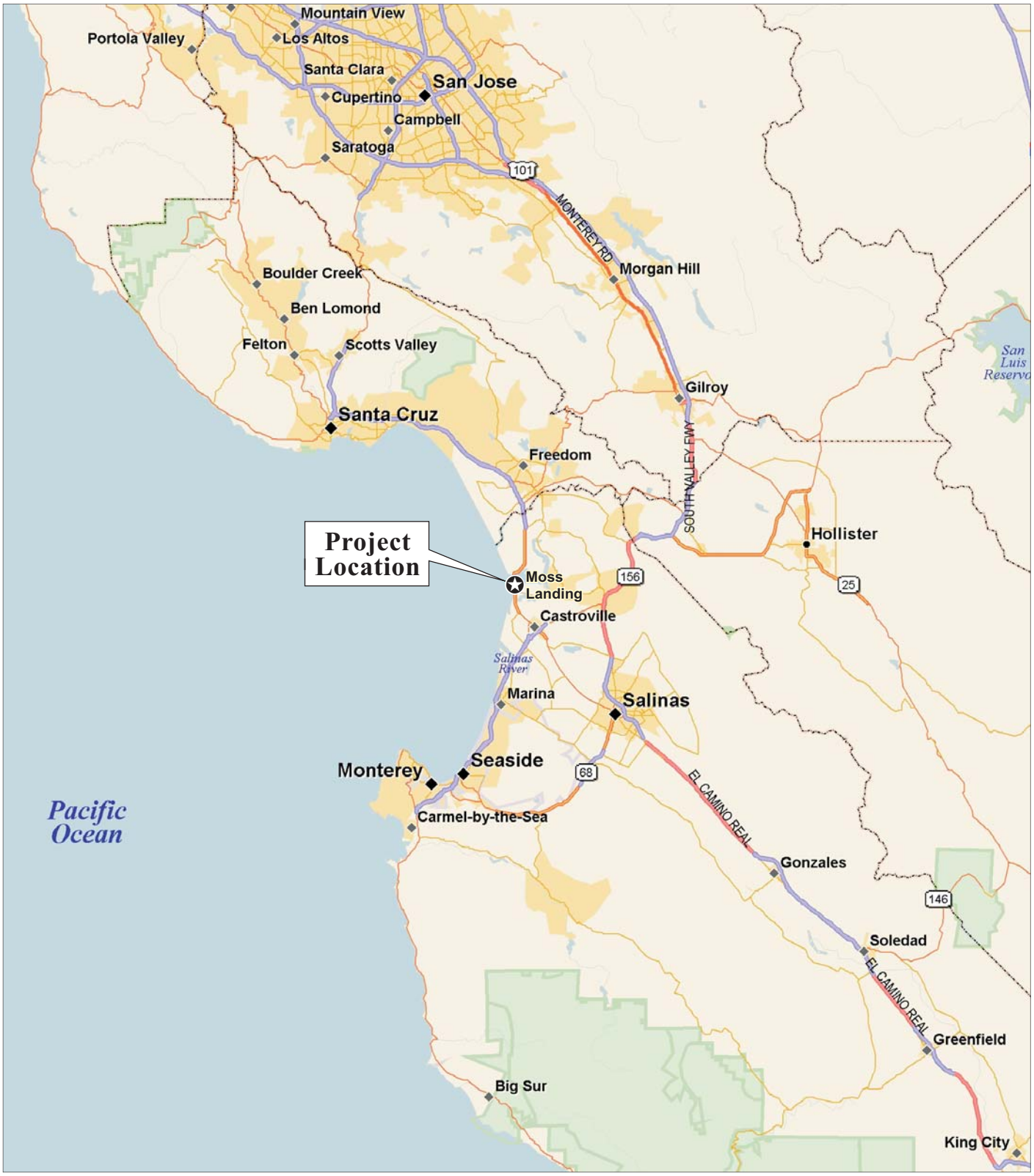

FIGURE 1

Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Project Location

SOURCE: ©2006 DeLORME. STREET ATLAS USA®2006.

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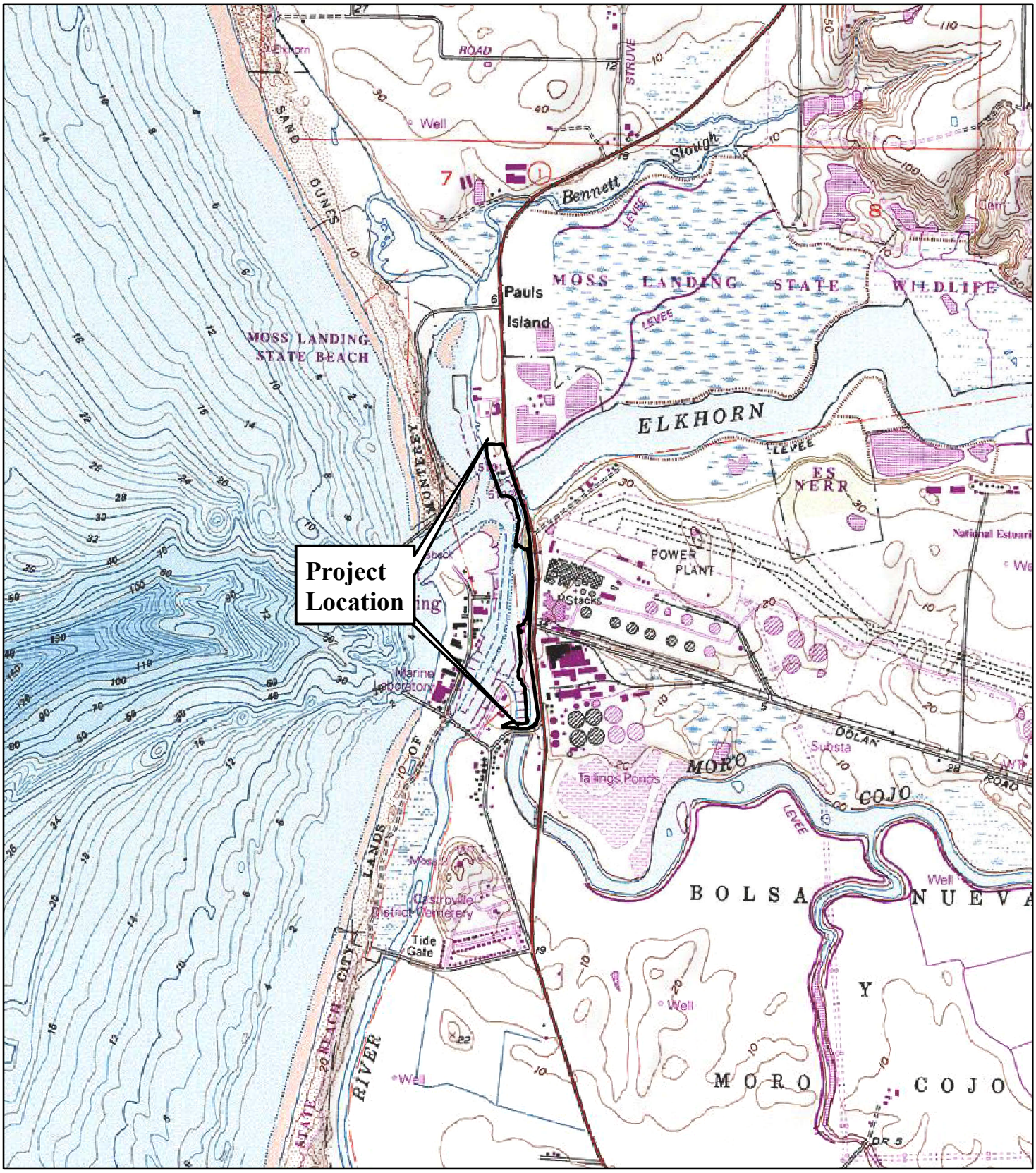

FIGURE 2

N

0 1000 2000
FEET

SOURCE: USGS 7.5' QUAD, MOSS LANDING, CA (1994)

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Water Quality Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Project Vicinity

LEGEND

Proposed Project Alignment

0 150 300
FEET

SOURCE: Aerial- Wood Rodgers (2009); Alignment - Wood Rogers (2012);

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FIGURE 3

Water Quality Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Proposed Project Alignment

Through Moss Landing Power Plant. North of Dolan Road, along the southern seawater intake facility for the Moss Landing Power Plant (MLPP), the trail will be constructed near the west edge of SR-1. The existing metal beam guardrail will be replaced with a concrete barrier between the trail and the highway. A retaining wall of the soldier-pile type, approximately 490-feet-long, will be required to support the west side of the trail. The existing 6-foot chain-link security fence along the intake facility will be replaced with an 8-foot chain-link fence relocated onto the new retaining wall.

The trail segment grade to the north of the driveway into the northern seawater intake facility for the MLPP will slope gently to the north at about the same grade as the adjacent SR 1 lanes, which will require excavation. To separate the trail from the adjacent southbound SR-1, a concrete barrier will be constructed. The existing 6-foot chain-link security fence around the intake facility will be replaced with an 8-foot chain-link fence. Removal of several eucalyptus and cypress trees may be necessary to provide sufficient width for the trail.

Just north of the power plant's existing northern pedestrian tunnel, the trail will turn west and slope downhill at less than 4% grade for approximately 100 feet, adjacent to the northern seawater intake facility for the MLPP. A retaining wall of the soldier-pile type with 8-foot chain-link fence on top will be constructed along the west side of the trail to provide a retained-fill bench of sufficient width for the trail. View-obscuring slats will be installed in the chain-link fabric to screen the industrial facility from the trail. The trail will pass over an existing pipeline, then turn northward along the shoreline, continuing to descend to the north at a profile grade of not more than 4 percent on fill retained by walls or gabions. No fence is planned to the north of the pipeline crossing, but either stainless steel or galvanized steel railings may be required to prevent falls. Removal of several eucalyptus trees may be necessary to provide sufficient width for the trail.

Moss Landing Power Plant to Elkhorn Slough Bridge. At the north end of the MLPP property, the trail alignment will cross an existing drainage in a 30-inch concrete culvert and pass into State right of way controlled by Caltrans. Approaching Elkhorn Slough from the south, the trail will be constructed on the old embankment of SR-1. The profile grade will be at or above elevation 15 feet, and the slope will be less than 1 percent, except at the approach to the bridge abutment. Some fill retained by gabions or walls will be required, and the failed broken concrete shore protection will be replaced with rock slope protection that extends through the tidal zone. The area of rock slope protection will be about 330 feet long and about 45 feet in width. Either stainless steel or galvanized steel railings may be required to prevent falls along the edge of the gabions or walls retaining the fill on which the trail is constructed. An existing concrete stormwater settling basin will remain in place and not be disturbed by construction of the trail.

Elkhorn Slough Bridge. A new pedestrian/bicycle bridge, 386 feet in length, will be constructed across Elkhorn Slough. The new bridge will be constructed entirely within the existing Caltrans right of way along the alignment of the previous SR-1 bridge that was replaced by the current SR-1 bridge to the east. The new bridge abutments will be constructed inland of the old bridge abutments, requiring excavation of up to 3 feet below the existing grade. The bridge piers will be constructed of driven cast-in-steel-shell concrete piles and will be aligned with the existing piers, allowing watercraft to navigate through the channel without additional obstruction. These pier piles will be driven into the slough bottom with a pile driver, so dewatering and excavation in the Elkhorn Slough

channel will not be required. The new bridge soffit elevation will be set at or above the soffit elevation of the existing SR-1 bridge, and the span lengths will match. The piers supporting the bridge, each consisting of three 3-foot-diameter piles, will be aligned with those of the adjacent SR-1 bridge to facilitate navigation by boats. The bridge deck will be constructed with precast concrete slab elements, which will provide a clear deck width of 12 feet between railings. Additional deck width will be provided on either side of the bridge deck at each pier to create overlook areas. There will be a total of 12 overlook areas, six on either side of the bridge. Each overlook area will provide space for trail users to stop on the bridge without causing interference with other trail users. From the bridge, trail users will have an opportunity to observe the Moss Landing Harbor, the Pacific Ocean, and Elkhorn Slough, particularly the abundant marine wildlife that will inhabits the immediate vicinity. Railings on the bridge will be either stainless steel or galvanized steel to minimize maintenance.

North Harbor. North of the new bridge, approximately 100 ft of trail will be built to meet the existing section of the MBSST, which was constructed in 2007 along the east side of the North Harbor facilities of the Moss Landing Harbor District. Minimal grading will be necessary but some fill will be required to raise the trail to the grade of the bridge. An existing, temporary, paved 5-foot-wide trail connection to the shoulder of southbound SR-1, located mostly on imported fill for the current SR-1 approach to the Elkhorn Slough Bridge, will be removed. All of the work for this segment of the trail will to be confined to the area of the old SR-1 alignment west of the current SR-1 and will be within existing State right of way.

2.2 GENERAL APPROACH

This Water Quality Assessment Report determines whether construction and operation of the proposed project would have an adverse impact on water quality. Water quality impacts would occur if water quality standards are temporarily or permanently exceeded, which could result in an identified beneficial use no longer being supported.

The determination of impacts is based on the anticipated change in pollutant loads due to changes in land use and changes in the impervious area percentage between the existing condition and the postproject condition. The analysis includes consideration of BMPs to be implemented as part of the project. The analysis also takes into consideration discharge of pollutants of concern into waters already impaired (listed pursuant to Section 303[d] of the Federal CWA) for those pollutants. This assessment also discusses existing water quality regulations and methods of complying with those regulations. The report format is generally based on the Caltrans Environmental Handbook Volume I, Chapter 9, Water Quality, which is currently being updated.

3.0 AFFECTED ENVIRONMENT

3.1 SURFACE WATER

The project is located within the Elkhorn Slough and Moro Cojo Slough watersheds, both of which are subwatersheds of the Bolsa Nueva Hydrologic Unit.[1] The Elkhorn Slough watershed is 30,292 ac in size and ultimately drains to the Pacific Ocean.[2] The Moro Cojo watershed is 13,349-ac in size and drains to Elkhorn Slough.[3]

As shown in Figure 4, the primary receiving waters of runoff from the project area are Elkhorn Slough and Moss Landing Harbor (south). The northern portion of the project area crosses Elkhorn Slough and the southern portion of the project area is adjacent to Moss Landing Harbor. Elkhorn Slough is a 1,400 ac estuary that reaches approximately 7 mi inland and empties into Monterey Bay at Moss Landing Harbor.[4] However, Elkhorn Slough is part of a larger interconnected network of estuarine habitats. Waters from the 13,349 ac Moro Cojo watershed and the 101,026 ac Gabilan/ Tembladero (Alisal) watershed also drain into Elkhorn Slough through the Old Salinas River Channel at the Moss Landing South Harbor. Freshwater enters the head of Elkhorn Slough from Carneros Creek and the Pajaro River during flood events and the mouth of Elkhorn Slough from the old Salinas River Channel.[5] Elkhorn Slough has been designated an ecological reserve by the California Department of Fish and Game (CDFG) and been recognized as a National Estuary Sanctuary by the Federal Government.[6]

3.2 GROUNDWATER

The project area is located within the 76,800 ac Pajaro Valley Groundwater Basin. The Pajaro Valley Groundwater Basin is bound on the west by Monterey Bay and on the east by the San Andreas Fault, adjacent prequaternary formations, and the Santa Cruz Mountains beyond. The northern boundary is the surface expression of the geologic contact between the Quaternary alluvium of the Pajaro Valley and the marine sedimentary deposits of the Pliocene Purisima Formation. The southern basin boundary is a drainage divide in the Carneros Hills between Elkhorn Slough to the north and the Moro Cojo Slough and lower Salinas River Valley and Salinas Valley-Langley groundwater subbasin to the south.[7] Basin recharge occurs through direct percolation of rainfall and streamflow seepage from the Pajaro River and its tributaries and percolation of irrigation water.[8]

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1 California Watershed Portal. http://cwp.resources.ca.gov/, accessed March 23, 2009.
2 Elkhorn Slough Tidal Wetland Project. Elkhorn Slough Tidal Wetland Strategic Plan March 2007
3 Ibid.
4 National Oceanic and Atmospheric Administration. National Estuarine Research Reserve System. http://nerrs.noaa.gov/ElkhornSlough/, accessed March 24, 2009.
5 Elkhorn Slough Tidal Wetland Project. Elkhorn Slough Tidal Wetland Strategic Plan March 2007
6 Regional Water Quality Control Board, Central Coast. 1994. Water Quality Control Plan, Central Coast Region. September 8.
7 California Department of Water Resources. 2004. *California's Groundwater*, *Bulletin 118 Update*.
8 Ibid.

LEGEND

- Biological Study Area (BSA)
- Waterbody
- Stream or Water

N

0 750 1500

FEET

SOURCE: National Hydrography Dataset (2000); Aerial - MSVE (2008)

I:\WRS0803\GIS\Surface_Waters_WQA.mxd (9/15/2009)

FIGURE 4

Water Quality Assessment
Monterey Bay Sanctuary Scenic Trail
Moss Landing Segment
Moss Landing, Monterey County, California

Surface Waters in the Vicinity

3.3 TOPOGRAPHY AND SOILS

The topography of the project area is mostly flat, and the elevation is nearly sea level. The only steep slope is between the Moss Landing Power Plant and Elkhorn Slough. Soils in the project area consist of Alvisio Silty Clay Loam, Elkhorn Fine Sandy Loam, Oceano Loamy Sand, Santa Ynez Fine Sandy Loam, and Xerorthents Loamy. The northern portion of the project area, north of Elkhorn Slough, consists of Alvisio Silty Clay Loam, which is very poorly drained. South of Elkhorn Slough, the soils range from moderately to excessively drained.[1]

3.4 CLIMATE

The climate in the County and within the project area is characterized by warm, dry summers and cool, moist winters. The average temperature is approximately 59 degrees Fahrenheit (^{o}F). Average rainfall in the Bolsa Nueva Watershed is approximately 18 inches per year.[2] Approximately 90 percent of this rainfall occurs between November and April.

3.5 LAND USE

The surrounding land consists predominantly of transportation, industrial, and recreational uses. Dominant uses include SR-1, the Moss Landing Power Plant, and Moss Landing Harbor.

3.6 EXISTING WATER QUALITY

3.6.1 Surface Water Quality

Elkhorn Slough is eutrophic with low oxygen, high chlorophyll A, and high nitrate concentrations.[3] The high levels of nitrates in Elkhorn Slough are likely from runoff from agricultural fields. In addition, high nutrient and pesticide concentrations have been documented in Elkhorn Slough.[4]

The Elkhorn Slough National Estuarine Research Reserve (ESNERR) and the Elkhorn Slough Foundation (ESF) have supported a volunteer water quality monitoring program since 1988. Twenty-four stations are sampled monthly for temperature, salinity, dissolved oxygen, percentage of hydrogen (pH), turbidity, nitrate, ammonium, and dissolved inorganic phosphate.

The data collected as part of this ESNERR and ESF monitoring program have shown an increase in nitrate concentrations since the 1970s. Nitrate levels have been measured from <1 milligrams per liter (mg/L) to >130 mg/L in Elkhorn Slough. The highest nitrate concentrations occur during the rainy season, particularly between January and March, and the lowest nitrate concentrations normally occur during the summer and early fall. The monitoring data collected from 1989 on shows that there are high spikes of nutrients during the winter months at levels not observed in the 1970s. Ammonium and

1 United States Department of Agriculture, Natural Resources Conservation Service. Web Soil Survey. http://websoilsurvey.nrcs.usda.gov, accessed April 7, 2009.
2 California State University. Office of Water Programs. Water Quality Planning Tool. http://stormwater.water-programs.com/, accessed March 23, 2009.
3 A eutrophic water body is high in nutrients, which results in excessive algal growth and reduced oxygen.
4 Elkhorn Slough Tidal Wetland Project. Elkhorn Slough Tidal Wetland Strategic Plan March 2007.

dissolved inorganic phosphate concentrations throughout Elkhorn Slough average 0.01 and 0.1 mg/l, respectively. Dissolved oxygen concentrations are highly variable within Elkhorn Slough, which is typical for estuaries. Areas with restricted circulation have more low oxygen events than well-flushed areas. Turbidity is highest throughout most of the slough during the winter and spring rainy season, with turbidity peaks occurring following rainfall events.[1]

3.6.2 Groundwater Quality

Recent seawater intrusion has resulted in high concentrations of chloride, sodium, potassium, sulfate, and total dissolved solids (TDS) in groundwater near the coast. In addition to impairments due to seawater intrusion, there are also localized areas of high hardness (e.g. high in minerals, primarily calcium and magnesium), nitrates, sulfates, iron, manganese, boron, heavy metals, and organics. Nitrate contamination as a result of intensive agriculture and areas of high residential septic tank density is of increasing concern in the Pajaro Valley.[2]

3.7 EXISTING POLLUTANTS OF CONCERN

Pollutants commonly associated with storm water runoff include sediment, nutrients, organic compounds, trash and debris, oxygen-demanding substances, bacteria and viruses, oil and grease, pesticides, and heavy metals. Pollutants of concern from the existing project area, which is currently open space, include nutrients, pathogens, sediments, oxygen-demanding substances, and floatables.[3] In addition, due to the proximity of a portion of the project area to SR-1, motor-vehicle-related pollutants (aerially deposited lead, other metals, and oil and grease) may be potential pollutants of concern. These pollutants of concern are described in more detail below.

3.7.1 Sediments

Natural sediment loads are important to downstream environments because they provide habitat, substrate, and nutrition; however, increased sediment loads can result in several negative effects to downstream environments. Excessive sediment can be detrimental to aquatic life by interfering with photosynthesis, respiration, growth, and reproduction. In addition, pollutants that adhere to sediment, such as nutrients, trace metals, hydrocarbons, and pathogens can have other harmful effects on the aquatic environment when they occur in elevated levels.

3.7.2 Nutrients

Nutrients are typically composed of phosphorus and/or nitrogen. Elevated levels in surface waters cause algal blooms and excessive vegetative growth. The vegetative growth eventually dies and decomposes, utilizing oxygen in the decomposition process and reducing dissolved oxygen levels in the water. Dissolved oxygen is critical for support of aquatic life. The ammonium form of nitrogen

1 Caffrey, et al. W2.2ater Quality Monitoring in Elkhorn Slough: a summary of results 1988–1996. May 25, 1997.
2 California Department of Water Resources. Bulletin 118. Updated January 20, 2006.
3 City of Monterey, et al. Model Urban Runoff Program. 1998 (revised 2002).

(found in wastewater discharges) converts to nitrite and nitrate in the presence of oxygen, which further reduces the dissolved oxygen levels in water.

3.7.3 Floatables (Trash and Debris)

Trash and debris can have a significant effect on the recreational value of a water body and aquatic habitat. It also can interfere with aquatic life respiration and can be harmful or hazardous to aquatic animals that mistakenly ingest floating debris.

3.7.4 Oxygen-Demanding Substances

Oxygen-demanding substances include plant debris (such as leaves and lawn clippings), animal wastes, and other organic matter. Microorganisms utilize dissolved oxygen during consumption of these substances, which reduces a water body's capacity to support aquatic life.

3.7.5 Pathogens (Bacteria and Viruses)

Bacterial levels in urban runoff can exceed public health standards for water contact recreation, creating a harmful environment. The source is animal or human fecal wastes. Bacteria and viruses thrive under certain conditions and can alter the aquatic habitat and create a harmful environment for aquatic life.

3.7.6 Oil and Grease

Primary sources of oil and grease are petroleum hydrocarbon products, motor products from leaking vehicles, fats, and waxes. Elevated oil and grease concentrations can affect the aesthetic value of the water body and can create a harmful environment for aquatic life.

3.7.7 Heavy Metals

Bioavailable forms of trace metals are toxic to aquatic life. The most common metals found in urban runoff are lead, zinc, and copper. Sources of heavy metals in surface waters include emissions and deposits from automobiles, industrial wastewater, and common household chemicals. At high concentrations, metals are toxic to aquatic life. Humans can be impacted from contaminated groundwater resources and from bioaccumulation of metals in fish and shellfish.

4.0 REGULATORY SETTING

Discharges into waters of the United States are subject to the regulatory authority of the United States Army Corps of Engineers (ACOE) under Section 404 of the federal Clean Water Act (CWA); the State Water Resources Control Board (SWRCB) and the Central Coast RWQCB under Sections 303, 401, and 402 of the CWA and the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act); and under Section 1602 of the California Fish and Game Code by the CDFG.

4.1 FEDERAL REQUIREMENTS OF THE CLEAN WATER ACT

4.1.1 Section 404

The ACOE regulates discharges or fills into waters of the United States under Section 404 of the CWA via the Nationwide Permit (NWP) or Individual Permit program. There are several categories of NWPs that can be utilized for projects that fall under specific categories. A Preconstruction Notification (PCN) to the ACOE District Engineer is required for most activities that result in the loss of greater than 0.1 ac of waters of the United States. The ACOE reviews the PCN on a case-by-case basis to determine whether the adverse effects of the proposed work on the aquatic environment are minimal. The ACOE will also determine whether a particular drainage is considered waters of the United States and subject to regulation under Section 404.

4.1.2 Section 402

Direct discharges of pollutants into waters of the United States are not allowed, except in accordance with the NPDES program established in Section 402 of the CWA. The main goal of the NPDES program is to protect human health and the environment. Pursuant to the NPDES program, permits that apply to storm water discharges from municipal storm drain systems, specific industrial activities, and construction activities that disturb 1 ac or more have been issued. NPDES permits establish enforceable effluent limitations on discharges, require monitoring of discharges, designate reporting requirements, and require the permittee to perform BMPs. Industrial (point source) storm water permits are required to meet effluent limitations. Municipal permits are governed by the maximum extent practicable (MEP) or the Best Available Technology (BAT)/Best Control Technology (BCT) application of BMPs.

4.1.3 Section 401

Section 401 of the CWA specifies that any applicant for a federal license or permit to conduct any activity, including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters, shall provide the federal licensing or permitting agency a certification from the state in which the discharge originates or will originate from the state agency with jurisdiction over those waters (Central Coast RWQCB) that the project will comply with water

quality standards, including beneficial uses, water quality objectives, and the state antidegradation policy.

4.1.4 Section 303

Section 303 of the CWA requires that the State adopt water quality objectives for surface waters. The Central Coast RWQCB Basin Plan contains water quality objectives that are considered necessary to protect the specific beneficial uses it identifies. In addition, because California had not established a complete list of acceptable water quality criteria for toxic pollutants, EPA Region IX established numeric water quality criteria for toxic constituents in the form of the California Toxics Rule (CTR). Section 303(d) specifically requires the State to develop a list of impaired water bodies and subsequent numeric Total Maximum Daily Loads (TMDLs)[1] for any constituents that impair a particular water body. These constituents include inorganic and organic chemical compounds, metals, sediment, and biological agents.

The SWRCB adopted a Water Quality Control Plan for Ocean Waters of California, called the California Ocean Plan. The Ocean Plan has established water quality objectives for bacteriological, physical, chemical, and biological characteristics, and for radioactivity to protect the specific beneficial uses it identifies. The plan also incorporates general requirements for the management of wastes discharged directly into the ocean; effluent quality requirements for waste discharges, discharge prohibitions, and general provisions. The guidance values in the Ocean Plan were not used during the analysis of project impacts, since they do not apply to discharges to enclosed bays, estuaries, or inland waters.

4.2 STATE WATER QUALITY REGULATIONS

4.2.1 Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code)

The Porter-Cologne Act establishes a regulatory program to protect water quality and to protect beneficial uses of State waters. It empowers the RWQCBs to formulate and adopt, for all areas within the regions, a Basin Plan that designates beneficial uses and establishes such water quality objectives that in its judgment will ensure reasonable protection of beneficial uses. Each RWQCB establishes water quality objectives that will ensure the reasonable protection of beneficial uses and the prevention of nuisance. The California Water Code provides flexibility for some change in water quality, provided beneficial uses are not adversely affected.

4.2.2 California Fish and Game Code Section 1602

The CDFG, through provisions of California Fish and Game Code Section 1602, is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be

[1] The TMDL is the total amount of a constituent that can be discharged while meeting water quality objectives and protecting beneficial uses. It is the sum of the individual load allocations for point source inputs (e.g., an industrial plant), load allocations for nonpoint source inputs (e.g., runoff from urban areas), and natural background with a margin of safety included.

adversely affected. Streams and rivers are defined by the presence of a channel bed and banks and at least an intermittent flow of water. CDFG typically extends the limits of their jurisdiction laterally beyond the channel banks for streams that support riparian vegetation. In these situations, the outer edge of the riparian vegetation is generally used as the lateral extent of the stream and CDFG jurisdiction.

The California Fish and Game Code Section 1602 requires any person, State or local governmental agency, or public utility to notify the CDFG before beginning any activity that will result in one or more of the following: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. California Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State.

4.2.3 State Requirements under Section 402 of the CWA

Construction General Permit. Construction General Permit (CGP, Order No. 2009-009-DWQ, as amended by 2010-0014-DWQ), adopted on November 16, 2010, became effective on February 14, 2011. The permit regulates storm water discharges from construction sites which 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. For all projects subject to the CGP, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with the Department's Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the CGP. Construction activity that results in soil disturbances of less than one acre is subject to this CGP 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; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the CGP.

The CGP 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 pre- and post-construction aquatic biological assessments during specified seasonal windows.

4.3 REGIONAL AND LOCAL REQUIREMENTS

Monterey County requires an Erosion Control Plan that identifies the proposed methods for controlling runoff, erosion, and sediment movement for review and approval by the appropriate director for projects within its jurisdiction (Municipal Code, Chapter 16.12).

4.4 BENEFICIAL USES

Beneficial uses of water are defined in the Central Coast RWQCB's Basin Plan as those necessary for the survival or well-being of humans, plants, and wildlife. Examples of beneficial uses include drinking water supplies, swimming, industrial and agricultural water supply, and the support of freshwater and marine habitats and their organisms.

4.4.1 Beneficial Uses for Surface Waters

Beneficial uses identified in the Basin Plan for the coastal waters of Elkhorn Slough and Moss Landing Harbor include the following:

- **Water Contact Recreation (REC-1):** Includes the uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs.
- **Noncontact Water Recreation (REC-2):** Includes the uses of water for recreational activities involving proximity to water but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities.
- **Industrial Service Supply (IND):** Includes uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well repressurization.
- **Navigation (NAV):** Includes uses of water for shipping, travel, or other transportation by private, military, or commercial vessels. The Central Coast RWQCB interprets NAV as, "Any stream, lake, arm of the sea, or other natural body of water that is actually navigable and that, by itself, or by its connections with other waters, for a period long enough to be of commercial value, is of sufficient capacity to float watercraft for the purposes of commerce, trade, transportation, and including pleasure; or any waters that have been declared navigable by the Congress of the United States" and/or the California State Lands Commission.
- **Marine Habitat (MAR):** Includes uses of water that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).
- **Shellfish Harvesting (SHELL):** Includes uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, and mussels) for human consumption, commercial, or sport purposes. This includes waters that have in the past, or may in the future, contain significant shellfisheries.
- **Rare, Threatened, or Endangered Species (RARE):** Includes uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.

In addition to the beneficial uses listed above, the following beneficial uses have also been identified for Moss Landing Harbor:

- **Commercial and Sport Fishing (COMM):** Includes uses of water for commercial or recreation collection of fish, shellfish, or other aquatic organisms.
- **Wildlife Habitat (WILD):** Includes uses of water that support terrestrial ecosystems, including but not limited to preservation and enhancement of terrestrial habitats, vegetation, wildlife (i.e., mammals, birds, reptiles, amphibians, invertebrates), and wildlife water and food sources.

4.4.2 Beneficial Uses for Groundwater

According to the Basin Plan, groundwater in the Pajaro Valley Groundwater Basin is suitable for agricultural, municipal, and domestic water supply, as well as industrial use.

4.5 WATER QUALITY OBJECTIVES

As required by the Porter-Cologne Act, the Central Coast RWQCB has developed water quality objectives for waters within its jurisdiction to protect the beneficial uses of those waters and has published them in the Basin Plan. The Basin Plan also establishes implementation programs to achieve these water quality objectives and requires monitoring to evaluate the effectiveness of these programs. Water quality objectives must comply with the State antidegradation policy (State Board Resolution No. 68-16), which is designed to maintain high-quality waters while allowing some flexibility if beneficial uses are not unreasonably affected.

4.5.1 Surface Water Quality Objectives

There are no specific water quality objectives listed for Elkhorn Slough in the Basin Plan. Surface water quality objectives for all inland surface waters, enclosed bays, and estuaries are listed in Table A.

4.5.2 Groundwater Quality Objectives

General groundwater quality objectives for the Central Coast Region, including the Pajaro Valley Groundwater Basin, are provided in Table B.

The nearest water quality objectives for the Pajaro Valley Groundwater Basin are for Hollister, California, which is approximately 20 mi east of the project area. The median water quality objectives at this location are as follows:

- **Total Dissolved Solids (TDS):** 1,200 milligrams per liter (mg/L)
- **Chlorine:** 150 mg/L
- **Sulfate:** 250 mg/L
- **Boron:** 1.0 mg/L
- **Sodium:** 200 mg/L
- **Nitrogen:** 5 mg/L

Table A: Surface Water Quality Objectives for Inland Waters

Constituent	Concentration
Color	Shall not cause nuisance or adversely affect beneficial uses. Coloration attributable to materials of waste origin shall not be greater than 15 units or 10 percent above natural background color, whichever is greater.
Tastes and Odors	Shall not cause nuisance or adversely affect beneficial uses or cause undesirable tastes or odors to edible organisms.
Floating Material	Shall not cause nuisance or adversely affect beneficial uses.
Suspended Material	Shall not cause nuisance or adversely affect beneficial uses.
Settleable Material	Shall not cause nuisance or adversely affect beneficial uses.
Oil and Grease	Shall not cause nuisance or adversely affect beneficial uses or visible film on water surface.
Biostimulatory Substances	Shall not promote aquatic growths to the extent that causes nuisance or adversely affects beneficial uses.
Sediment	Shall not cause nuisance or adversely affect beneficial uses.
Turbidity	1. Where natural turbidity is between 0 and 50 Jackson Turbidity Units (JTU), increases shall not exceed 20 percent. 2. Where natural turbidity is greater than 50 JTU, increases shall not exceed 10 percent.
Dissolved Oxygen	Shall not be less than 5.0 mg/l (milligrams per liter). Median values should not fall below 85 percent saturation.
Toxicity	Shall be free of toxic substances in concentrations that are toxic to or that produce detrimental physiological responses in life forms. The discharges of wastes shall not cause concentrations of unionized ammonia (NH_3) to exceed 0.025 mg/L (as N).
Pesticides	Shall not reach concentrations that adversely affect beneficial uses. Shall not increase concentrations in bottom sediments or aquatic life. For waters where existing concentrations are presently nondetectable or where beneficial uses would be impaired by concentrations in excess of nondetectable levels, total identifiable chlorinated hydrocarbon pesticides shall not be present at concentrations detectable within the accuracy of analytical methods.
Bacteria (fecal coliform)	Five samples in a 30-day period shall not exceed a log mean of 200/100 ml. Ten percent of samples in a 30-day period shall not exceed 400/100 ml.
pH	Shall not be depressed below 7.0 nor raised above 8.5.
Radioactivity	Shall not be present in concentrations that are deleterious to life forms.
Not-to-Be-Exceeded Levels	
Methylene Blue Activated Substances	0.2 mg/L
Phenols	0.1 mg/L
PCBs	0.3 µg/L (micrograms per liter)
Phthalate Esters	0.002 µg/L

Source: *Water Quality Control Plan, Central Coast Region.*

Table B: General Groundwater Objectives for the Central Coast Region

Constituent	Concentration
Tastes and Odors	Shall not contain taste- or odor-producing substances in concentrations that adversely affect beneficial uses.
Radioactivity	Shall not be in excess of limits specified in 22 CCR, Chapter 15, Section 64443, Table 4.

Source: *Water Quality Control Plan, Central Coast Region.*
CCR = Code of California Regulations

4.6 WATER QUALITY IMPAIRMENTS

The 2010 Section 303(d) List of Water Quality Limited Segments for California was approved by the SWRCB on November 12, 2010, and by the United States Environmental Protection Agency (EPA) on October 11, 2011. Table C shows the 303(d) listed receiving waters within the proposed project area and the water quality impairment (pollutant), the source of the pollutant and the expected date for the development of a TMDL for each of the two receiving waters. As shown in Table C, Elkhorn Slough is listed on the 2010 303(d) list as impaired for low dissolved oxygen, pesticides, sedimentation/siltation, total coliform, and pH. Moss Landing Harbor is listed on the 2010 303(d) list as impaired for chlorpyrifos, diazinon, low dissolved oxygen, nickel, pathogens, pesticides, sediment toxicity, sediments/siltation, and pH.

On October 7, 2011, the EPA approved a TMDL for chlorpyrifos and diazinon impairments in the Lower Salinas River watershed, which includes Moss Landing Harbor.

Table C: 2010 Clean Water Act Section 303(d) Listing for Project Receiving Waters

Water Body	Pollutant	Expected TMDL Completion Date	Potential Sources
Elkhorn Slough	Low Dissolved Oxygen	2021	• Urban runoff/storm sewers • Agricultural • Grazing-related sources • Natural sources
	Pesticides	2021	• Agricultural return flows • Erosion/siltation • Nonpoint source • Agriculture • Agriculture-storm runoff • Irrigated crop production • Contaminated sediments
	Sedimentation/Siltation	2021	• Channel erosion • Nonpoint source • Irrigated crop production • Agriculture-storm runoff • Agriculture
	Total Coliform	2021	Unknown sources
	pH	2021	• Urban runoff/storm sewers • Agricultural • Natural sources • Grazing-related sources
Moss Landing Harbor	Chlorpyrifos	2021	• Grazing-related sources • Agriculture • Other urban runoff
	Diazinon	2021	• Grazing-related sources • Agriculture • Other urban runoff
	Low Dissolved Oxygen	2021	Unknown source
	Nickel	2021	• Other urban runoff • Marinas and recreational boating • Unknown source • Dredging • Agriculture • Natural sources
	Pathogens	2021	• Agriculture • Nonpoint source • Boat discharges/vessel wastes
	Pesticides	2021	• Agriculture • Irrigated crop production • Specialty crop production
	Sediment Toxicity	2021	• Boatyards • Agriculture • Dredging • Grazing-related sources • Marinas and recreational boating • Other urban runoff

Table C: 2010 Clean Water Act Section 303(d) Listing for Project Receiving Waters

Water Body	Pollutant	Expected TMDL Completion Date	Potential Sources
	Sedimentation/Siltation	2021	• Dredging • Erosion/siltation • Channel erosion • Nonpoint source • Hydromodification • Agriculture • Irrigated crop production • Agriculture-storm runoff
	pH	2021	Unknown source

Source: State Water Resources Control Board, 2010 Integrated Report (CWA Section 303(d) List/305(b) Report).
CWA = Clean Water Act
TMDL = Total Maximum Daily Load

5.0 ENVIRONMENTAL CONSEQUENCES

This chapter discusses the potential environmental effects related to water quality with implementation of the project, as well as the procedures and practices that would be applied to reduce those effects.

5.1 IMPACT ASSESSMENT METHODOLOGY

The purpose of this Water Quality Assessment Report is to analyze the differences between the existing condition and the project build condition with respect to water quality impacts. Water quality impacts would occur if water quality standards are temporarily or permanently exceeded, which could result in an identified beneficial use no longer being supported. The assessment takes the following into consideration:

- Pollutant sources (change in land use)
- Impervious area and relation to amount of runoff (increase or decrease)
- Application of BMPs (number of BMPs, new technologies, effectiveness)
- Discharge of pollutants of concern into waters already impaired (listed pursuant to Section 303[d] of the Federal CWA) for those pollutants

5.2 POTENTIAL IMPACTS TO WATER QUALITY

5.2.1 Short-Term Impacts During Construction

Build Alternative. Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion due to rainfall/runoff and wind compared to existing conditions. The trail would be fitted to the existing ground contours as much as practical to minimize cut and fill, which would help reduce erosion during construction. During construction, the total disturbed area from the Build Alternative would be approximately 1.8 ac. In addition, chemicals, liquid products, petroleum products (such as paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via storm runoff into receiving waters. Groundwater dewatering during construction is not anticipated.

Construction impacts from development of the proposed project would be minimized through compliance with the General Construction Permit. Full compliance with the requirements of the General Construction Permit has been determined by the SWRCB to ensure that water quality standards (protection of beneficial uses and adherence to water quality objectives) are adequately protected during the construction period.

Under the General Construction Permit, the proposed project would be required to prepare a SWPPP and implement construction BMPs detailed in the SWPPP during construction activities to minimize erosion and prevent spills. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Controls BMPs designed to minimize erosion and retain sediment on site and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. The SWPPP would be developed and construction BMPs selected and implemented to target pollutants of concern during construction. The BMPs are based on the phase of construction and the weather conditions.

BMPs on this menu are expected to include, but are not limited to:

- Revegetation of areas where plant cover is disturbed;
- Hydroseeding, mulching, or other erosion controls for inactive exposed areas;
- Sediment controls such as check dams, desilting basins, and fiber rolls;
- Catch basin inlet protection;
- Construction materials management; and
- Cover and containment of construction materials and wastes.

The SWPPP would address site-specific conditions related to project construction. The SWPPP would identify the sources of sediment and other pollutants that may affect the quality of storm water discharges and describe and ensure the implementation and maintenance of BMPs to reduce or eliminate sediment, pollutants adhering to sediment, and other nonsediment pollutants in storm water as well as nonstorm water discharges.

In addition to a SWPPP, the County Municipal Code requires the preparation of an Erosion Control Plan that includes Construction BMPs to control runoff, erosion, and sediment movement.

Repair of shoreline slope and replacement of the failed broken concrete slope protection on the harbor shoreline south of Elkhorn Slough has the potential to result in temporary impacts to water quality. The broken concrete rubble would be removed and the slope would be re-graded to a uniform slope. Underwater excavation of a toe trench would be followed by placement of engineering fabric and imported rock slope protection. It is anticipated that a silt curtain supported by a floating boom would be used to separate the water in the construction area from the remainder of Moss Landing Harbor to minimize the escape of sediment.

Construction of the rock slope protection on the harbor shoreline along the north side of Moss Landing Road also has the potential to result in temporary impacts to water quality. The general method of construction would be similar to the shoreline repair south of Elkhorn Slough, but at a smaller scale and in quiet waters, reducing the potential impacts.

Construction of the new bridge over Elkhorn Slough also has the potential to result in temporary impacts to water quality. The new bridge abutments would be constructed on dry land behind the existing, abandoned highway bridge abutments. The bridge columns are proposed to be steel pipe piles which would be driven into the harbor bottom, then filled with concrete. No excavation in the

shoreline or below the water surface would be required to construct the bridge, and no fill material would be placed in Elkhorn Slough. Construction BMPs for operation of equipment, excavation, and placement of concrete near a shoreline would be included in the SWPPP to prevent spills of uncured concrete, fuel, and lubricants into Elkhorn Slough during bridge construction.

When Construction BMPs are properly designed, implemented, and maintained to address pollutants of concern, as presented in Measures WQ-1 and WQ-2, no adverse water quality impacts to surface waters would occur during construction of the proposed project.

No Build Alternative. Under the No Build Alternative, no construction activities would occur. Therefore, the No Build Alternative would not result in short-term water quality construction-related impacts.

5.2.2 Long-Term Impacts During Operation

Build Alternative. Pollutants of concern from the trail include sediments, trash and debris, and pathogens. The proposed project would result in a permanent increase of impervious surface of 1.0 ac, which would result in a permanent increase in the volume of runoff and pollutant loading to surface waters during a storm. An increase in impervious area would increase the volume of runoff during a storm, which would more effectively transport pollutants to receiving waters. In addition, there is potential for increased erosion due to increased runoff that could increase sediment in storm water runoff. Pedestrians and pets utilizing the trail would be a potential source of trash and pathogens (e.g. fecal matter).

The proposed project does not include the use of groundwater, and the increased runoff is not anticipated to affect groundwater quality. Therefore, the proposed project would not result in adverse water quality impacts to groundwater resources.

In order to prevent degradation of surface water quality with operation of the trail within a relatively undeveloped area, the County would implement standard procedures and BMPs. These procedures and BMPs would be consistent with the County Municipal Code. The SWRCB lists the California Stormwater BMP Handbooks as providing guidance on selecting BMPs for reducing pollutants in storm water discharges.[1] Routine Nonstructural and Structural Source Control BMPs applicable to the project which would be implemented are provided in Table D.

Table D: Routine Nonstructural and Structural Source Control BMPs

Identifier	Name	Type	
		Nonstructural	Structural
Site Design BMPs			
SD-10	Site Design & Landscape Planning		√
SD-13	Storm Drain Signage		√
Source Control BMPs			
SD-32	Trash Storage Areas		√
SC-71	Plaza and Sidewalk Cleaning	√	

[1] www.swrcb.org.

Source: California Stormwater BMP Handbooks (2003).
BMP = Best Management Practices
SC = Source Control
SD = Site Design

Elkhorn Slough and Moss Landing Harbor are listed on the 2006 303(d) list as impaired for pathogens, pesticides, sedimentation/siltation, low dissolved oxygen, total coliform, pH, chlorpyrifos, diazinon, nickel, and sediment toxicity. Pollutants of concern from operation of the proposed project include pathogens and sedimentation/siltation. Therefore, the analysis below and prescribed BMPs target those pollutants (i.e., pathogens and sedimentation/siltation) that are both causing impairments to Elkhorn Slough and Moss Landing Harbor and are of concern during the operation of the proposed project.

In general, existing vegetation would be preserved as much as practical during project construction. Where vegetation must be disturbed, it would be reestablished with erosion control seeding. There is no existing irrigation in the project area, and irrigation is not proposed as part of the project. Only plant species that do not require irrigation would be incorporated into the replanting plans. To reduce erosion from increased runoff, storm water would sheet flow into the vegetated areas adjacent to the trail. In areas where water would concentrate, water conveyance and erosion control measures would be implemented (Measure WQ-1).

Landscape planting would be native species, so little or no landscape maintenance is anticipated. Therefore, nutrients from fertilizer and chemicals from pesticides are not a potential pollutant from operation of the proposed project (Measure WQ-3).

The Moss Landing Harbor shoreline south of Elkhorn Slough is currently eroding due to the failure of the existing slope protection. To minimize sedimentation/siltation into Moss Landing Harbor, which contributes to the existing impairment of harbor waters and Elkhorn Slough, the existing broken concrete slope protection along the shoreline south of Elkhorn Slough would be replaced with new imported rock slope protection. The shoreline would also be re-graded to provide a more uniform slope. The new rock slope protection would reduce the erosion potential of storm water runoff and wave action. Rock slope protection would also be provided on the harbor shoreline along the north side of Moss Landing Road (Measure WQ-3).

To prevent illicit discharge into the storm drain system, storm drains would be stenciled or labeled to prohibit illegal dumping (Measure WQ-4).

To minimize trash pollution, trash receptacles would be provided adjacent to the trail. A litter control program would be implemented to ensure that the trash receptacles are emptied on a regular basis and the trash is removed from trail and landscaping areas. In addition, a sweeping program would be implemented to sweep the trail at least monthly in order to minimize the potential for pollutant loads from these areas (Measure WQ-4).

To minimize pathogens in storm water runoff, signs would be posted notifying the public to pick up and properly dispose of pet waste. In addition, bags would be provided at stations areas adjacent to the trail for pet owners to use to dispose of pet waste (Measure WQ-4).

When BMPs are implemented in accordance with NPDES Permit requirements as stipulated in Measure WQ-3 and WQ-4, the proposed project would not result in adverse impacts to surface water quality.

No Build Alternative. Under the No Build Alternative, there would not be an increase in impervious area or change in land use. Therefore, the No Build Alternative would not result in an increase in long-term pollutant loading.

5.2.3 Cumulative Impacts

The cumulative study area for water quality and storm water runoff is the Bolsa Nueva Hydrologic Unit because the project area is tributary to this watershed.

As these watersheds become more urbanized, conversion of undeveloped land to transportation, commercial/industrial, or residential uses results in hydromodification and increased loading of pollutants into surface waters and indirectly into groundwater. It also introduces new sources of pollutants associated with the new land uses.

In order to counteract the impacts associated with increased development, each project must undergo review by the Lead Agency for compliance with the NPDES permit for construction activities, groundwater dewatering, and project operations, as well as compliance with local urban runoff ordinances. For projects within Caltrans jurisdiction, this includes compliance with the Caltrans Statewide Storm Water Management Plan and any local requirements of the Central Coast RWQCB. For development projects, this includes compliance with local ordinances. BMPs must be employed in site design to reduce sources of pollutants as well as to treat storm water runoff.

The purpose of the NPDES permit program and, by extension, the TMDL program is to restore the beneficial uses of receiving waters. The NPDES permit is updated every 5 years by the Central Coast RWQCB based on the conditions of the watershed. Compliance with the NPDES program consistent with each project's impacts and pollutants of concern is considered sufficient to mitigate impacts to water quality. Because the proposed project includes measures to address pollutants of concern, the project would not contribute to cumulative water quality impacts.

6.0 AVOIDANCE AND MINIMIZATION MEASURES

WQ-1 The County of Monterey (County) shall ensure that the project complies with the County Municipal Code, Chapter 16.12. During the plans, specifications, and estimates (PS&E) phase, an Erosion Control Plan shall be submitted to the County of Monterey Director of Public Works for approval. The Erosion Control Plan shall indicate the proposed methods for the control of runoff, erosion, and sediment movement.

WQ-2 The County of Monterey (County) shall ensure that the project complies with the requirements of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (Order No. 2009-009-DWQ, as amended by 2010-0014-DWQ); NPDES No. CAS000002 and any subsequent permit as they relate to construction activities. This will include submission of the Permit Registration Documents, including a Notice of Intent, risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and signed certification statement to the State Water Resources Control Board via the Storm Water Multi-Application and Report Tracking System at least 30 days prior to the start of construction. Construction activities will not commence until a Waste Discharger Identification number is received from the Storm Water Multi-Application and Report Tracking System. The SWPPP will be prepared by a Qualified SWPPP Developer; will meet the requirements of the Construction General Permit; and will identify potential pollutant sources associated with construction activities, identify non-storm water discharges, develop a water quality monitoring and sampling plan, and identify, implement, and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants associated with the construction site. BMPs will include, but not be limited to, Good Housekeeping, Erosion Control, and Sediment Control BMPs. The BMPs identified in the SWPPP will be implemented during project construction. The County of Monterey will comply with the sampling and reporting requirements of the Construction General Permit, as applicable. If required, a Rain Event Action Plan will be prepared and implemented by a Qualified SWPPP Developer within 48 hours prior to a rain event of 50 percent or greater probability of precipitation according to the National Oceanic and Atmospheric Administration. The County of Monterey or their contractor shall also prepare and submit an Annual Report no later than September 1 of each year using the Storm Water Multi-Application and Report Tracking System. A Notice of Termination shall be submitted to the State Water Resources Control Board within 90 days of completion of construction and stabilization of the site.

WQ-3 During development of plans, specifications, and estimates (PS&E), the County of Monterey (County) shall incorporate source control and site design Best Management Practices (BMPs) consistent with the County Municipal Code. The BMPs shall be

properly designed and maintained to target pollutants of concern. These Source Control and Site Design BMPs shall include, but not be limited to, the following:

- **Site Design and Landscape Planning.** Existing vegetation shall be preserved to the extent possible during project construction. Where vegetation must be disturbed, it shall be reestablished with erosion control seeding. Only plant species that do not require irrigation or maintenance shall be incorporated into the replanting plans.
- **Drain Inlet Stenciling.** All drain inlets at the project site shall be stenciled or labeled to prohibit illegal dumping.
- **Rock Slope Protection.** The existing concrete rubble along the Moss Landing Harbor shoreline south of Elkhorn Slough shall be replaced with new engineered rock slope protection. New rock slope protection shall also be constructed on the harbor shoreline along the north side of Moss Landing Road.

WQ-4 The County of Monterey shall incorporate operational Best Management Practices (BMPs) consistent with the County Municipal Code. The BMPs shall be properly designed and maintained to target pollutants of concern. These operational BMPs shall include, but not be limited to, the following:

- **Pet Waste Control.** Signs notifying the public to pick up and properly dispose of pet waste shall be placed in landscaped areas adjacent to the trail.
- **Trail Sweeping Program.** The trail shall be swept routinely to minimize the potential for pollutant loads from these areas in storm water and dry weather flows.
- **Litter Control Program and Design of Trash Storage Areas.** The litter control program shall focus on litter control for common areas and shall include the placement and emptying of trash receptacles and removing trash from the trail and landscaping areas.
- **Drainage Facility Inspection.** On-site drainage facilities shall be inspected and cleaned/maintained as necessary, at a minimum annually, prior to October 1.

7.0 REFERENCES

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