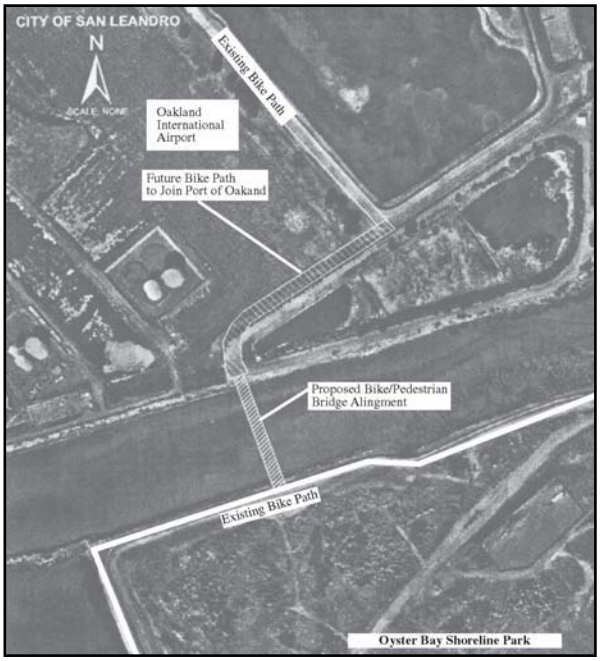
Oyster Bay Bridge at Oyster Bay Slough



Natural Environment Study

Federal Aid Number HP21L-5041 (025)

City of San Leandro

835 East 14th Street, San Leandro, CA 94577

and

East Bay Regional Parks District

2950 Peralta Oaks Court, Oakland, CA 94605

04-ALA-0-SLn

May 22, 2008

Caltrans

Natural Environment Study

Federal Aid Number HP21L-5041 (025)

City of San Leandro

835 East 14th Street, San Leandro, CA 94577

and

East Bay Regional Parks District

2950 Peralta Oaks Court, Oakland, CA94605

04-ALA-0-SLn

May 22, 2008

Prepared By: _____ Date: 6/2/08

Philip Greer, Senior Plant Ecologist
(415) 454-8868
WRA, Inc.

Approved By: _____ Date: 6/3/08

John O'Driscoll, Associate Engineer
(510) 577-3494
City of San Leandro

Summary

The proposed project is located in the City of San Leandro, in Alameda County, California, in an area comprised of land owned by the City of San Leandro, the East Bay Regional Parks District, and the Port of Oakland near the mouth of Oyster Bay Slough (Study Area). The proposed project includes the construction of a pedestrian/bicycle bridge and a 630-foot long paved levee-top trail to connect the Bay Trail located in Oyster Bay Regional Shoreline with an existing portion of Bay Trail on the north side of Oyster Bay Slough, located on property owned by the Port of Oakland. The new portion of levee-top trail and the new bridge would be part of the Bay Trail system. The bridge would span Oyster Bay Slough, a shallow, remnant embayment located between Oyster Bay Regional Shoreline to the south, and the City of San Leandro wastewater treatment facility, Port of Oakland, and Galbraith Golf Course to the north. The proposed project would fill one of the final links in the regional Bay Trail system in the San Leandro area, providing greatly increased public access to the Bay shoreline in what is now an inaccessible area. Once completed, the Oyster Bay Slough Bridge and levee-top trail would close the final gap in contiguous Bay Trail from Oakland to Hayward.

The proposed levee-top Bay Trail alignment follows an existing levee-top gravel access road surrounding a former wastewater treatment pond owned by the City of San Leandro. To accommodate the new portion of levee-top Bay Trail, the existing levee-top access road would be widened by means of a sheetpile retaining structure and placement of fill to widen the levee top. The new trail segment would be 630 feet of paved surface, measuring 12 feet wide with two-foot shoulders (16-foot total width). Fencing would be constructed to separate the newly constructed portion of Bay Trail from the existing City of San Leandro levee-top access road.

A steel and concrete bridge supported on large diameter concrete-filled steel-shell piles is proposed to span Oyster Bay Slough. Three 48-inch diameter cast-in-steel-shell (CISS) piles used to support the bridge would be driven into the mudflat substrate of Oyster Bay Slough. Two bridge abutments would be used to anchor the bridge at either end, and would be constructed in levee-top uplands above the banks of Oyster Bay Slough. The proposed Oyster Bay Slough Bridge would be approximately 348 feet long, with a clear travel width of ten feet and a railing height of 54 inches.

Construction of the proposed bridge will directly and permanently impact 38 square feet of tidal mudflats of Oyster Bay Slough, in the form of permanent fill. This fill will be

caused by the three support piers called for in the bridge design plans. Permits from the US Army Corps of Engineers (ACOE), the San Francisco Bay Conservation and Development Commission (BCDC), and the San Francisco Bay Regional Water Quality Control Board (RWQCB) will be required to conduct the pile-driving and bridge construction portion of the project work. Avoidance and minimization measures approved by the ACOE, USFWS and NOAA/NMFS will be implemented as conditions of these permits. Permits required by the proposed project include:

- ACOE Nationwide Permit 14 (NWP14)
- RWQCB Section 401 Water Quality Certification
- BCDC Administrative Permit

The proposed project will not involve application for a CDFG 1602 Lake and Streambed Alteration Agreement. Oyster Bay Slough is not a naturally occurring slough but is in fact a remnant of San Francisco Bay open water and mudflat that has been enclosed by fill placed for construction of the Oakland International Airport to the north and the former landfill located at the current location of Oyster Bay Regional Shoreline to the south. Oyster Bay Slough has unrestricted tidal action and salt marsh species-dominated vegetation indicating salinities found in open Bay waters. No streams or other natural freshwater features drain into Oyster Bay Slough from the City of San Leandro or any adjacent cities. No lakes, streams, or riparian habitats regulated under 1602 occur within the Study Area.

In addition to the permits required by the agencies listed above, informal consultation with the USFWS and NOAA/NMFS will need to occur due to the conclusions reached in this document regarding the potential impacts to federal-listed species that have the potential to occur within the Study Area.

No permanent impacts to wetland vegetation will occur as a result of the proposed project. Approximately 150 square feet (less than 0.01 acre) of tidal wetland vegetation consisting of approximately 140 square feet of non-native, invasive smooth cordgrass (S*partina alterniflora*) and 10 square feet of pickleweed (*Salicornia* virginica) and salt marsh gum plant (*Grindelia stricta* var. *angustifolia*) plants occur within the bridge footprint near the north levee of Oyster Bay Slough. The tidal wetland vegetation located within the bridge footprint has the potential to be partially shaded by the proposed bridge during midday. However, due to the elevation of the bridge above the vegetation and the north-south aspect of the proposed bridge, shading is expected to be minimal and less

than significant. A sufficient amount of sunlight will reach wetland vegetation located in the bridge footprint to sustain its current extent. No permanent fill will be placed in wetland vegetation, and no removal of wetland vegetation will occur, as the bridge abutments will be fully constructed in upland habitat adjacent to the banks of Oyster Bay Slough, and the three bridge support piles will be located within the non-vegetated tidal mudflats of Oyster Bay Slough.

Approximately 3,330 square feet of tidal mudflats and tidal waters in Oyster Bay Slough located in the footprint of the proposed bridge will also be subject to partial shading by the bridge at midday. However, because of the elevation of the bridge above the tidal mudflats and the north-south orientation of the bridge, shading will be minimal and less than significant.

Caltrans will enter into informal consultation with the USFWS and NOAA/NMFS regarding the four federal-listed species that have the potential to be directly or indirectly impacted by the proposed project. With the implementation of the avoidance and minimization efforts listed below and in the previous chapter the proposed project is not likely to adversely affect any federal-listed species that may be present in the proposed project area.

Caltrans will enter into informal consultation with NOAA/NMFS regarding federally managed EFH in Oyster Bay Slough. Oyster Bay Slough is identified as EFH in the Pacific Groundfish FMP and Coastal Pelagic FMP under the Magnuson-Stevens Act. With the implementation of the avoidance and minimization efforts listed below and in the previous chapter the proposed project is not likely to adversely affect EFH that is present in the proposed project area. Construction activities have the potential to directly or indirectly impact four federal listed species and one state listed and seven state species of special concernwith potential to occur in the Study Area. However, no direct, indirect or cumulative impacts to these special status species are expected to occur as a result of the proposed project as all impacts will be avoided with the implementation of avoidance and minimization measures. Avoidance and minimization measures include pre-construction surveys, performing construction activities within designated work windows and the use of US Fish and Wildlife Service (USFWS) approved exclusion fencing to prevent listedspecies from entering the construction area.

The pile-driving portion of the proposed project has the potential to directly impact two special status species with potential to occur in the Study Area; central California coast

steelhead (*Oncorhynchus mykiss irideus*, Federal Threatened, California Species of Special Concern), and Central Valley fall/late fall-run Chinook salmon (*Oncorhynchus tshawytscha*, Federal Candidate for Listing, California Species of Special Concern). Impacts could occur if underwater sound levels reached during pile-driving activities exceed a level injurious to juveniles of these species. To avoid impacts to special status fish species, pile driving will be conducted during the work window allowed by the National Oceanic and Atmospheric Administration/National Marine Fisheries Service (NOAA/NMFS) in south-central San Francisco Bay for central California coast steelhead (June 1-November 30). No work window is given for the Central Valley fall/late fall-run Chinook salmon south of the Bay Bridge by NOAA/NMFS, although the same work window listed above is given for Central Valley fall/late-fall run Chinook salmon for central San Francisco Bay, north of the Bay Bridge. This steelhead work window occurs during the non-outmigrant movement period for these anadromous species, when juveniles are unlikely to be found in the vicinity of Oyster Bay Slough. With the implementation of these avoidance and minimization measures, the proposed project is not likely to adversely affect the Central California coast steelhead or the Central Valley fall/late fall-run Chinook salmon.

The pile-driving portion of the proposed project has the potential to indirectly impact one special status species with potential to occur in the Study Area; California clapper rail (*Rallus longirostris obsoletus*, Federal Endangered, State Endangered, California Fully Protected Species). These impacts could occur as a result of acoustic disturbance during pile-driving activities that could disrupt nesting behavior. Suitable nesting habitat for California clapper rail is present in the vicinity of the bridge footprint. All impacts to California clapper rail via acoustic disturbance due to pile-driving activities will be avoided, however, with the implementation of avoidance and minimization measures. To avoid impacts to California clapper rail, pile-driving activities will be conducted outside of the California clapper rail breeding season of February 1-August 31, giving a rail work window for pile-driving activities of September 1-January 31. With the implementation of these avoidance and minimization measures, the proposed project is not likely to adversely affect the California clapper rail.

The resultant composite work window that avoids both the California clapper rail breeding season and any salmonid outmigrant movement is September 1-November 30. To avoid all pile-driving related impacts to special status species with potential to occur in the Study Area, all pile-driving activities in Oyster Bay Slough will take place during this composite work window. As a result of these avoidance and minimization measures,

the proposed project will have no direct, indirect or cumulative impacts on, and is not likely to adversely affect the central California coast steelhead, Central Valley fall/late fall-run Chinook salmon, or California clapper rail.

Construction of the levee-top Bay Trail portion of the proposed project has the potential to directly impact two special status wildlife species with potential to occur in salt marsh adjacent to the Study Area; salt marsh harvest mouse (*Reithrodontomys raviventris*, Federal Endangered, State Endangered, California Fully Protected Species) and salt marsh wandering shrew (*Sorex vagrans halicoetes*, California Species of Special Concern). Impacts could occur as a result of worker intrusion into marsh habitat, or from small mammal dispersal into the construction area during activities such as brush clearing or grading. These impacts will be avoided through implementation of avoidance and minimization measures.

To avoid impacts to salt marsh harvest mouse and salt marsh wandering shrew, pre-construction surveys for presence of these species in the construction area will be conducted. Construction activities will not proceed until the levee-top construction area has been cleared by a biological monitor on the day of construction. In the event that a federal-listed species is observed during pre-construction monitoring, construction activities will be halted and USFWS will be notified. All brush clearing on levee uplands within and adjacent to adjacent to the levee-top trail footprint will be done by hand, giving small mammals the opportunity to disperse out of the construction area. Finally, two separate fences, consisting of both silt fencing and personnel exclusion fencing will be constructed to keep small mammals from dispersing back into the construction area, and to keep workers and equipment from entering the salt marsh habitat adjacent to the levee-top trail footprint. As a result of these avoidance and minimization measures, the proposed project will have no direct, indirect or cumulative impacts on, and is not likely to adversely affect the salt marsh harvest mouse or salt marsh wandering shrew.

Construction of the levee-top Bay Trail portion of the proposed project also has the potential to directly or indirectly impact three special status bird species either present or with potential to occur in the Study Area; saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*, California Species of Special Concern), Alameda song sparrow (*Melospiza melodia pusillula*, California Species of Special Concern), and western burrowing owl (*Athene cunicularia hypugea*, California Species of Special Concern). These impacts could occur from loss of nesting habitat or the abandonment of eggs or young due to removal of levee-top shrub species and/or any removal of ground squirrel

burrows within the footprint of the levee-top Bay Trail. These impacts will be avoided through the implementation of avoidance and minimization measures.

To avoid impacts to saltmarsh common yellowthroat and Alameda song sparrow, removal of shrubs within the trail footprint will be carried out during the non-nesting season, giving a nesting bird work window of August 1-Feb 28. An alternative measure is to conduct a pre-construction survey during the nesting season (March 1-July 31). Shrub removal may proceed if no active nests are observed during the nesting season survey. To avoid impacts to western burrowing owl, a pre-construction survey will be carried out within 30 days of construction commencement of the levee-top trail or any other construction activities located in suitable upland habitat. The survey protocol should follow guidelines developed by California Department of Fish and Game (CDFG). If owls are observed during the breeding season (February 1-August 31), the burrow must be avoided with a 250-foot buffer. If owls are observed during the non-breeding season, the burrow must be avoided with a 125-foot buffer. If presence is observed, CDFG must be consulted before any work can occur within buffer areas. With the implementation of the proposed avoidance and minimization measures no direct, indirect or cumulative impacts to saltmarsh common yellowthroat, Alameda song sparrow or western burrowing owl will occur as a result of the proposed project.

Construction of the levee-top Bay Trail portion of the proposed project also has the potential to directly or indirectly impact nesting bird species protected by the Migratory Bird Treaty Act (MBTA). To avoid impacts to species protected by the MBTA, removal of shrubs within the trail footprint will be carried out during the non-nesting season, giving a nesting bird work window of August 1-Feb 28. Another alternative is to conduct a pre-construction breeding bird survey in spring. The surveys should be conducted within suitable nesting habitat in and near the project footprint area and within 30 days of the beginning of construction. All active nests identified at that time should be protected by an exclusion zone. Exclusion zones and avoidance measures may vary depending on each species and should be determined by consultation with CDFG. The exclusion zone should remain in place until all young have fledged. Since some birds may have three broods, avoidance could possibly extend into August. With the implementation of the proposed avoidance and minimization measures no direct, indirect or cumulative impacts to species protected by the MBTA will occur as a result of the proposed project.No indirect, direct or cumulative impacts to special status plant species with potential to occur in the vicinity of the Study Area will occur as a result of the proposed project. Due to the disturbed nature of the Study Area, no suitable habitat for any special status plant

species with potential to occur within the Study Area is present. No further protocol-level surveys are recommended for special status plant species with potential to occur in the Study Area.

The California Department of Transportation (Caltrans) is assuming the role of the National Environmental Protection Act (NEPA) lead agency under the provisions of the Memorandum of Understanding (MOU) between the Federal Highway Administration (FHWA) and Caltrans concerning California's participation in the Surface Transportation Project Delivery Pilot Program, which became effective on July 1, 2007. The MOU was signed pursuant to Section 6005 of the 2005 Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU allows the federal secretary of transportation to assign to the state of California FHWA's responsibilities under federal environmental laws. As this project is covered by the Pilot Program MOU, FHWA has assigned to and Caltrans has assumed FHWA responsibility for environmental review, consultation, and coordination on this project. Please direct all future correspondence on this project to Caltrans.

Table of Contents

Summary iii
Table of Contents x
List of Figures xiii
List of Tables xiv
List of Abbreviated Terms xv
Chapter 1. Introduction 1
1.1. Project History 1
1.1.1. NEPA Delegation 1
1.1.2. Purpose and Need 4
1.2. Project Description 5
Chapter 2. Study Methods 14
2.1. Regulatory Requirements 14
2.2. Studies Required 17
2.3. Personnel and Survey Dates 21
2.4. Agency Coordination and Professional Contacts 21
2.5. Limitations That May Influence Results 22
Chapter 3. Results: Environmental Setting 23
3.1. Description of the Existing Biological and Physical Conditions 23
3.1.1. Study Area 23
3.1.2. Physical Conditions in the Study Area 24
3.1.3. Biological Conditions in the Study Area 24
3.2. Regional Species and Habitats of Concern 26
Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation 30
4.1. Natural Communities of Special Concern 30
4.1.1. Northern Coastal Salt Marsh 30
4.1.1.1. Survey Results 31
4.1.1.2. Avoidance and Minimization Efforts 32
4.1.1.3. Project Impacts 32
4.1.1.4. Compensatory Mitigation 34
4.1.1.5. Cumulative Impacts 35
4.2. Special Status Plant Species 35
4.2.1. Discussion of Individual Special Status Plant Species 35
4.2.1.1. Survey Results 35
4.2.1.2. Avoidance and Minimization Efforts 36
4.2.1.3. Project Impacts 36
4.2.1.4. Compensatory Mitigation 36
4.2.1.5. Cumulative Effects 37
4.3. Special Status Wildlife Species Occurrences 37
4.3.1. Salt Marsh Wandering Shrew 37
4.3.1.1. Survey Results 37
4.3.1.2. Avoidance and Minimization Efforts 38
4.3.1.3. Project Impacts 38
4.3.1.4. Compensatory Mitigation 38
4.3.1.5. Cumulative Effects 38
4.3.2. Salt Marsh Harvest Mouse 39
4.3.2.1. Survey Results 39

4.3.2.2. Avoidance and Minimization Efforts 39
4.3.2.3. Project Impacts 39
4.3.2.4. Compensatory Mitigation 40
4.3.2.5. Cumulative Effects 40
4.3.3. Sharp-shinned Hawk 40
4.3.3.1. Survey Results 40
4.3.3.2. Avoidance and Minimization Efforts 40
4.3.3.3. Project Impacts 40
4.3.3.4. Compensatory Mitigation 41
4.3.3.5. Cumulative Effects 41
4.3.4. Cooper's Hawk 41
4.3.4.1. Survey Results 41
4.3.4.2. Avoidance and Minimization Efforts 41
4.3.4.3. Project Impacts 41
4.3.4.4. Compensatory Mitigation 41
4.3.4.5. Cumulative Effects 42
4.3.5. American Peregrine Falcon 42
4.3.5.1. Survey Results 42
4.3.5.2. Avoidance and Minimization Efforts 42
4.3.5.3. Project Impacts 42
4.3.5.4. Compensatory Mitigation 42
4.3.5.5. Cumulative Effects 42
4.3.6. Long-billed Curlew 43
4.3.6.1. Survey Results 43
4.3.6.2. Avoidance and Minimization Efforts 43
4.3.6.3. Project Impacts 43
4.3.6.4. Compensatory Mitigation 43
4.3.6.5. Cumulative Effects 43
4.3.7. California Clapper Rail 44
4.3.7.1. Survey Results 44
4.3.7.2. Avoidance and Minimization Efforts 44
4.3.7.3. Project Impacts 44
4.3.7.4. Compensatory Mitigation 45
4.3.7.5. Cumulative Effects 45
4.3.8. Western Burrowing Owl 45
4.3.8.1. Survey Results 45
4.3.8.2. Avoidance and Minimization Efforts 45
4.3.8.3. Project Impacts 46
4.3.8.4. Compensatory Mitigation 46
4.3.8.5. Cumulative Effects 46
4.3.9. Saltmarsh Common Yellowthroat 46
4.3.9.1. Survey Results 47
4.3.9.2. Avoidance and Minimization Efforts 47
4.3.9.3. Project Impacts 47
4.3.9.4. Compensatory Mitigation 47
4.3.9.5. Cumulative Effects 47
4.3.10. Alameda Song Sparrow 48
4.3.10.1. Survey Results 48
4.3.10.2. Avoidance and Minimization Efforts 48
4.3.10.3. Project Impacts 48
4.3.10.4. Compensatory Mitigation 49

4.3.10.5. Cumulative Effects 49
4.3.11. Central California Coast Steelhead 49
4.3.11.1. Survey Results 49
4.3.11.2. Avoidance and Minimization Efforts 49
4.3.11.3. Project Impacts 50
4.3.11.4. Compensatory Mitigation 50
4.3.11.5. Cumulative Effects 50
4.3.12. Central Valley Fall/Late Fall-Run Chinook Salmon 50
4.3.12.1. Survey Results 50
4.3.12.2. Avoidance and Minimization Efforts 51
4.3.12.3. Project Impacts 51
4.3.12.4. Compensatory Mitigation 51
4.3.12.5. Cumulative Effects 51
4.4. Essential Fish Habitat 52
4.4.1. Survey Results 52
4.4.2. Avoidance and Minimization Efforts 52
4.4.3. Project Impacts 53
4.4.4. Compensatory Mitigation 54
4.4.5. Cumulative Effects 54
4.5. Migratory Bird Treaty Act Species 54
4.5.1. Survey Results 54
4.5.2. Avoidance and Minimization Efforts 54
4.5.3. Project Impacts 55
4.5.4. Compensatory Mitigation 55
4.5.5. Cumulative Effects 55
Chapter 5. Results: Permits and Technical Studies for Special Laws or Conditions 56
5.1. Federal Endangered Species Act Consultation Summary 56
5.2. Federal Fisheries and Essential Fish Habitat Consultation Summary 56
5.3. California Endangered Species Act Consultation Summary 58
5.4. Wetlands and Other Waters Coordination Summary 58
5.5. Executive Orders 59
Chapter 6. References 61
Appendix A Bay Trail Bridge at Oyster Bay Slough Project Design Plans 64
Appendix B Potential for Special Status Plant and Wildlife Species to Occur in the Study Area 65
Appendix C Wetland Delineation Report 66
Appendix D Summary of Coordination with Agencies 67
Appendix E Representative Site Photographs 70
Appendix F Calculated Tidal Datums at Oyster Bay 71
Appendix G USFWS Official Species List for the San Leandro 7.5 Minute and Surrounding USGS Quad Maps 72

List of Figures

Figure 1: Regional Location Map for the Bay Trail Bridge at Oyster Bay Slough 2
Figure 2: Vicinity Aerial Map for the Bay Trail Bridge at Oyster Bay Slough 3
Figure 3. Sheetpile Alternative (Port of Oakland Side)..... 11
Figure 4. Potential Jurisdictional Features within the Oyster Bay Bridge Project Footprint . 27

List of Tables

Table 1. Summary of Build Alternatives.....9
Table 2. Federal Managed Species with Essential Fish Habitat in Oyster Bay Slough 52

List of Abbreviated Terms

ACOE	United States Army Corps of Engineers
BCDC	San Francisco Bay Conservation and Development Commission
CalIPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CIDH	Cast-in-drilled-hole
CISS	Cast-in-steel-shell
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CY	Cubic Yard
EBRPD	East Bay Regional Park District
EFH	Essential Fish Habitat
EO	Executive Order
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FAC	Facultative species
FACW	Facultative wetland species
FHWA	Federal Highway Administration
FMP	Fishery Management Plan
HTL	High tide line
MBTA	Migratory Bird Treaty Act
MHW	Mean High Water
MOU	Memorandum of Understanding
MSL	Mean Sea Level
NAVD	North American Vertical Datum
NMFS	National Marine Fisheries Service

NOAA	National Oceanic and Atmospheric Administration
OBL	Obligate wetland species
OHW	Ordinary high water
RWQCB	San Francisco Bay Regional Water Quality Control Board
SAFETA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Chapter 1. Introduction

On April 27 and 29, 2004, WRA performed a site assessment for the proposed Bay Trail Bridge at Oyster Bay Slough project located south of the Oakland Airport in San Leandro, Alameda County, California (Study Area, Figures 1, 2). A follow-up visit was made on August 15, 2007 to verify that site conditions had remained unchanged in the time since the initial site assessment was performed. The Study Area is bounded by Port of Oakland property and Galbraith Golf Course to the north, the City of San Leandro wastewater treatment plant and commercial and industrial development to the east, and the Oyster Bay Regional Shoreline to the south. The open waters of San Francisco Bay is immediately west of the Study Area.

This site assessment provides information on the potential presence of sensitive species or habitats. The site assessment is not based on protocol level surveys for any listed species; however, such surveys may be required for project approval by local, state, or federal agencies. Specific findings on the occurrence of any species or the presence of sensitive habitats may require that protocol surveys be conducted. This assessment is based on information available at the time of the study and on site conditions that were observed on the dates of the site visits.

The purposes of this site assessment are to (1) determine the presence of potential habitat for special status species known to occur in tidal and adjacent upland habitats in Alameda County, (2) determine the presence of any sensitive plant communities or unique habitats, and (3) provide recommendations regarding mitigation measures for potential impacts to those special status species and/or sensitive habitats that may occur within or be affected by the proposed project.

1.1. Project History

1.1.1. NEPA Delegation

The California Department of Transportation (Caltrans) is assuming the role of the National Environmental Protection Act (NEPA) lead agency under the provisions of the Memorandum of Understanding (MOU) between the Federal Highway Administration (FHWA) and Caltrans concerning California's participation in the Surface Transportation Project Delivery Pilot Program, which became effective on

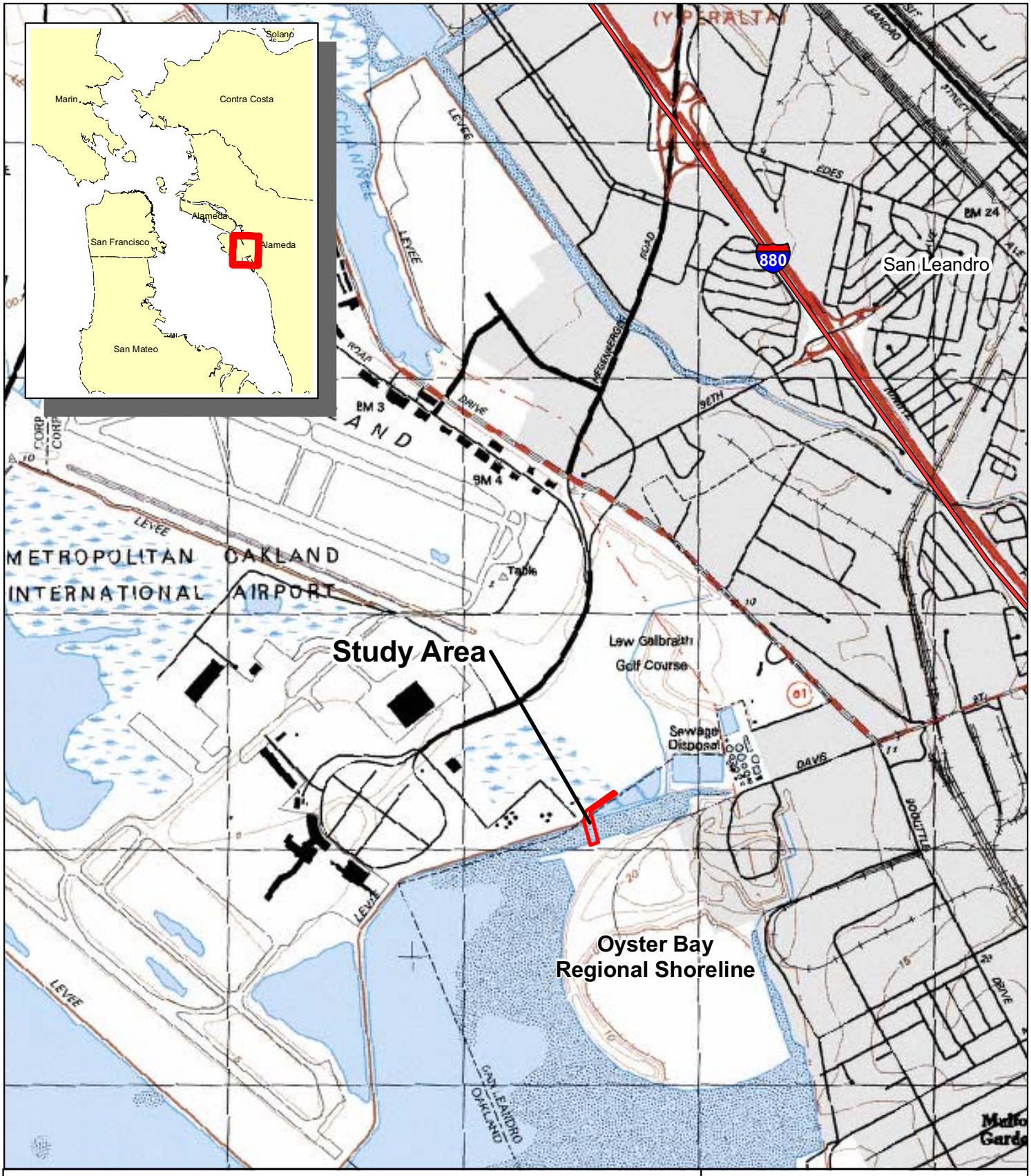


Figure 1. Study Area Location Map

Bay Trail Bridge at Oyster Bay Slough
San Leandro, California

N

0 1,000 2,000 Feet

wra
ENVIRONMENTAL CONSULTANTS

Date: September 2007
Basemap: USGS Topo Quad
Map By: Derek Chan
Filepath: L:\Acad 2000Files\13000\13056\GIS\Arcmap\Fig1_LocMap_20070921.mxd

VICINITY AERIAL MAP FOR THE BAY TRAIL BRIDGE

Figure 2

Source: City of San Leandro.

BASELINE

Y4204.00049.Fig2.cdr 5/10/05

July 1, 2007. The MOU was signed pursuant to Section 6005 of the 2005 Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU allows the federal secretary of transportation to assign to the state of California FHWA's responsibilities under federal environmental laws. As this project is covered by the Pilot Program MOU, FHWA has assigned to and Caltrans has assumed FHWA responsibility for environmental review, consultation, and coordination on this project. Please direct all future correspondence on this project to Caltrans.

1.1.2. Purpose and Need

The purpose and need of the project is to close one of the last major gaps in the Bay Trail in the vicinity of the Study Area. The Bay Trail is a pedestrian and bicycle trail system that when completed will circumnavigate San Francisco Bay. The Bay Trail provides Bay shoreline pedestrian access in many areas of San Francisco Bay that have been previously inaccessible due to development and other use. Many portions of the Bay Trail are already complete, and the completion of the Bay Trail bridge over Oyster Bay Slough will provide a contiguous stretch of Bay Trail from Oakland to Hayward.

The objectives for the proposed project include the following:

- Provide an architecturally pleasing bridge across Oyster Bay Slough;
- Provide a bridge that requires low maintenance;
- Provide a bridge that can support a 10,000 pound emergency vehicle;
- Minimize environmental impact;
- Provide an overall bridge length of approximately 348 feet, with a railing height of 54 inches, and a bridge clear travel lane of 10 feet;
- Provide a minimum clearance of five feet above Mean Higher High Water;
- Complete the 630-foot gap in the Bay Trail by constructing a new trail on the levee; and
- Design the Bay Trail connection to comply with applicable trail standards and allow the continued use of the levee by City of San Leandro maintenance vehicles.

1.2. Project Description

The proposed Bay Trail Bridge at Oyster Bay Slough project is located south of the Oakland Airport in San Leandro, Alameda County, California (Figure 1). The project includes the construction of a pedestrian/bicycle bridge and a 630-foot long paved trail to connect the Oyster Bay Regional Shoreline, located in the city of San Leandro, with existing Bay Trail facilities that are located to the north of Oyster Bay Slough on Port of Oakland property (Sheet 3, Appendix A). The bridge and connecting trail would fill one of the final links in the regional Bay Trail system and would provide a continuous bike path from Oakland to Hayward.

The proposed bridge would span Oyster Bay Slough, a shallow, man-made embayment. The south bank of the slough is comprised of stone riprap, and marks the boundary of the Oyster Bay Regional Shoreline. An existing portion of the Bay Trail runs parallel to the south levee in the Regional Shoreline. The north bank of the slough is also comprised of riprap. A city-maintained gravel access road surrounds a wastewater treatment pond adjacent to the northern levee in the vicinity of the bridge crossing, and extends north to the terminus of an existing portion of Bay Trail located on Port of Oakland Property. The treatment pond is currently maintained, but is not in active use.

Oyster Bay Slough Bridge

A four-span steel bridge supported on large diameter concrete-filled steel pipe piles has been recommended to meet the construction, architecture, and engineering objectives of the project (Sheet 8, Appendix A). With only three piers, the design would minimize environmental impact and foundation work in the slough channel. Three large diameter steel pipes driven in to the tidal mudflat substrate of Oyster Bay Slough will provide the lateral strength and stiffness needed for seismic loads. No treated timber products will be used in the pile-driving construction activities.

The proposed bridge will be approximately 348 feet long, with a clear travel width of ten feet and a railing height of 54 inches. The bridge structure consists of four prefabricated steel truss pieces, measuring approximately 87 feet in length. The bridge will be anchored to abutments on the south and north sides of Oyster Bay Slough by short, seat type abutments on precast concrete pile foundations. The elevation of the bridge abutments will be 15.0 feet on the north side and 17.4 feet on the south side (elevations in NAVD 88).

The bridge structure will be supported by three piers consisting of four-foot diameter cast-in-steel-shell (CISS) concrete piles. The CISS piles will require significantly more construction effort than precast piles (e.g. the requirement to drill and remove soil inside the steel casing before casting with concrete can occur). However, precast piles would require an 80-foot crane to install. CISS piles are proposed because they can be installed with a smaller crane, which will minimize equipment height encroachment into the regulated Federal Aviation Administration (FAA) airspace during pile-driving activities. CISS piles can be driven in shorter sections with a smaller crane and the sections welded together, thereby minimizing intrusion into the regulated FAA airspace surrounding the Port of Oakland (Mark Thomas & Co., 2004b).

Two possible build options are proposed to construct the Oyster Bay Slough Bridge. One option uses barges to float bridge construction equipment and machinery into Oyster Bay Slough. Construction work would be conducted from these barges. The other option involves the construction of a temporary trestle adjacent to the bridge alignment. Construction work would be conducted from this trestle, and the trestle would be dismantled after construction work on the bridge was complete. The trestle construction option is meant to provide a contingency option in the event that barges cannot be navigated into the construction area within Oyster Bay Slough.

Although the permanent fill impacts associated with the Oyster Bay Slough Bridge pilings will result from bridge construction regardless of the construction option used, both construction options have different temporary impacts associated with them. All construction related impacts, both permanent and temporary, are discussed in Section 4.1.1. Both the barge construction option and the trestle construction option are described in detail below.

Barge Construction Option

Under the barge construction option, bridge construction materials will be floated in on shallow construction barges, and piers will then be driven by a barge crane with a pile-driving rig. The CISS pier sections and four bridge trusses will be transported to the site via “flexi-float” construction barges which are capable of navigating very shallow depths. The flexi-float barges will bring the piers and bridge pieces into the channel during high tide, and will sit on the mudflat bottom of the channel at low tide. A barge crane will be used to drive in the bridge piers and to lift the four bridge truss segments into place. The construction contractor will determine if the barges will be able to navigate the shallow

waters of Oyster Bay Slough. If this is not possible, then the trestle construction option (discussed below) will be employed for bridge construction.

According to the engineering report for the bridge (Creegan & D'Angelo, 2004), the following equipment and construction methods will be used for the barge construction option. For the piers, flexible floats barges will be floated and towed to the north pier site then ballasted to temporarily rest on the Bay floor. A pile driver and hammer will be transported by truck to the construction site and will be driven onto the flexible float platform to access the pier location. The large diameter steel pipe for the piers will be delivered on a barge.

The north pier pile will be installed with a pile-driving hammer. The floats and pile rig will then be moved to the middle and south pier locations and the operations repeated to install the remaining piles. It is assumed that the same crane will be used to install the smaller abutment piles on either end of the bridge. After the bridge piles are installed, a reinforced concrete pile cap and bridge seat will be constructed. The prefabricated pieces of the bridge will be delivered to the site by barge and lifted into place with the crane. The prefabricated bridge trusses will come with steel decking that provides the formwork for the concrete deck. After the trusses are in place, lightweight concrete will be poured in the steel decking and finished in place.

Trestle Construction Option

Under the trestle construction option, a temporary 20-foot wide and 250-foot long trestle would be constructed on the east side of the bridge alignment. The temporary trestle would be constructed by driving 16" hollow steel piles into the slough and welding steel beams on top of the steel piles. Untreated timber blocks would then be placed on top of the steel beams to provide support for the construction equipment. The trestle would be dismantled after bridge construction activities were complete.

A preliminary engineering report (AGS 2002) indicates that the trestle could be constructed with 16-inch open ended steel pipe piles spaced approximately 15 to 20 feet apart. The piles would support a 16-inch wide flange beam framing to support 12-inch by 12-inch timber lagging. Open ended piles are recommended as they cause the least amount of disturbance to the soil and can be easily vibrated out while dismantling the trestle (AGS 2002). It is estimated that six steel piles would be required at each support of the trestle and the support could span 20 feet. A total of approximately 13 supports would be required, which means that approximately 78 steel piles would be driven into

the slough bottom (Chen 2005). The contractor would extract the piles and remove the trestle after the bridge had been constructed.

Under the trestle construction option, the piers for the bridge would be transported to the project site and would be driven into place by a crane parked on the trestle. The truss segments of the bridge would also be trucked to the site. The bridge pieces would then be lifted into place using the crane on the trestle. Access for large construction equipment may be limited on the north embankment due to the narrow access road and small radius curves of the existing access road from the city of San Leandro Water Pollution Control Plant.

Levee-Top Bay Trail

The project also proposes to complete a 630-foot gap in the Bay Trail by widening a portion of the levee surrounding the City of San Leandro former wastewater treatment pond and constructing a new levee-top trail. The new trail has been designed to comply with applicable trail standards and to allow the continued use of the levee by City of San Leandro maintenance vehicles. The City maintains the former wastewater treatment pond adjacent to the levee and plans to use it as a storm flow equalization basin in the future. Trucks with City staff routinely conduct visual inspections of the former wastewater ponds.

To accommodate this connecting trail, the existing access road along the levee will be widened by means of a soldier pile and lagging retaining structure and the placement of four feet of lightweight fill (Sheets 14, 15, Appendix A), (Mark Thomas & Co., 2004a). The new twelve-foot wide trail with two-foot shoulders will be located adjacent to, and will be fenced off from, the existing City maintenance road. The proposed trail segment will connect with the existing Bay Trail adjacent to the Galbraith Golf Course to the northeast.

Alternatives

Five alternatives related to the construction of the levee-top trail were originally proposed (Table 1). Four of the alternatives related to construction of the levee-top trail have been withdrawn, leaving one preferred alternative. A discussion of impacts of the preferred alternative for the levee-top trail construction portion of the project will be presented in the following sections, along with the reasoning for withdrawing the alternatives presented in Table 1.

Table 1. Summary of Build Alternatives

Alternative	Description	Status
Trail #1 – Retaining Structure Alternative (Port of Oakland side)	**Widen top of levee on Port of Oakland side**	**Preferred Alternative**
Trail #2 – Mixed Use Trail/Road Alternative	Use existing levee road for trail and maintenance vehicles	Alternative withdrawn
Trail #3 – Sheetpile Alternative (City side)	Widen top of levee on city of San Leandro sedimentation pond side	Alternative withdrawn
Trail #4 – Levee Fill Alternative	Widen top of levee on Port of Oakland side with 2:1 slope down to existing toe of levee	Alternative withdrawn
Trail #5 – Alternative Alignment	Construct trail around gun club, with no bridge	Alternative withdrawn

Levee-Top Bay Trail Construction Alternatives

Several alternatives for the trail connection have been considered (Table 1). The design engineer considered five separate alternative alignments and construction techniques for the trail. Alternatives #2, #3, #4, and #5 have been rejected. Trail #1 – Retaining Structure (Port of Oakland side) is the preferred alternative.

<u>Trail #1 – Retaining Structure (Port of Oakland side)</u>

The preferred alternative for the levee-top trail construction is Alternative #1 – Retaining Structure (Port of Oakland side). Under this alternative, a retaining wall and fill will be used to widen the top of the existing levee in order to accommodate both the existing City of San Leandro access road and the new segment of levee-top Bay Trail. The retaining wall would be placed on the Port of Oakland (north) side of the existing levee (Figure 3).

The retaining wall will consist of 24-inch cast-in-drilled-hole (CIDH) steel soldier piles with a treated timber lagging wall of 4-inch by 12-inch Douglas fir or redwood placed horizontally. The piers will be driven between six and 20 feet deep from the top of the levee, lagging installed, and then four feet of lightweight fill placed on the existing slope

to widen the top of the levee and create the trail surface. The retaining structure and fill will be placed outside the saltmarsh wetland area, which begins at the toe of the levee. New fencing will be installed to separate the existing levee maintenance road from the new trail. The trail will be constructed as a twelve-foot trail with two-foot shoulders, which meets the San Francisco Bay Trail standards.

Alternatives Considered and Withdrawn

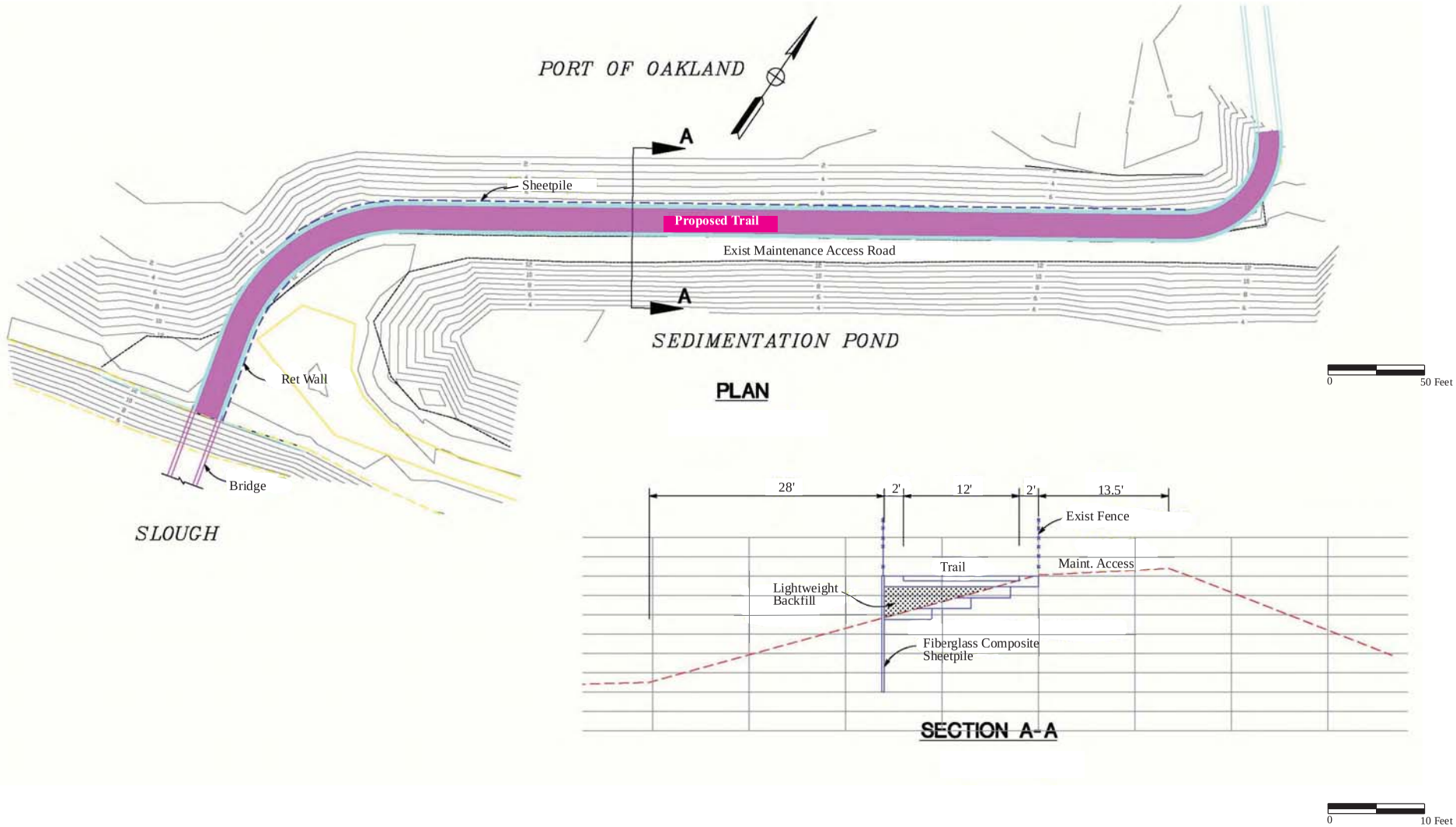
Four alternatives related to the trail connection have been considered and withdrawn (Table 1).

Trail Alternative #2

Under Trail Alternative #2 – Mixed Use Trail/Road Alternative, City maintenance trucks and pedestrians/bicyclists would have shared an 11.5-foot wide trail with one-foot wide shoulders. A removable or fold-down railing would have been installed to prohibit public access to the former wastewater treatment pond. Two electric gates would have separated the trail from the remainder of the maintenance road that encircles the pond. This alternative was withdrawn because it would have required the trail traffic to co-mingle with the City wastewater treatment plant maintenance activities at the former treatment pond, and additional effort would have been required to remove the railing to maintain the pond.

Trail Alternative #3

Under Trail Alternative #3 – Sheetpile (City side), the trail would have been constructed on the city of San Leandro former wastewater treatment pond (south) side of the levee. Sheetpile would be driven approximately 24 feet deep into the slope of the levee adjacent to the sedimentation pond. Three feet of lightweight fill would be placed on top of the slope to create room for the maintenance roads. Unlike the preferred alternative, the maintenance road would be only ten feet wide and the trail



Source: Mark Thomas & Company, 2004.

Y4204.00049.Fig4.cdr 3/28/05

BASELINE

would also be ten feet wide with one-foot shoulders. The narrower road and trail are the result of the steeper 3:1 levee slope on the treatment pond side of the levee as opposed to the 3.6:1 slope on the Port side of the levee. A fence would separate the road and trail and a removable or fold-down railing would be installed on the sheetpile wall to prevent accidental falls into the sediment pond.

Alternative #3 was withdrawn because: 1) the road and trail would be narrow; 2) the maintenance road would have an offset where the trail meets the road; and 3) the three-foot vertical sheetpile wall would hinder maintenance work and reduce the capacity of the sediment pond.

Trail Alternative #4

Trail Alternative #4 – Levee Fill involved the placement of fill on the Port of Oakland side of the levee slope anchored by a 2:1 slope down to the existing toe of the levee. This alternative would accommodate a 12-foot wide trail with a two-foot shoulder and a separate maintenance road. However, this alternative was withdrawn because adding the fill on top of the soft Bay mud of the levee could cause failure of the new trail as well as the existing levee, and because construction would require intrusion into the adjacent wetlands.

Trail Alternative #5

Trail Alternative #5 – Alternative Alignment, considered a trail alignment around the east end of Oyster Bay Slough that would connect with the existing trail on the Port of Oakland property to the existing trail on the Oyster Bay Regional Shoreline without using a bridge over the embayment. The trail would be aligned around the existing gun club and through the City's wastewater treatment plant facility. No other alternate inland routes for the trail would be possible. This alternative was rejected because of safety concerns related to the gun range and wastewater treatment plant.

Construction Schedule, Equipment, Staging Area, and Employees

Estimated time for construction of the bridge and trail segment is approximately 120 days (16 weeks or four months). Key activities will include pile driving of the CISS piles for the bridge (six weeks); construction of the bridge (four weeks); and construction of the steel soldier pile wall for the trail (12 weeks) (Chen, 2005).

The heavy equipment that will be required includes two cranes and two generators used during the entire construction period; one pile driver, used for approximately eight

weeks; and a drill machine, paving machine, and two rollers used for a shorter period of time. In addition, approximately 60 concrete truckloads will be needed for concrete placement at the two bridge abutments, for pier caps, and to pour the concrete bridge deck and CISS piles. Another 200 truckloads will be used for excavation and to deliver materials. An estimated 200 cubic yards of soil from excavation and drilling operations will be generated, trucked, and disposed of off-site (Chen, 2005).

Three construction staging areas are proposed (Figure 2). Heavy equipment will access the southern portion of the construction site using Davis Street and the existing paved trail in the regional park. A staging area has been identified at a wide flat section adjacent to the park trail. The two other staging areas are located in an existing equipment parking area west of the City's wastewater treatment plant and at another semi-paved area near an existing building at the north end of the levee maintenance road.

The number of construction workers on the site will average between five and 20 workers each day, depending on the demand of the work (Chen, 2005).

Chapter 2. Study Methods

2.1. Regulatory Requirements

Special Status Species

Special status species include those plant and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These Acts afford protection to both listed and proposed species. In addition, CDFG Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, USFWS Birds of Conservation Concern, sensitive species included in USFWS Recovery Plans, and CDFG special status invertebrates are all considered special status species. Although CDFG Species of Special Concern generally have no special legal status, they are given special consideration under the California Environmental Quality Act (CEQA). In addition to regulations for special status species, most birds in the United States, including non-status species, are protected by the Migratory Bird
Treaty Act (MBTA) of 1918. Under this legislation, destroying active nests, eggs, and young is illegal. Plant species on California Native Plant Society (CNPS) Lists 1 and 2 are also considered special status plant species. Impacts to these species are considered significant according to CEQA. CNPS List 3 plants have little or no protection under CEQA, but are included in this analysis for completeness.

Critical Habitat

Critical habitat is a term defined and used in the ESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The ESA requires federal agencies to consult with the USFWS and/or NOAA/NMFS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. In consultation for those species with critical habitat, federal agencies must also ensure that their activities or projects do not adversely modify critical habitat to the point that it will no longer aid in the species' recovery. In many cases, this level of protection is similar to that already

provided to species by the ESA "jeopardy standard." However, areas that are currently unoccupied by the species but which are needed for the species' recovery, are protected by the prohibition against adverse modification of critical habitat.

Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, and riparian habitat. These habitats are regulated under federal regulations (such as the CWA), state regulations (such as the Porter-Cologne Act, the CDFG Streambed Alteration Program, and CEQA), or local ordinances or policies (City or County Tree Ordinances, Special Habitat Management Areas, and General Plan Elements).

Waters of the United States

The ACOE regulates "Waters of the United States" under Section 404 of the CWA. "Waters of the U.S." are defined broadly as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands stated in the Corps of Engineers Wetlands Delineation Manual (1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated for sufficient duration and depth to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as "other waters" and are often characterized by an ordinary high water mark (OHW). Other waters, for example, generally include lakes, rivers, and streams. The placement of fill material into "Waters of the U.S." (including wetlands) generally requires an individual or nationwide permit from the Corps under Section 404 of the CWA.

Waters of the State

The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The RWQCB protects all waters in its regulatory scope, but has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes "isolated" wetlands and waters that may not be regulated

by the Corps under Section 404. "Waters of the State" are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact "Waters of the State," are required to comply with the terms of the Water Quality Certification determination. If a proposed project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to "Waters of the State," the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.

San Francisco Bay and Shoreline

The BCDC has regulatory jurisdiction, as defined by the McAteer-Petris Act, over the Bay and its shoreline, which generally consists of the area between the Bay shoreline and a line 100 feet landward of and parallel to the shoreline. Within the Study Area, BCDC has two areas of jurisdiction: San Francisco Bay and the Shoreline Band. These areas are defined in the McAteer-Petris Act (PRC Section 66610) as:

San Francisco Bay, being all areas that are subject to tidal action from the south end of the Bay to the Golden Gate (Point Bonita-Point Lobos) and to the Sacramento River line (a line between Stake Point and Simmons Point, extended northeasterly to the mouth of Marshall Cut), including all sloughs, and specifically, the marshlands lying between mean high tide and five feet above mean sea level; tidelands (land lying between mean high tide and mean low tide); and submerged lands (land lying below mean low tide).

San Francisco Shoreline Band, consisting of all territory located between the shoreline of San Francisco Bay as defined above and a line 100 feet landward of and parallel with that line, but excluding any portions of such territory which are included in other areas of BCDC jurisdiction; provided that the Commission may, by resolution, exclude from its area of jurisdiction any area within the shoreline band that it finds and declares is of no regional importance to the Bay.

Essential Fish Habitat

Essential Fish Habitat (EFH) is regulated through NMFS, a division of NOAA. EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries in the waters of the United States. EFH can include the water column, certain bottom types such as sandy or rocky bottoms, vegetation such as eelgrass or kelp, or structurally complex coral or oyster reefs. Protection of EFH is mandated through changes implemented in 1996 to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to protect the loss of habitat necessary to maintain sustainable fisheries in the United States. The Magnuson-Stevens Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. 1802(10)). NMFS further defines EFH as areas that "contain habitat essential to the long-term survival and health of our nation's fisheries" (NMFS 2007). Under regulatory guidelines issued by NMFS, any federal agency that authorizes, funds, or undertakes action that may affect EFH is required to consult with NOAA/NMFS (50 CFR 600.920).

Other Sensitive Biological Communities

Other sensitive biological communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by CDFG. CDFG ranks sensitive communities as “threatened” or “very threatened” and keeps records of their occurrences in its Natural Diversity Database (CNDDB). Sensitive plant communities are also identified by CDFG on their List of California Natural Communities Recognized by the CNDDB. Impacts to sensitive natural communities identified in local or regional plans, policies, regulations or by the CDFG or USFWS must be considered and evaluated under CEQA (California Code of Regulations: Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in City or County General Plans or ordinances.

2.2. Studies Required

On April 27 and 29, 2004, the Study Area was traversed on foot to determine (1) plant communities present within the Study Area, (2) if existing conditions provided suitable habitat for any special status plant or wildlife species, and (3) if sensitive habitats were present. All plant and wildlife species encountered were recorded. A follow-up field visit was made on August 15, 2007 to verify that site conditions had remained unchanged

following the 2004 field assessment, followed by a field visit on January 8, 2008 to map the extent of tidal saltmarsh vegetation present in and adjacent to the construction footprint. The results of the site assessments are included in the following sections.

Biological Communities

Prior to the initial site visit, the Soil Survey of Alameda County, California [U.S. Department of Agriculture (USDA) 1975] as well as aerial photographs were examined to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present in the Study Area. Biological communities present in the Study Area were classified based on existing plant community descriptions described in the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986). However, in some cases it is necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature. Biological communities were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations.

Non Sensitive Biological Communities

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA, and other state, federal, and local laws, regulations and ordinances. These communities may, however, provide suitable habitat for some special status plant or wildlife species and are identified or described in Section 3.1.3.

Sensitive Biological Communities

Sensitive biological communities are defined as those communities that are given special protection under CEQA and other applicable federal, state, and local laws, regulations and ordinances. Applicable laws and ordinances are discussed in Section 2.1. Special methods used to identify sensitive biological communities are discussed below.

<u>Wetlands and Waters</u>

The Study Area was surveyed to determine if any wetlands and/or “waters” potentially subject to jurisdiction by the Corps, RWQCB, BCDC, or CDFG were present. The assessment was based primarily on the presence of wetland plant indicators, but may also include any observed indicators of wetland hydrology or wetland soils. Any areas

dominated by plant species with a wetland indicator status [1] of OBL, FACW, or FAC as given on the U.S. Fish and Wildlife Service List of Plant Species that Occur in Wetlands (Reed 1988) were identified as potential wetland areas. Evidence of wetland hydrology can include direct evidence (primary indicators), such as visible inundation or saturation, surface sediment deposits, algal mats and drift lines or indirect indicators (secondary indicators), such as oxidized root channels. Some indicators of wetland soils include dark colored soils, soils with a sulfidic odor, and soils that contain redoximorphic features as defined by the Corps Manual and Field Indicators of Hydric Soils in the United States (NRCS, 2002).

The preliminary "waters" assessment was based primarily on the presence of unvegetated, ponded areas or evidence indicating their presence such as a high water mark, or in tidal areas, was based on calculated tidal elevations.

A jurisdictional delineation has been conducted within the Study Area and a report suitable for submission to the Corps has been prepared by WRA (Appendix B). A wetland delineation has also been conducted previously for the adjacent airport property (Port of Oakland 2000).

Essential Fish Habitat

The Study Area and vicinity was assessed for the presence and potential to support areas that may be considered EFH by the NMFS. Background documentation regarding EFH in San Francisco Bay, such as the Baywide Eelgrass Inventory of San Francisco Bay (CalTrans/NMFS 2004), was also consulted to determine whether or not the Study Area and vicinity contained known EFH areas.

Special Status Species

The potential for occurrence of special status species in the Study Area was evaluated by first determining which special status species occur in the vicinity of the Study Area through a literature and database search. Database searches for known occurrences of special status species included the San Leandro 7.5 minute USGS quadrangle and the

[1] OBL = Obligate, always found in wetlands (> 99% frequency of occurrence);

FACW = Facultative wetland, usually found in wetlands (67-99% frequency of occurrence);

FAC = Facultative, equal occurrence in wetland or non-wetlands (34-66% frequency of occurrence).

eight surrounding USGS quadrangles: Oakland West, Oakland East, Las Trampas Ridge, Hayward, Newark, Redwood Point, San Mateo, and Hunters Point. The following sources were reviewed to determine which special status plant and wildlife species have been documented to occur in the vicinity of the Study Area:

- California Natural Diversity Database records (CNDDB) (CDFG 2007)
- USFWS Quadrangle Species Lists (USFWS 2007)
- CNPS Online Inventory records (CNPS 2007)
- CDFG publication "California's Wildlife, Volumes I-III" (Zeiner et al. 1990)
- CDFG publication "Amphibians and Reptile Species of Special Concern in California" (Jennings 1994)
- A Field Guide to Western Reptiles and Amphibians (Stebbins, R.C. 2003)
- National Marine Fisheries Service Distribution Maps for California Salmonid Species (NOAA 2007)
- University of California at Davis Information Center for the Environment (ICE) Distribution Maps for Fishes in California (ICE 2007)

Site Assessment

A site visit was conducted to search for suitable habitats within the Study Area for those species identified as occurring within the vicinity. Potential for special status species to occur in the Study Area was then evaluated according to the following criteria:

(1) Not Present. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime). The species has an extremely low probability of being found on the site.

(2) Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species has a low probability of being found on the site.

(3) Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

(4) High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

(5) Present. Species is observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.

The site assessment is intended to identify the presence or absence of suitable habitat for each special status species known to occur in the vicinity in order to determine its potential to occur in the Study Area. The site visit does not constitute a protocol-level survey and is not intended to determine the actual presence or absence of a species; however, if a special status species is observed during the site visit, its presence will be recorded and discussed. Appendix A presents the evaluation of potential for occurrence of each special status plant and wildlife species known to occur in the vicinity of the Project Area with their habitat requirements, potential for occurrence, and rationale for the classification based on criteria listed above.

2.3. Personnel and Survey Dates

Philip Greer, Senior Plant Ecologist
April 29, 2004: assessment of suitable habitat for rare plants
August 15, 2007: follow-up site visit to determine if site conditions had changed since 2004 surveys

Crystal M. Acker, Associate Biologist
April 29, 2004: assessment of suitable habitat for rare plants

Jeff Dreier, Senior Wildlife Biologist
April 27, 2004: assessment of suitable habitat for wildlife

Morgan Trieger, Biological Technician
August 15, 2007: follow-up site visit to determine if site conditions had changed since 2004 surveys
January 8, 2008: site visit to delineate wetland vegetation in proposed bridge footprint.

2.4. Agency Coordination and Professional Contacts

The following agencies were invited to comment on the Notice of Preparation of a Draft Environmental Assessment for the project, released by the East Bay Regional Park District on 13 May 2004. The same agencies were also invited to attend a public Scoping Session that was held on 25 May 2004.

- Regulatory Branch, U.S. Army Corps of Engineers, San Francisco
- Coast Bay Delta Branch, U.S. Fish and Wildlife Service, Sacramento
- National Marine Fisheries Service, Seattle
- California Department of Fish and Game, Region 3, Yountville
- San Francisco Bay Regional Water Quality Control, Oakland
- Bay Conservation and Development Commission, San Francisco
- Port of Oakland

Letters were received from the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service. The letters are included in Appendix D.

The same agencies were sent a copy and invited to comment on the Initial Study/Mitigated Negative Declaration for the project on 7 October 2005 (Baseline 2005). Letters were received from CDFG, Port of Oakland and BCDC regarding the IS/MND and are included in Appendix D.

2.5. Limitations That May Influence Results

The site assessment described in this document provides information on the potential presence of sensitive species or habitats. The assessment is not based on protocol level surveys for any listed species. The site assessment is based on information available at the time of the study and on site conditions that were observed on the dates of the site visits.

Chapter 3. Results: Environmental Setting

Oyster Bay Slough is a shallow, 350-foot wide remnant embayment that was created when the historic bay was filled to the south by the creation of a landfill and to the north by construction of the Oakland Airport and the City of San Leandro wastewater treatment facility. The areas adjacent to the proposed Bay Trail bridge project site on the north side of the slough include lands owned by the City of San Leandro, which consist of levee-top gravel roads and a former wastewater treatment pond and Oakland Airport property, which contains a seasonal, non-tidal brackish marsh dominated by dense pickleweed cover. The airport marshland is likely a remnant of the historic bay or an historic tidal marsh. Oyster Bay Regional Shoreline and an active landfill facility are adjacent to the Study Area on the south levee. Oyster Bay Slough connects with South San Francisco Bay to the west.

3.1. Description of the Existing Biological and Physical Conditions

3.1.1. Study Area

In the vicinity of the proposed bridge crossing, both levee banks are lined with large (one to two-foot diameter) rip-rap in the upper intertidal zone with some larger concrete debris on the north levee. The south levee is essentially unvegetated for several hundred feet both east and west of the proposed bridge crossing footprint, with the exception of one small (approximately 100 square feet) patch of non-native smooth cordgrass that occurs 40 feet to the west of the proposed bridge crossing footprint. The north levee supports a larger colony of non-native smooth cordgrass in the vicinity of the proposed bridge crossing footprint. Smooth cordgrass extends along the length of the northern levee toeslope from the east end of Oyster Bay Slough to a point west of the proposed bridge crossing footprint. At the site of the bridge crossing, cordgrass extends approximately 10-15 feet from the levee toeslope into the mudflats of Oyster Bay Slough. Also on the north levee, a number of isolated salt marsh plants are growing in between pieces of rip-rap. Observed plants include pickleweed, salt marsh gum plant (*Grindelia stricta* var. *angustifolia*) and Russian thistle (*Salsola soda*). These few individual plants do not comprise contiguous salt marsh habitat, as they are isolated from each other and occur only in small crevices between pieces of rip-rap.

The levee uplands within the Study Area are vegetated by non-native annual grasses such as rip-gut brome (*Bromus diandrus*) and slender wild oats (*Avena barbata*), with

scattered to dense stands of coyote brush. Non-native herbs such as fennel (*Foeniculum vulgare*), black mustard (*Brassica nigra*), Italian thistle (*Carduus pycnocephalus*), iceplant (*Carpobrotus edulis*) and wild radish (*Raphanus sativus*) are also common. A row of planted shrubs occurs along the existing levee-top gravel road along the border with Port of Oakland property. Species observed in this community include olive (*Olea europaea*), toyon (*Heteromeles arbutifolia*), coyote brush, pampas grass (*Cortaderia selloana*) and other ornamental species.

3.1.2. Physical Conditions in the Study Area

Site elevations range from approximately 5 to 20 feet NAVD. The mudflats appear to be at an elevation between mean tide level and mean high water with a single, shallow, central drainage channel approximately three to five feet wide. The principal natural hydrological source for the Study Area is periodic tidal inundation within Oyster Bay Slough, and precipitation for the adjacent levee uplands and non-tidal brackish marsh.

With the exception of mudflat sediments, all soils within the Study Area are composed of imported fill materials; no native soils are present on levee banks or created uplands. The Alameda County Soil Survey (USDA 1975) indicates that the Study Area has two mapped soil types: 156-Xeropsamments, fill and 146-Urban land. Xeropsamments are described as being composed of sandy fill material dredged from old beach areas; these soils are mapped on the north side of the slough channel. Urban land is described as being composed of heterogeneous fill covered by buildings, roads, parking lots and other urban structures; these soils are mapped on the south side of the slough channel.

3.1.3. Biological Conditions in the Study Area

Plant communities within the Study Area included coastal salt marsh (middle and low), non-native annual grassland, and coyote brush scrub. Large portions of the Study Area were unvegetated, either naturally (mudflat) or due to development (riprap and gravel surfaces).

Non-Sensitive Biological Communities

Non sensitive biological communities observed within the Study Area include non-native annual grassland and coyote brush scrub. These communities are described in detail below.

Non-native Annual Grassland

The non-native annual grassland series occurs in uplands in all topographic locations within the Study Area. Annual grasses and herbs are dominant in the ground layer, including brome grasses (*Bromus* spp.), wild oats (*Avena* spp.), ryegrasses (*Lolium* spp.), California poppy (*Eschscholzia californica*), filarees (*Erodium* spp.), goldfields (*Lasthenia* spp.), lupines (*Lupinus* spp.), mustards (*Brassica* spp.), owl's-clovers (*Castilleja* spp.), and/or star-thistles (*Centaurea* spp.). Shrubs and trees may also be present. Within the Study Area, upland areas were vegetated by rip-gut brome, slender wild oats, fennel, black mustard, wild radish, and Italian thistle. The dominant shrub along the top of the levees was coyote brush. Patches of pampas grass were also present throughout upland areas, and a swath of iceplant existed on the lower levee bank between the grassland vegetation and the adjacent, off-site pickleweed marshland.

Coyote Brush Scrub

The coyote brush scrub series occurs in a variety of upland habitats, including stabilized dunes of coastal bars and river mouths, spits along the coastline, coastal bluffs, open slopes, and terraces. Coyote brush is the sole or dominant shrub; the ground layer is variable. Within the Study Area, coyote brush was the only shrub growing with the non-native, annual grassland understory described above.

Sensitive Biological Communities

Sensitive biological communities observed within the Study Area include northern coastal salt marsh. This wetland community includes low and mid marsh vegetation communities, described in detail below.

Northern Coastal Salt Marsh

Sawyer and Keeler-Wolf (1995) describe the low marsh habitat type as the cordgrass series, which occurs in regularly or irregularly flooded wetland habitats, such as estuarine mudflats, banks, berms, deltas, and bay margins. Cordgrass (*Spartina* spp.) is the sole or dominant grass, although other herbs may be present in the ground canopy, including pickleweeds, dodder (*Cuscuta salina*), and/or saltgrass (*Distichlis spicata*). Within the Study Area, non-native smooth cordgrass (*Spartina alterniflora*) occurs within a 10-15 foot wide band between the north levee bank and channel mudflat and in one discrete patch along the south levee bank. No other species were present within smooth cordgrass areas.

Middle marsh is described as the pickleweed series, which occurs in regularly or irregularly flooded wetland habitats, or wetland habitats that are permanently saturated by a shallow water table. This series occurs in estuaries along mudflats, banks, berms, deltas, sandbars, and in margins of bays. Within tidal areas, this habitat usually occurs at intertidal elevations above the cordgrass series. Pickleweed is the sole or dominant plant in the ground canopy. Other herbs may also be present, such as alkali heath (*Frankenia salina*), arrow-grasses (*Triglochin* spp.), dense-flowered cordgrass (*Spartina densiflora*), dodder, saltwort (*Batis maritima*), jaumea (*Jaumea carnosa*), saltgrass, sea-blite (*Suaeda californica*), and/or sea-lavender (*Limonium californicum*). Within the Study Area, individual pickleweed plants have colonized spaces between riprap on the levee banks up to approximately high tide elevation. Some non-native smooth cordgrass was also present within the middle marsh area, and a few upland herbs and grasses were also observed growing in the riprap amid pickleweed. Due to the lack of native soils and scattered distribution of plants, the pickleweed areas present on-site do not appear to be functioning as a "plant community", and supply little to no habitat value.

3.2. Regional Species and Habitats of Concern

.

Wetlands and Waters

Wetlands and waters potentially under the jurisdiction of the Corps, RWQCB, and BCDC exist within and/or adjacent to the Study Area (Figure 4).

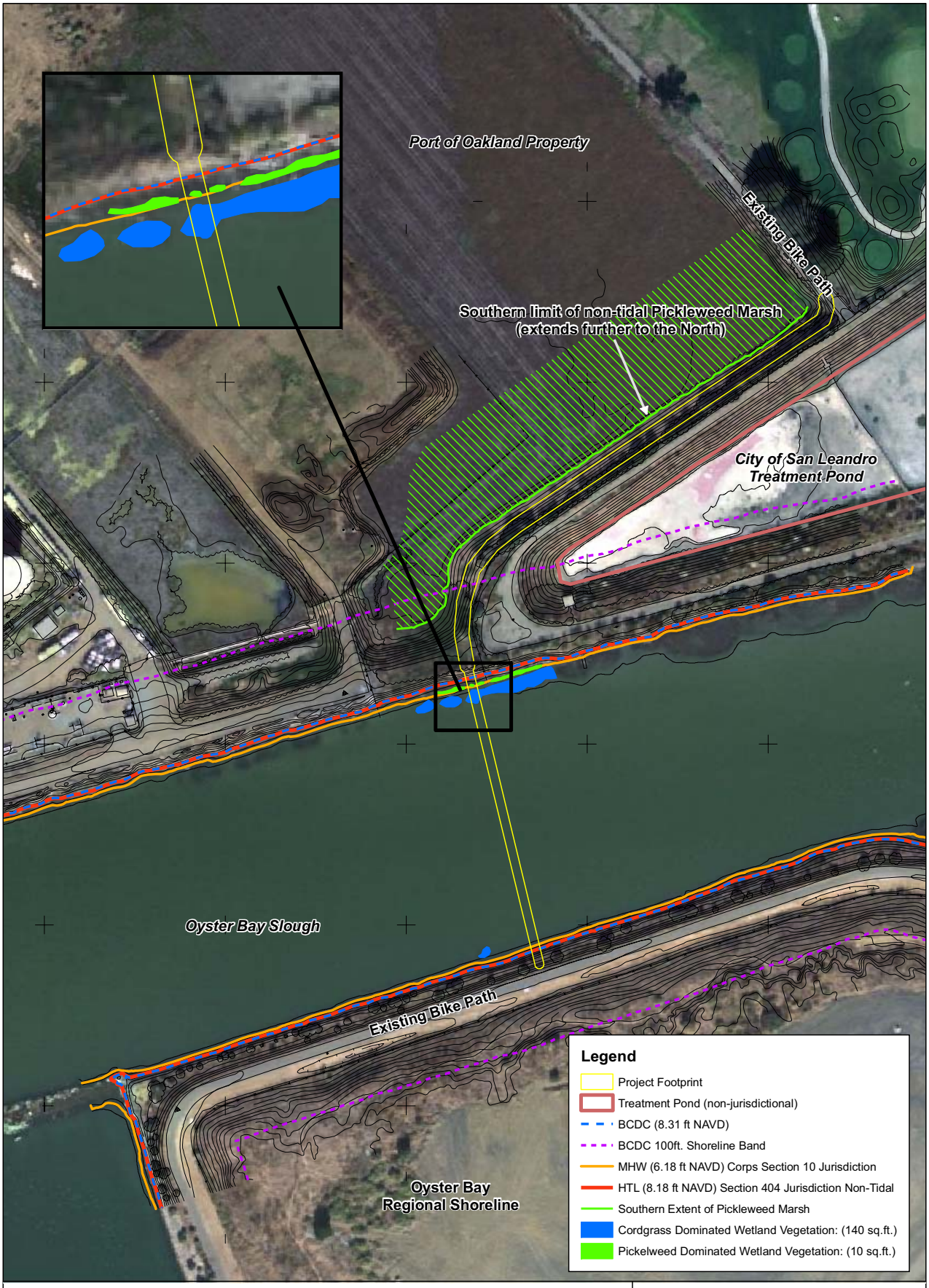


Figure 4. Potential Jurisdictional Features within the Oyster Bay Bridge Project Footprint.

N

Oyster Bay Bridge at
Oyster Bay Slough
San Leandro, California

0 50 100 200 Feet

wra
ENVIRONMENTAL CONSULTANTS

Date: January 2008
Aerial Image: TerraServer, 2004
Map By: Sundaran Gillespie
Filepath: L:\Acad 2000Files\13000\13056\GIS\Arcmap\Figure 4.mxd

Wetlands

Approximately 150 square feet (less than 0.01 acre) of tidal marsh vegetation exist within the footprint of the proposed Bay Trail Bridge, comprised of approximately 140 square feet of non-native, invasive smooth cordgrass, and 10 square feet of pickleweed and salt marsh gum plant individuals. This wetland vegetation is found growing in the north levee rip rap and on the tidal mudflats adjacent to the north levee. Additional salt marsh vegetation extends along the north levee beyond the Study Area boundary. Non-tidal salt marsh, vegetated by pickleweed, also occurs to the north of the Study Area on Port of Oakland property. Wetland areas were delineated based primarily on the presence of wetland vegetation (pickleweed and smooth cordgrass, both OBL wetland species) and hydrology indicators (inundation, calculated tide lines), since the native soils have been altered by the placement of fill (riprap, levee fill material). No wetlands exist within the levee-top Bay Trail footprint.

Corps-jurisdictional wetland areas described above are also under the jurisdiction of the RWQCB and BCDC. BCDC jurisdiction in tidal waters extends to five feet above mean sea level (MSL) where marshland is present, otherwise BCDC jurisdiction extends to the mean high tide. BCDC jurisdiction also includes a 100-foot shoreline band that extends from the upper edge of wetland vegetation.

Non-Tidal Waters of the United States

No jurisdictional non-tidal waters occur within the Study Area. The City of San Leandro wastewater treatment pond located adjacent to the Study Area would not be considered jurisdictional, as waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA, are not considered waters of the United States (33 CFR 328.3(a)(7)).

Tidal Waters of the United States

Under Section 404 of the CWA, Corps jurisdiction in Oyster Bay Slough extends to the high tide line (HTL). Under Section 10 of the 1899 Rivers and Harbors Act, Corps jurisdiction in Oyster Bay Slough extends to mean high water level (MHW). Jurisdiction of the RWQCB in tidal areas is the same as the Corps.

Under the McAteer-Petris Act, BCDC jurisdiction in tidal waters of San Francisco Bay extends to five feet above mean sea level (MSL) where marshland is present. Otherwise, jurisdiction extends to mean high tide in tidal waters.

Riparian Habitat

No riparian habitat occurs in or adjacent to the Study Area.

Essential Fish Habitat

The Pacific Groundfish Fishery Management Plan (FMP) and Coastal Pelagics FMP both identify Oyster Bay Slough as EFH for various life stages of fish species included in the FMPs. Common species listed in the Pacific Groundfish FMP include English sole (*Pleuronectes vetulus*), leopard shark (*Triakis semifasciata*), and brown rockfish (*Sebastes auriculatus*). Common species listed in the Coastal Pelagics FMP include northern anchovy (*Engraulis mordax*) and Pacific sardine (*Sardinops sagax*). Potential adverse impacts to EFH and proposed mitigation measures are discussed in section 4.4.

Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation

4.1. Natural Communities of Special Concern

Northern coastal salt marsh is considered a sensitive plant community by CDFG. This wetland community includes low and middle marsh vegetation communities. Wetlands and waters potentially under the jurisdiction of the Corps, RWQCB, and BCDC exist within and/or adjacent to the Study Area.

4.1.1. Northern Coastal Salt Marsh

Northern coastal salt marsh consists of low marsh and middle marsh habitat. The low marsh habitat type occurs in regularly or irregularly flooded wetland habitats, such as estuarine mudflats, banks, berms, deltas, and bay margins (Sawyer & Keeler-Wolf 1995). Cordgrass is the sole or dominant grass, although other herbs may be present in the ground canopy, including pickleweed, salt marsh dodder, and/or saltgrass. Within the Study Area, non-native smooth cordgrass has colonized a 15-20 foot wide band between the riprap of the north levee bank and channel mudflat, and also occurs in one discrete patch along the south levee bank. No other species were present within smooth cordgrass areas.

Middle marsh is described as the pickleweed series, which occurs in regularly or irregularly flooded wetland habitats, or wetland habitats that are permanently saturated by a shallow water table. This series occurs in estuaries along mudflats, banks, berms, deltas, sandbars, and in margins of bays. Within tidal areas, this habitat usually occurs at intertidal elevations above the cordgrass series. Pickleweed is the sole or dominant plant in the ground canopy. Other herbs may also be present, such as alkali heath, arrow-grasses, dense-flowered cordgrass, dodder, saltwort, jaumea, saltgrass, sea-blite, and/or sea-lavender. Within the Study Area, individual pickleweed plants have colonized spaces between riprap on the levee banks. Some non-native smooth cordgrass was also present within the middle marsh area, and a few upland herbs and grasses were also observed growing in the riprap amid pickleweed. Due to the lack of native soils and scattered

distribution of plants, the pickleweed areas present on-site do not appear to be functioning as a "plant community," are limited in extent, and supply little to no habitat value.

4.1.1.1. SURVEY RESULTS

Wetlands

Low marsh dominated by non-native cordgrass occurred on 0.04 acre within the Study Area (WRA 2008). Mid marsh dominated by pickleweed occurred on 0.01 acre within the Study Area. Approximately 150 square feet (less than 0.01 acre) of tidal marsh vegetation exists within the footprint of the proposed Bay Trail Bridge. This vegetation is comprised of approximately 140 square feet of non-native, invasive smooth cordgrass, and 10 square feet of pickleweed and salt marsh gum plant individuals. This wetland vegetation is found growing in the north levee rip rap and on the tidal mudflats adjacent to the north levee. Additional salt marsh vegetation extends along the north levee beyond the Bay Trail Bridge footprint. Non-tidal pickleweed salt marsh also occurs to the north of the Study Area on Port of Oakland property.

Jurisdictional wetland areas described above are also under the jurisdiction of the RWQCB and BCDC. BCDC jurisdiction also includes a 100-foot shoreline band that extends from the upper edge of wetland vegetation.

Non-tidal Waters of the United States

No jurisdictional non-tidal waters occur within the Study Area.

Tidal Waters of the United States

Under Section 404 of the Clean Water Act, Corps jurisdiction in the slough channel extends to the high tide line (HTL), calculated as +8.18 feet NAVD (Figure 4) from NOAA tidal datums (Appendix F).

Under Section 10 of the 1899 Rivers and Harbors Act, Corps jurisdiction in the slough channel extends to mean high water level (MHW), given as +6.18 feet NAVD at the San Leandro Marina tidal datum station (NOAA).

Jurisdiction of the RWQCB in tidal areas is the same as the Corps.

Under the McAteer-Petris Act, BCDC jurisdiction in tidal waters of San Francisco Bay extends to five feet above mean sea level (MSL) which is given as +3.31 feet NAVD at the San Leandro Marina tidal datum station (NOAA). Therefore, BCDC jurisdiction in the slough extends to +8.31 feet NAVD (Figure 4).

4.1.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

The proposed Bay Trail Bridge at Oyster Bay Slough project has been designed to minimize impacts to sensitive biological communities within the Study Area with the implementation of avoidance and minimization efforts. The bridge will be supported by three piers driven into the tidal mudflat substrate of Oyster Bay Slough. This three-pier design minimizes the amount of work that will be conducted within the Oyster Bay Slough channel, and avoids all permanent impacts to tidal saltmarsh vegetation located within and adjacent to the bridge footprint. No direct removal of tidal saltmarsh vegetation will occur as part of the proposed project, and no permanent fill in tidal saltmarsh vegetation will occur as part of the proposed project. The bridge will be anchored to two abutments constructed in upland habitat on the north and south levees of Oyster Bay Slough.

The levee-top Bay Trail portion of the proposed project will also avoid impacts to sensitive biological communities within and adjacent to the Study Area. The trail would be constructed adjacent to the existing levee-top maintenance road owned by the City of San Leandro, in upland habitat. In order to accommodate both the maintenance road and Bay Trail, the levee-top would be widened with the use of a retaining structure and fill on the Port of Oakland side (Sheets 14, 15, Appendix A and Figure 3). The retaining structure would be located in upland habitat in order to avoid impacts to the high-quality pickleweed marsh at the north toe of the levee, adjacent to the project footprint. Additionally, a silt-barrier and personnel exclusion fence will be erected during construction activities in order to prevent sediments, construction workers and equipment from entering the pickleweed marsh.

4.1.1.3. PROJECT IMPACTS

Oyster Bay Slough Bridge

Approximately 38 square feet of tidal mudflat within Oyster Bay Slough will be directly impacted by the placement of permanent fill in the form of the three bridge support

pilings. Bridge abutments will be constructed in uplands on the north and south levees of Oyster Bay Slough, and will not impact jurisdictional areas or sensitive habitats. No jurisdictional wetlands will be directly impacted by the project.

The proposed Oyster Bay Slough Bridge will be constructed such that the minimum elevation of the bottom of the bridge deck will be from between four to six feet over any tidal wetland vegetation located within the bridge footprint. Additionally, the bridge will be elevated from between six and eight feet over the tidal mudflat substrate of Oyster Bay Slough. The bridge will be ten feet in width, and will be oriented generally north-south over Oyster Bay Slough. Approximately 140 square feet (less than 0.01 acre) of smooth cordgrass located within the bridge footprint has the potential to be shaded by the bridge for a period of each day. This wetland vegetation is comprised of an invasive, non-native species. Additionally, 10 square feet of individual pickleweed and salt marsh gum plants growing in between levee riprap have the potential to be shaded by the bridge during midday. Due to the conditions stated above, any shading observed is expected to be minimal, and is not expected to result in any reduction in area of tidal salt marsh vegetation located within the bridge footprint. Given these conditions, it is expected that shading effects on wetland vegetation will be less than significant.

Similarly, any shading effects to the approximately 3,330 square feet of tidal mudflat located within the bridge footprint are expected to be minimal and less than significant.

The two construction options for the Oyster Bay Slough Bridge—barge construction option and trestle construction option—discussed in Section 1.2 will result in different amounts of temporary impacts to tidal mudflats and tidal marsh vegetation present in Oyster Bay Slough. Under the barge construction option, bridge construction materials and equipment would be floated into Oyster Bay Slough at high tide on barges. After the barges were anchored in place, work could proceed from the barge decks. The barges would rest on the mudflat substrate of Oyster Bay Slough at low tide. No temporary impacts to tidal mudflats, tidal saltmarsh vegetation, or tidal waters present in Oyster Bay Slough are expected to result of the barge construction option for the Oyster Bay Slough Bridge.

Under the trestle construction option, a temporary trestle would be erected on the east side of the Oyster Bay Slough Bridge alignment. The trestle would be supported with the use of temporary 16-inch hollow steel piles which would be removed after construction activities were completed. The trestle construction option would have temporary impacts on the tidal mudflat substrate of Oyster Bay Slough and temporary impacts on tidal

wetland vegetation adjacent to the north levee of Oyster Bay Slough. These temporary impacts would be caused by fill in the form of the temporary piles needed to support the trestle, and by temporary shading effects. These impacts are expected to be less than significant, however, for the following reasons. The tidal salt marsh vegetation that would be temporarily impacted by the trestle construction option is comprised exclusively of non-native invasive smooth cordgrass. Based on the trestle construction requirements, up to six 16-inch diameter hollow steel pilings may be driven into areas vegetated by smooth cordgrass. This species is rhizomatous, however, and any loss of smooth cordgrass vegetation due to pile placement would be regained shortly after the temporary trestle is removed with no permanent effects.

Shading impacts to tidal salt marsh vegetation and tidal mudflats within the footprint of the trestle are expected to be minimal and temporary because the height of the trestle above the tidal mudflats and tidal salt marsh vegetation and its narrow width and north-south orientation would mean that the trestle footprint was only shaded for a portion of each day, near midday. Additionally, the temporary nature of the trestle would mean that shading impacts would only persist for a relatively short amount of time.

Levee-Top Bay Trail

Construction of the levee-top Bay Trail will not impact the high-quality pickleweed marsh north of the Study Area due to the avoidance and minimization efforts described in Section 4.1.1.2.

4.1.1.4. COMPENSATORY MITIGATION

Approximately 38 square feet of fill will be permanently placed into the tidal mudflat substrate of Oyster Bay Slough in the form of the three bridge support pilings. The proposed bridge has been designed to minimize the amount of fill necessary to comply with project objectives. Given this consideration, no compensatory mitigation measures are proposed for the 38 square feet of tidal mudflats within Oyster Bay Slough that will be permanently impacted by the proposed project.

No compensatory mitigation measures are proposed for temporary impacts to tidal mudflats or tidal saltmarsh vegetation associated with construction of the Oyster Bay Slough Bridge.

Because the avoidance and minimization measures described in Section 4.1.1.2 will avoid all impacts to the non-tidal pickleweed marsh adjacent to the levee-top Bay Trail alignment, no compensatory mitigation measures are proposed.

4.1.1.5. CUMULATIVE IMPACTS

Cumulative impacts will occur to the tidal mudflats of Oyster Bay Slough due to 38 square feet of permanent fill in the form of the three bridge support pilings.

No cumulative impacts are expected due to shading of the salt marsh vegetation within the bridge footprint. No cumulative impacts are expected due to shading of tidal mudflats or tidal waters of Oyster Bay Slough.

No cumulative impacts are expected to occur to the non-tidal picklweed marsh to the north of the levee-top Bay Trail alignment.

4.2. Special Status Plant Species

Based upon a review of the resources and databases given in Section 2.1, 52 special status plant species have been documented to occur in the vicinity of the Study Area. However, none of these special status species have the potential to occur in the Study Area.

4.2.1. Discussion of Individual Special Status Plant Species

None of the 52 special status plant species documented in the vicinity of the Study Area have the potential to occur within the Study Area.

4.2.1.1. SURVEY RESULTS

Most of the species generated by the literature search were determined to be not present due to a variety of factors, including lack of unique soil types (e.g. serpentine, clay), lack of typical habitat (e.g. freshwater wetland, vernal pool, chaparral, woodland, riparian, native grassland), and/or inappropriate site elevation. In addition, no native soils or seedbanks are present due to past disturbance and import of fill materials during construction of the wastewater treatment facility, Oakland Airport, and EBRPD facilities.

Only six of the 52 plant species generated by the literature search are found in salt marsh or upland/marine grassland habitats. None of these six have potential to occur within the Study Area due to the disturbed nature of these habitat types (e.g. riprap levee banks, non-native fill soils, gravel access roads, dominant presence of non-native species in most vegetated areas), and a lack of associated plant community species. Appendix A summarizes the potential for occurrence of these plant species in the Study Area.

The April 2004 site assessment occurred during the blooming period of 33 of the 52 special status plant species with a potential to occur in the Study Area. In addition, two non-blooming species are perennial shrubs, which would be identifiable at any time of the year. None of the 35 potentially identifiable species were observed and are therefore determined to be not present. None of the remaining 17 special status species documented in the vicinity of the Study Area have the potential to occur within the Study Area due to the lack of suitable habitat and the disturbed nature of the site and are therefore determined to be not present. No further protocol-level surveys for special status plant species are necessary.

4.2.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

No special status plant species have been observed or are believed to be present within the Study Area due to the lack of suitable habitat conditions and/or the poor quality of existing habitats. The proposed project will not result in any anticipated impacts to special status plant species. Therefore, no avoidance and/or minimization efforts will be necessary.

4.2.1.3. PROJECT IMPACTS

No special status plant species have been observed or are believed to be present within the Study Area due to the lack of suitable habitat conditions and/or the poor quality of existing habitats. The proposed project will not result in any anticipated impacts to special status plant species.

4.2.1.4. COMPENSATORY MITIGATION

No impacts to special status plant species are anticipated; therefore, compensatory mitigation will not be necessary.

4.2.1.5. CUMULATIVE EFFECTS

No special status species have been observed or are believed to be present within the Study Area due to the lack of suitable habitat conditions and/or the poor quality of existing habitats. No cumulative effects due to project implementation are expected.

4.3. Special Status Wildlife Species Occurrences

Seventy six special status wildlife species have been recorded or have the potential to occur in the vicinity of the Study Area. Appendix A summarizes the potential for occurrence of these species in the Study Area. Of these species, 29 species are not likely to ever be present, 37 species have an unlikely potential for occurrence, nine species have a moderate potential for occurrence, no species have a high potential for occurrence, and one special status species (Alameda song sparrow) was observed in the Study Area during the April 2004 habitat assessment.

Sixty six species are either not likely to ever be present or have an unlikely potential for occurrence due to (1) habitat on or adjacent to the site is clearly unsuitable for the species requirements (e.g. foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime, or (2) few of the habitat components meeting the species requirements are present and/or most of the habitat on and adjacent to the site is unsuitable or of very poor quality.

Of the ten special status wildlife species that have a moderate potential to occur within the Study Area or that are present within the Study Area, four are typically only present for brief periods when migrating in the winter. Based on the results of the site assessment, six special status species have the potential to be affected by the proposed Bay Trail Bridge at Oyster Bay Slough project.

4.3.1. Salt Marsh Wandering Shrew

The salt marsh wandering shrew (*Sorex vagrans halicoetes*) is a CDFG Species of Special Concern. It is found in salt marshes in south San Francisco Bay and prefers medium to high marsh that is six to eight feet above sea level.

4.3.1.1. SURVEY RESULTS

The salt marsh wandering shrew was not observed in the Study Area. It has been observed approximately one mile northwest of the Study Area, within the Oakland Airport (CNDDB 2007). Because of the proximity of the sighting and the presence of pickleweed habitat adjacent to the proposed levee-top Bay Trail connection, there is a moderate potential for this species to occur in the Study Area. Presence of salt marsh wandering shrew in the Study Area is assumed, but because the avoidance and minimization measures are adequate to avoid adverse affects to this species, no protocol level surveys are necessary.

4.3.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

Construction activities along the levee-top trail footprint will avoid all adjacent pickleweed habitat. Brush adjacent to the picklweed habitat will be cleared by hand to help disperse any small mammals into adjacent pickleweed habitat. Exclusion fencing consisting of a silt barrier fence and a personnel exclusion fence will be constructed to prevent small mammal dispersal into the construction area, and to prevent workers from entering pickleweed habitat.

No avoidance or minimization efforts are proposed at the sites of the bridge abutments where picklweed habitat is sparse or not present.

4.3.1.3. PROJECT IMPACTS

With the implementation of the avoidance and minimization efforts listed above, the proposed project is not likely to adversely affect the salt marsh wandering shrew.

4.3.1.4. COMPENSATORY MITIGATION

No project impacts are anticipated; therefore, compensatory mitigation is not necessary.

4.3.1.5. CUMULATIVE EFFECTS

No project impacts are anticipated; therefore, no cumulative effects due to project implementation are expected.

4.3.2. Salt Marsh Harvest Mouse

The salt marsh harvest mouse (*Reithrodontomys raviventris*) is listed as Federal Endangered and State Endangered. It is primarily found in pickleweed-dominated saline emergent marshes of San Francisco Bay and requires adjacent upland areas for escape from high tides. Unlike the salt marsh wandering shrew, this species may wander into grassy upland habitats adjacent to pickleweed areas.

4.3.2.1. SURVEY RESULTS

According to CNDDB (2007), the nearest documented occurrence of the salt marsh harvest mouse is located approximately 2.5 miles north at Arrowhead Marsh. Because of the proximity of the sighting and the presence of pickleweed habitat adjacent to the proposed levee-top Bay Trail, there is a moderate potential for this species to occur in the Study Area. Presence of salt marsh harvest mouse in the Study Area is assumed, but because the avoidance and minimization measures are adequate to avoid adverse affects to this species, no protocol level surveys are necessary.

4.3.2.2. AVOIDANCE AND MINIMIZATION EFFORTS

Construction activities along the levee-top trail footprint will avoid all adjacent pickleweed habitat. Brush adjacent to the picklweed habitat will be cleared by hand to help disperse any small mammals into adjacent pickleweed habitat. Exclusion fencing consisting of a silt barrier fence and a personnel exclusion fence will be constructed to prevent small mammal dispersal into the construction area, and to prevent workers from entering pickleweed habitat.

Additionally, before brush clearing takes place, a survey for presence of salt marsh harvest mouse in brush to be cleared should be conducted. If mice are found in this survey, construction activities at this location will be halted until consultation with the USFWS can occur.

No avoidance or minimization efforts are proposed at the sites of the bridge abutments where picklweed habitat is sparse or not present.

4.3.2.3. PROJECT IMPACTS

With the implementation of the avoidance and minimization efforts listed above, the proposed project is not likely to adversely affect the salt marsh harvest mouse.

4.3.2.4. COMPENSATORY MITIGATION

No project impacts are anticipated; therefore, compensatory mitigation is not necessary.

4.3.2.5. CUMULATIVE EFFECTS

No project impacts are anticipated; therefore, no cumulative effects due to project implementation are expected.

4.3.3. Sharp-shinned Hawk

The sharp-shinned hawk (*Accipiter striatus*) is a CDFG Species of Special Concern. This species typically nests in coniferous or mixed forests at higher elevations. However, it disperses widely in winter and may forage in many habitat types.

4.3.3.1. SURVEY RESULTS

The sharp-shinned hawk was not observed in the Study Area during the April 2004 site assessment. However, this species has a moderate potential to occur in the Study Area during migration or in winter. No nesting habitat is present in the Study Area, therefore no protocol level surveys are necessary.

4.3.3.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance or minimization efforts are proposed since sharp-shinned hawks are unlikely to nest in the Study Area.

4.3.3.3. PROJECT IMPACTS

The proposed project will have no affect on the Sharp-shinned Hawk.

4.3.3.4. COMPENSATORY MITIGATION

No project impacts are anticipated; therefore, compensatory mitigation is not necessary.

4.3.3.5. CUMULATIVE EFFECTS

No project impacts are anticipated; therefore, no cumulative effects due to project implementation are expected.

4.3.4. Cooper's Hawk

Cooper's hawk (*Accipiter cooperi*) is a CDFG Species of Special Concern. This species typically nests in coniferous or mixed forests, and oak and riparian woodlands. However, it disperses widely in winter and may forage in many habitat types.

4.3.4.1. SURVEY RESULTS

The Cooper's hawk was not observed in the Study Area during the April 2004 site assessment. However, this species has a moderate potential to occur in the Study Area during migration or in winter. No nesting habitat is present within the Study Area, therefore, no protocol level surveys are necessary.

4.3.4.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance or minimization efforts are proposed since no nesting habitat for Cooper's Hawk is present in the Study Area.

4.3.4.3. PROJECT IMPACTS

The proposed project will have no affect on Cooper's Hawk.

4.3.4.4. COMPENSATORY MITIGATION

No project impacts are anticipated; therefore, compensatory mitigation is not necessary.

4.3.4.5. CUMULATIVE EFFECTS

No project impacts are anticipated; therefore, no cumulative effects due to project implementation are expected.

4.3.5. American Peregrine Falcon

The American peregrine falcon (*Falco peregrinus anatum*) is listed as State Endangered. Peregrine falcons typically nest on rock ledges on cliffs or on man-made structures such as bridges and buildings. This species forages on birds especially in areas where large flocks of migratory shorebirds and waterfowl congregate.

4.3.5.1. SURVEY RESULTS

This species has a moderate potential to occur in the Study Area and may forage on shorebirds at low tide during migration and in winter. Nesting habitat is not present in the Study Area, therefore, no protocol-level surveys are necessary.

4.3.5.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance or minimization efforts are proposed since the American Peregrine Falcon is unlikely to nest in the Study Area.

4.3.5.3. PROJECT IMPACTS

The proposed project will have no affect on the American Peregrine Falcon.

4.3.5.4. COMPENSATORY MITIGATION

No project impacts are anticipated; therefore, compensatory mitigation is not necessary.

4.3.5.5. CUMULATIVE EFFECTS

No project impacts are anticipated; therefore, no cumulative effects due to project implementation are expected.

4.3.6. Long-billed Curlew

The long-billed curlew (*Numenius americanus*) is a CDFG Species of Special Concern. Long-billed curlews do not nest in the San Francisco Bay region; however, they are a common migrant and wintering species in upland pastures, fields, and grasslands, as well as fresh and saline wetlands and mudflats.

4.3.6.1. SURVEY RESULTS

This species has a moderate potential to occur in the Study Area and is likely to forage on exposed mudflats during migration and winter. Nesting habitat is not present in the Study Area, therefore, no protocol-level surveys are necessary.

4.3.6.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance or minimization efforts are proposed since the Long-billed Curlew is unlikely to nest in the Study Area.

4.3.6.3. PROJECT IMPACTS

The proposed project will have no affect on the Long-billed Curlew.

4.3.6.4. COMPENSATORY MITIGATION

No project impacts are anticipated; therefore, compensatory mitigation is not necessary.

4.3.6.5. CUMULATIVE EFFECTS

No project impacts are anticipated; therefore, no cumulative effects due to project implementation are expected.

4.3.7. California Clapper Rail

The California clapper rail (*Rallus longirostris obsoletus*) is listed as Federal Endangered and State Endangered. California clapper rails are found in tidal salt marshes of the San Francisco Bay and require mudflats for foraging and dense vegetation on higher ground for nesting.

4.3.7.1. SURVEY RESULTS

According to the CDFG Natural Diversity Data Base (2007), the nearest documented occurrence of California clapper rail is located approximately 2.5 miles north at Arrowhead Marsh. The narrow band of non-native smooth cordgrass in and adjacent to the project footprint does not provide suitable breeding habitat. The larger area of non-native cordgrass at the upper end of the bay channel, about 400 feet east of the proposed bridge crossing location, may provide moderately suitable foraging and breeding habitat. Given the presence of this suitable habitat, presence of California clapper rail is assumed. However, because the avoidance and minimization measures, including avoidance of the rail breeding season, are adequate to avoid adverse affects to breeding rails, no protocol level surveys for California clapper rail are necessary.

4.3.7.2. AVOIDANCE AND MINIMIZATION EFFORTS

The pile-driving portion of the project should be conducted during the non-breeding season (September 1 – January 31) to avoid acoustic disturbance to breeding rails within 300 feet of the bridge crossing footprint. If avoidance of the breeding season is not feasible, pre-construction rail surveys should be conducted to determine presence/absence. If rails are found to be absent, pile driving construction activities may proceed. If nesting rails are found to be present, pile-driving activities must be conducted within the work window specified above.

4.3.7.3. PROJECT IMPACTS

With the implementation of the avoidance and minimization measures listed above the proposed project is not likely to adversely affect the California clapper rail.

4.3.7.4. COMPENSATORY MITIGATION

The proposed project is designed to avoid all impacts to the California clapper rail. Therefore, compensatory mitigation is not required.

4.3.7.5. CUMULATIVE EFFECTS

The proposed project is designed to avoid all impacts to the California clapper rail; therefore, no cumulative effects due to project implementation are expected.

4.3.8. Western Burrowing Owl

The western burrowing owl (*Athene cunicularia*) is a CDFG Species of Special Concern. This species frequents open grasslands and shrublands with perches and burrows and preys upon insects, small mammals, reptiles, birds, and carrion. It nests and roosts in old burrows of small mammals.

4.3.8.1. SURVEY RESULTS

According to the CDFG Natural Diversity Data Base (2007), the nearest documented occurrence of the burrowing owl is located approximately 2.5 miles northwest of the bridge alignment. The burrowing owl has an unlikely potential for occurrence within the Study Area because of dense vegetation, limited burrow habitat, and regular human and dog disturbance. This species probably does not roost or nest in the existing riprap because of occasional tidal inundation and greater predator accessibility. Presence of western burrowing owl in the Study Area is assumed, but because the avoidance and minimization measures are adequate to avoid adverse affects to this species, no protocol level surveys are necessary.

4.3.8.2. AVOIDANCE AND MINIMIZATION EFFORTS

At any given time of the year, pre-construction burrowing owl surveys should be conducted within 30 days of initial construction activity. The survey protocol should follow guidelines developed by CDFG. The burrows of any owls observed during the breeding season (February 1 through August 31) must be avoided by a buffer of 250 feet.

If burrows are observed during non-breeding season, a 125 foot avoidance buffer must be established. If presence is determined, CDFG must be consulted before any work can occur within the buffer areas.

Mitigation for impacts to occupied burrows generally include construction of an artificial burrow near the impacted burrow, and in an area approximately 6.5 acres in size that is protected through a conservation easement. After the easement has been finalized and artificial burrow construction completed, the owls are passively excluded from the impacted burrows. Passive relocation should only occur during the non-breeding season (September 1 through January 31). Any passive relocation occurring during the breeding season should wait until all young are no longer dependent upon the nest burrow (generally July in the San Francisco Bay region). CDFG typically requires monitoring and maintenance of artificial burrows for five years.

4.3.8.3. PROJECT IMPACTS

With the implementation of the avoidance and minimization efforts listed above the proposed project is not likely to adversely affect the western burrowing owl.

4.3.8.4. COMPENSATORY MITIGATION

The proposed project is designed to avoid all impacts to the western burrowing owl. Therefore, compensatory mitigation is not required.

4.3.8.5. CUMULATIVE EFFECTS

The proposed project is designed to avoid all impacts to the western burrowing owl; therefore, no cumulative effects due to project implementation are expected.

4.3.9. Saltmarsh Common Yellowthroat

The saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*) is a CDFG Species of Special Concern. This songbird frequents low, dense vegetation near water including fresh to saline emergent wetlands. This species forages among wetland herbs and shrubs for insects and nests in tidal marsh vegetation and adjacent weedy vegetation on levees. It uses brushy habitats when in migration.

4.3.9.1. SURVEY RESULTS

Because suitable nesting habitat is present in tidal vegetation at the upper end of the channel and in shrubs along the levees, this species has a moderate potential to occur in the Study Area. Presence of saltmarsh common yellowthroat in the Study Area is assumed, but because the avoidance and minimization measures are adequate to avoid adverse affects to this species, no protocol level surveys are necessary.

4.3.9.2. AVOIDANCE AND MINIMIZATION EFFORTS

Construction of the levee-top Bay Trail portion of the project will require the removal of suitable shrub breeding habitat for saltmarsh common yellowthroat. To avoid impacts to breeding birds, removal of suitable shrub habitat should be done in the non-breeding season (August 1 through February 28).

If avoidance of the breeding season for shrub removal is not feasible, an alternative avoidance and minimization measure is to conduct pre-construction breeding bird surveys in the spring. Surveys should be conducted within suitable nesting habitat in tidal vegetation at the upper end of the channel and in shrubs along the levees. A 50-foot radius exclusion zone should protect all active nests identified at that time. The exclusion zone should remain in place until all young have fledged. Since these birds may have up to three broods, avoidance would possibly extend into August.

4.3.9.3. PROJECT IMPACTS

With the implementation of the avoidance and minimization efforts listed above the proposed project is not likely to adversely affect the saltmarsh common yellowthroat.

4.3.9.4. COMPENSATORY MITIGATION

The proposed project is designed to avoid all impacts to the saltmarsh common yellowthroat. Therefore, compensatory mitigation is not required.

4.3.9.5. CUMULATIVE EFFECTS

The proposed project is designed to avoid all impacts to the saltmarsh common yellowthroat. Therefore, no cumulative effects due to project implementation are expected.

4.3.10. Alameda Song Sparrow

The Alameda song sparrow (*Melospiza melodia pusillula*) is a CDFG Species of Special Concern. This species is found in saline emergent wetlands of the south bay and requires low, dense vegetation for cover and nesting.

4.3.10.1. SURVEY RESULTS

Alameda song sparrows were observed along the south levee during the April 2004 site assessment. Song sparrows may also nest in coyote brush along the levee tops, but they are most likely to nest in tidal vegetation located at the upper end of the channel, about 300 feet east from the proposed bridge crossing footprint.

4.3.10.2. AVOIDANCE AND MINIMIZATION EFFORTS

Construction of the levee-top Bay Trail and bridge abutments during the breeding season could cause disturbance resulting in abandonment of eggs and/or young. To avoid impacts to breeding birds, removal of suitable shrub habitat should be done in the non-breeding season (August 1 through February 28).

If avoidance of the breeding season for shrub removal is not feasible, an alternative avoidance and minimization measure is to conduct pre-construction breeding bird surveys in the spring. Surveys should be conducted within suitable nesting habitat in tidal vegetation at the upper end of the channel and in shrubs along the levees. A 50-foot radius exclusion zone should protect all active nests identified at that time. The exclusion zone should remain in place until all young have fledged. Since these birds may have up to three broods, avoidance would possibly extend into August.

4.3.10.3. PROJECT IMPACTS

With the implementation of the avoidance and minimization efforts listed above the proposed project is not likely to adversely affect the Alameda song sparrow.

4.3.10.4. COMPENSATORY MITIGATION

The proposed project is designed to avoid all impacts to the Alameda song sparrow. Therefore, compensatory mitigation is not required.

4.3.10.5. CUMULATIVE EFFECTS

The proposed project is designed to avoid all impacts to the Alameda song sparrow. Therefore, no cumulative effects due to project implementation are expected.

4.3.11. Central California Coast Steelhead

The central California coast steelhead (*Oncorhynchus mykiss*) is listed as Federal Threatened. Federal listing includes all runs from the Russian River, south to Soquel Creek, inclusive. This includes the San Francisco and San Pablo Bay basins but excludes the Sacramento-San Joaquin River basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean.

4.3.11.1. SURVEY RESULTS

This species has a moderate potential for occurrence in the Study Area. Spawning habitat is not present in the Study Area as Oyster Bay Slough terminates several hundred feet east of the proposed bridge crossing in tidal mudflat areas, but juveniles may wander into Oyster Bay Slough at high tides during outmigrant movements. These outmigrant movements tend to occur in the winter and spring. Presence of central California coast steelhead in the Study Area is assumed, but because the avoidance and minimization measures are adequate to avoid adverse affects to this species, no protocol level surveys are necessary.

4.3.11.2. AVOIDANCE AND MINIMIZATION EFFORTS

The pile-driving portion of the project should be conducted during the steelhead dredging window allowed by NOAA/NMFS (June 1-November 30 in South Central San Francisco

Bay) to avoid acoustic disturbance to juveniles. Limiting the pile-driving portion of the project to the dredging window stated above reduces the chance that steelhead will be found in the Study Area during construction activities, since outmigrant movements usually occur in the winter and spring.

4.3.11.3. PROJECT IMPACTS

With the implementation of the avoidance and minimization efforts listed above the proposed project is not likely to adversely affect central California coast steelhead.

4.3.11.4. COMPENSATORY MITIGATION

The proposed project is designed to avoid all impacts to the central California coast steelhead. Therefore, compensatory mitigation is not required.

4.3.11.5. CUMULATIVE EFFECTS

The proposed project is designed to avoid all impacts to the central California coast steelhead. Therefore, cumulative effects due to project implementation are not expected.

4.3.12. Central Valley Fall/Late Fall-Run Chinook Salmon

The central valley fall/late fall-run Chinook salmon (*Oncorhynchus tshawytscha*) is a CDFG Species of Special Concern. Populations spawn in the Sacramento & San Joaquin Rivers and their tributaries. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams.

4.3.12.1. SURVEY RESULTS

This species has a moderate potential for occurrence in the Study Area. Spawning habitat is not present in the Study Area as Oyster Bay Slough terminates several hundred feet east of the proposed bridge crossing in tidal mudflat areas, but juveniles may wander into Oyster Bay Slough at high tides during outmigrant movements. These outmigrant movements tend to occur in the winter and spring. Presence of Central Valley fall/late

fall run Chinook salmon in the Study Area is assumed, but because the avoidance and minimization measures are adequate to avoid adverse affects to this species, no protocol level surveys are necessary.

4.3.12.2. AVOIDANCE AND MINIMIZATION EFFORTS

The pile-driving portion of the project should be conducted during the steelhead dredging window allowed by NOAA/NMFS (June 1-November 30 in South Central San Francisco Bay) to avoid acoustic disturbance to juveniles. No work window is given for Chinook salmon within the South Central Bay by NOAA/NMFS. However, in Central San Francisco Bay (north of the Bay Bridge), the work window for Chinook salmon is June 1-November 30. Limiting the pile-driving portion of the project to the dredging window stated above reduces the chance that juveniles will be found in the Study Area during construction activities, since outmigrant movements usually occur in the winter and spring.

4.3.12.3. PROJECT IMPACTS

With the implementation of the avoidance and minimization efforts listed above the proposed project is not likely to adversely affect Central Valley Fall/late Fall run Chinook salmon.

4.3.12.4. COMPENSATORY MITIGATION

The proposed project is designed to avoid all impacts to the Chinook salmon. Therefore, compensatory mitigation is not required.

4.3.12.5. CUMULATIVE EFFECTS

The proposed project is designed to avoid all impacts to the Chinook salmon. Therefore, cumulative effects due to project implementation are not expected.

4.4. Essential Fish Habitat

Essential Fish Habitat is regulated through NMFS, a division of NOAA. EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries in the waters of the United States. EFH can include the water column, certain bottom types such as sandy or rocky bottoms, vegetation such as eelgrass or kelp, or structurally complex coral or oyster reefs. Caltrans will enter into consultation with NOAA/NMFS if an aquatic project has the potential to affect EFH. Oyster Bay Slough is identified as EFH in the Pacific Groundfish FMP and Coastal Pelagic FMP under the Magnuson-Stevens Act. A partial list of federally managed species with EFH occurring in Oyster Bay is included in Table 2.

Table 2. Federal Managed Species with Essential Fish Habitat in Oyster Bay Slough

Common name	Scientific name	Status	Comments
FMP species (partial list of common species)			
leopard shark	*Triakis semifasciata*	NMFS - EFH	Common. Pupping habitat is mostly in South SF Bay.
northern anchovy	*Engraulis mordax*	NMFS - EFH	Abundant spring to fall. Some spawning occurs in SF Estuary.
brown rockfish	*Sebastes auriculatus*	NMFS - EFH	Common resident. Juveniles often occur in rocky intertidal or rip-rap areas.
English sole	*Pleuronectes vetulus*	NMFS - EFH	Juveniles abundant. SF Estuary provides important nursery habitat.
starry flounder	*Platichthys stellatus*	NMFS - EFH	Juveniles common, favoring brackish waters.

4.4.1. Survey Results

The Pacific Groundfish FMP and Coastal Pelagics FMP both identify Oyster Bay as essential fish habitat for various life stages of fish species included in the FMPs.

4.4.2. Avoidance and Minimization Efforts

Potential impacts to EFH from construction activities could include modification of the water column and benthic habitat from: (1) high underwater sound pressure levels generated during pile installation, (2) increased turbidity, and (3) replacement of soft benthic substrate with hard artificial substrate. These potential adverse effects will be minimized by the following project conditions and site characteristics.

The three permanent bridge pilings and the temporary trestle pilings, if used, will be installed using a wood block cushion between the hammer and the pile. The smallest hammer weight feasible will also be used. The bridge is designed with three four foot diameter piles rather than multiple smaller piles. This design will minimize long impacts to mudflat and wetland habitats. Any addition sound impacts from the use of a larger hammer for installation of the larger piles should be offset by the long term reduction of impacts as a result of the reduced number of piles.

An increased level of turbidity is likely to be localized within the action area and is expected to dissipate quickly with prevailing currents.

The three-pier design of the Oyster Bay Slough Bridge reduces the amount of soft benthic substrate that will be replaced with hard artificial substrate. If the trestle construction option is used, the increased amount of soft benthic substrate replaced with hard artificial substrate will be a temporary impact only. The proposed Oyster Bay Slough Bridge piers could modify benthic habitat by replacing soft bottom sediment with artificial hard substrate and modify water column habitat by the creation of vertical structure. This vertical structure could attract pelagic and groundfish EFH species, creating an area of increased predation pressure from fish-eating birds. San Francisco Bay contains a large number of pilings that are part of over water structures such as docks, piers, and marinas which serve as artificial perches for piscivorous birds. Since the three pier design of the bridge minimizes the amount of EFH that is modified, no additional avoidance and minimization measures are proposed for the possible increased predation pressure from piscivorous birds that may result from implementation of the proposed project.

4.4.3. Project Impacts

With the implementation of the minimization efforts listed above the proposed project is unlikely to adversely affect essential fish habitat in Oyster Bay Slough.

4.4.4. Compensatory Mitigation

With the implementation of the minimization efforts stated above, impacts to EFH in Oyster Bay Slough are expected to be minimal. Therefore, no compensatory mitigation measures for impacts to EFH are proposed.

4.4.5. Cumulative Effects

With the implementation of the minimization efforts stated above, impacts to EFH in Oyster Bay Slough are expected to be minimal. The presence of the three bridge support piles in Oyster Bay Slough will not have an adverse affect on EFH in Oyster Bay Slough. No cumulative effects to EFH are expected as a result of the proposed project.

4.5. Migratory Bird Treaty Act Species

In addition to regulations for special status species, most birds in the United States, including non-status species, are protected by the Migratory Bird Treaty Act (MBTA) of 1918. Under this legislation, destroying active nests, eggs, and young is illegal. As a result, precautions should be undertaken before and during construction to insure no harm or harassment of avian species.

4.5.1. Survey Results

The Study Area provides some potential nesting habitat for special status and non-special status birds, which are sensitive to human disturbance during the breeding season. Potential nesting habitat within the Study Area is found in the levee-top shrub community, within native coyote brush shrubs found in areas of non-native annual grassland and in some areas of tidal marsh vegetation east of the bridge footprint.

4.5.2. Avoidance and Minimization Efforts

The removal of the levee-top shrub community should be conducted within the non-breeding season for most avian species. This nesting bird work window is August 1 – February 28.

Another alternative is to conduct a pre-construction breeding bird survey in spring. The surveys should be conducted within suitable nesting habitat in and near the project footprint area and within 30 days of the beginning of construction. All active nests identified at that time should be protected by an exclusion zone. Exclusion zones and avoidance measures may vary depending on each species and should be determined by consultation with CDFG. The exclusion zone should remain in place until all young have fledged. Since some birds may have three broods, avoidance could possibly extend into August.

4.5.3. Project Impacts

With the implementation of the avoidance and minimization efforts listed above no impacts to species protected under the MBTA are expected.

4.5.4. Compensatory Mitigation

The proposed project is designed to avoid all impacts to species protected under the MBTA. Therefore, compensatory mitigation is not required.

4.5.5. Cumulative Effects

The proposed project is designed to avoid all impacts to species protected under the MBTA. Therefore, cumulative effects due to project implementation are not expected.

Chapter 5. Results: Permits and Technical Studies for Special Laws or Conditions

5.1. Federal Endangered Species Act Consultation Summary

Caltrans will enter into informal consultation with the USFWS and NOAA/NMFS regarding the federal-listed species that have the potential to be directly or indirectly impacted by the proposed project. With the implementation of the avoidance and minimization efforts listed below and in the previous chapter the proposed project is not likely to adversely affect any federal-listed species that may be present in the proposed project area.

The project has been designed to avoid impacts to all species through a combination of project timing and implementation of avoidance and minimization measures. Pile-driving within the slough will be conducted using a vibratory or small-impact hammer, if feasible, and pile-driving activities will be conducted during the steelhead dredging window allowed by NOAA/NMFS (June 1-November 30 in South Central San Francisco Bay). In addition, the pile-driving portion of the project will be conducted to avoid the clapper rail breeding season (September 1-January 31). The resultant composite work window for pile-driving activities that will avoid impacts to federal-listed California clapper rail and central California coast steelhead is September 1-November 30.

Construction of the levee-top portion of the Bay Trail will avoid impacts to federal listed salt marsh harvest mouse that may be present in the high quality marsh adjacent to the construction area. A pre-construction survey performed by a biological monitor will first determine that mice are absent from the construction area and that construction activities may proceed. All brush within the trail footprint that may be used as refugia by mice will then be cleared by hand to allow any mice present to disperse into adjacent habitat. After brush clearing, exclusion fencing will be constructed to exclude mice from the construction area and prevent workers and machinery from entering salt marsh habitat.

5.2. Federal Fisheries and Essential Fish Habitat Consultation Summary

Caltrans will enter into informal consultation with NOAA/NMFS regarding federally managed EFH in Oyster Bay Slough. Oyster Bay Slough is identified as EFH in the Pacific Groundfish FMP and Coastal Pelagic FMP under the Magnuson-Stevens Act. With the implementation of the avoidance and minimization efforts listed below and in the previous chapter the proposed project is not likely to adversely affect EFH that is present in the proposed project area.

Potential adverse effects to EFH from construction activities could include modification of the water column and benthic habitat from: (1) high underwater sound pressure levels generated during pile installation, (2) increased turbidity, and (3) replacement of soft benthic substrate with hard artificial substrate. These potential adverse effects will be minimized by the following project conditions and site characteristics.

Installation of the temporary trestle pilings will use of a vibratory hammer or a less than 3000 lb. The three bridge pilings will be installed with using a wood block cushion and the smallest hammer weight feasible. The bridge is designed with three four foot diameter piles rather than multiple smaller piles. This design will minimize long impacts to mudflat and wetland habitats. Any addition sound impacts from the use of a larger hammer for installation of the larger piles should be offset by the long term reduction of impacts as a result of the reduced number of piles.

An increased level of turbidity is likely to be localized within the action area and is expected to dissipate quickly with prevailing currents.

The three-pier design of the Oyster Bay Slough Bridge reduces the amount of soft benthic substrate that will be replaced with hard artificial substrate. If the trestle construction option is used, the increased amount of soft benthic substrate replaced with hard artificial substrate will be a temporary impact only. The proposed Oyster Bay Slough Bridge piers could modify benthic habitat by replacing soft bottom sediment with artificial hard substrate and modify water column habitat by the creation of vertical structure. This vertical structure could attract pelagic and groundfish EFH species, creating an area of increased predation pressure from fish-eating birds. San Francisco Bay contains a large number of pilings that are part of over water structures such as docks, piers, and marinas which serve as artificial perches for piscivorous birds. Since the three pier design of the bridge minimizes the amount of EFH that is modified, no additional avoidance and minimization measures are proposed for the possible increased predation pressure from piscivorous birds that may result from implementation of the proposed project.

5.3. California Endangered Species Act Consultation Summary

The USFWS is expected to take the lead in consultation of species that are both federal and state listed, such as the clapper rail and the harvest mouse. A Mitigated Negative Declaration has been prepared for the project (BASELINE Environmental Consulting, October 2005). CDFG and other agencies have had the opportunity to comment on the project through the CEQA review process and to recommend avoidance and/or mitigation measures. Three comment letters were received regarding the proposed project; by CDFG, dated November 10, 2005, and by the Port of Oakland and BCDC, dated November 14, 2005. These letters are included in Appendix D.

5.4. Wetlands and Other Waters Coordination Summary

On January 8, 2008 WRA conducted a routine wetland delineation of the Study Area to determine the presence of potential wetlands and waters subject to federal jurisdiction under Section 404 and Section 10 of the Clean Water Act and to state jurisdiction under the McAteer-Petris Act. A copy of the delineation report (WRA 2008) is included in Appendix C.

The project footprint occurs in an area potentially under the jurisdiction of the USACOE, RWQCB, and BCDC. Three separate permits will be needed before commencement of the proposed project can occur.

Corps jurisdiction is defined under Section 404 of the Federal Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 and extends to the High Tide Line (8.18 ft NAVD) in the Study Area. An Application for Department of the Army Permit (33 CFR 325) is needed to place fill in Corps jurisdictional tidal waters. The project qualifies for an ACOE Nationwide Permit (NWP14) under Section 404 of the CWA.

RWQCB jurisdiction is defined under Section 401 of the Clean Water Act. RWQCB Section 401 water quality certification is also needed where fill is proposed to be placed in Corps jurisdictional wetlands or waters.

BCDC jurisdiction is defined under the McAteer-Petris Act and extends in the Bay to 8.31 ft within the Study Area. In addition, BCDC has jurisdiction over the shoreline band, a lane extending 100 ft landward of BCDC Bay jurisdictional areas. A BCDC Administrative Permit is needed to place fill in BCDC jurisdictional areas.

The proposed project will not involve application for a CDFG 1602 Lake and Streambed Alteration Agreement. Oyster Bay Slough is not a naturally occurring slough but is in fact a remnant of San Francisco bay open water and mudflat that has been enclosed by fill placed for construction of the Oakland International Airport to the north and the former landfill located at the current location of Oyster Bay Regional Shoreline to the south. Oyster Bay Slough has unrestricted tidal action and salt marsh species-dominated vegetation indicating salinities found in open bay waters. No streams or other natural freshwater features drain into Oyster Bay Slough from the City of San Leandro or any adjacent cities. No lakes, streams, or riparian habitats regulated under 1602 occur within the Study Area.

5.5. Executive Orders

Executive Order 11990

Executive Order (EO) 11990 establishes a national policy to avoid adverse impacts on wetlands wherever there is a practicable alternative. EO 11990 is applicable to all federally undertaken, financed or assisted projects that could have significant impacts to wetlands. The federal DOT promulgated Order 5660.1A in 1978 to comply with the original EO of 1977.

To comply with DOT Order 5660.1A, on federally funded projects, impacts to wetlands must be identified in the environmental document. Alternatives which avoid wetlands must be considered. If wetlands impacts cannot be avoided, then all practicable measures to minimize harm must be included.

Section 4.1.1.3 of the NES describes impacts to wetlands found within the Study Area as part of the proposed project. Approximately 150 square feet (less than 0.01 acre) of tidal marsh vegetation composed of non-native smooth cordgrass (approximately 140 square feet) and pickleweed and salt marsh gum plant (10 square feet) will be indirectly impacted due to shading effects from the pedestrian bridge. Impacts will be minimized by the design of the proposed Bay Trail Bridge. The three-pier design will avoid all direct impacts to the wetland vegetation, and the height and orientation of the bridge will minimize shading impacts underneath it.

The Oyster Bay Bridge at Oyster Bay Slough project does not conflict with EO 11990 or DOT Order 5660.1A. The proposed project is anticipated to qualify for a NWP under

Section 404 of the CWA. It is assumed that in order to qualify for a NWP project impacts must be less than significant to biological resources, including wetlands.

Invasive Species

Executive Order (EO) 13112 is intended to prevent the introduction of invasive species and provide for their control, while minimizing the economic, ecological and human health impacts that invasive species cause. EO 13112 was signed February 3, 1999. The order directs federal agencies to expand and coordinate their efforts to combat the introduction and spread of plants and animals not native to the United States. EO 13112 is applicable to all federal agencies whose actions may affect the status of invasive species.

Under EO 13112, Federal agencies cannot authorize, fund, or carry out actions that they believe are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless all reasonable measures to minimize risk of harm have been analyzed and considered. Federal-Aid and Federal Highway Program funds cannot be used for construction, revegetation, or landscaping activities that purposely include the use of known invasive species.

In California, a comprehensive inventory of invasive species is kept by the California Invasive Plant Council (CalIPC). The California Invasive Plant Inventory categorizes non-native invasive plants that threaten the state's wildlands. Categorization is based on an assessment of the ecological impacts of each plant. The inventory categorizes plants as High, Moderate, or Limited, reflecting the level of each species' negative ecological impact in California.

Within the Study Area, three species; sweet fennel, pampas grass and smooth cordgrass are rated as “high” on the 2006 inventory (CalIPC 2006). The distribution of both sweet fennel and pampas grass in the Study Area is limited to the northern levee top. Although these plants are rated “high” by CalIPC, the impacts of the two species in the Study Area are relatively low, due to the disturbed nature of the site. The distribution of smooth cordgrass within the Study Area is limited to the tidal mudflats adjacent to the northern levee.

The proposed project does not conflict with EO 13112. The proposed project will not promote the introduction into or spread of these invasive species within the Study Area. All three species are already well established in the disturbed uplands of the northern levee or the northern tidal mudflats of Oyster Bay.

Chapter 6. References

AGS Consultants. 2002. Final Conceptual Design Report, Pedestrian and Bicycle Bridge, San Francisco Bay Trail.

BASELINE Environmental Consulting. October 7, 2005. Initial Study/Mitigated Negative Declaration for the Bay Trail Bridge at Oyster Bay Slough.

California Department of Fish and Game. 2007. Natural Diversity Data Base. Wildlife and Habitat Data Analysis Branch, Sacramento.

California Department of Fish and Game. 1994. A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code. Environmental Services Division (ESD).

California Invasive Plant Council (CalIPC). 2006. Online Invasive Plant Inventory. Access online January 14, 2008 from http://www.cal-ipc.org/ip/inventory/index.php#inventory

California Native Plant Society. 2007. Inventory of Rare and Endangered Plants (online edition). California Native Plant Society, Sacramento, California. Accessed on December 20, 2007 from http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi

Chen, Po-Kang, 2005, Division Manager, Structure, Mark Thomas & Company, Inc., personalcommunication via e-mail to John O'Driscoll, City of San Leandro, 27 January.

Creegan and D'Angelo. 2004. City of San Leandro Bay Trail Pedestrian Bridge Report, Draft.

Hickman, J.C. (ed.) 1993. The Jepson Manual: higher plants of California. University of California Press.

Holland, R. F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Prepared for the California Department of Fish and Game, Sacramento, California

Information Center for the Environment (ICE). 2007. Distribution Maps of Fishes in California. Department of Environmental Science and Policy, University of California, Davis, California. http://ice.ucdavis.edu/aquadiv/fishcovs/fishmaps.html

Jennings, Mark R. and M.P. Hayes. 1994. Amphibians and Reptile Species of Special Concern in California. California Department of Fish and Game.

Mark Thomas & Co., 2004a, Trail Alignment Study Bay Trail Bridge in City of San Leandro.

Mark Thomas & Co., 2004b, Preliminary Bridge Report Bay Trail Bridge in City of San Leandro, September.

Natural Resources Conservation Service (NRCS). 2002. Field Indicators of Hydric Soils in the United States, version 5.0. G.W. Hurt & P.M. Whited, eds. USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils, Forth Worth, TX.

National Oceanic and Atmospheric Administration (NOAA). National Marine Fisheries Service distribution maps for California Salmonid species. December 2007. http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Maps/Index.cfm

National Marine Fisheries Service (NMFS). 2007. Office of Habitat Conservation. Habitat Protection Division. Essential Fish Habitat. http://www.nmfs.noaa.gov/habitat/habitatprotection/efh/index_a.htm

Port of Oakland. August 31, 2000. Wetlands and Waters of the Unities States, map. File No. 25360S.

Reed, Jr., Porter B. 1988. National List of Plant Species That Occur in Wetlands: NationalSummary.

U.S. Fish & Wildlife Service. Biol. Rep. 88 (24). 244 pp.Sawyer, J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society.

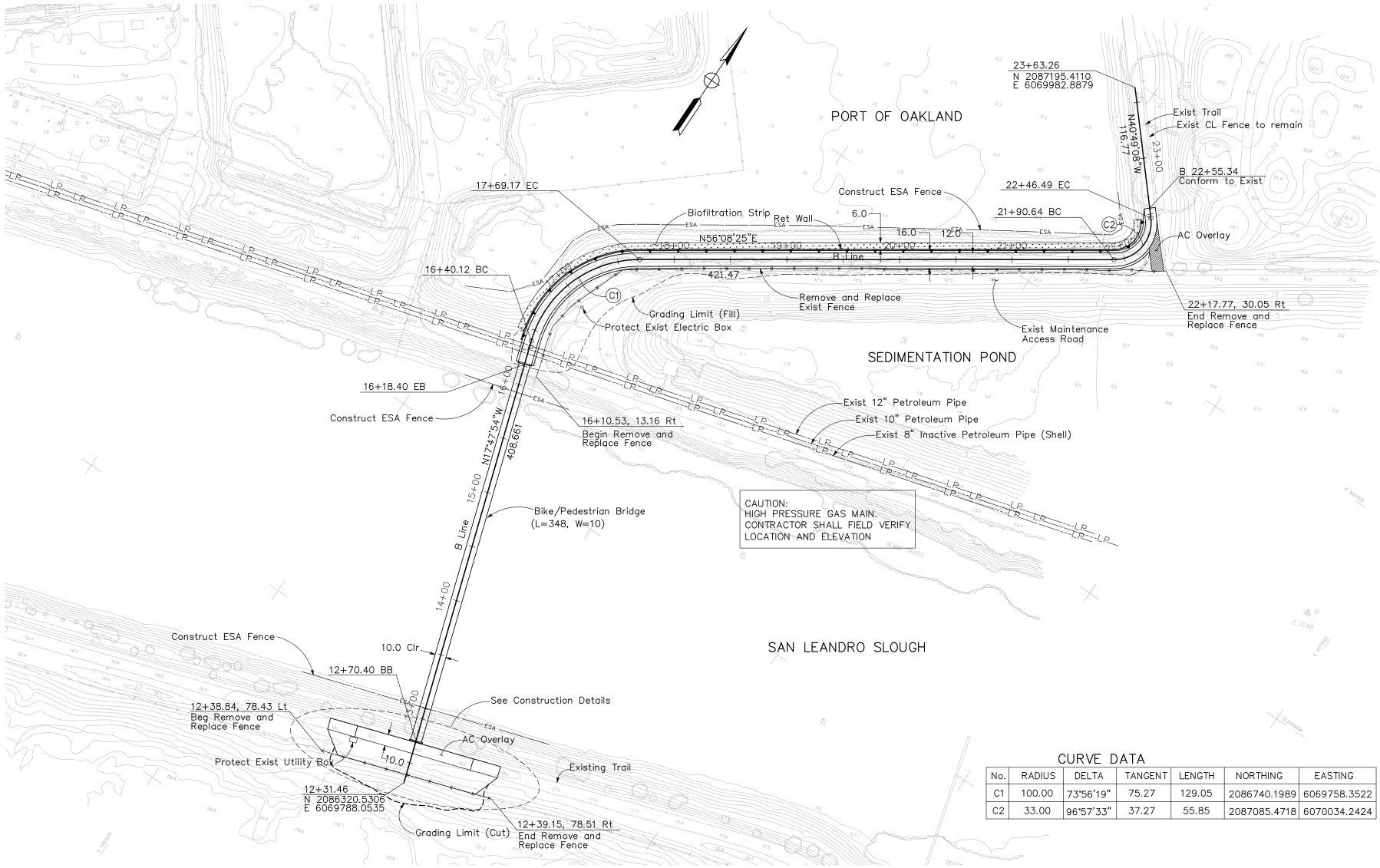
U.S. Department of Agriculture, Soil Conservation Service.1981. Soil Survey of Alameda County, Western Part California. In cooperation with the University of California Agricultural Experiment Station.

United States Fish and Wildlife Service (USFWS). 2007. Unofficial Species Lists. Sacramento Fish and Wildlife Service, Sacramento.

WRA. January 2008. Delineation of Potential Jurisdictional Wetlands and Waters under Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, and the McAteer-Petris Act, San Leandro Bay Trail Bridge at Oyster Bay Slough Project, San Leandro, California.

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M.White. 1990. California's Wildlife, Volume I-III: Amphibians and Reptiles, Birds, Mammals. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento.

Appendix A Bay Trail Bridge at Oyster Bay Slough Project Design Plans



CURVE DATA

No.	RADIUS	DELTA	TANGENT	LENGTH	NORTHING	EASTING
C1	100.00	73°56'19"	75.27	129.05	2086740.1989	6069758.3522
C2	33.00	96°57'33"	37.27	55.85	2087085.4718	6070034.2424

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.

CITY OF SAN LEANDRO
INCORPORATED 1872

BEFORE YOU DIG, CALL UNDERGROUND SERVICE ALERT 1(800)227-2600
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES. THOSE SHOWN REPRESENT THE BEST INFORMATION AVAILABLE TO THE CITY OF SAN LEANDRO AT THE TIME OF PREPARATION OF THESE PLANS. NO GUARANTEE IS MADE AS TO THE ACCURACY OF THIS INFORMATION.

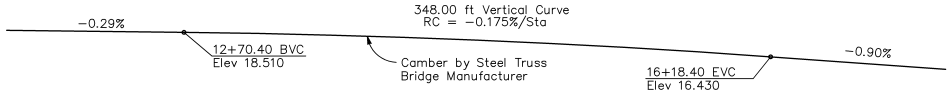
NO.	DATE	REVISION

DESIGNED BY BP DATE 10/12/04
DRAWN BY BP DATE 10/12/04
PROJECT MGR. Po Chen DATE 10/12/04
TRANS ADMIN. DATE
SENIOR ENGR. DATE
APPROVED BY: DATE
CITY ENGINEER, R.C.E. No. 34870

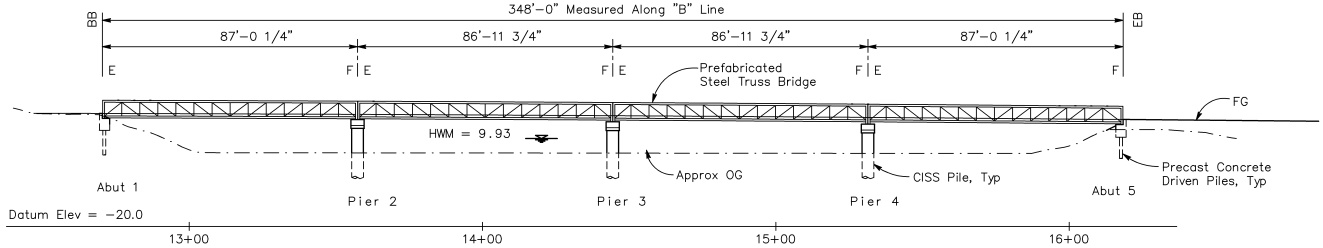
CITY OF SAN LEANDRO

SAN LEANDRO BAY TRAIL
PLAN

SHEET 3 OF 17
JOB NO.
SCALE 1"=40'
DWG CASE



PROFILE
No Scale



ELEVATION
1" = 20'

Note:
E=Expansion Bearing
F=Fixed Bearing

Pile Data

Location	Diameter	Design Loading (Service Load)	Nominal Resistance Compression	Design Tip Elevation
Abut 1	12"	25 Tons	50 Tons	−27.5 ft
Bent 2	48"	100 Tons	200 Tons	−60.0 ft
Bent 3	48"	100 Tons	200 Tons	−60.0 ft
Bent 4	48"	100 Tons	200 Tons	−60.0 ft
Abut 5	12"	25 Tons	50 Tons	−41.0 ft

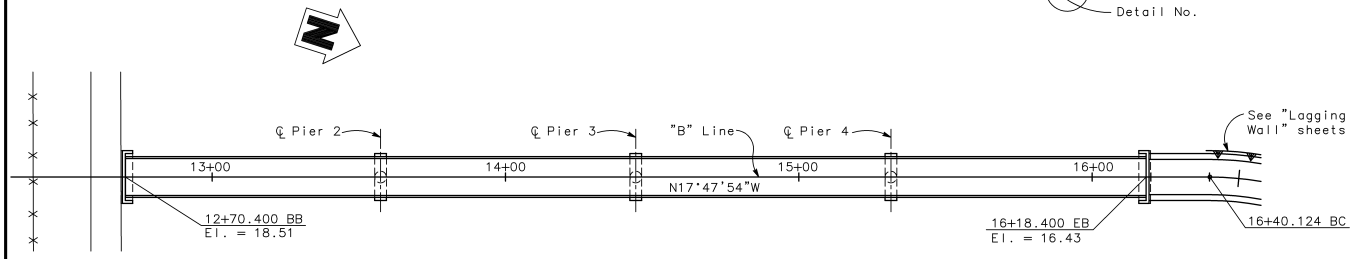
ABBREVIATIONS

cont. – continuous
A.B. – anchor bolt
T&B – Top & Bottom
PT – Pressure Treated
DF – Douglas Fir

INDEX TO STANDARD PLANS DATED JULY, 2002

A10A	Abbreviations
A10B	Symbols
A62–C	Limits of Payment for Excavation and Backfill – Bridge
B0–1	Bridge Details
B0–3	Bridge Details
B0–13	Bridge Details

Caltrans Standard Plan Sheet No.
Detail No.



PLAN
1" = 20'

GENERAL NOTES

1. Prefabricated steel bridge shall be designed, detailed and fabricated according to the latest provisions of the AASHTO Standard Specifications for Highway Bridges, AISC Manual of Steel Construction, and the Structural Welding Code (ANSI/AWS D1.1–88), and CBC 2001.
2. Bridge shall be made from cold formed carbon steel tubing conforming to ASTM A847 (Fy = 50,000 psi); and incidental steel angles, plates and shapes steel conforming to ASTM A572 (Fy = 50,000 psi). Field bolted splices shall be with ASTM A325 bolts. Minimum thickness of closed structural tubular members shall be 1/4 inch.
3. Welding shall be performed with series E80 Electrodes compatible with the base metal being welded. All fabrication, filler materials & Welder's certifications shall be per latest AWS codes.
4. All verticals shall be plumbed. All top & bottom chord shop splices to be complete penetration type welds. Weld between top chord & end vertical shall be full or partial penetration, ground flush.
5. Unless otherwise noted, welded connections shall be fillet welds (or have the effective throat of a fillet weld) of a size equal to the thickness of the lightest gauge member in the connection. All connections shall be welded all around, full length of the contacts.
6. Prefabricated steel bridge shall be cleaned and painted in accordance with the special provisions.
7. Composite concrete deck shall consist of minimum 5" thick lightweight concrete fill (min f'c = 4,000 psi) into 22 Ga min, galvanized, SDI certified metal deck. Composite slab shall be designed to carry 200 psf uniform live load. Reinforced concrete metal deck design and metal deck installation shall be the responsibility of the bridge manufacturer. Bridge manufacturer shall furnish all reinforcing bar details and concrete construction & joint details. Contractor shall furnish & field install reinforcing bars and concrete per bridge manufacturer's plans. All concrete joints shall be leak–proof and concrete surface shall be finished & sealed per bridge manufacturer's requirements. Bridge deck finish shall be medium broom finish.
8. Bridge design is based on combinations of the following loads which will produce maximum critical member stresses:
   A) 85 psf uniform live load on the full deck area or one (posted) 20 Kip vehicle load plus impact. The load shall be distributed as a four–wheel vehicle with 80% of load on the rear wheels. The wheel shall be spaced for a pickup truck driving down the center of the bridge.
   B) 35 psf wind load on the full height of the bridge, as if enclosed; or 75 psf wind load on actual surfaces of the members.
   C) 20 psf upward force applied at the windward quarter point of the transverse bridge width (AASHTO 3.15.3).
   D) Seismic Loading: Site–dependent response spectrum (Soil Profile Type E, PBA = 0.46g). For ARS Curve, see "Abutment Details No. 2" sheet.
9. Safety rails, pipe handrails and all elements shall be free of sharp edges. Maximum spacing between safety rails shall be 4" and locations shall be coordinated with pipe handrail location. Safety rails and pipe handrails shall be designed in accordance with CBC 2001.
10. The Contractor shall submit structural design calculations, camber calculations, shop plans for including all fabrication details, vent/drain holes, welds, splice details, deck concrete and reinforcing, deck joints, all miscellaneous details, etc. prepared and signed by a California Registered Civil Engineer for City's review, prior to fabrication.

Note:
Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

CITY OF SAN LEANDRO

BEFORE YOU DIG, CALL UNDERGROUND SERVICE ALERT 1(800)227–2600
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES. THOSE SHOWN REPRESENT THE BEST INFORMATION AVAILABLE TO THE CITY OF SAN LEANDRO AT THE TIME OF PREPARATION OF THESE PLANS. NO GUARANTEE IS MADE AS TO THE ACCURACY OF THIS INFORMATION.

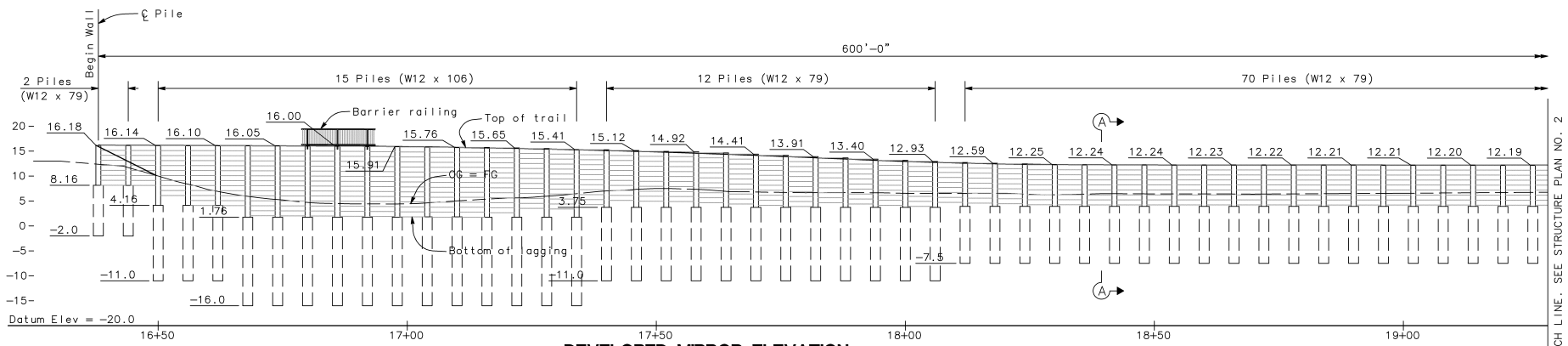
NO.	DATE	REVISION

DESIGNED BY	TW	DATE 11–22–04
DRAWN BY	TW	DATE 11–22–04
PROJECT MGR.	PC	DATE 11–22–04
TRANS ADMIN.		DATE
SENIOR ENGR.		DATE
APPROVED BY:		DATE
CITY ENGINEER, R.C.E. No. 34870		

SAN LEANDRO BAY TRAIL
PEDESTRIAN BRIDGE

GENERAL PLAN

SHEET 8 OF 17
JOB NO. 54–04174B
SCALE AS SHOWN
DWG ____ CASE ____

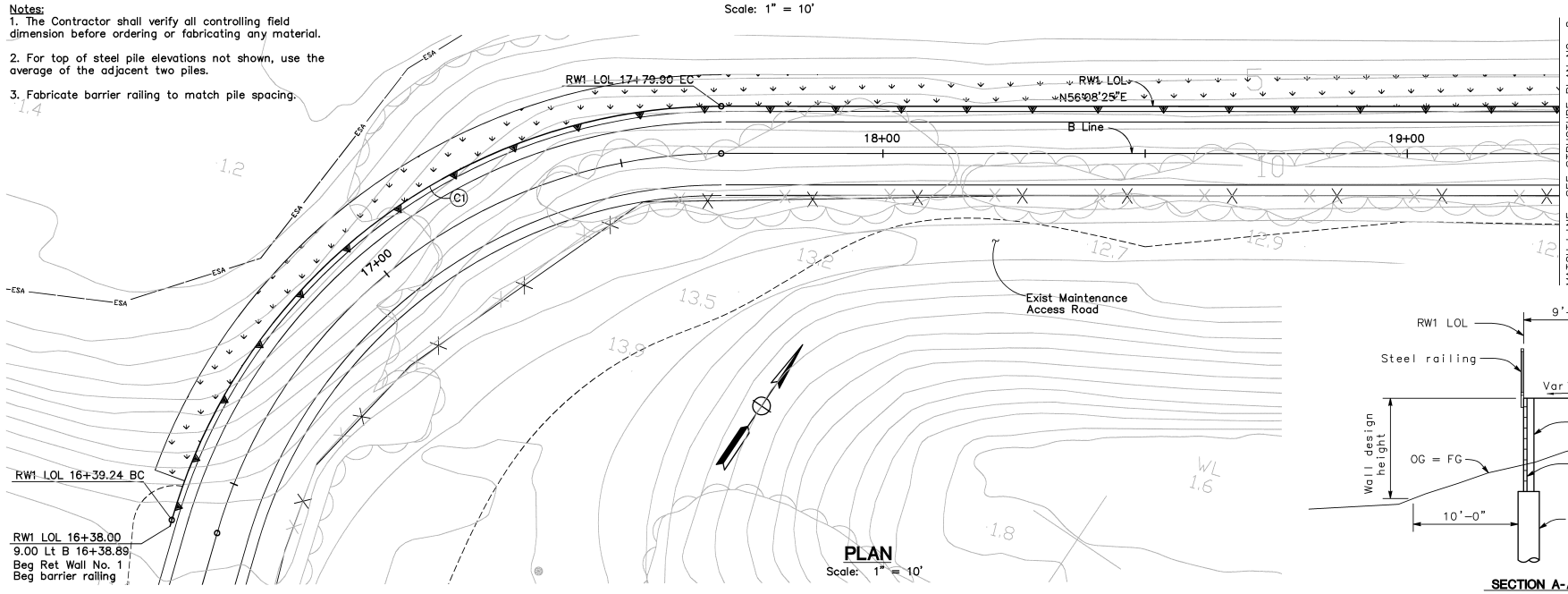


DEVELOPED MIRROR ELEVATION

Scale: 1" = 10'

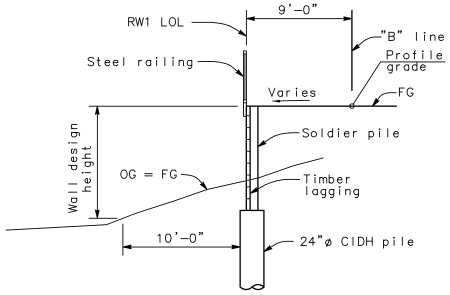
Notes:

1. The Contractor shall verify all controlling field dimension before ordering or fabricating any material.
2. For top of steel pile elevations not shown, use the average of the adjacent two piles.
3. Fabricate barrier railing to match pile spacing.



PLAN

Scale: 1" = 10'



SECTION A-A

1' = 5'

CURVE DATA

No.	RADIUS	DELTA	TANGENT	LENGTH	NORTHING	EASTING
C1	109.00	73°56'19"	82.05	140.66	2086740.1989	6069758.3522

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.

BEFORE YOU DIG, CALL UNDERGROUND SERVICE ALERT 1(800)227-2600

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES. THOSE SHOWN REPRESENT THE BEST INFORMATION AVAILABLE TO THE CITY OF SAN LEANDRO AT THE TIME OF PREPARATION OF THESE PLANS. NO GUARANTEE IS MADE AS TO THE ACCURACY OF THIS INFORMATION.

NO.	DATE	REVISION

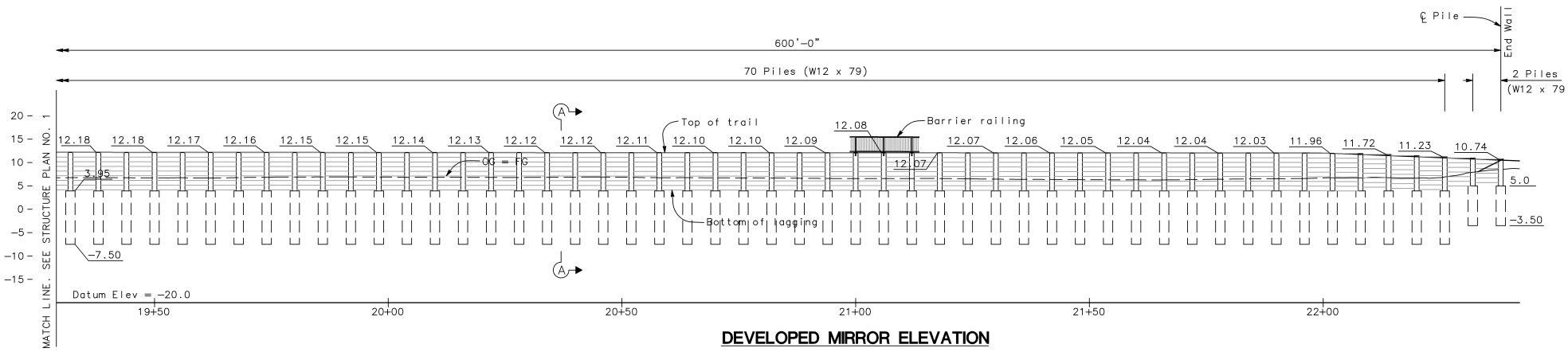
DESIGNED BY	TW	DATE 11-22-04
DRAWN BY	TW	DATE 11-22-04
PROJECT MGR.	PC	DATE 11-22-04
TRANS ADMIN.		DATE
SENIOR ENGR.		DATE
APPROVED BY:		DATE

CITY ENGINEER, R.C.E. No. 34870

CITY OF SAN LEANDRO

SAN LEANDRO BAY TRAIL
RETAINING WALL NO. 1 - LAGGING WALL
STRUCTURE PLAN NO. 1

SHEET 14 OF 17
JOB NO.
SCALE AS SHOWN
DWG CASE

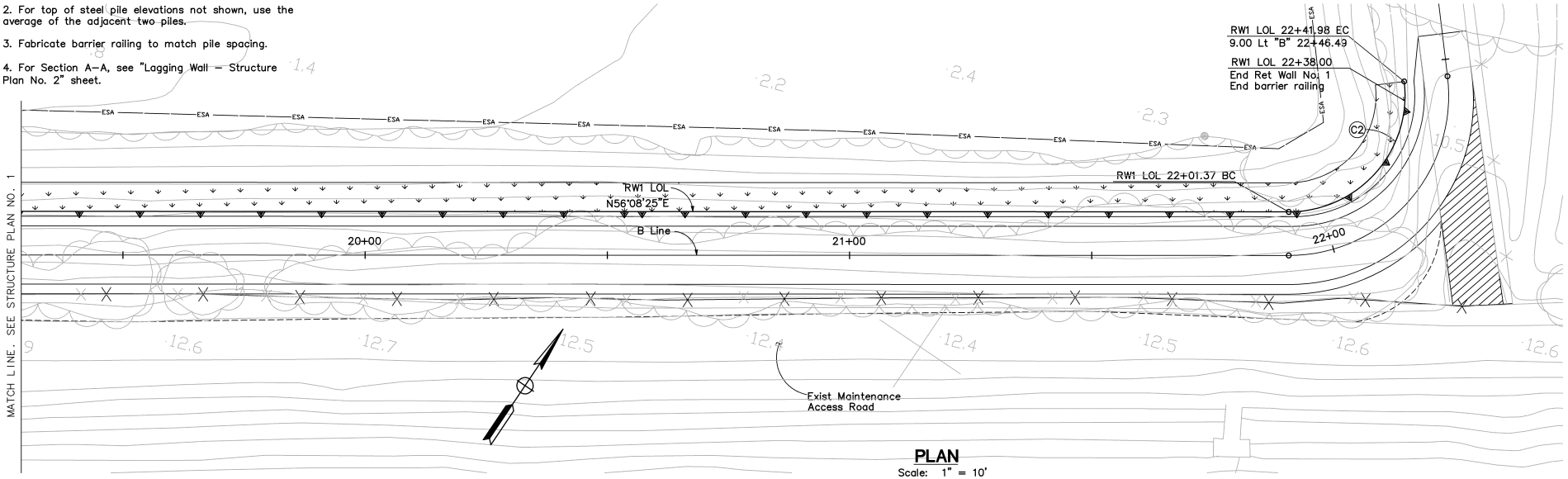


DEVELOPED MIRROR ELEVATION

Scale: 1" = 10'

Notes:

1. The Contractor shall verify all controlling field dimension before ordering or fabricating any material.
2. For top of steel pile elevations not shown, use the average of the adjacent two piles.
3. Fabricate barrier railing to match pile spacing.
4. For Section A–A, see "Lagging Wall – Structure Plan No. 2" sheet.



PLAN

Scale: 1" = 10'

CURVE DATA

No.	RADIUS	DELTA	TANGENT	LENGTH	NORTHING	EASTING
C2	24.00	96°57'33"	27.11	40.61	2087085.4718	6070034.2424

BEFORE YOU DIG, CALL UNDERGROUND SERVICE ALERT 1(800)227-2600

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES. THOSE SHOWN REPRESENT THE BEST INFORMATION AVAILABLE TO THE CITY OF SAN LEANDRO AT THE TIME OF PREPARATION OF THESE PLANS. NO GUARANTEE IS MADE AS TO THE ACCURACY OF THIS INFORMATION.

NO.	DATE	REVISION

CITY OF SAN LEANDRO

DESIGNED BY TW DATE 11-22-04
DRAWN BY TW DATE 11-22-04
PROJECT MGR. PC DATE 11-22-04
TRANS ADMIN. DATE
SENIOR ENGR. DATE
APPROVED BY: DATE

CITY ENGINEER, R.C.E. No. 34870

SAN LEANDRO BAY TRAIL
RETAINING WALL NO. 1 - LAGGING WALL
STRUCTURE PLAN NO. 2

SHEET 15 OF 17
JOB NO.
SCALE AS SHOWN
DWG CASE

Appendix B Potential for Special Status Plant and Wildlife Species to Occur in the Study Area

Appendix B. Special status plant and animal species that may occur, or are known to occur, in habitats similar to those found on the Study Area. List compiled from USFWS Species lists (USFWS 2007), CNDDB occurrence records (CDFG 2007), and Online Inventory occurrence records (CNPS 2007) for the San Leandro and surrounding eight quadrangles. Some species with no potential for occurrence have been omitted.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Mammals			
pallid bat *Antrozous pallidus*	CSC, WBWG	Occupies a variety of habitats at low elevation including grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting.	**Unlikely**. Typical roost habitat is not present.
Townsend's western big-eared bat *Corynorhinus townsendii townsendii*	CSC WBWG	Primarily found in rural settings in a wide variety of habitats including oak woodlands and mixed coniferous-deciduous forest. Day roosts highly associated with caves and mines. Very sensitive to human disturbance.	**Unlikely**. Typical roost habitat is not present.
Steller (=northern) sea lion *Eumetopias jubatus*	FT	Breeds on Año Nuevo, San Miguel and Farallon islands, Point Saint George, and Sugarloaf. Hauls-out on islands and rocks. Needs haul-out and breeding sites with unrestricted access to water, near aquatic food supply and with no human disturbance.	**Unlikely**. No suitable haul-out or breeding sites present, and human disturbance is common in Study Area.
greater western mastiff bat *Eumops perotis californicus*	CSC WBWG	Found in a wide variety of habitat. Distribution appears to be tied to large rock structures which provide suitable roosting sites, including cliff crevices and cracks in boulders.	**Unlikely**. Typical roost habitat is not present.
silver-haired bat *Lasionycteris noctivagans*	CSC WBWG	Primarily a coastal and montane forest dweller. Feeds over streams, ponds and open brushy areas. Typically roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes and rarely under rocks. Needs drinking water.	**Unlikely**. Typical roost habitat is not present.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
hoary bat *Lasiurus cinereus*	CSC WBWG	Prefers open habitats with access to trees for cover and open or edge areas for feeding. Typically roosts in dense foliage of medium to large trees.	**Unlikely**. Typical roost habitat is not present.
Yuma myotis *Myotis yumanensis*	CSC	Known for its ability to survive in urbanized environments. Also found in heavily forested settings. Day roosts in buildings, trees, mines, caves, bridges and rock crevices. Night roosts associated with man-made structures.	**Unlikely**. Typical roost habitat is not present.
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	CSC	Occurs in forest habitats of moderate canopy and moderate to dense understory. Also found in chaparral habitats. Feeds mainly on woody plants: live oak, maple, coffeeberry, alder, and elderberry	**Not Present**. Upland habitats typically occupied by this species are not present in the Study Area.
big free-tailed bat *Nyctinomops macrotis*	CSC WBWG	Occurs in low lying arid areas mainly in Southern California. Roosts in high cliffs or rock outcrop areas.	**Unlikely**. Typical roosting habitat is not present.
salt-marsh harvest mouse *Reithrodontomys raviventris*	FE, SE, CFP	Primary habitat in pickleweed-dominated saline emergent marshes of San Francisco Bay. Require adjacent upland areas for escape from high tides.	**Moderate Potential**. Observed approximately 2.5 miles north at Arrowhead Marsh (CDFG 2007). Potential habitat is located in the large pickleweed area adjacent to the proposed route.
salt-marsh vagrant shrew *Sorex vagrans halicoetes*	CSC	Found in salt marshes of the South Arm of San Francisco Bay. Prefer medium to high marsh 6-8ft above sea level.	**Moderate Potential**. Observed approximately one mile northwest within the Oakland Airport (CDFG 2007). Potential habitat is located in the large pickleweed area adjacent to the proposed levee-top trail
Alameda island mole *Scapanus latimanus parvus*	CSC	Found in a variety of habitats, but endemic to Alameda Island. Typically occurs in annual or perennial grasslands with moist, friable soils.	**Not Present**. Suitable habitat is not present within the Study Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
American badger *Taxidea taxus*	CSC	Found in shrub, forest and herbaceous habitats with friable soils and open, uncultivated ground, where sufficient food is available.	**Unlikely**. Habitat quality in Study Area is poor for this species.
Birds			
Cooper's hawk *Accipter cooperi*	CSC	Inhabits areas with dense tree stands or patchy woodlands. Usually nests in deciduous riparian areas or second-growth conifer stands near streams.	**Moderate Potential**. Likely occurs in the Study Area during migration or in winter.
sharp-shinned hawk *Accipiter striatus*	CSC	Generally associated with woodland habitats. Typically nests in isolated areas away from human disturbance.	**Moderate Potential**. Likely occurs in the Study Area during migration or in winter.
tricolored blackbird *Agelaius tricolor*	CSC	Usually nests over or near freshwater in dense cattails, tules, or thickets of willow, blackberry, wild rose or other tall herbs.	**Not Present**. Suitable foraging and breeding habitat are not present.
Bell's sage sparrow *Amphispiza belli*	CSC	Prefers dense chaparral and scrub habitats in breeding season. Found in more open habitats in winter.	**Not Present**. Chaparral habitats are not present in the Study Area.
golden eagle *Aquila chrysaetos*	CSC, CFP	Found in rolling foothills with open grasslands, scattered trees, and cliff-walled canyons	**Not Present**. No suitable foraging or nesting habitat.
great egret (rookery) *Ardea alba*	none	Feeds and rests in fresh, and saline emergent wetlands, along the margins of estuaries, lakes, and slow-moving streams, on mudflats and salt ponds, and in irrigated croplands, and pastures. Nests and roosts in trees.	**Not Present**. Heron and egret rookeries were not observed in the Study Area.
great blue heron (rookery) *Ardea herodias*	none	Inhabits freshwater, mudflats,tidal shallows, and marshes. Nest in colonies in large trees.	**Not Present**. Heron and egret rookeries were not observed in the Study Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
short-eared owl *Asio flammeus*	CSC	Found in open, treeless areas with elevated sites for perches and dense vegetation for roosting and nesting. Tule patches/tall grass needed for nesting and daytime seclusion.	**Unlikely**. May occasionally forage in grassland and pickleweed areas in Study Area, but human disturbance precludes nesting attempts.
long-eared owl *Asio otus*	CSC	Inhabit open woodlands, forest edges, riparian stripsalong rivers, hedgerows, juniper thickets, woodlots, and wooded ravines and gullies. Breeding habitat must include thickly wooded areas for nesting and roosting with nearby open spaces for hunting.	**Not Present**. Woodland habitats not present.
western burrowing owl *Athene cunicularia hypugea*	CSC	Frequents open grasslands and shrublands with perches and burrows. Preys upon insects, small mammals, reptiles, birds, and carrion. Nests and roosts in old burrows of small mammals.	**Unlikely**. Ground squirrel burrows are present, but no evidence of owl occupancy was observed during the assessment. Dense vegetation and human and dog presence may preclude presence.
Marbled Murrelet *Brachyramphus marmoratus*	FT, SE	(Nesting) Feeds near shore; nests inland along the Pacific coast, from Eureka to Oregon border, and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland. Nests often built in Douglas-fir or redwood stands containing platform-like branches.	**Not Present**. No old-growth redwood forests present in the vicinity of the Study Area.
ferruginous hawk *Buteo regalis*	CSC	Frequents open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys and fringes of pinyon-juniper habitats.	**Unlikely**. May rarely migrate over the Study Area.
Vaux's swift *Chaetura vauxi*	CSC	Forages high in the air over most terrain and habitats but prefers rivers/lakes. Requires large hollow trees for nesting.	**Unlikely**. May occasionally migrate over Study Area.
western snowy plover *Charadrius alexandrinus nivosus*	FT, CSC	Found on sandy beaches, salt pond levees and shores of large alkali lakes. Need sandy gravelly or friable soils for nesting.	**Unlikely**. Typical breeding and foraging habitat are not present.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
mountain plover *Charadruis montanus*	CSC	Winter resident in short grasslands and plowed fields below 1000m.	**Not Present**. Typical habitat is not present in the Study Area.
northern harrier *Circus cyaneus*	CSC	Found in open grasslands, prairies, and marshes. Tend to nest near water.	**Unlikely**. May occasionally forage in grassland and pickleweed areas in Study Area, but human disturbance precludes nesting attempts.
yellow warbler *Dendroica petechia brewsteri*	CSC	Nests in riparian stands of willows, cottonwoods, aspens, sycamores, and alders. Also nests in montane shrubbery in open conifer forests.	**Unlikely**. Riparian habitats are not present in the Study Area.
snowy egret (rookery) *Egretta thula*	none	Widespread along shores of coastal estuaries, fresh and saline emergent wetlands, ponds, slow-moving rivers, irrigation ditches, and wet fields. Feeds primarily on small fish, crustaceans and large insects.	**Not Present**. Heron and egret rookeries were not observed in the Study Area.
white-tailed kite *Elanus leucurus*	CFP	Year-long resident of coastal and valley lowlands; rarely found away from agricultural areas. Preys on small diurnal mammals and occasional birds, insects, reptiles, and amphibians.	**Unlikely**. May occasionally forage in grassland and pickleweed areas in Study Area, but human disturbance precludes nesting attempts.
little willow flycatcher *Empidonax traillii brewsteri*	SE	Most numerous where extensive thickets of low, dense willows edge on wet meadows, ponds, or backwaters. Winter migrant.	**Not Present**. Suitable breeding habitat not present; a very rare migrant.
California horned lark *Eremophila alpestris actia*	CSC	Frequents grasslands and other open habitat with low, sparse vegetation. Nests on ground in the open.	**Unlikely**. Typical open grassland habitat not present.
prairie falcon *Falco mexicanus*	CSC	Found in arid and semi-arid plains, this is a falcon of open country which nests on rock cliffs in river gorges and occasionally in timbered mountains. Nests are often scraped on ledges although old stick nests of ravens or others raptors will be used.	**Unlikely**. May rarely migrate over the Study Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
American peregrine falcon *Falco peregrinus anatum*	FD, SE, CFP	Winters throughout Central Valley. Requires protected cliffs and ledges for cover. Feeds on a variety of birds, and some mammals, insects, and fish.	**Moderate Potential**. Likely occurs in the Study Area to forage during migration or in winter.
common loon *Gavia immer*	CSC	Winter in estuarine and subtidal marine habitats along coast, San Francisco Bay.	**Unlikely**. May rarely enter channel at high tide in winter.
saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	CSC	Frequents low, dense vegetation near water including fresh to saline emergent wetlands. Brushy habitats used in migration. Forages among wetland herbs and shrubs for insects primarily.	**Moderate Potential**. Suitable nesting habitat is present in tidal vegetation at the upper end of the channel and in shrubs along the levees.
bald eagle *Haliaeetus leucocephalus*	FPD, FT, SE, CFP	Requires large bodies of water, or free-flowing rivers with abundant fish adjacent snags or other perches. Nests in large, old-growth, or dominant live tree with open branchwork.	**Unlikely**. Typical habitat is not present in the Study Area.
loggerhead shrike *Lanius ludovicianus*	CSC	Prefers open habitats with scattered shrubs, trees, pots, utility lines from which to forage for large insects. Nest well concealed above ground in densely-foliaged shrub or tree.	**Unlikely**. Typical open grassland habitat not present.
black rail *Laterallus jamaicensis coturniculus*	ST, CFP	Rarely seen resident of saline, brackish, and fresh emergent wetlands in the San Francisco Bay area. Nest in dense stands of pickleweed	**Unlikely**. Isolated tidal wetlands in the upper end of the channel may provide suitable habitat, but this species is very rare south of San Pablo Bay.
Alameda (South Bay) song sparrow *Melospiza melodia pusillula*	CSC	Found in saline emergent wetlands of the south bay. Require low, dense vegetation for cover and nesting.	**Present.** Suitable nesting habitat is present in tidal vegetation at the upper end of the channel and in shrubs along the levees.
long-billed curlew *Numenius americanus*	CSC	Winters in large coastal estuaries, upland herbaceous areas, and croplands. Breeds in northeastern California in wet meadow habitat.	**Moderate Potential**. Likely forages on exposed mudflats during migration and winter; no nesting habitat present.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
California brown pelican *Pelecanus occidentalis californicus*	FE, SE, CFP	Found in estuarine, marine subtidal, and marine pelagic waters along the coast. Nest on rocky or low brushy slopes of undisturbed islands.	**Unlikely**. May occasionally enter channel at high tide to forage.
double-crested cormorant *Phalacrocorax auritus*	CSC	Nests along coast on sequestered islets, usually on ground with sloping surface or in tall trees along lake margins.	**Unlikely**. May occasionally enter channel at high tide to forage.
white-faced ibis *Plegadis chihi*	CSC	Prefers to feed in fresh emergent wetland, shallow lacustrine waters, and muddy ground of wet meadows and irrigated or flooded pastures and croplands.	**Not Present**. Freshwater habitats are not present in the Study Area.
purple martin *Progne subis*	CSC	Aerial insectivores that nest in open and semiopen areas, including savannas, cultivated lands, fields, parks, pastures, near lakes and marshes and in towns and suburbs.	**Unlikely**. May rarely occur during migration.
California clapper rail *Rallus longirostris obsoletus*	FE, SE, CFP	Found in tidal salt marshes of the San Francisco Bay. Require mudflats for foraging and dense vegetation on higher ground for nesting.	**Moderate Potential**. Tidal wetlands in the eastern portion of Oyster Bay Slough provide some suitable foraging and nesting habitat.
bank swallow *Riparia riparia*	ST	Migrant in riparian and other lowland habitats in western California. Nests in riparian areas with vertical cliffs and bands with fine-textured or sandy soils in which to nest.	**Unlikely**. May rarely occur during migration.
black skimmer *Rynchops niger*	CSC	Nests on gravel bars, low islets, and sandy beaches in unvegetated sites.	**Unlikely**. Typical habitat not present in Study Area; more likely to occur in South Bay salt ponds.
California least tern *Sterna antillarum browni*	FE, SE, CFP	Breeding colonies in San Francisco Bay found in abandoned salt ponds and along estuarine shores. Nests on barren to sparsely vegetated site near water.	**Unlikely**. May rarely forage in channel during high tide; no breeding habitat.
Reptiles and Amphibians			

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
California tiger salamander *Ambystoma californiense*	FPT, CSC	Inhabits annual grass habitat and mammal burrows. Seasonal ponds and vernal pools crucial to breeding	**Not Present**. Saline conditions preclude presence; nearest populations located in Fremont.
western pond turtle *Clemmys marmorata*	CSC	Occurs in perennial ponds, lakes, rivers and streams with suitable basking habitat (mud banks, mats of floating vegetation, partially submerged logs) and submerged shelter.	**Unlikely**. Fresh to brackish conditions are not present in the Study Area.
Alameda whipsnake *Masticophis lateralis euryxanthus*	FT, ST	Prefers a chaparral habitat with rock outcroppings and small mammal burrows for basking and refuge. Can occur n adjacent communities, including grassland and oak savanna. Found in the east bay hills.	**Not Present**. Suitable habitat is not present in the Study Area.
California horned lizard *Phrynosoma coronatum frontale*	CSC	Occurs in valley-foothill hardwood, conifer and riparian habitats, as well as in pine-cypress juniper and annual grass habitats. Prefers sand areas, washes, flood plains and wind-blown deposits.	**Not Present**. Study Area has been severely degraded over several decades. No documented occurrences along bay shore.
California red-legged frog *Rana aurora draytonii*	FT, CSC	Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive vegetation. Documented to disperse through upland habitats after rains.	**Not Present**. Saline conditions preclude presence.
foothill yellow-legged frog *Rana boylii*	CSC	Found in or near rocky streams in a variety of habitats. Feed on both aquatic and terrestrial invertebrates.	**Not Present**. Typical stream habitat not present.
western spadefoot toad *Scaphiopus (Spea) hammondii*	CSC	Occurs primarily in grasslands but occasionally populates valley-foothill hardwood woodlands. Feed on insects, worms, and other invertebrates.	**Not Present**. Suitable habitat is not present in the Study Area.
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	FE, SE, CFP, RP	Vicinity of freshwater marshes, ponds and slow moving streams in San Mateo County and extreme northern Santa Cruz County. Prefers dense cover and water depths of at least one foot. Upland areas near water are also very important.	**Not Present**. No freshwater marshes, ponds or slowmoving streams present in the vicinity of the Study Area. Saline conditions preclude presence.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Fishes			
green sturgeon *Acipenser medirostris*	FT, CSC	Resident in deeper waters in San Francisco Bay. Spawns in the Sacramento River in water temperatures of 8-14C on varied substrates. Juveniles reside for 1-4 years in freshwater and estuarine habitats before migrating to salt water habitats.	**Unlikely**. Channel bottom is exposed at low tide. The shallow channel does not provide suitable habitat for green sturgeon. No freshwater habitat for juveniles present.
tidewater goby *Eucyclogobius newberryi*	FE, CSC	Found in the brackish waters of coastal lagoons, marshes, creeks, and estuaries. Unique among fishes of the Pacific coast, gobies are restricted to waters of low salinity in coastal wetlands. They feed along the bottom, preferring clean, shallow, slow-moving waters.	**Unlikely**. Channel is nearly completely exposed at low tide, providing poor habitat conditions.
delta smelt *Hypomesus transpacificus*	FT, ST	Live in the Sacramento-San Joaquin estuary in areas where salt and freshwater systems meet.	**Unlikely**. May rarely enter channel at high tide in winter.
Coho salmon-central CA coast *Oncorhynchus kisutch*	FT, SE, NMFS	State listing is limited to Coho south of San Francisco Bay. The Federal listing is limited to naturally spawning populations in streams between Punta Gorda, Humboldt County and the San Lorenzo River, Santa Cruz County. Spawn in coastal streams at temps. from 4-14C. Prefer beds of loose, silt-free, coarse gravel and cover nearby for adults	**Unlikely**. Adults and juveniles are unlikely to stray into channel.
Central California Coastal steelhead *Oncorhynchus mykiss irideus*	FT, CSC, NMFS	Federal listing includes all runs from the Russian River, south to Soquel Creek, inclusive. Includes the San Francisco and San Pablo Bay basins but excludes the Sacramento-San Joaquin River basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean	**Moderate Potential**. Spawning habitat not present, but juveniles may occur in channel at high tide during outmigrant movements.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Central Valley spring-run chinook salmon *Oncorhynchus tshawytscha*	FT, ST, NMFS	Federal listing includes populations spawning in the Sacramento River & its tributaries. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams.	**Unlikely**. Adults and juveniles are unlikely to stray into channel.
Central Valley fall/late fall-run chinook salmon *Oncorhynchus tshawytscha*	FC, CSC	Population spawning in the Sacramento & San Joaquin Rivers and their tributaries. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams.	**Moderate Potential**. Spawning habitat not present, but juveniles may occur in channel at high tide during outmigrant movements.
Sacramento splittail *Pogonichthys macrolepidotus*	CSC	Splittail are primarily freshwater fish, but are tolerant of moderate salinity (saltiness) and can live in water with salinities of 10-18 parts per thousand. Found in Sacramento Delta.	**Unlikely**. May rarely enter Study Area at high tide in winter.
Invertebrates			
longhorn fairy shrimp *Branchinecta longiantenna*	FE	Inhabit small, clear-water depressions in sandstone and clear-to-turbid clay-grass-bottomed pools in shallow swales.	**Not Present**. Vernal pools are not present.
vernal pool fairy shrimp *Branchinecta lynchi*	FT	Inhabit small, clear-water sandstone-depression pools, grassy swales, slumps, or basalt-flow depression pools.	**Not Present**. Vernal pools are not present.
monarch butterfly *Danaus plexippus*	none	Roosts in wind-protected tree groves with nectar and water sources nearby.	**Not Present**. Suitable winter roost sites not present in Study Area.
Bay checkerpsot butterfly *Euphydryas editha bayensis*	FT	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. Plantago erecta is the primary host plant.	**Not Present**. Serpentine soils and grassland not present.
Mission blue butterfly *Icaricia icarioides missionensis*	FE, SSI, RP	Inhabits grasslands of the San Francisco peninsula. Three larval host plants: *Lupinus albifrons, L. variicolor*, and *L. formosus*, of which *L. albifrons* is favored.	**Not Present**. No grassland habitat or suitable larval host plants present within Study Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
San Bruno elfin butterfly *Incisalia (=Callophrys) mossii bayensis*	FE, SSI, RP	Limited to the vicinity of San Bruno Mountain, San Mateo County. Colonies are located on in rocky outcrops and cliffs in coastal scrub habitat on steep, north-facing slopes within the fog belt. Species range is tried to the distribution of the larval host plant, *Sedum spathulifolium*.	**Not Present**. No suitable habitat or larval host plants present within the Study Area.
vernal pool tadpole shrimp *Lepidurus packardi*	FE	Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	**Not Present**. Vernal pools are not present.
Callippe silverspot butterfly *Speyeria callippe callippe*	FE	Restricted to grassy openings of the San Francisco peninsula, and East Bay Hills. Hostplant is *Viola pedunculata.*	**Not Present**. Larval host plant not present.
Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	FE, RP, SSI	Restricted to the foggy, coastal dunes/hills of the Point Reyes peninsula; extirpated from coastal San Mateo County. Larval foodplant thought to be *Viola adunca*.	**Not Present**. No suitable habitat or larval food plants present in Study Area.
Plants			
San Mateo thorn-mint *Acanthomintha duttonii*	FE, SE List 1B	In relatively open areas in chaparral, valley and foothill grassland, and coastal scrub. Extant populations known only from very uncommon serpentinite vertisol clays. 50-300 m. Blooms April-June.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
Franciscan onion *Allium peninsulare* var. *franciscanum*	List 1B	Dry hillsides in cismontane woodland, valley and foothill grassland, on clay or serpentinite soils. 100-300 m. Blooms May-June.	**Not Present.** No suitable soil or habitat present in Study Area.
bent-flowered fiddleneck *Amsinckia lunaris*	List 1B	Cismontane woodland and valley and foothill grassland. 3-500 m. Blooms March-June.	**Not Present.** Ruderal, non-native grassland areas may supply marginally suitable habitat, but not observed during April survey.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
pallid manzanita *Arctostaphylos pallida*	FT, SE List 1B	Uplifted marine terraces on siliceous shale or thin chert in broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub. May require fire. 185-465 m. Blooms December-March.	**Not Present.** No suitable soil or habitat present in Study Area. No manzanita observed.
coastal marsh milk-vetch *Astragalus pycnostachyus* var. *pycnostachyus*	List 1B	Mesic sites on coastal dunes and coastal salt marshes or along streams. 0-30 m. Blooms April-October.	**Not Present.** Pickleweed on-site has established amid riprap; habitat not likely to support herbs. Adjacent marshland to the north may supply suitable habitat for this species, but will be avoided by project. Species not observed during April survey.
alkali milk-vetch *Astragalus tener* var. *tener*	List 1B	Alkali playa, adobe clay in valley and foothill grassland, vernal pools, alkali flats and flooded lands. 1-170 m. Blooms March-June.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
San Joaquin saltbush *Atriplex joaquiniana*	List 1B	Alkaline soil in chenopod scrub, meadows and seeps, playas, valley and foothill grassland. Usually in seasona1 alkali wetlands or alkali sinks. 1-320 m. Blooms April-October.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
big-scale balsamroot *Balsamorhiza macrolepis* var. *macrolepis*	List 1B	Chaparral, cismontane woodland, valley and foothill grassland. Sometimes on serpentine soil. 35-1400 m. Blooms March-June.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
Mt. Diablo fairy-lantern *Calochortus pulchellus*	List 1B	On wooded brushy slopes in chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. 30-840 m. Blooms April-June.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
bristly sedge *Carex comosa*	List 2	Found on margins of lakes, ponds, and freshwater wetlands. 0-424 m. Blooms April-July.	**Not Present** No freshwater wetlands or water bodies present in Study Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Congdon's tarplant *Centromadia parryi* spp. *congdonii*	List 1B	Alkaline soils, sometimes described as heavy white clay, in valley and foothill grassland. 1-230 m. Blooms May-November.	**Not Present.** No suitable soil or habitat present in Study Area.
San Francisco Bay spineflower *Chorizanthe cuspidata* var. *cuspidata*	List 1B	Sandy soil on terraces and slopes in coastal bluff scrub, coastal dunes, coastal prairie, and coastal scrub. 5-550 m. Blooms April-August.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
robust spineflower *Chorizanthe robusta* var. *robusta*	FE, List 1B	Cismontane woodland, coastal dunes, coastal scrub. Sandy terraces and bluffs, loose or gravelly sand. 3-300 m. Blooms April-September.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
fountain thistle *Cirsium fontinale* var. *fontinale*	FE, SE, List 1B	Serpentine seeps and grassland in chaparral. 90-180 m. Blooms June-October.	**Not Present.** No suitable soil or habitat present in Study Area.
Presidio clarkia *Clarkia franciscana*	FE, SE, List 1B	Serpentine outcrops in coastal scrub, valley and foothill grassland. 20-335 m. Blooms May-July.	**Not Present.** No suitable soil or habitat present in Study Area.
San Francisco collinsia *Collinsia multicolor*	List 1B	Closed-cone coniferous forest and coastal scrub on decomposed shale (mudstone) mixed with humus. 30-250 m. Blooms March-May.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
Point Reyes bird's-beak *Cordylanthus maritimus* ssp. *palustris*	List 1B	Coastal salt marshes. Often on slightly raised hummocks or edges of salt pannes. Hemiparasite, requires associated grasses such as *Distichlis spicata* and *Monanthochloe littoralis*. 0-15 m. Blooms June-October.	**Not Present.** Marsh (pickleweed) habitat is present on steep riprap banks; not likely to support other herbs. No associated grass species present.
western leatherwood *Dirca occidentalis*	List 1B	On brushy slopes in mesic soils in broad-leaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest and woodland. 30-550 m. Blooms January-April.	**Not Present.** No suitable soil or habitat present in Study Area. No leatherwood observed during April survey.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Tiburon buckwheat *Eriogonum luteolum* var. *caninum*	List 3	Serpentine soils in chaparral, valley and foothill grassland, and coastal prairie. 10-500 m. Blooms June-September.	**Not Present.** No suitable soil or habitat present in Study Area.
San Mateo woolly sunflower *Eriophyllum latilobum*	FE, SE, List 1B	Cismontane woodland, often on road cuts. Found on and off serpentine soils. 45-150 m. Blooms May-June.	**Not Present.** No suitable soil or habitat present in Study Area.
round-leaved filaree *Erodium macrophyllum*	List 2	On clay soils in cismontane woodland, valley and foothill grassland. 15-1200 m. Blooms March-May	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
Hillsborough chocolate lily *Fritillaria biflora* var. *ineziana*	List 1B	Cismontane woodland, valley and foothill grassland, probably on serpentine. 90-160 m. Blooms March-May.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
fragrant fritillary *Fritillaria liliacea*	List 1B	Coastal scrub, valley and foothill grassland, coastal prairie. Often in serpentine; various soils reported though usually clay, in grassland. 3-410 m. Blooms February-April.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
dune gilia *Gilia capitata* ssp. *chamissonis*	List 1B	Coastal dunes and coastal scrub. 2-200 m. Blooms April-June.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
Diablo helianthella *Helianthella castanea*	List 1B	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils, often in partial shade. 25-1300 m. Blooms March-June.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
Marin western flax *Hesperolinon congestum*	FT, ST, List 1B	In serpentine barrens in chaparral and serpentine grassland. 5-370 m. Blooms April-July.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Loma Prieta hoita *Hoita strobilina*	List 1B	Chaparral, cismontane woodland, riparian woodland /usually serpentinite, mesic. 30-860 m. Blooms May-October.	**Not Present.** No suitable soil or habitat present in Study Area.
Santa Cruz tarplant *Holocarpha macradenia*	FT, SE, List 1B	Coastal prairie, coastal scrub, valley and foothill grassland. Usually on sandy or clay soils. 10-260 m. Blooms June-October.	**Not Present.** No suitable soil or habitat present in Study Area.
Kellogg's horkelia *Horkelia cuneata* spp. *sericea*	List 1B	Openings in closed-cone coniferous forest, coastal scrub, chaparral, old dunes and coastal sandhills. 10-200 m. Blooms April-September.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
Northern California black walnut *Juglans hindsii*	List 1B	Deep alluvial soil associated with a creek or stream, riparian forest and riparian woodland. Two extant natural populations remain; widely naturalized. 0-440 m. Blooms April-May.	**Not Present.** No suitable soil or habitat present in Study Area. No walnut observed during April survey.
Contra Costa goldfields *Lasthenia conjugens*	FE, List 1B	Mesic sites in valley and foothill grassland, vernal pools, playas, swales, low depressions, open grassy areas, cismontane woodland. 0-470 m. Blooms March-June.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
beach layia *Layia carnosa*	FE, SE, List 1B	On sparsely vegetated semi-stabilized dunes, usually behind foredunes. 0-75 m. Blooms March-July.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
rose leptosiphon *Leptosiphon roseus*	List 1B	Coastal bluff scrub. 0-100 m. Blooms April-June.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
Crystal Springs lessingia *Lessingia arachnoidea*	List 1B	Coastal sage scrub, valley and foothill grassland, cimontane woodland, sometimes on roadsides, often on grassy serpentine slopes. 60-200 m. Blooms July-October.	**Not Present.** No suitable soil or habitat present in Study Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
woolly-headed lessingia *Lessingia hololeuca*	List 3	Coastal scrub, lower montane coniferous forest, valley and foothill grassland, roadsides, fields. Clay or serpentine soils. 15-305 m. Blooms June-October.	**Not Present.** No suitable soil or habitat present in Study Area.
coast lily *Lilium maritimum*	List 1B	Closed-cone coniferous forest, coastal prairie, coastal scrub, broadleaved upland forest, and North Coast coniferous forest. 5-225 m. Blooms May-August.	**Not Present.** No suitable soil or habitat present in Study Area.
San Mateo tree lupine *Lupinus eximius*	List 3	Sandy soils and rocky hills in coastal scrub and chaparral. 90-550 m. Blooms April-July.	**Not Present.** No suitable soil or habitat present in Study Area. No lupine observed during April survey.
arcuate bush mallow *Malacothamnus arcuatus*	List 1B	Gravelly alluvium soil in chaparral. 15-355 m. Blooms April-September.	**Not Present.** No suitable soil or habitat present in Study Area. No bush mallow observed during April survey.
Oregon meconella *Meconella oregana*	List 1B	Open, moist places in coastal prairie and coastal scrub. 250-500 m. Blooms March-April.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
Mt. Diablo cottonweed *Micropus amphibolus*	List 3	Bare, grassy, or rocky slopes in valley and foothill grassland, cismontane woodland, and broadleaved upland forest. 45-825 m. Blooms March-May.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
robust monardella *Monardella villosa* ssp. *globosa*	List 1B	Openings in broadleaved upland forest, cismontane woodland, chaparral, valley and foothill grassland. 30-915 m. Blooms June-July.	**Not Present.** No suitable soil or habitat present in Study Area.
white-rayed pentachaeta *Pentachaeta bellidiflora*	FE, SE, List 1B	Open dry rocky slopes and grassy areas on soil from serpentine bedrock in valley and foothill grassland. 35-620 m. Blooms March-May.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
Point Reyes rein orchard *Piperia elegans* ssp. *decurtata*	List 1B	Coastal bluff scrub. 15-185 m. Blooms July-October.	**Not Present.** No suitable soil or habitat present in Study Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Choris' popcorn-flower *Plagiobothrys chorisianus var. chorisianus*	List 1B	Chaparral, Coastal prairie, coastal scrub. 15-160 m. Blooms March-June.	**Not Present.** No suitable soil or habitat present in Study Area
San Francisco popcorn-flower *Plagiobothrys diffusus*	SE, List 1B	Grassy slopes with marine influence, coastal prairie and valley and foothill grassland. 60-485 m. Blooms March-June.	**Not Present.** On-site grassy slopes are disturbed and do not supply suitable habitat. Not observed during April survey.
hairless popcorn-flower *Plagiobothrys glaber*	List 1A	Coastal salt marshes, alkaline meadows and seeps. 5-180 m. Blooms March-May.	**Not Present.** Marsh (pickleweed) habitat is present on steep riprap banks; not likely to support other herbs. Not observed during April survey.
slender-leaved pondweed *Potomogeton filiformis*	List 2	Shallow, clear water of freshwater marshes and swamps, drainage channels, edges of ponds and lakes. 15-2310 m. Blooms May-July.	**Not Present.** No suitable freshwater marsh habitat present in Study Area.
adobe sanicle *Sanicula maritima*	SR, List 1B	Clay or ultramafic soils in meadows and seeps, valley and foothill grassland, chaparral, coastal prairie. 30-240 m. Blooms February-May	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
most beautiful jewelflower *Streptanthus albidus* ssp. *peramoenus*	List 1B	Chaparral, valley and foothill grassland, cismontane woodland. Serpentine outcrops, on ridges and slopes. 110-1000 m. Blooms April-June.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.
California seablite *Suaeda californica*	FE, List 1B	Margins of coastal salt marshes. 0-5 m. Blooms July-October.	**Not Present.** Marsh (pickleweed) habitat is present on steep riprap banks; no marsh transition habitat exists. No seablite observed during April survey.
saline clover *Trifolium depauperatum* var. *hydrophilum*	List 1B	Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 0-300 m. Blooms April-June.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
San Francisco owl's-clover Triphysaria floribunda	List 1B	Coastal prairie, coastal scrub, valley and foothill grassland /usually serpentinite. 10-160 m. Blooms April-June.	**Not Present.** No suitable soil or habitat present in Study Area. Not observed during April survey.

*** Key to status codes:**

FE	Federal Endangered
FT	Federal Threatened
FC	Federal Candidate
FD	Federal De-listed
FPD	Federal Proposed for De-listing
NMFS	Species under the Jurisdiction of the National Marine Fisheries Service
BCC	USFWS Birds of Conservation Concern
RP	Sensitive species included in a USFWS Recovery Plan or Draft Recovery Plan
SE	State Endangered
ST	State Threatened
SR	State Rare
CSC	CDFG Species of Special Concern
CFP	CDFG Fully Protected Animal
SSI	CDFG Special Status Invertebrates
WBWG	Western Bat Working Group High Priority species
SLC	Species of Local Concern
List 1A	CNPS List 1A: Plants presumed extinct in California
List 1B	CNPS List 1B: Plants rare, threatened or endangered in California and elsewhere
List 2	CNPS List 2: Plants rare, threatened, or endangered in California, but more common elsewhere
List 3	CNPS List 3: Plants about which CNPS needs more information (a review list)

Potential species presence definitions:

(1) Not Present. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime). The species has an extremely low probability of being found on the site.

(2) Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species has a low probability of being found on the site.

(3) Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

(4) High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

(5) Present. Species is observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.

Appendix C Wetland Delineation Report

Jurisdictional Wetland Delineation

Oyster Bay Bridge at Oyster Bay Slough
ALAMEDA COUNTY, CALIFORNIA

Prepared For:

BASELINE Environmental Consulting
Attention: Yane Nordhav
5900 Hollis St., Suite D
Emeryville, CA 94608
Phone: (510) 420-8686

Contact:
Phil Greer
greer@wra-ca.com

Date:
January 2008

wra
ENVIRONMENTAL CONSULTANTS

2169-G East Francisco Blvd., San Rafael, CA 94901 (415) 454-8868 tel (415) 454-0129 fax info@wra-ca.com www.wra-ca.com

TABLE OF CONTENTS

1.0 INTRODUCTION. 1
1.1 Project Background. 1
1.2 Regulatory Background. 1

2.0 METHODS. 3
2.1 Potential Section 404 Wetlands. 3
2.2 Potential Section 404 Waters.. 5
2.3 Areas Exempt from Section 404 Jurisdiction. 6
2.4 Section 10 Navigable Waters.. 6
2.5 BCDC Jurisdiction. 6

3.0 STUDY AREA DESCRIPTION. 7

4.0 RESULTS. 8
4.1 Potential Section 404 Wetlands. 8
4.2 Potential Section 404 Waters.. 8
4.3 Section 10 Navigable Waters.. 9
4.4 BCDC Jurisdictional Areas.. 9

5.0 REFERENCES.. 10

Appendix A - Jurisdictional Wetlands Map
Appendix B - Representative Site Photographs
Appendix C - List of Observed Plant Species
Appendix D - Calculated Tidal Datums

LIST OF FIGURES

Figure 1. Location map. 2

1.0 INTRODUCTION

1.1 Project Background

The proposed project is located in the City of San Leandro, in Alameda County, California, in an area comprised of land owned by the City of San Leandro, the East Bay Regional Parks District, and the Port of Oakland near the mouth of Oyster Bay Slough (Study Area). The proposed project includes the construction of a pedestrian/bicycle bridge and a 630-foot long paved trail to connect the Bay Trail located in Oyster Bay Regional Shoreline with existing Bay Trail facilities on the north side of Oyster Bay Slough, located on property owned by the Port of Oakland. The new portion of levee-top trail and the new bridge would be part of the Bay Trail system. The bridge would span Oyster Bay Slough, a shallow, remnant embayment located between Oyster Bay Regional Shoreline and the City of San Leandro wastewater treatment facility and an existing levee trail along the Galbraith Golf Course to the north. The proposed project would fill one of the final links in the regional Bay Trail system in the San Leandro area, providing greatly increased public access to the Bay shoreline in what is now an inaccessible area. The proposed project would provide a continuous bike path from Oakland to Hayward.

On January 8, 2008, WRA conducted a routine wetland delineation within the Study Area to determine the presence of potential wetlands and waters subject to federal jurisdiction under Section 404 and Section 10 of the Clean Water Act and under state jurisdiction under the McAteer-Petris Act. This report presents the results of this delineation.

1.2 Regulatory Background

Section 404 of the Clean Water Act

Section 404 of the Clean Water Act gives the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps) regulatory and permitting authority regarding discharge of dredged or fill material into “navigable waters of the United States”. Section 502(7) of the Clean Water Act defines navigable waters as “waters of the United States, including territorial seas.” Section 328 of Chapter 33 in the Code of Federal Regulations defines the term “waters of the United States” as it applies to the jurisdictional limits of the authority of the Corps under the Clean Water Act. A summary of this definition of “waters of the U.S.” in 33 CFG 328.3 includes (1) waters used for commerce and subject to tides; (2) interstate waters and wetlands; (3) “other waters” such as intrastate lakes, rivers, streams, and wetlands; (4) impoundments of waters; (5) tributaries of waters; (6) territorial seas; and (7) wetlands adjacent to waters. Therefore, for purposes of determining Corps jurisdiction under the Clean Water Act, “navigable waters” as defined in the Clean Water Act are the same as “waters of the U.S.” defined in the Code of Federal Regulations above.

The limits of Corps jurisdiction under Section 404 as given in 33 CFR Section 328.4 are as follows: (a) *Territorial seas:* three nautical miles in a seaward direction from the baseline; (b) *Tidal waters of the U.S.:* high tide line or to the limit of adjacent non-tidal waters; (c) *Non-tidal waters of the U.S.:* ordinary high water mark or to the limit of adjacent wetlands; (d) *Wetlands:* to the limit of the wetland.

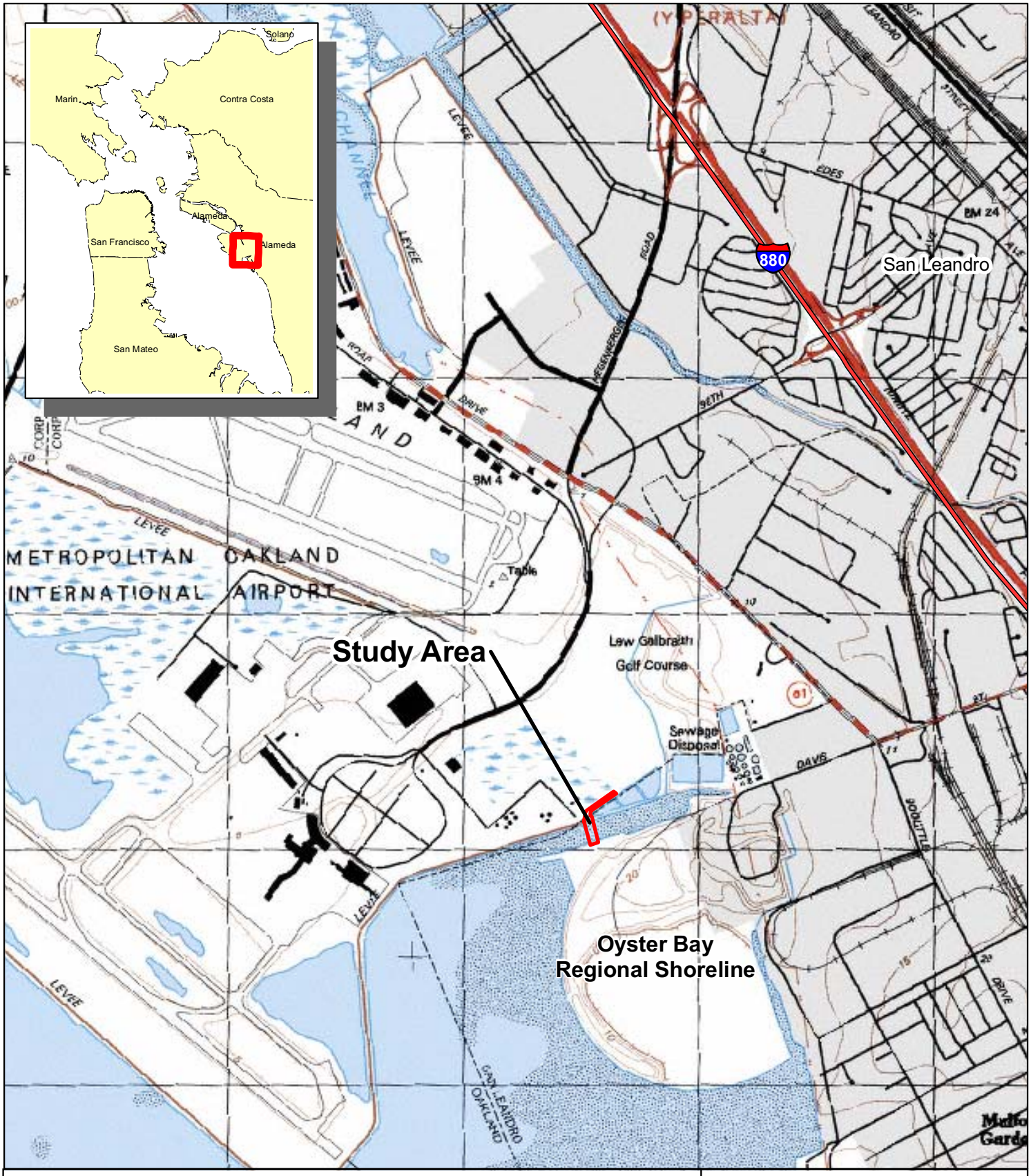


Figure 1. Study Area Location Map

Bay Trail Bridge at Oyster Bay Slough
San Leandro, California

N

0 1,000 2,000 Feet

wra
ENVIRONMENTAL CONSULTANTS

Date: September 2007
Basemap: USGS Topo Quad
Map By: Derek Chan
Filepath: L:\Acad 2000Files\13000\13056\GIS\Arcmap\Fig1_LocMap_20070921.mxd

Section 10 of the Rivers and Harbors Act of 1899

The Corps of Engineers also has jurisdiction over "navigable waters" under Section 10 of the Rivers and Harbors Act of 1899. "Navigable waters of the U.S.", as defined in 33 CFR Part 329, are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity. The upper limit of a navigable water is at the point along its length where the character of the river changes from navigable to non-navigable, such as at a major fall or rapids. The limit of Corps jurisdiction in navigable waters under Section 10 as given in 33 CFR Section 329 extends to the line on the shore reached by the plane of the mean high water level.

McAteer-Petris Act

The San Francisco Bay Conservation and Development Commission (BCDC) has regulatory jurisdiction, as defined by the McAteer-Petris Act, over the Bay and its shoreline, which generally consists of the area between the Bay shoreline and a line 100 feet landward of and parallel to the shoreline. As defined in Section 66610 of Chapter 2 in the Public Resources Code, a summary of BCDC jurisdiction includes (a) San Francisco Bay; (b) a shoreline band; (c) salt ponds; (d) managed wetlands; and (e) certain waterways. Within the Study Area, BCDC has two areas of jurisdiction: the San Francisco Bay and the shoreline band.

The limits of BCDC jurisdiction under the McAteer-Petris Act as given in PRC Section 66610 are as follows: (a) *San Francisco Bay:* five feet above mean sea level (MSL); (b) *Shoreline Band:* a 100- foot wide band extending landward of and parallel to the Bay shoreline as determined in (a) above.

2.0 METHODS

Prior to conducting field surveys, available reference materials were reviewed, including the Soil Survey of Alameda County, Western Part (USDA 1981), the San Leandro USGS 7.5' quadrangle, and available aerial photos of the site. A focused evaluation of indicators of wetlands and waters was performed in the Study Area on April 29, 2004. The methods used in this study to delineate jurisdictional wetlands and waters are based on the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987). The routine method for wetland delineation described in the Corps Manual was used to identify areas potentially subject to Corps Section 404 jurisdiction within the Study Area. A general description of the Study Area, including plant communities present, topography, and land use was also generated during the delineation visit. The methods for evaluating the presence of wetlands and waters employed during the site visit are described in detail below.

2.1 Potential Section 404 Wetlands

Section 328.3 of the Federal Code of Regulations defines wetlands as:

> *"Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances*

do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."
(EPA, 40 CFR 230.3 and CE, 33 CFR 328.3)

The delineation studies determined the presence or absence of wetland indicators used by the U.S. Army Corps of Engineers in making a jurisdictional determination. The three criteria used to delineate wetlands are the presence of: (1) hydrophytic vegetation, (2) wetland hydrology, and (3) hydric soils. According to the Corps Manual:

"....[E]vidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland delineation."

Once an area was determined to be a potential jurisdictional wetland, its boundaries were delineated using advanced GPS equipment and mapped on a topographic map overlay on an aerial photograph. The areas of potential jurisdictional wetlands were measured digitally using ArcGIS software. Indicators described in the Corps Manual that were used to make wetland determinations at each sample point in the Study Area are summarized below.

Vegetation

Plant species identified on the project site were assigned a wetland status according to the U.S. Fish and Wildlife Service list of plant species that occur in wetlands (Reed 1988). This wetland classification system is based on the expected frequency of occurrence in wetlands as follows:

OBL	Always found in wetlands	>99% frequency
FACW(±)	Usually found in wetlands	67-99%
FAC	Equal in wetland or non-wetlands	34-66%
FACU	Usually found in non-wetlands	1-33%
NL	Not listed (upland)	<1%

Plants with OBL, FACW, and FAC classifications are classified as hydrophytic vegetation in the Corps Manual (1987) methodology. If more than 50 percent of the dominant plant species (in order for a plant to be considered dominant it must cover ≥20 percent of the total vegetative cover in the sample plot) are hydrophytic, the area is considered to have met the wetland vegetation criterion.

Hydrology

The Corps jurisdictional wetland hydrology criterion is satisfied if an area is inundated or saturated for a period sufficient to create anoxic soil conditions during the growing season (minimum of 18 consecutive days in the San Francisco Bay Area). Evidence of wetland hydrology can include direct evidence (primary indicators), such as visible inundation or saturation, drift lines, and surface sediment deposits (including algal mats), or indirect indicators (secondary indicators), such as oxidized root channels and the FAC-neutral test. If indirect or secondary indicators are used, at least two secondary indicators must be present to conclude that an area has wetland hydrology. Only primary hydrology indicators were used to determine if areas surrounding each sample point in the Study Area satisfied the Corps hydrology criterion.

Soils

The Natural Resource Conservation Service (NRCS) defines a hydric soil as:

> *"A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part."*
>
> (Federal Register July 13, 1994, US Department of Agriculture, Natural Resource Conservation Service.)

Soils formed over long periods of time under wetland (anaerobic) conditions often possess characteristics that indicate they meet the definition of hydric soils. Hydric soils generally have a characteristic low chroma matrix color, designated 0, 1, or 2, used to identify them as hydric. Chroma designations are determined by comparing a soil sample with a standard Munsell soil color chart (GretagMacbeth 2000). Soils with a chroma of 0 or 1 are considered hydric; soils with a chroma of 2 must also have mottles to be considered hydric. As outlined in the Corps Manual, soils do not need to be examined when both obligate vegetation and wetland hydrology are present at sample points. If both other criteria are directly observed, hydric soils may be assumed to be present.

2.2 Potential Section 404 Waters

Areas that are inundated for sufficient duration and depth to exclude growth of hydrophytic vegetation, such as lakes and ponds, or convey water, such as streams, are also subject to Section 404 jurisdiction. In the San Francisco Bay Region, these "waters" can include intermittent and ephemeral streams, as well as lakes, rivers, and tidal waters.

Jurisdiction in tidal areas extends to the high tide line (HTL), which is defined as:

> *...the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.*
>
> Federal Register Vol. 51, No. 219, Part 328.3 (d). November 13, 1986.

Tidal waters present in the Study Area were noted and the elevation of the HTL applicable to the Study Area was calculated based on data provided by the National Oceanic and Atomospheric Administration (NOAA).

Corps jurisdiction in non-tidal areas extends to the ordinary high water mark (OHW), which is defined as:

> *...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*
>
> Federal Register Vol. 51, No. 219,
> Part 328.3 (e). November 13, 1986.

2.3 Areas Exempt from Section 404 Jurisdiction

Some areas that meet the technical criteria for wetlands or waters may not be jurisdictional under the Clean Water Act. Included in this category are some man-induced wetlands, which are areas that have developed at least some characteristics of naturally occurring wetlands due to either intentional or incidental human activities. Examples of man-induced wetlands include, but are not limited to, irrigated wetlands, impoundments, or drainage ditches excavated in uplands, wetlands resulting from filling of formerly deep water habitats, dredged material disposal areas, wetlands resulting from stream channel realignment, and wastewater treatment ponds.

In addition, some isolated wetlands and waters may also be considered outside of Corps jurisdiction as a result of the Supreme Court's decision in *Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers* (531 U.S. 159 (2001)). Isolated wetlands and waters are those areas that do not have a surface or groundwater connection to, and are not adjacent to a navigable "Waters of the U.S.", and do not otherwise exhibit an interstate commerce connection. Areas suspected of being exempt were identified on the site (see Section 4.0 Results).

2.4 Section 10 Navigable Waters

Section 10 of the Rivers and Harbors Act (1899) applies to tidal areas below mean high water (MHW) and includes tidal areas currently subject to tidal influence, as well as historic tidal areas currently behind levees that historically were below MHW. The elevation of MHW within the Study Area was determined from NOAA tidal datums.

2.5 BCDC Jurisdiction

BCDC San Francisco Bay jurisdiction under the McAteer-Petris Act extends to five feet above mean sea level (MSL). The elevation of MSL within the Study Area was determined from NOAA tidal datums. The shoreline band would extend 100 feet landward of BCDC Bay jurisdiction.

3.0 STUDY AREA DESCRIPTION

The Study Area consists of a portion of a remnant tidal slough (Oyster Bay Slough), constructed levees, and gravel maintenance roads. The existing slough is a shallow, 350-foot wide remnant of Oyster Bay, created when the historic bay was filled to the south by creation of a landfill and to the north by construction of the Oakland Airport and the City of San Leandro wastewater treatment facility. In the vicinity of the proposed bridge crossing, both levee banks are lined with large (one to two-foot diameter) rip-rap in the upper intertidal zone with some larger concrete debris on the north levee. The mudflats appear to be at an elevation between mean tide level and mean high water with a single, central channel approximately three to five feet wide. The proposed new bike path extension follows a portion of wastewater treatment facility levee between the end of an existing bike path segment along the airport property and the north foot of the proposed bridge. This portion of the levee separates the treatment pond from a seasonal brackish marsh located on the adjacent airport property (described below). Site elevations range from approximately 5 to 20 feet NAVD.

The areas adjacent to the Study Area on the north side of the slough include lands owned by the City of San Leandro, which consist of gravel roads and a wastewater treatment pond with standing, brackish water, and Oakland Airport property, which contains a seasonal brackish marsh dominated by a dense pickleweed cover. The airport marshland is likely a remnant of the historic bay or of a previous tidal marsh. The East Bay Regional Park District, Oyster Bay Shoreline Park, and the remaining active landfill facility are adjacent to the Study Area on the south levee. Oyster Bay connects with south San Francisco Bay to the west.

Vegetation

Within the Study Area, plant communities consist of sparse tidal marsh vegetation in the intertidal zone and non-native grassland with coyote brush on upland levees. Non-native cord grass (*Spartina alterniflora*) has colonized the mudflats along the north levee to the east in a band of decreasing width from approximately 15 to 10 feet in the area of the proposed bridge crossing. There is a single small cordgrass patch along the south levee, which is not within the bridge crossing footprint. Scattered tidal marsh plants, primarily pickleweed (*Salicornia virginica*), have become established in the spaces between the rip-rap; however, the banks are largely unvegetated (see photographs in Appendix B).

The levee uplands within the Study Area are vegetated by non-native annual grasses such as rip-gut brome (*Bromus diandrus*) and slender wild oats (*Avena barbata*), with scattered to dense stands of coyote brush (*Baccharis pilularis*). Non-native herbs such as fennel (*Foeniculum vulgare*), black mustard (*Brassica nigra*), Italian thistle (*Carduus pycnocephalus*), and wild radish (*Raphanus sativus*) are also common. Several large patches of pampas grass (*Cortaderia selloana*) are present and a portion of the levee bank bordering the airport is vegetated by iceplant (*Carpobrotus* sp.).

Hydrology

The principal natural hydrological sources for the Study Area are tidal inundation (on Oyster Bay levee banks) and precipitation (on levee uplands and internal levee banks).

Soils

With the exception of mudflat sediments within the slough channel, all soils within the Study Area are composed of imported fill materials; no native soils are present on levee banks or created uplands.

The Alameda County Soil Survey (USDA 1981) indicates that the Study Area has two mapped soil types: 156-Xeropsamments, fill and 146-urban land. Xeropsamments are described as being composed of sandy fill material dredged from old beach areas; these soils are mapped on the north side of the slough channel. Urban land is described as being composed of heterogeneous fill covered by buildings, roads, parking lots and other urban structures; these soils are mapped on the south side of the slough channel.

4.0 RESULTS

Data on vegetation and hydrology were collected during the delineation site visit, however, no sample pits were examined as boundaries were based on calculated tidal datums, observed inundation, and abrupt vegetation lines. Potential jurisdictional areas are described in the following sections and shown on the enclosed map in Appendix A. Representative site photographs are shown in Appendix B. A list of plant species observed during the site visit is included in Appendix C. Potential jurisdictional areas found in the Study Area are discussed below.

4.1 Potential Section 404 Wetlands

Approximately 0.05 acre of tidal salt marsh occurs within the Study Area on the north levee bank. Low marsh (cordgrass) occupies about 0.04 acre and middle marsh (pickleweed) occupies about 0.02 acre within the Study Area (Appendix A). Within the proposed bridge footprint, approximately 140 square feet of low marsh (cordgrass) and approximately 10 square feet of mid marsh (pickleweed) occur (less than 0.01 acre of vegetation within the bridge footprint) Additional salt marsh vegetation extends along the north levee beyond the Study Area boundary. Non-tidal salt marsh, vegetated by pickleweed, also occurs to the north of the Study Area (Appendix A). Wetland areas were delineated based on the presence of wetland vegetation (pickleweed and cordgrass, both OBL wetland species) and hydrology indicators (inundation, calculated tide lines), since the native soils have been altered by the placement of fill (riprap, levee fill material).

4.2 Potential Section 404 Waters

No jurisdictional non-tidal waters occur within the Study Area. The City of San Leandro wastewater treatment pond located adjacent to the Study Area (Appendix A) would not be considered jurisdictional, as waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act, are not considered waters of the United States (33 CFR 328.3(a)(7)).

The determination of jurisdictional tidal waters was based on calculated tidal elevations. Under Section 404 of the Clean Water Act, Corps jurisdiction in the slough channel extends to the high tide line, calculated as +8.18 feet NAVD (Appendix D) from NOAA tidal datums.

4.3 Section 10 Navigable Waters

Under Section 10 of the 1899 Rivers and Harbors Act, Corps jurisdiction in the slough channel extends to mean high water level, given as +6.18 feet NAVD (Appendix D) at the San Leandro Marina tidal datum station (NOAA).

4.4 BCDC Jurisdictional Areas

Under the McAteer-Petris Act, BCDC jurisdiction in tidal waters of San Francisco Bay extends to five feet above mean sea level. MSL is given as +3.31 feet NAVD (Appendix D) at the San Leandro Marina tidal datum station (NOAA); therefore, BCDC jurisdiction in the slough extends to +8.31 feet NAVD. BCDC jurisdiction also includes a 100-foot shoreline band that extends 100 feet landward from the bay shoreline.

5.0 REFERENCES

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.

Federal Register. November 13, 1986. Department of Defense, Corps of Engineers, Department of the Army, 33 CFR Parts 320 through 330, Regulatory Programs of the Corps of Engineers; Final Rule. Vol. 51, No. 219; page 41217.

Kollmorgen Instruments Corporation. 1990. Munsell Soil Color Charts.

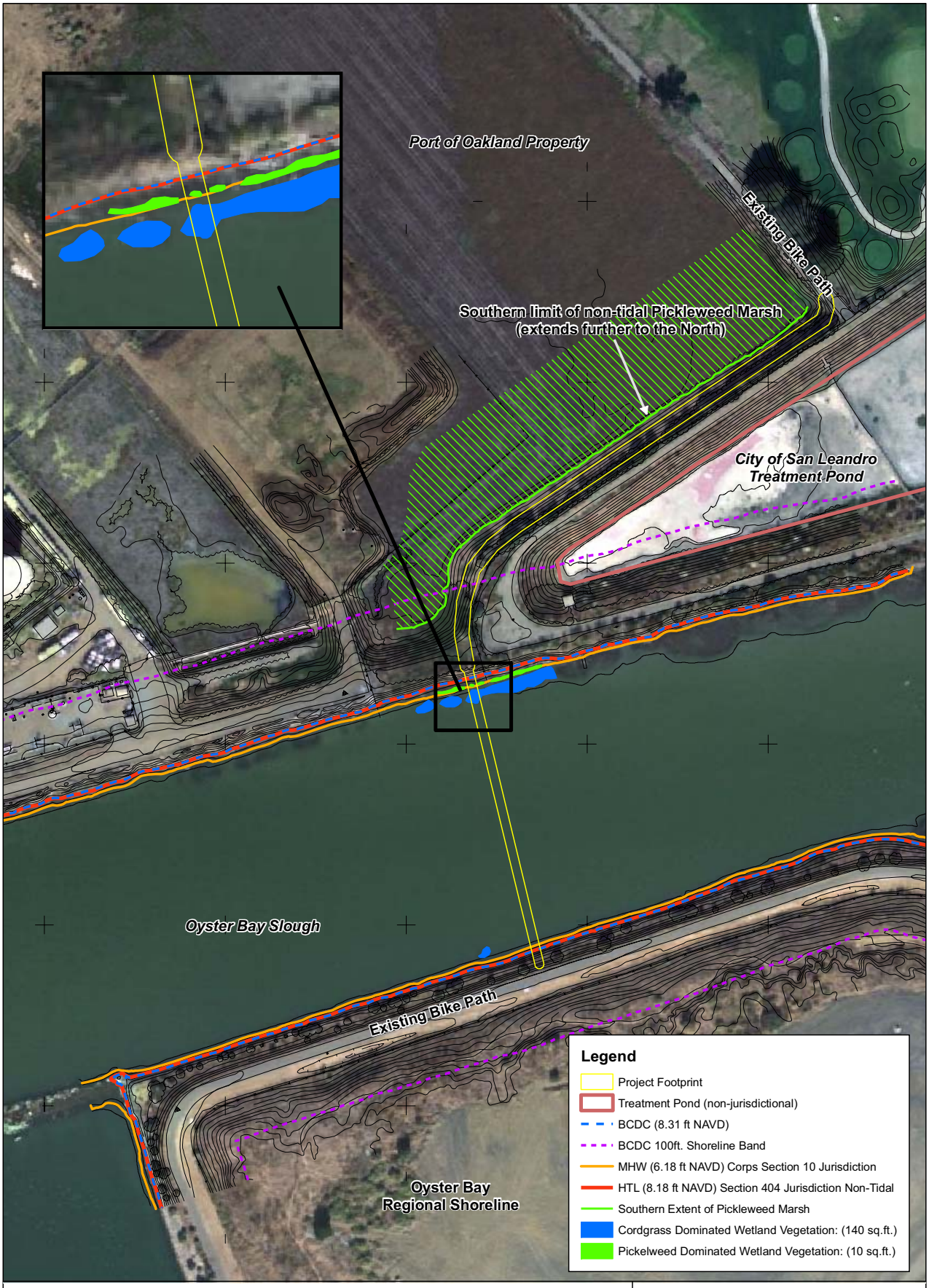
Reed, P. B., Jr. 1988. National list of plant species that occur in wetlands: California (Region 0). U.S. Fish and Wildlife Service Biological Report 88 (26.10).

Sawyer, J. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society, Sacramento, California.

U.S. Geological Survey. 1980. San Leandro quadrangle. 7.5 minute topographic map.

U.S. Department of Agriculture, Soil Conservation Service. 1981. Soil Survey of Alameda County, California, Western Part. In cooperation with the University of California Agricultural Experiment Station.

Appendix A - Jurisdictional Wetlands Map



Appendix A. Potential Jurisdictional Features

Within the Oyster Bay Bridge Project Footprint

N

Oyster Bay Bridge at
Oyster Bay Slough
San Leandro, California

0 50 100 200 Feet

wra
ENVIRONMENTAL CONSULTANTS

Date: January 2008
Aerial Image: TerraServer, 2004
Map By: Sundaran Gillespie
Filepath: L:\Acad 2000Files\13000\13056\GIS\Arcmap\Figure 4.mxd

Appendix B - Representative Site Photographs

Appendix B. Representative Site Photographs
Top: Smooth cordgrass has colonized portions of Oyster Bay Slough adjacent to the north levee. Photo shows approximate area to be shaded.
Bottom: North levee viewed from south levee at low tide. The bridge crossing is located to the left of the chain link fence.
Photos taken April 29, 2004

wra
ENVIRONMENTAL CONSULTANTS

Appendix B. Representative Site Photographs
Top: Stakes mark approximate extent of bridge footprint and wetland vegetation to be shaded on north levee.
Bottom: Looking east from approximate location of north levee bridge abutment. Stakes mark extent of bridge footprint.

Photos taken April 29, 2004

wra
ENVIRONMENTAL CONSULTANTS

Appendix B. Representative Site Photographs
Top: Photo taken from location of south levee bridge abutment site looking north. Stakes mark approximate extent of bridge footprint.
Bottom: Photo taken from south levee abutment site, looking west. Stake marks extent of bridge footprint.
Photos taken January 2008

wra
ENVIRONMENTAL CONSULTANTS

Appendix B. Representative Site Photographs
Top: Photo taken from south levee bridge abutment site, looking east.
Bottom: Photo taken from approximate extent of levee-top Bay Trail, looking west. Non-tidal salt marsh is present, north of the trail footprint.

Photos taken January 2008

wra
ENVIRONMENTAL CONSULTANTS

Appendix C - List of Observed Plant Species

Appendix C. Plant species observed in the Study Area during site assessments on April 29, 2004 and January 8, 2008.

Common Name	***Scientific Name***	**Status** *
slender wild oats	*Avena barbata*	NN
coyote brush	*Baccharis pilularis*	Native
black mustard	*Brassica nigra*	Cal-IPC List B
rip-gut brome	*Bromus diandrus*	NN
Italian thistle	*Carduus pycnocephalus*	Cal-IPC List B
iceplant	*Carpobrotus* sp.	Cal-IPC List A-1
pampas grass	*Cortaderia selloana*	Cal-IPC List A-1
fennel	*Foeniculum vulgare*	Cal-IPC List A-1
toyon	*Heteromeles arbutifolia*	Native
wild radish	*Raphanus sativus*	NN
pickleweed	*Salicornia virginica*	Native
smooth cordgrass	*Spartina alterniflora*	Cal-IPC List A-2

* Key to Status Codes

Native	Species native to California
NN	Species not native to California
Cal-IPC List A-1	Non-native species listed by the California Invasive Plant Council as “Most Invasive Wildland Pest Plant, Widespread”
Cal-IPC List A-2	Non-native species listed by the California Invasive Plant Council as “Most Invasive Wildland Pest Plants, Regional”
Cal-IPC List B	Non-native species listed by the California Invasive Plant Council as “Wildland Pest Plants of Lesser Invasiveness”

Appendix D - Calculated Tidal Datums

Appendix D. Tidal benchmarks of San Leandro Marina (Station ID 9414688) for the Oyster Bay Bridge at Oyster Bay Slough.

Table D-1. Calculations for Corps Jurisdictional High Tide Line (HTL) for the Bay Trail Bridge at Oyster Bay Slough using calculated data for the San Leandro Marina tide station.

- HTL at Presidio (San Francisco, San Francisco Bay tide station, ID 9414290)
  = 7.2 feet MLLW *

- MHHW at Presidio (San Francisco, San Francisco Bay tide station, ID 9414290)
  = 5.84 feet MLLW

- **High tide correction for San Leandro Marina tide station**
  = MHHW at San Leandro Marina - MHHW at Presidio
  = 7.43 feet MLLW - 5.84 feet MLLW
  = 1.59 feet MLLW

- **Calculated High Tide Line at San Leandro Marina in MLLW**
  = HTL at Presidio + High tide correction for San Leandro Marina
  = 7.2 feet MLLW + 1.59 ft MLLW
  = 8.79 feet MLLW

- 0 feet NAVD 88 = 0.61 feet MLLW at San Leandro Marina

- **Calculated High Tide line at San Leandro Marina in NAVD 88**
  = HTL at San Leandro Marina in MLLW - Difference between NAVD 88 and MLLW datums at San Leandro Marina
  = 8.18 feet NAVD 88

* Value determined by the Corps.

Appendix D. Tidal benchmarks of San Leandro Marina (Station ID 9414688) for the Bay Trail Bridge at Oyster Bay Slough.

Table D-2. Elevations of tidal datums converted to feet NAVD 88 for the Bay Trail Bridge at Oyster Bay Slough.

Elevations of tidal datums at San Leandro Marina referred to MLLW in meters:

Mean Higher High Water (MHHW)	= 2.264 m
Mean High Water (MHW)	= 2.069 m
Mean Tide Level (MTL)	= 1.212 m
Mean Sea Level (MSL)	= 1.194 m
Mean Low Water (MLW)	= 0.355 m
North American Vertical Datum-1988 (NAVD 88)	= 0.187 m
Mean Lower Low Water (MLLW)	= 0.000 m

Elevations of tidal datums at San Leandro Marina referred to MLLW in feet:

Mean Higher High Water (MHHW)	= 7.43 ft
Mean High Water (MHW)	= 6.79 ft
Mean Tide Level (MTL)	= 3.98 ft
Mean Sea Level (MSL)	= 3.92 ft
Mean Low Water (MLW)	= 1.16 ft
North American Vertical Datum-1988 (NAVD 88)	= 0.61 ft
Mean Lower Low Water (MLLW)	= 0.00 ft

Elevations of tidal datums at San Leandro Marina referred to NAVD 88 in feet:

Mean Higher High Water (MHHW)	= 6.82 ft
Mean High Water (MHW)	= 6.18 ft
Mean Tide Level (MTL)	= 3.37 ft
Mean Sea Level (MSL)	= 3.31 ft
Mean Low Water (MLW)	= 0.55 ft
North American Vertical Datum-1988 (NAVD 88)	= 0.00 ft
Mean Lower Low Water (MLLW)	= -0.61 ft

Appendix D Summary of Coordination with Agencies

The following agencies were invited to comment on the Notice of Preparation of a Draft Environmental Assessment for the project, released by the East Bay Regional Park District on 13 May 2004. The same agencies were also invited to attend a public Scoping Session that was held on 25 May 2004.

- Regulatory Branch, U.S. Army Corps of Engineers, San Francisco
- Coast Bay Delta Branch, U.S. Fish and Wildlife Service, Sacramento
- National Marine Fisheries Service, Seattle
- California Department of Fish and Game, Region 3, Yountville
- San Francisco Bay Regional Water Quality Control, Oakland
- Bay Conservation and Development Commission, San Francisco
- Port of Oakland

Letters were received from the U.S. Army Corps of Engineers, dated May 21, 2004, and the U.S. Fish and Wildlife Service, dated May 18, 2004. The letters are included below:

The same agencies were sent a copy and invited to comment on the Initial Study/Mitigated Negative Declaration for the project on 7 October 2005 (Baseline 2005). CDFG and other agencies have had the opportunity to comment on the project through the CEQA review process and to recommend avoidance and/or mitigation measures regarding special status species. Three comment letters were received regarding the proposed project; by CDFG, dated November 10, 2005, and by the Port of Oakland and by BCDC, dated November 14, 2005. These letters are included below:

In addition, several additional permits described in the NES document will need to be obtained prior to the implementation of the proposed project. These additional permits are summarized in the table below:

AGENCY	CONTACT	TYPE OF APPROVAL	DATE APPLIED	STATUS
US Army Corps of Engineers	Mark D'Avignon (415) 503-6773	Section 404/10 NW14	4/11/08	In Review
BCDC	Karen Wolowicz (415) 352-3600	Administrative Permit	3/1308	In Review
San Francisco Bay RWQCB	Brian Wines (510) 622-5680	401 Water Quality Certification	4/11/08	In Review
City of San Leandro	John O'Driscoll (510) 577-3351	Improvement Plans	October 2007	In Review
Port of Oakland	Joe Marsh (510) 627-1480	Building Permit	October 2007	In Review
EBRPD	Louis Gross (510) 544-2562	Encroachment Permit	October 2007	In Review

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
333 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94105-2197

Regulatory Branch

MAY 21 2004

RECEIVED
JUN 0 3 2004
BASELINE

SUBJECT: File Number: 28803S

Mr. Brian Wiese
East Bay Regional Part District (EBRPD)
P.O. Box 5381
Oakland, California 94605-0381

Dear Mr. Wiese:

This letter is in response to receipt of your notice titled "Notice of Preparation of a Draft Environmental Assessment and Scoping Session" dated received May 14, 2004 concerning your proposed project to construct a pedestrian and bicycle bridge and paved trail. The bridge would span a shallow, manmade tidal slough (Oyster Bay Slough) that separated the regional park from the northern boundaries; the bridge plans have already received preliminary approval from the U.S. Coast Guard, based on design plans that show that the bridge will be constructed at an elevation three feet above the projected 100-year flood level of seven feet. The proposed project is located within the Oyster Bay Shoreline Park, bound to the north by Oakland International Airport and the City of San Leandro wastewater treatment facility levees and to the south by a landfill. Since this activity will involve impact to a water of the U.S., the Corps of Engineers will need to review those portions of your project.

All proposed work and/or structures extending bayward or seaward of the line on shore reached by: (1) mean high water (MHW) in tidal waters, or (2) ordinary high water in non-tidal waters designated as navigable waters of the United States must be authorized by the Corps of Engineers pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). Additionally, all work and structures proposed in unfilled portions of the interior of diked areas below former MHW must be authorized under Section 10 of the same statute.

All proposed discharges of dredged or fill material into waters of the United States must be authorized by the Corps of Engineers pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344). Waters of the United States generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands.

Your proposed work is within our jurisdiction and a permit will be required. Application for Corps authorization should be made to this office using the application form in the enclosed pamphlet. To avoid delays it is essential that you enter the File Number at the top of this letter into Item No. 1. The application must include plans showing the location, extent and character of the proposed activity, prepared in accordance with the requirements contained in this pamphlet. You should note, in planning your work, that upon receipt of a properly completed application and plans, it may be necessary to advertise the proposed work by issuing a Public Notice for a period of 30 days.

If an individual permit is required, it will be necessary for you to demonstrate to the Corps that your proposed fill is necessary because there are no practicable alternatives, as outlined in the U.S. Environmental Protection Agency's Section 404(b)(1) Guidelines. A copy is enclosed to aid you in preparation of this alternative analysis.

Should you have any questions regarding this matter, please contact Bob Quebedeaux of our Regulatory Branch at 415-977-8446 or bob.d.quebedeaux@spd02.usace.army.mil. Please address all correspondence to the Regulatory Branch and refer to the File Number at the head of this letter.

Sincerely,

Edward A. Wylie

Edward A. Wylie
Chief, South Section

Enclosures

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

IN REPLY REFER TO:
1-1-04-SP-1794

MAY 18 2004

Mr. Brian Wiese
East Bay Regional Park District
P.O. Box 5381
Oakland, California 94605-0381

Subject: Species List for Oyster Bay Bridge, Alameda County, California

Dear Mr. Wiese:

We are sending the enclosed list (Enclosure A) in response to your May 12, 2004, notice. The list covers the following U.S. Geological Survey 7½ minute quad or quads: San Leandro Quad.

Please read *Important Information About Your Species List* (enclosed). It explains how we made the list and describes your responsibilities under the Endangered Species Act. Please contact Dan Buford at (916) 414-6625, if you have any questions about the attached list or your responsibilities under the Endangered Species Act. For the fastest response to species list requests, address them to the attention of Species Lists at this address. You may fax requests to 414-6712 or 414-6713. You may also email them to harry_mossman@fws.gov.

Sincerely,

for

Catrina Martin
Deputy Assistant Field Supervisor

Enclosures

TAKE PRIDE IN AMERICA

Letter #1

State of California – The Resources Agency
ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
POST OFFICE BOX 47
YOUNTVILLE, CALIFORNIA 94599
(707) 944-5500

November 10, 2005

East Bay Regional Park District
Planning/Stewardship Department
2950 Peralta Oaks Court
Oakland, CA 94605

Dear Sir or Madam:

Bay Trail Bridge at Oyster Bay Slough
San Leandro, Alameda County

The Department of Fish and Game (DFG) has reviewed the document for the subject project. Please be advised this project may result in changes to fish and wildlife resources as described in the California Code of Regulations, Title 14, Section 753.5(d)(1)(A)-(G)[1]. Therefore, if you are preparing an Environmental Impact Report or an Initial Study and Negative Declaration for this project, a de minimis determination is not appropriate, and an environmental filing fee as required under Fish and Game Code Section 711.4(d) should be paid to the Alameda County Clerk on or before filing of the Notice of Determination for this project. #1-1

A complete assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, and locally unique species and sensitive habitats, should be provided. Rare, threatened and endangered species to be addressed should include all those which meet the California Environmental Quality Act (CEQA) definition (see CEQA Guidelines, Section 15380). The assessment should identify any rare plants and rare natural communities, following DFG's Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (revised May 8, 2000). The Guidelines are available at www.dfg.ca.gov/whdab/pdfs/guideplt.pdf #1-2

For any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed, DFG may require a Streambed Alteration Agreement (SAA), pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant. Issuance of SAAs is subject to CEQA. DFG, as a responsible agency under CEQA, will consider the CEQA document for the project. The CEQA document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for completion of the our #1-3

[1] http://ccr.oal.ca.gov/. Find California Code of Regulations, Title 14 Natural Resources, Division 1, Section 753

agreement. To obtain information about the SAA notification process, please access website at www.dfg.ca.gov/1600; or to request a notification package, contact the Streambed Alteration Program at (707) 944-5520.

If you have any questions, please contact Mr. John Krause, Associate Wildlife Biologist, at (415) 454-8050; or Mr. Scott Wilson, Habitat Conservation Supervisor, at (707) 944-5584.

Sincerely,

Cindy Catalano

Robert W. Floerke
Regional Manager
Central Coast Region

Letter #2

PORT OF OAKLAND

November 14, 2005

Mr. Brian Wiese
Chief
East Bay Regional Park District
Planning/Stewardship Department
2950 Peralta Oaks Court
Oakland, CA 94605

RE: Port of Oakland Comments on the Bay Trail Bridge at Oyster Bay Slough Initial Study/Mitigated Negative Declaration (IS/MND)

Dear Mr. Wiese,

Thank you for the opportunity to comment on the Bay Trail Bridge at Oyster Bay Slough Initial Study/Mitigated Negative Declaration. The Port supports the implementation of Alternative #2, the most feasible alternative to making this vital Bay Trail connection. The Port has the following comments on the Initial Study:

General Comments

Pursuant to California Environmental Quality Act Section 21002, "public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would lessen the significant environmental effects of such projects."

An overall comment on this IS/MND relates to the Bay Trail Connection "Preferred Alternative" Alternative #1 Retaining Structure. This alternative involves pile driving, filling of wetlands, construction of a retaining wall and construction of a new trail and would cause significant effects in air quality, biological resources, geology and soils, and land use and planning. Whereas, "Alternative #2 Mixed Use Trail/Road" which would place the trail on the existing maintenance road, and involve no sheet piling, no filling on the levee slope and no retaining wall, is a feasible alternative that accomplishes all of the project's objectives with less potential for significant environmental impacts. This Alternative #2 would avoid potential disturbance of the adjacent salt marsh and present less impacts to air quality, biological resources, geology and soils, and land use/planning. Under CEQA, the project sponsor is obligated to select Alternative #2 if the alternative accomplishes all the project objectives (see page 1) with less potential significant impact. #2-1

86893-v1

530 Water Street ■ Jack London Square ■ P.O. Box 2064 ■ Oakland, California 94604–2064
Telephone: (510) 627-1100 ■ Facsimile: (510) 627-1826 ■ Web Page: *www.portofoakland.com*

The mitigation measures proposed by the project sponsor are inadequate to avoid or lessen the potentially significant impact that would result from Alternative #1. A particularly glaring inadequacy is the absence of any proposed maintenance of the proposed trail and retaining wall. Alternative #1 consists of filling in a sloping area to create a walled foundation for the new trail supported by a wooden retaining wall, immediately adjacent to a high-quality wetland salt marsh habitat. Such structure is subject to deterioration of the retaining wall, erosion and eventual spillage of fill materials and runoff from the trail onto the wetland area. The lack of buffer zone between the trail and the wetlands makes such erosive effects more likely. Yet, the IS/MND does not propose any continuing maintenance by a responsible agency of the retaining wall or of the trail. The cumulative impact of expected erosion, deterioration of the retaining wall, the use of the trail by increasing number of visitors and the sanitary district maintenance vehicles will likely degrade the surrounding environment. #2-2

Currently, Alternative #1 is not feasible since the project sponsor does not have control over property on which the alternative is proposed. Until such time the project sponsor has negotiated an agreement and obtained a building permit from the land owner (the "Port of Oakland"), Alternative #1 is not a feasible alternative from a land use/planning perspective.

The Port has the following comments on the particular sections of the IS/MND:

Page 1: Summary of Project:

A description of land-use jurisdiction in which Project is proposed to be located is inadequate. #2-3

A summary description of wetland and habitat in more detail where Bay Trail Connection is proposed is needed. #2-4

Page 9: Bay Trail Connection Alternatives:

Alternative #1 is infeasible since the project sponsor does not control or have an agreement with land owner (the Port of Oakland) related to use of the land on which this alternative is proposed. The alternative is also too costly. Moreover, Alternative #1 does not meet project goal of "minimize environmental impact." Alternative #2 has the least environmental impacts. #2-5

Alternative #1 should be withdrawn unless project sponsor can demonstrate feasibility in that (1) it has control over land needed, (2) it is cost-effective compared to Alternative #2, and (3) it would minimize environmental impacts compared to Alternative #2. #2-6

Page 9: Alternatives Considered and Withdrawn

Alternative #3 should not be withdrawn because it is a feasible alternative in that (1) project sponsor has control over land needed, (2) it requires a minimum of fill and (3) it meets all project goals. #2-7

Page 13: Anticipated Permits and Funding

If the project sponsor pursues Alternative #1, the Project Sponsor would also need a building permit from the Port of Oakland, which is a discretionary permit subject to Federal Aviation Administration restrictions and CEQA. Filling, retaining wall construction, pile driving and trails surfacing would be considered activities subject to Port permit requirements. #2-8

Page 15: Anticipated Permits and Funding

Please discuss the respective estimated costs of Bay Trail Connection alternatives, including a cost comparison between Alternative #1 and Alternative #2. Please provide a justification for choosing Alternative #1 as the preferred alternative given that the costs of the other alternatives which are all much cheaper to design, construct and maintain. #2-9

Page 20-28: Biological Resources

Under Items IV (a) and (c), Alternative #1 would cause potentially Significant Impact". Alternative #1causes significant impacts because pile driving, filling of wetlands and installation of retaining wall would (1) have substantial adverse effect through habitat modification on species identified as a candidate, sensitive or special status species and (2) have substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal and filling. Without maintenance controls this alternative could negatively impact the adjacent salt marsh wetland habitat. Alternative #1 should not be the preferred alternative since there is an Alternative (Alternative #2 using the existing maintenance road) that has less over all impacts to resources and reduces/avoids all potential disturbance to the adjacent salt marsh habitat by constructing the trail on existing maintenance road. With Alternative #2, the well developed vegetation on the existing levee slope would provide an additional buffer of protection for the adjacent alt marsh. #2-10

Page 26: Burrowing Owl

The issue of whether the bike path is constructed on top of the levee or on pile supported fill is irrelevant to the impact analysis for burrowing owls. In either case, the existing levee will part of the active construction area, and therefore, a preconstruction survey for burrowing owls should be performed. Additional mitigation measures should also be included to avoid impacts to these owls and their nests. #2-11

Page 27: Mitigation Measure IV-2
This mitigation is inadequate. Specific erosion control measures, performance criteria and implementation schedule and roles should be discussed. #2-12

Page 27: Mitigation Measure IV-3 (c)
This mitigation measure is inadequate. Avoidance of shrub habitat will not be feasible during trail construction. Construction should not be permitted during breeding season as it will be impossible to protect nests from the construction zone. Construction will occur within 50 feet of breeding habitat. #2-13

Page 31: Geology and Soil
Under Item VI (b), Alternative #1 would cause substantial soil erosion by attempting to fill into sloping areas adjacent to salt marsh wetland habitat and retaining fill materials by wooden retaining wall. The preparation of Storm Water Pollution Prevention Plan, without continuous monitoring and commitment of sponsoring agency for long-term maintenance of the retaining wall, is inadequate to prevent deterioration of the retaining wall. In addition, long term maintenance of the trail would be necessary to reducecontaminated runoff, including potential pollutants emitted by sanitary district maintenance vehicles. #2-14

Page 34: Mitigation Measure VII-1.
Include Personal Protective Equipment in Health and Safety Plan. Include OSHA standards and protection performance criteria. #2-15

Page 34: Mitigation Measure VII-2.
Mitigation Measure is inadequate. Specify what measures shall be taken, by whom, when, how, and where and discuss performance criteria. #2-16

Page 35-36: There is a redundant set of paragraphs. #2-17

Page 37: There is no discussion of the impacts associated with checklist item VIII (b). #2-18

Page 39: Land Use and Planning
The Alternative #1 project is located on land owned by and within the land-use jurisdiction of the Port of Oakland. The subject area is within an area designated as part of the Oakland Metropolitan International Airport. As such, the Port of Oakland exercises land-use planning subject to grant-assurances restrictions of the Federal Aviation Administration (the "FAA"). Moreover, pursuant to the City of Oakland Charter, any lease of or construction upon land within the jurisdiction of the Port of Oakland must be approved and permitted by the Board of Port Commissioners. The granting of a building permit under Oakland City Charter Section 708 is a discretionary action subject to the requirements of CEQA. #2-19

The Alternative #1 project is subject to FAA restrictions and the Port of Oakland grant of building permit or land control. The project sponsor has neither proposed to comply with FAA restrictions nor obtain land use permission or control from the Port of Oakland. To

the extent that the proposed Alternative #1 conflicts with the FAA or Port of Oakland restrictions for the purpose of the operating the Airport or with Port standards for the maintaining the wetlands, Alternative #1 causes an un-mitigated significant impact under CEQA. #2-19 cont.

Alternative #2 is not subject to Port of Oakland jurisdiction, and therefore has no land use impacts at this time.

Thank you for the opportunity to comment. Please call us if you have any questions at 510-627-1250.

Sincerely,

Lauren R. Eisele

Lauren Eisele
Associate Port Environmental Planner

Cc: Danny Wan (Port)
Anne Henny (Port)
Steve Grossman (Port)

86893.v1

Letter #3

November 14, 2005

East Bay Regional Park District
Planning/ Stewardship Department
2950 Peralta Oaks Court
Oakland, California 94605

SUBJECT: Bay Trail Bridge at Oyster Bay Slough Initial Study/
Mitigated Negative Declaration

Ladies and Gentlemen:

On October 11, 2005, San Francisco Bay Conservation and Development Commission (Commission) staff received the Initial Study/Mitigated Negative Declaration (IS/MND) for the Bay Trail Bridge at Oyster Bay Slough Project, located south of the Oakland International Airport, in the Cities of San Leandro and Oakland, Alameda County. The project would include a 350-foot-long pedestrian/bicycle bridge across Oyster Bay Slough and a 630-foot-long paved trail to connect the Oyster Bay Regional Shoreline with the Bay Trail to the north, adjacent to the Oakland Airport, on property owned by the Port of Oakland. The Commission staff has reviewed the IS/MND and is submitting its comments regarding the document. Although the Commission itself has not reviewed the IS/MND, the staff comments are based on the McAteer-Petris Act, the Commission' s San Francisco Bay Plan (Bay Plan), the Commission' s federally-approved management plan for the San Francisco Bay, and the federal Coastal Zone Management Act (CZMA).

Jurisdiction

The Commission's jurisdiction in this area includes all tidal areas of the Bay up to the line of mean high tide or the inland edge of wetland vegetation up to five feet above Mean Sea Level in marshlands, all areas formerly subject to tidal action that have been filled since September 17, 1965, and the " shoreline band," which extends 100 feet inland from and parallel to the Bay shoreline.

#3-1

Commission permits are required for construction, dredging, fill placement, and dredged material disposal within its area of jurisdiction. Permits are issued if the Commission finds the activities to be consistent with the McAteer-Petris Act and the policies and findings of the Bay Plan. In addition to any needed permits under its state authority, federal actions, permits, and grants that affect the Commission's jurisdiction are subject to consistency review by the Commission, pursuant to the federal Coastal Zone Management Act (CZMA),

for their consistency with the Commission's federally-approved management program for the Bay.

Pedestrian Bridge and Bay Fill

Among other requirements, Section 66605 of the McAteer-Petris Act requires that fill (i.e., solid, pile-supported, cantilevered, or floating fill) in the Commission's Bay jurisdiction should only be authorized when: (1) the public benefits from the fill clearly exceed public detriment from the loss of water areas; (2) the fill is limited to water-oriented uses or minor fill to improve shoreline appearance or public access; (3) there is no alternative upland location; (4) the fill is the minimum amount necessary; (5) the fill minimizes harmful effects to the bay, such as the reduction or impairment of the volume surface area or circulation of water, water quality, fertility of marshes or fish and wildlife resources; and (6) that the fill will, to the maximum extent feasible, establish a permanent shoreline.

The preferred bridge alternative would be approximately 348 feet long with a clear travel width of 10 feet and a railing height of 54 inches. Three piers consisting of four-foot-in-diameter, cast in steel concrete piles would support the preferred bridge structure. An alternative trestle bridge structure was analyzed that would be approximately the same width and height, but would require approximately 78 steel piles to be driven into the slough bottom. The preferred bridge alternative appears to require less fill in the Commission's Bay jurisdiction and thus could be authorized more easily by the Commission than the trestle bridge alternative. #3-2

To receive authorization for the proposed bridge the City of San Leandro would need to provide calculations of the Bay fill that would be required for both the preferred bridge alternative, and the alternative bridge designs that have been evaluated. In general, these calculations should include the square footage of the Bay the proposed bridge would cover, the volume in cubic yards of the proposed bridge pilings, the landing constructed for the bridge, and any Bay fill (temporary or permanent) that would be associated with the construction of the trail. In addition, please evaluate whether the proposed project, and the amount of Bay fill proposed, would be consistent with the Commission's laws and policies on fill. Please also include in your analysis consideration of why the proposed bridge design would involve the minimum fill necessary to meet the goals of the project. If the proposed fill would cover 10,000 square feet of fill or more, the project must be reviewed at a Commission public hearing and vote.

Preferred Bay Trail Alignment and Trail Alternatives

The preferred Bay Trail connection north of Oyster Bay Slough would be a 10-foot-wide, 630-foot-long trail with two-foot-wide shoulders. The trail would be constructed by widening the existing access road for the City of San Leandro's wastewater treatment ponds. This levee would be widened on its north side by installing a retaining structure and #3-3

backfilling the area with lightweight fill. The new trail would be fenced off from the existing maintenance road and wastewater treatment ponds. The IS/MND indicates that the retaining structure and fill would not be located in the Commission's Bay jurisdiction, nor placed in the adjacent marshland, which appears to be a diked wetland, but partially within the Commission' s 100-foot shoreline band jurisdiction. #3-3 cont.

The IS/MND states that the retaining structure required to construct the preferred trail alignment would not result in any environmental impacts. A mitigation measure is included in the IS/MND that would require the installation of a protective fence to prevent "...accidental intrusion by construction equipment and/or workers into the adjacent pickleweed marsh..." However, the IS/MND does not include an analysis of the potential impacts on the marsh habitat and associated species from pedestrian and bicycle use of the trail once constructed. Would a landscaped barrier be installed to ensure no intrusion into the marsh by trail users? In addition, would the trail be constructed at an elevation high enough to protect it from occasional flooding? Please also clarify that the marsh adjacent to the preferred trail alignment is a diked wetland.

The IS/MND also states that the preferred Bay Trail connection would be located on the Port of Oakland's prop erty. To obtain a BCDC permit for this project, the Port of Oakland would have to be a co-applicant for the permit or grant a long-term lease (i.e., at least 60 years) to the City of San Leandro. #3-4

Although Commission staff generally supports this preferred trail alignment, it continues to have a number of concerns. First, the preferred trail alignment appears to be the most expensive alternative, due to the need to widen an existing levee. The other trail alignments would be installed on existing levees that do not need to be widened. In addition, the property issue with the Port of Oakland must be resolved. If for some reason, the City of San Leandro is unable to obtain: (1) the Port of Oakland's pe rmission to construct this preferred trail alignment; and/or (2) the funds necessary to complete the proposed alignment, staff believes the other two Bay Trail connection alternatives may be feasible. The IS/MND outlines that the other two trail alignment alternatives considered would complicate maintenance of the City of San Leandro's w astewater treatment plant. Although this is a very valid concern, the complications do not appear to be insurmountable should the preferred trail alignment become infeasible. #3-5

Thank you for the opportunity to comment on this IS/MND. It is an exciting project that will provide a critical link in the Bay Trail in this area. Commission staff would like to support your efforts in any way possible. Please feel free to call me with any questions or concerns at 415/352-3618 or e-mail me at andreag@bcdc.ca.gov.

Sincerely,

ANDREA M. GAUT
Coastal Program Analyst

cc: City of San Leandro; Attn: Uche Udemezue, P.E.
Port of Oakland; Attn: Lauren Eisele
ABAG Bay Trail Project; Attn: Lee Huo

Appendix E Representative Site Photographs

Appendix E. Representative Site Photographs
Top: Smooth cordgrass has colonized portions of Oyster Bay Slough adjacent to the north levee. Photo shows approximate area to be shaded.
Bottom: North levee viewed from south levee at low tide. The bridge crossing is located to the left of the chain link fence.
Photos taken April 29, 2004

wra
ENVIRONMENTAL CONSULTANTS

Appendix E. Representative Site Photographs
Top: Stakes mark approximate extent of bridge footprint and wetland vegetation to be shaded on north levee.
Bottom: Looking east from approximate location of north levee bridge abutment. Stakes mark extent of bridge footprint.

Photos taken April 29, 2004

wra
ENVIRONMENTAL CONSULTANTS

Appendix E. Representative Site Photographs
Top: Photo taken from location of south levee bridge abutment site looking north. Stakes mark approximate extent of bridge footprint.
Bottom: Photo taken from south levee abutment site, looking west. Stake marks extent of bridge footprint.
Photos taken January 2008

wra
ENVIRONMENTAL CONSULTANTS

Appendix E. Representative Site Photographs
Top: Photo taken from south levee bridge abutment site, looking east.
Bottom: Photo taken from approximate extent of levee-top Bay Trail, looking west. Non-tidal salt marsh is present, north of the trail footprint.

Photos taken January 2008

wra
ENVIRONMENTAL CONSULTANTS

Appendix F Calculated Tidal Datums at Oyster Bay

Appendix F. Tidal benchmarks of San Leandro Marina (Station ID 9414688) for the Bay Trail Bridge at Oyster Bay Slough.

Table F-1. Calculations for Corps Jurisdictional High Tide Line (HTL) for the Bay Trail Bridge at Oyster Bay Slough using calculated data for the San Leandro Marina tide station.

- HTL at Presidio (San Francisco, San Francisco Bay tide station, ID 9414290)
  = 7.2 feet MLLW *

- MHHW at Presidio (San Francisco, San Francisco Bay tide station, ID 9414290)
  = 5.84 feet MLLW

- **High tide correction for San Leandro Marina tide station**
  = MHHW at San Leandro Marina - MHHW at Presidio
  = 7.43 feet MLLW - 5.84 feet MLLW
  = 1.59 feet MLLW

- **Calculated High Tide Line at San Leandro Marina in MLLW**
  = HTL at Presidio + High tide correction for San Leandro Marina
  = 7.2 feet MLLW + 1.59 ft MLLW
  = 8.79 feet MLLW

- 0 feet NAVD 88 = 0.61 feet MLLW at San Leandro Marina

- **Calculated High Tide line at San Leandro Marina in NAVD 88**
  = HTL at San Leandro Marina in MLLW - Difference between NAVD 88 and MLLW datums at San Leandro Marina
  = 8.18 feet NAVD 88

* Value determined by the Corps.

Appendix F. Tidal benchmarks of San Leandro Marina (Station ID 9414688) for the Bay Trail Bridge at Oyster Bay Slough.

Table F-2. Elevations of tidal datums converted to feet NAVD 88 for the Bay Trail Bridge at Oyster Bay Slough.

Elevations of tidal datums at San Leandro Marina referred to MLLW in meters:

Mean Higher High Water (MHHW)	= 2.264 m
Mean High Water (MHW)	= 2.069 m
Mean Tide Level (MTL)	= 1.212 m
Mean Sea Level (MSL)	= 1.194 m
Mean Low Water (MLW)	= 0.355 m
North American Vertical Datum-1988 (NAVD 88)	= 0.187 m
Mean Lower Low Water (MLLW)	= 0.000 m

Elevations of tidal datums at San Leandro Marina referred to MLLW in feet:

Mean Higher High Water (MHHW)	= 7.43 ft
Mean High Water (MHW)	= 6.79 ft
Mean Tide Level (MTL)	= 3.98 ft
Mean Sea Level (MSL)	= 3.92 ft
Mean Low Water (MLW)	= 1.16 ft
North American Vertical Datum-1988 (NAVD 88)	= 0.61 ft
Mean Lower Low Water (MLLW)	= 0.00 ft

Elevations of tidal datums at San Leandro Marina referred to NAVD 88 in feet:

Mean Higher High Water (MHHW)	= 6.82 ft
Mean High Water (MHW)	= 6.18 ft
Mean Tide Level (MTL)	= 3.37 ft
Mean Sea Level (MSL)	= 3.31 ft
Mean Low Water (MLW)	= 0.55 ft
North American Vertical Datum-1988 (NAVD 88)	= 0.00 ft
Mean Lower Low Water (MLLW)	= -0.61 ft

Appendix G USFWS Official Species List for the San Leandro 7.5 Minute and Surrounding USGS Quad Maps

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

January 14, 2008

Document Number: 080114054756

WRA, Inc
2169-G E. Francisco Blvd.
San Rafael, CA 94901

Subject: Species List for Bay Trail Bridge at Oyster Bay

Dear: Interested party

We are sending this official species list in response to your January 14, 2008 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be April 13, 2008.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

Endangered Species Division

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 080114055301

Database Last Updated: December 12, 2007

Quad Lists

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Euphydryas editha bayensis
bay checkerspot butterfly (T)

Icaricia icarioides missionensis
mission blue butterfly (E)

Incisalia mossii bayensis
San Bruno elfin butterfly (E)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Speyeria callippe callippe
callippe silverspot butterfly (E)

Speyeria zerene myrtleae
Myrtle's silverspot butterfly (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Eucyclogobius newberryi
tidewater goby (E)

Hypomesus transpacificus
Critical habitat, delta smelt (X)
delta smelt (T)

Oncorhynchus kisutch
coho salmon - central CA coast (E) (NMFS)

Oncorhynchus mykiss
Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Critical habitat, California red-legged frog (X)

Reptiles

Caretta caretta
loggerhead turtle (T) (NMFS)

Chelonia mydas (incl. agassizi)
green turtle (T) (NMFS)

Dermochelys coriacea
leatherback turtle (E) (NMFS)

Lepidochelys olivacea
olive (=Pacific) ridley sea turtle (T) (NMFS)

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)
Critical habitat, Alameda whipsnake (X)

Thamnophis sirtalis tetrataenia
San Francisco garter snake (E)

Birds

Brachyramphus marmoratus
marbled murrelet (T)

Charadrius alexandrinus nivosus
western snowy plover (T)

Pelecanus occidentalis californicus
California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Mammals

Eumetopias jubatus
Steller (=northern) sea-lion (T) (NMFS)

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Plants

Arctostaphylos pallida
pallid manzanita (=Alameda or Oakland Hills manzanita) (T)

Cirsium fontinale var. fontinale
fountain thistle (E)

Clarkia franciscana
Presidio clarkia (E)

Eriophyllum latilobum
San Mateo woolly sunflower (E)

Hesperolinon congestum
Marin dwarf-flax (=western flax) (T)

Lasthenia conjugens
Contra Costa goldfields (E)

Quads Containing Listed, Proposed or Candidate Species:

HAYWARD (447A)

SAN LEANDRO (447B)

REDWOOD POINT (447C)
NEWARK (447D)
HUNTERS POINT (448A)
SAN MATEO (448D)
OAKLAND EAST (465C)
LAS TRAMPAS RIDGE (465D)
OAKLAND WEST (466D)

County Lists

No county species lists requested.

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical

Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our critical habitat page for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential

information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be April 13, 2008.