

SAN FRANCISQUITO CREEK FLOOD REDUCTION, ECOSYSTEM RESTORATION, AND RECREATION

MITIGATION AND MONITORING PLAN

**SANTA CLARA VALLEY WATER DISTRICT
October 2014**



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Acronyms and Abbreviations

Cal/OSHA	California Division of Occupational Safety and Health
CCR	California Code of Regulations
District	Santa Clara Valley Water District
EIR	Final Environmental Impact Report
JPA	San Francisquito Creek Joint Powers Authority
MMP	Mitigation and Monitoring Plan
MSL	mean sea level
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Units
Project	San Francisco Bay to Highway 101
QSD	Qualified SWPPP Developer
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SMCWPPP	San Mateo Countywide Water Pollution Prevention Program
USACE	U.S. Army Corps of Engineers
USPS	United States Postal Service

1 Purpose of this Document

The San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project - San Francisco Bay to Highway 101 (Project) will improve channel capacity for creek flows coupled with the influence of the tides of San Francisco Bay, including projected sea level rise, from the downstream face of East Bayshore Road to the San Francisco Bay. It would reduce local fluvial flood risks in the Project area during storm events, provide the capacity needed for future upstream improvements, increase and improve ecological habitat, and provide for improved recreational opportunities. This document provides a process for evaluating compliance with mitigation requirements and monitoring the success of the ecological habitat provided by the Project. It includes a summary Project description, construction measures to protect natural resources, performance goals and success criteria, monitoring methods, operations and maintenance prescriptions, monitoring report schedule and content, and a process for determining completion of mitigation responsibilities.

2 Background

The San Francisquito Creek Joint Powers Authority (JPA) is a regional government agency whose members include the Cities of Palo Alto, Menlo Park, and East Palo Alto; the San Mateo County Flood Control District, and the Santa Clara Valley Water District (District). The JPA was formed in 1999 following the flood of 1998 to implement flood management, ecosystem restoration and recreational enhancements throughout the San Francisquito Creek watershed and floodplain.

The Project's goals are to improve flood protection, habitat, and recreational opportunities within the Project reach, with the following specific objectives:

- Protect properties and infrastructure between East Bayshore Road and the San Francisco Bay from Creek flows resulting from 100-year fluvial flood flows occurring at the same time as a 10-year tide that includes projected Sea Level Rise through 2067.
- Accommodate future flood protection measures that might be constructed upstream of the Project.
- Restore and enhance habitat along the Project reach, particularly habitat for threatened and endangered species.
- Enhance recreational uses.
- Minimize operational and maintenance requirements.

The JPA certified a Final Environmental Impact Report (EIR) for the Project on October 25th, 2012. Changes to the Project since the certification of the EIR reduce impacts to the Faber Tract by reducing the frequency and volume of potential flows from large storm events. The changes do not result in any new impacts from the Project or increase the severity of previously identified impacts.

The EIR found that potentially significant effects from implementation of the Project could result from:

- Disturbance or Loss of Special-Status Plant Populations (BIO-1)
- Disturbance of Nesting Migratory Birds and Raptors (Excluding Burrowing Owl) (BIO-3)
- Disturbance of Western Burrowing Owls and Habitat (BIO-4)
- Disturbance of California Clapper Rail and California Black Rail and Habitat (BIO-5)
- Disturbance of Salt Marsh Harvest Mouse and Salt Marsh Wandering Shrew and Habitat (BIO-6)
- Disturbance of California Least Tern and Western Snowy Plover and Habitat (BIO-7)
- Disturbance of California Red-Legged Frog and San Francisco Garter Snake and Habitat (BIO-8)
- Disturbance of Steelhead Trout and Longfin Smelt and Suitable Habitat (BIO-9)
- Disturbance or Loss of Riparian Habitat (BIO-11)
- Disturbance or Loss of State- or Federally Protected Wetlands (BIO-12)

- Loss of, or Damage to, Protected Trees (BIO-13)

2.1 Mitigation Goal

The mitigation goal for the project is to enhance marsh habitat along the tidal reach of San Francisquito Creek that provides adequate mitigation for temporary and permanent impacts associated with construction of the Project, is consistent with historic habitat at the Bay margin, while minimizing long-term impacts to the adjacent Faber Tract.

Figure 1: Location Map

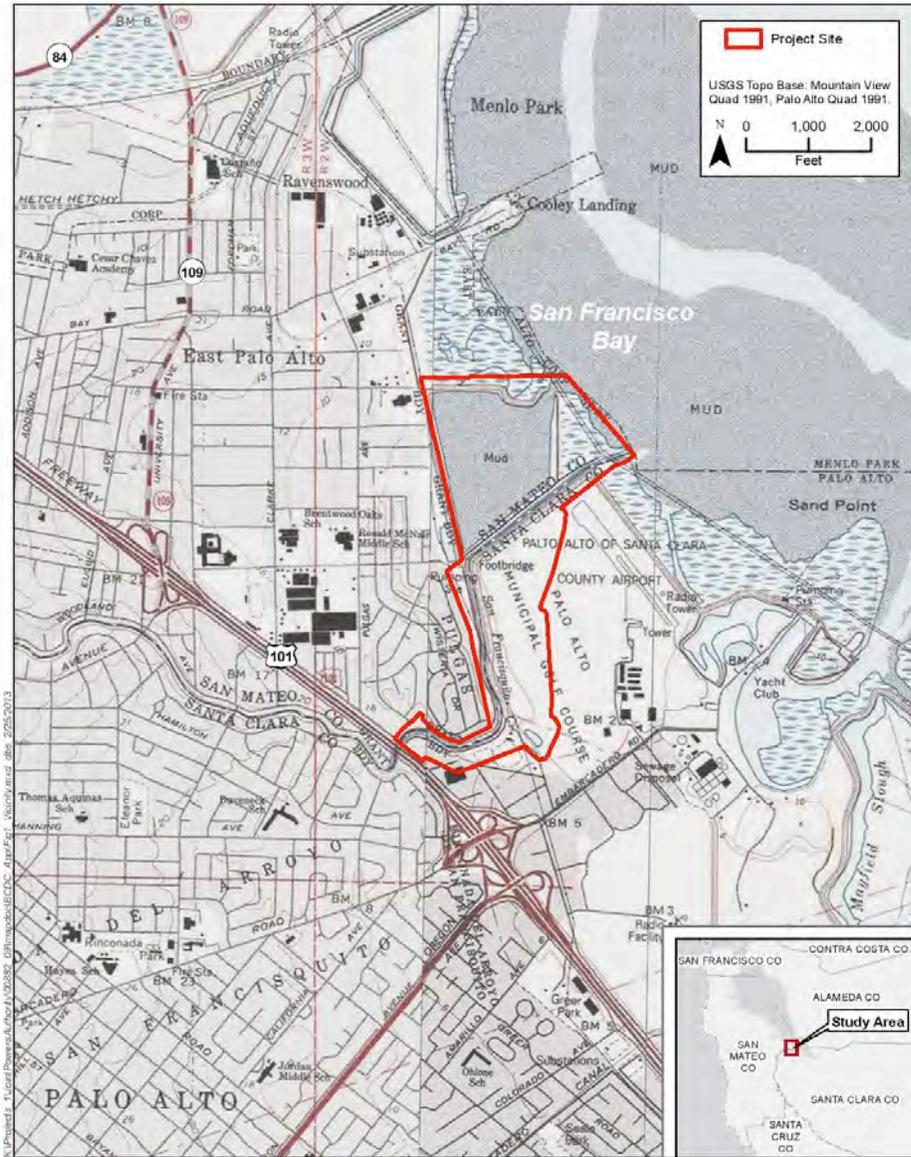


Figure 1
Vicinity Map

San Francisquito Creek Flood Reduction, Ecosystem Restoration & Recreation Project



3 Project Summary

3.1 SETTING

The project site, which is an area of 263.5 acres, ranges in elevation from 15 feet above mean sea level (MSL) (referenced to the North American Vertical Datum [NAVD]) near East Bayshore Road to approximately sea level in the eastern part of the project site. The existing levees on the project site range from approximately 4 feet to 13 feet tall. The surrounding land uses include protected open space, residential, light industrial, and recreational. The right bank of the Project is bordered by residences and by tidal salt marsh; the left bank of the Project is bordered by businesses, the International School of the Peninsula, the United States Postal Service (USPS) facility, the Baylands Athletic Center, the Palo Alto Municipal Golf Course, and Palo Alto Airport. Artificial levees exist along both sides of San Francisquito Creek and along the western edge and interior of the Faber Tract. A footbridge (Friendship Bridge) crosses the Creek channel just south of the Faber Tract. The Baylands Trail runs along the crown of the left bank levee from the Geng Road Access point downstream to the mouth of the creek. Two pump stations are located on the project site including Palo Alto's San Francisquito Creek Storm Water Pump Station and East Palo Alto's O'Connor Street Pump Station.

San Francisquito Creek is a perennial stream, and the reach within the project site is tidally influenced by the San Francisco Bay. An adjacent freshwater pond and diked marsh areas are not hydrologically connected to San Francisquito creek through levees and dikes and are therefore not tidally influenced. The project site supports the following water body types: diked marsh (wetland), freshwater marsh (wetland), tidal salt marsh (wetland), freshwater pond (non-wetland), tidal channel and bay waters (non-wetland), and tidal pan (non-wetland) as well as annual grasslands, ruderal areas, turf, and urbanized areas.

3.2 PROJECT ELEMENTS

Work within the project boundary includes the following activities.

- Excavating sediment deposits within the channel to maximize conveyance.
- Rebuilding levees and relocating a portion of the southern levee to widen the channel to increase channel capacity.
- Constructing floodwalls in the upper reach to increase capacity and maintain consistency with Caltrans' enlargement of the U.S. 101/East Bayshore Road Bridge over San Francisquito Creek.
- Relocation of electricity transmission towers and poles; abandonment of existing and construction of new gas transmission lines; and realignment of sewer lines and storm drains.
- Extension of Friendship Bridge via a boardwalk across new marshland within the widened channel.
- Raising and grading a portion of the unmaintained levee between the Creek and the Faber Tract closer to its original design elevation to stabilize the levee and maintain current levels of storm water flows to the Faber Tract marsh.
- Degrading of a section of levee north of the creek and east of Faber Tract to restore the creek-Bay interface to a marsh area east of Faber Tract and to reduce water surface elevations in the creek between Friendship Bridge and the Bay.

4 Construction

Utility work would occur in spring 2015. Project activities would require relocation or removal of electricity transmission towers and poles; abandonment of existing and construction of new gas transmission lines; and realignment or relocation of sewer lines and storm drains.

After utility work is completed, flood protection construction would begin with building of the new levee structure outside of the existing levee and would proceed upstream with the excavation of the channel up to East Bayshore. Phase Two construction of upstream floodwalls and associated maintenance roads would occur the following construction season.

Construction activities would take place between 8 a.m. and 6 p.m. on weekdays, and 9 a.m. and 5 p.m. on Saturdays, in accordance with City of Palo Alto and City of East Palo Alto municipal codes. Final construction permits issued for the Project may place additional constraints on construction timing. In-stream work would be limited to between October 1st through May 30th to avoid impacts to steelhead and longfin smelt.

4.1 Environmental Commitments

To minimize impacts from construction, the Project will incorporate the following Environmental Commitments.

4.1.1 General Construction Site Housekeeping

1. The work site, areas adjacent to the work site, and access roads will be maintained in an orderly condition, free and clear from debris and discarded materials. Personnel will not sweep, grade, or flush surplus materials, rubbish, debris, or dust into storm drains or waterways. Upon completion of work, all building materials, debris, unused materials, concrete forms, and other construction-related materials will be removed from the work site.
2. To prevent mosquito breeding on construction sites, the SFCJPA will require the construction contractor to ensure that surface water is gone within four days (96 hours). All outdoor grounds will be examined and unnecessary water that may stand longer than 96 hours will be drained. Construction personnel will properly dispose of unwanted or unused artificial containers and tires. If possible, any container or object that holds standing water that must remain outdoors will be covered, inverted, or have drainage holes drilled. (California Department of Public Health 2008)
3. The following general construction site housekeeping measures will be implemented as necessary within staging areas.
 - a. Staging areas that are not already paved or covered with compacted aggregate base, and that are used for parking vehicles, trailers, workshops, maintenance areas, or equipment, piping, formwork, rebar, storing masonry on pallets, and metal product storage, will be graded as required, and surfaced with a minimum of 3 inches of compacted aggregate base rock over a high modulus, woven, and soil separation geo-textile. Areas storing aggregate base or other rock products will also be placed on this same geo-textile. The objective is to maintain separation between native and construction materials. Areas storing soils and sand are not required to be surfaced with aggregate base course.

- b. Aggregate base will be removed from all staging areas prior to Project completion and the surfaces will be regraded to their original grades or matching surrounding conditions as directed by the Engineer.
 - c. Any soils contaminated with petroleum product or other hazardous materials by the Contractor will be removed by the Contractor and disposed of in accordance with local, state, and federal laws.
 - d. Contractor is responsible for weed control in staging areas and material storage areas.
4. The spread of invasive nonnative plant species and plant pathogens will be avoided or minimized by implementing the following measures:
- a. Construction equipment will arrive at the Project clean and free of soil, seed, and plant parts to reduce the likelihood of introducing new weed species.
 - b. Any imported fill material, soil amendments, gravel, etc., required for construction and/or restoration activities that will be placed within the upper 12 inches of the ground surface will be free of vegetation and plant material.
 - c. Certified weed-free imported erosion control materials (or rice straw in upland areas) will be used exclusively.
 - d. To reduce the movement of invasive weeds into uninfested areas, the contractor will stockpile topsoil removed during excavation and will subsequently reuse the stockpiled soil for re-establishment of disturbed Project areas.

4.1.2 Water Quality Protection

1. The following measures will be implemented as necessary to reduce and minimize stormwater pollution during ground disturbing maintenance activities:
- Soils exposed due to maintenance activities will be seeded and stabilized using hydroseeding, straw placement, mulching, and/or erosion control fabric. These measures will be implemented such that the site is stabilized and water quality protected prior to significant rainfall.
 - The preference for erosion control fabrics will be to consist of natural fibers.
 - Appropriate measures include, but are not limited to, the following:
 - ❖ Silt Fences.
 - ❖ Straw Bale Barriers.
 - ❖ Brush or Rock Filters.
 - ❖ Storm Drain Inlet Protection.
 - ❖ Sediment Traps.
 - ❖ Sediment Basins.
 - ❖ Erosion Control Blankets and Mats.
 - ❖ Soil Stabilization (i.e. tackified straw with seed, jute or geotextile blankets, etc.).

- ❖ Wood chips.
 - ❖ Straw mulch.
- All temporary construction-related erosion control methods will be removed at the completion of the Project (e.g., silt fences).
2. The following measures will be implemented to ensure sediments will be stored and transported in a manner that minimizes water quality effects:
 - Wet sediments may be stockpiled outside of a live stream or may be stockpiled within a dewatered stream so water can drain or evaporate before removal.
 - This measure applies to saturated, not damp, sediments and depends on the availability of a stockpile site.
 - For those stockpiles located outside the channel, water draining from them will not be allowed to flow back into the Creek or into local storm drains that enter the Creek, unless water quality protection measures recommended by RWQCB are implemented.
 - Trucks may be lined with an impervious material (e.g., plastic), or the tailgate blocked with dry dirt or hay bales, for example, or trucks may drain excess water by slightly tilting their loads and allowing the water to drain out.
 - Water will not drain directly into channels (outside of the work area) or onto public streets without providing water quality control measures
 - Streets and affected public parking lots will be cleared of mud and/or dirt by street sweeping (with a vacuum-powered street sweeper), as necessary, and not by hosing down the street.
 3. Oily, greasy, or sediment-laden substances or other material that originate from the Project operations and may degrade the quality of surface water or adversely affect aquatic life, fish, or wildlife will not be allowed to enter, or be placed where they may later enter, any waterway.
 4. The following measures will be implemented to ensure the Project will not increase the turbidity of any watercourse flowing past the construction site by taking all necessary precautions to limit the increase in turbidity as follows:
 - Where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases will not exceed 5 percent.
 - Where natural turbidity is greater than 50 NTU, increases will not exceed 10 percent.
 - Where the receiving water body is a dry creek bed or storm drain, waters in excess of 50 NTU will not be discharged from the Project.
 - Water turbidity changes will be monitored. The discharge water measurements will be made at the point where the discharge water exits the water control system for tidal sites and 100 feet downstream of the discharge point for non-tidal sites. Natural watercourse turbidity measurements will be made in the receiving water 100 feet upstream of the discharge site. Natural watercourse turbidity measurements will be made prior to initiation of Project discharges, preferably at least 2 days prior to commencement of operations. (Santa Clara Valley Water District Water Quality BMP 40)

5. No washing of vehicles will occur at job sites.
6. No fueling will be done in a waterway or immediate flood plain, unless equipment stationed in these locations is not readily relocated (i.e., pumps, generators).
 - For stationary equipment that must be fueled on the site, containment will be provided in such a manner that any accidental spill of fuel will not be able to enter the water or contaminate sediments that may come in contact with water.
 - Any equipment that is readily moved out of the waterway will not be fueled in the waterway or immediate flood plain.
 - All fueling done at the job site will provide containment to the degree that any spill will be unable to enter any waterway or damage riparian vegetation.
 - No equipment servicing will be done in a stream channel or immediate flood plain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps, generators).
 - Any equipment that can be readily moved out of the channel will not be serviced in the channel or immediate flood plain.
 - All servicing of equipment done at the job site will provide containment to the degree that any spill will be unable to enter any channel or damage stream vegetation.
 - If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be done in a channel or flood plain.
 - If emergency repairs are required, containment will be provided equivalent to that done for fueling or servicing.
7. Measures will be implemented to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means.
 - Prior to entering the work site, all field personnel will know how to respond when toxic materials are discovered.
 - The discharge of any hazardous or nonhazardous waste as defined in Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations (CCR) will be conducted in accordance with applicable state and federal regulations.
 - In the event of any hazardous material emergencies or spills, personnel will call the Chemical Emergencies/Spills Hotline at 1 800 510 5151.
8. Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water.
 - Field personnel will be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills.
 - No fueling, repair, cleaning, maintenance, or vehicle washing will be performed in a creek channel or in areas at the top of a channel bank that may flow into a creek channel.
9. Spill prevention kits appropriate to the hazard will always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations).
 - Prior to entering the work site, all field personnel will know the location of spill kits on crew trucks and at other locations within District facilities.

- All field personnel will be advised of these locations and trained in their appropriate use.
10. Runoff from soil stockpiles will be avoided. If soil is to be stockpiled, no runoff will be allowed to flow to a creek.
 11. Cofferdams will be used for tidal work areas. For tidal areas, a downstream cofferdam will be constructed to prevent the work area from being inundated by tidal flows. By isolating the work area from tidal flows, water quality effects are minimized. Downstream flows continue through the work area and through pipes within the cofferdam.
 - Installation of coffer dams will begin at low tide.
 - Waters discharged through tidal coffer dam bypass pipes will not exceed 50 NTU over the background levels of the tidal waters into which they are discharged.
 - Cofferdams shall not be constructed of earthen fill due to potential adverse water quality impacts in the event of a failure.
 - Cofferdams constructed of gravel shall be covered by a protective covering (e.g., plastic or fabric) to prevent seepage.
 12. Groundwater will be managed at work sites. If high levels of groundwater in a work area are encountered, the water will be pumped out of the work site. If necessary to protect water quality, the water will be directed into specifically constructed infiltration basins, into holding ponds, or onto areas with vegetation to remove sediment prior to the water re-entering a receiving water body. Water pumped into vegetated areas will be pumped in a manner that will not create erosion around vegetation.
 13. Sanitary/septic waste will be managed. Temporary sanitary facilities will be located on jobs that last multiple days in compliance with California Division of Occupational Safety and Health (Cal/OSHA) regulation 8 CCR 1526. All temporary sanitary facilities will be placed outside of the Creek channel and flood plain and removed when no longer necessary.
 14. As part of the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) and the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) required under Waste Discharge Requirements and National Pollutant Discharge Elimination System (NPDES Permit for the discharge of stormwater runoff from the municipal separate storm sewer systems [MS4s]) overseen by the San Francisco Bay Water Board, all construction sites are required to have site-specific and seasonally and phase-appropriate effective BMPs (San Francisco Bay Regional Water Quality Control Board 2009). SFCJPA will be responsible for ensuring compliance with all local and State regulations, including the RWQCB NPDES permits and local BMPs for jurisdictions adjoining the Project site. The Project specifications require that the Project construction contractor prepare a SWPPP and erosion control and sedimentation plan showing placement of BMPs at various stages of construction in conformance with requirements, and all SWPPP documents and plans will be stamped by a State-certified Qualified SWPPP Developer (QSD). The Project will implement measures to accomplish objectives specified in SFCJPA's San Francisquito Creek Watershed Analysis and Sediment Reduction Plan, which fulfills NPDES permit provisions that require the co-permittees of the SCVURPPP and SM-STOPPP within the Creek watershed to assess and implement sediment management measures in the watershed (San Francisquito Creek Joint Powers Authority

2004). Water quality protection standards during construction will comply with the most protective BMPs of the local jurisdictions and the State of California.

4.1.3 Measures to Protect Fish and Wildlife Resources

1. Existing access ramps and roads to waterways will be used where possible. If temporary access points are necessary, they will be constructed in a manner that minimizes effects on waterways:
 - Temporary Project access points will be created as close to the work area as possible to minimize running equipment in waterways and will be constructed so as to minimize adverse effects.
 - Any temporary fill used for access will be removed upon completion of the Project. Site topography and geometry will be restored to pre-Project conditions to the extent possible.
2. Migratory bird nesting surveys will be performed prior to any Project-related activity that could pose the potential to affect migratory birds during the nesting season. Inactive bird nests may be removed, with the exception of raptor nests. No birds, nests with eggs, or nests with hatchlings will be disturbed.
3. Nesting exclusion devices may be installed to prevent potential establishment or occurrence of nests in areas where construction activities would occur. All nesting exclusion devices will be maintained throughout the nesting season or until completion of work in an area makes the devices unnecessary. All exclusion devices will be removed and disposed of when work in the area is complete.
4. Effects on native aquatic vertebrates will be avoided or minimized. Native aquatic vertebrates (fish, amphibians and reptiles) are important elements of stream ecosystems. Native aquatic vertebrates may or may not be able to rapidly recolonize a stream reach if the population is eliminated from that stream reach. If native aquatic vertebrates are present when cofferdams, water bypass structures, and silt barriers are to be installed, an evaluation of the project site and the native aquatic vertebrates will be conducted by a qualified biologist. The qualified biologist will consider:
 - Native aquatic species present at the site.
 - The ability of the species to naturally recolonize the stream reach.
 - The life stages of the native aquatic vertebrates present.
 - The flow, depth, topography, substrate, chemistry and temperature of the stream reach.
 - The feasibility of relocating the aquatic species present.
 - The likelihood the stream reach will naturally dry up during the work season.

Based on consideration of these factors, the qualified biologist may make a decision to relocate native aquatic vertebrates. The qualified biologist will document in writing the reasons to relocate native aquatic species, or not to relocate native aquatic species, prior to installation of cofferdams, water bypass structures or silt barriers. If the decision is made to relocate the native aquatic species, then the operation will be based on the District's Fish Relocation Guidelines.

5. Local ecotypes of native plants will be planted and appropriate erosion-control seed mixes will be chosen. Whenever native species are prescribed for installation on District fee properties or easements, the following steps will be taken by a qualified biologist or vegetation specialist:
 - Evaluate whether the plant species currently grows wild in Santa Clara County.
 - If the plant species currently grows wild in Santa Clara County, the qualified biologist or vegetation specialist will determine whether the plant installation must include local natives, i.e. grown from propagules collected in the same or adjacent watershed, and as close to the Project site as feasible.
 - A qualified biologist or vegetation specialist will be consulted to determine which seeding option is ecologically appropriate and effective. The following guidelines will inform the biologist or vegetation specialist's determination.
 - For areas that are disturbed, an erosion control seed mix may be used consistent with the District Guidelines and Standards for Land Use Near Streams, Design Guide 5, 'Temporary Erosion Control Options.'
 - In areas with remnant native plants, the qualified biologist or vegetation specialist may choose an abiotic application instead, such as an erosion control blanket or seedless hydro-mulch and tackifier to facilitate passive revegetation of native species.
 - Temporary earthen access roads may be seeded when site and horticultural conditions are suitable.
 - If a gravel or wood mulch has been used to prevent soil compaction per BI-11, this material may be left in place [if ecologically appropriate] instead of seeding.
 - Seed selection will be ecologically appropriate as determined by a qualified biologist, per Guidelines and Standards for Land Use Near Streams, Design Guide 2: Use of Local Native Species; and, Supplemental Landscaping\Revegetation Guidelines.
6. Animal entry and entrapment will be avoided.
 - All pipes, hoses, or similar structures less than 12 inches diameter will be closed or covered to prevent animal entry. All construction pipes, culverts, or similar structures, greater than 2-inches diameter, stored at a construction site overnight, will be inspected thoroughly for wildlife by a qualified biologist or properly trained construction personnel before the pipe is buried, capped, used, or moved.
 - If inspection indicates presence of sensitive or state- or federally-listed species inside stored materials or equipment, work on those materials will cease until a qualified biologist determines the appropriate course of action.
 - To prevent entrapment of animals, all excavations, steep-walled holes or trenches more than 6-inches deep will be secured against animal entry at the close of each day. Any of the following measures may be employed, depending on the size of the hole and method feasibility.

- Holes will be securely covered (no gaps) with plywood or similar materials at the close of each working day, or any time the opening will be left unattended for more than one hour.
- In the absence of covers, the excavation will be provided with escape ramps constructed of earth or untreated wood, sloped no steeper than 2:1, and located no farther than 15 feet apart.
- In situations where escape ramps are infeasible, the hole or trench will be surrounded by filter fabric fencing or a similar barrier with the bottom edge buried to prevent entry.

4.2 Minimization of Biological Impacts during construction

The EIR determined that construction of the project may have a number of potentially significant impacts to sensitive species and biological resources even with the Environmental Commitments listed above. The EIR identified mitigation measures to avoid or minimize each of these biological impacts (the full text of the mitigation measures is provided in Appendix A).

4.2.1 Impacts to Special Status Plants

No special status plant has been identified in the Project footprint; however eight plant species have the potential to be located along this reach of San Francisquito Creek (Table 1). Preconstruction surveys will be conducted, during the appropriate blooming periods for each species and following CNPS Botanical Survey Guidelines, to determine their presence. **(MM BIO1.1)**

Table 1: Special Status Plants

Species	Blooming Period	Period Surveys Should Occur ^a
Alkali milkvetch	March–June	April–May
San Joaquin spearscale	April–October	July–August
Congdon’s tarplant	June–November	July–August
Point Reyes bird’s-beak	June–October	July–August
Hairless popcorn-flower	April–May	April–May
Slender-leaved pondweed	May–July	June–July
California seablite	July–October	July–August
Saline clover	April–June	April–May

^a Exact timing of surveys should account for annual variations in climate and weather; surveys should be timed to coincide with blooming periods of known local populations whenever possible.

If it is determined that individuals of identified special-status plant species could be affected by construction, a setback buffer will be established around individuals or the area occupied by the population, based on judgment of a qualified botanist and in consultation with agency (CDFW and USFWS) staff, where no disturbance will occur **(MM BIO1.2)**.

If any individuals of listed special-status plants are present and cannot be effectively avoided through implementation of Mitigation Measure BIO1.2, a compensation plan will be developed and implemented. The compensation plan will preserve an off-site area containing individuals of the affected species. The plan will be implemented so that there is no net loss of special-status plants. If

an off-site population is not located or is not available for preservation, a qualified nursery will be employed to collect and propagate the affected species prior to population disturbance at the affected areas of the Project. Transplantation will also be implemented if practicable for the species affected, including mature native plants to the extent feasible (**MM BIO1.3**). The details of such a plan are discussed under Project Mitigation below.

4.2.2 Impacts to Special Status Wildlife

California clapper rail, California black rail, salt marsh harvest mouse, and salt marsh wandering shrew are known, or believed, to be present in the lower reach of San Francisquito Creek and the adjacent Faber Tract. California least tern, western snowy plover, California red-legged frog, San Francisco garter snake, and western pond turtle are not believed to utilize the Project area, but may still be present. To ensure that construction of the Project does not impact sensitive species construction workers will receive training in environmental education about the species listed above in addition to nesting raptors and migratory birds and sensitive habitat (e.g., in-stream habitat, riparian habitat, wetlands) (**MM BIO2.1**).

In addition, preconstruction surveys will be conducted for western pond turtle (**MM BIO2.2**), nesting raptors and migratory birds that could nest along the Project corridor (**MM BIO3.1**), western burrowing owl (**MM BIO4.1**), California clapper rail (**MM BIO5.1**), salt marsh harvest mouse (**MM BIO6.1**), California least tern and western snowy plover (**MM BIO7.1**), and California red-legged frog and San Francisco garter snake (**MM BIO8.1**). If sensitive wildlife is found during survey, a buffer area will be established where no disturbance will be allow consistent with the language of the mitigation measure as summaries in Table 2 below.

Table 2: Special Status Wildlife Avoidance during Construction

Species	Survey Period	Buffer Area	Work Exclusion Period
Western pond turtle	No more than 7 days prior to the onset of activities with the potential to disturb turtles or their habitat.	The radius of the buffer zone and the duration of exclusion will be determined in consultation with CDFW.	The buffer zones and fencing will remain in place until the young have left the nest
Nesting raptors and migratory birds	No more than 14 days prior to any Project-related activities between January 15 and August 31.	In general, the minimum buffer zone will be 0.5-mile for bald and golden eagles, 25 feet for non-raptor ground-nesting species; 50 feet for non-raptor shrub- and tree-nesting species; and 250 feet for all raptor species.	Buffers will remain in place as long as the nest is active or young remain in the area.
Western burrowing owl	No more than 7 days prior to ground-disturbing activities in suitable burrowing owl habitat	250-foot, coordinated with CDFW and subject to CDFW review and oversight.	Buffers will remain in place as long as the nest is active or young remain in the area.
California clapper rail	During breeding season No more than 48 hours prior to construction activities, conducted at dawn or dusk	700 feet of active nests Work activities within 50 feet of clapper rail habitat will not occur within 2 hours before or after extreme high tides (6.5 feet or above) when the marsh plain is inundated.	Buffers will remain until after young have fledged.

Species	Survey Period	Buffer Area	Work Exclusion Period
	Outside of breeding season No more than seven days prior to initiation of work within suitable habitat	If individuals are observed during this survey, an additional survey will be conducted immediately prior to start of activities. If individuals are observed within or near the work area, a no-disturbance buffer (minimum 50 feet) will be implemented.	Until individuals have left the area
Salt marsh harvest mouse	Prior to initiation of work each day within 300 feet of tidal or pickleweed habitats, inspect the work area and adjacent habitat areas to determine if saltmarsh harvest mice are present.	100 feet buffer of sighting and active nests. Work activities within 50 feet of salt marsh harvest mouse habitat will not occur within two hours before or after extreme high tides (6.5 feet or above) when the marsh plain is inundated.	The buffer will remain in place until individuals have left the area and are not present in or near (100 feet) of the work area.
California least tern and western snowy plover	No more than 48 hours prior to start of activities within 500 feet of suitable habitat.	500 feet	Buffers will remain until after young have fledged.
California red-legged frog and San Francisco garter snake	The survey will be conducted prior to start of activities, but allowing time to coordinate with USFWS and CDFW to develop a species avoidance plan if needed.	500 feet	The buffer will remain in place until individuals have left the area and are not present

Work in suitable habitats for western pond turtle will be surveyed daily for presence. If a turtle is found during a survey, construction in the vicinity of the turtle will not commence until the turtle is leaves the Project area or is relocated to suitable habitat outside of the Project limits per CDFW protocols and permits (**MM BIO2.3**).

If California clapper rail, California least tern, or western snowy plover are routinely observed in the work area, a species avoidance plan will be developed in coordination with USFWS and CDFW (**MM BIO5.1, MM BIO7.1**).

To minimize impacts to California clapper rail and salt marsh harvest mouse pickleweed habitat will be removed by hand as overseen by a permitted biologist. Hand vegetation removal shall start at the edge farthest from the largest contiguous salt marsh area and work its way towards the salt marsh. If these species are observed during clearing activities clearing will cease and workers will move to a new area. Clearing work may begin in the area of the observation one day or more after the observation date. If movement of heavy equipment in necessary in suitable habitat or within 50 feet of habitat, then the biological monitor will observe the area in front of the equipment from a safe vantage point. If these species are detected within the area in front of the equipment, then the equipment will stop and the biologist will direct the equipment on an alternative path. In consultation with CDFW and USFWS, exclusion fencing may be placed around a defined work area immediately following vegetation removal and before Project activities begin. The final design and

proposed location of the fencing shall be reviewed and approved by CDFW and USFWS prior to placement. (MM BIO5.1, MM BIO6.1)

4.2.3 Steelhead and longfin smelt

Steelhead are known to migrate through this reach of San Francisquito Creek, and longfin smelt are known to inhabit the south bay. To minimize impacts to steelhead no in-channel construction activities will occur during the steelhead migration period (October 1–May 30); this will also avoid the season that longfin smelt may be present in the area. Prior to construction the following measures will be implemented (MM BIO9.1):

- Before a work area is dewatered, fish will be captured and relocated to avoid injury and mortality and minimize disturbance.
- Before fish relocation begins, a qualified fisheries biologist will identify the most appropriate release location(s). Release locations should have water temperatures similar to the capture location and offer suitable habitat (migratory and rearing) for released fish, and should be selected to minimize the likelihood that fish will reenter the work area or become impinged on the exclusion net or screen. At this time the open reach below the Project site is anticipated to have suitable conditions for relocation.
- Seining or dip netting will be utilized to keep stress and injury to fish at a minimum. Given the salinity of the Project reach, electrofishing would be ineffective and not utilized.
- To the extent feasible, relocation will be performed during morning periods. Water temperatures will be measured periodically (every hour or so), and relocation activities will be suspended if water temperature exceeds 20°C (National Marine Fisheries Service 2000)
- Handling of salmonids will be minimized. When necessary to touch the fish, personnel will wet hands or nets before touching a fish.
- Fish will be held temporarily in cool, shaded Creek water in a container with a lid. Overcrowding in containers will be avoided. Fish will be relocated promptly. If water temperature reaches or exceeds NMFS limits, fish will be released and relocation operations will cease.
- If fish are abundant, capture will cease periodically to allow release and minimize the time fish spend in holding containers.
- Fish will not be anesthetized or measured. However, they will be visually identified to species level, and year classes will be estimated and recorded.
- Reports on fish relocation activities will be submitted to the CDFW and NMFS within 30 days of completion.
- If mortality during relocation exceeds 5 percent or mortality of any state or federally listed species occurs, relocation will cease, and CDFW and NMFS will be contacted immediately or as soon as feasible.
- Fish relocation efforts will be performed concurrent with the installation of the diversion and will be completed before the channel is fully dewatered. The fisheries biologist will perform a second survey 1 to 2 days following the installation of the diversion to ensure that fish

have been excluded from the work area and spot checks will be performed at least biweekly while the diversion is in place.

4.2.4 Protection of riparian and wetland vegetation and trees

Riparian and wetland areas and trees not slated for trimming or removal to accommodate Project construction will be protected from encroachment and damage during construction by installing temporary construction fencing to create a no-activity exclusion zone. Fencing will be installed under the supervision of a qualified biologist to prevent damage to habitat during installation. Vegetation that must be trimmed will be supervised by an International Society of Arboriculture certified arborist who will minimize stress and potential damage to trees and shrubs. (**MM BIO11.1, MM BIO12.1, MM BIO13.2**)

5 Project Impacts and Mitigation

5.1 Impact to Wetlands and Waters

During July 6, 7, 8, 2010 and February 22, 2012, an ICF soil and wetland scientist and ICF botanist delineated a total of 140.11 acres of potential waters of the United States within the project area, including 13 diked marsh wetlands (4.34 acres), two freshwater marsh wetlands (0.33 acre), 11 tidal salt marsh wetlands (112.26 acres), one freshwater pond (1.13 acres), two tidal channel and bay waters (22.39 acres), and three tidal pans (0.37 acre) using the routine onsite determination method described in the 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and where applicable, criteria specified in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Arid West Supplement)(U.S. Army Corps of Engineers 2008).

On February 5, 2013, Ian Liffmann from the U.S. Army Corps of Engineers (USACE), San Francisco District, conducted a field visit, accompanied Joel Butterworth of ICF International, to and verified the results of the delineation.

Impacts to the creek channel include channel widening and excavation of deposits down to the level of mean higher high tide, which will increase channel capacity. In addition, the project will reconfigure existing levees and construct new floodwalls. These modifications to the creek channel will impact a total of 3.08 acres of diked marsh, 4.51 acres of tidal salt marsh habitat, 1.13 acres of freshwater pond, 0.33 acres of freshwater marsh, and 2.41 acres of tidal channel and bay waters.

Diked Marsh

The diked marsh community is found on the landward side of the levees along San Francisquito Creek and within the Golf Course. These areas were likely tidal salt marsh habitat before construction of levees. Diked marsh habitat appears to be found in areas that did not receive significant amounts of fill material as part of levee and Golf Course construction. Common vegetation in the diked marsh community includes saltgrass (*Distichlis spicata*), pickleweed, alkali heath, and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*). These marshes generally appear to be supported primarily by incident precipitation. However, the diked marshes that occur within or adjoining the Golf Course could receive inputs from the turf sprinkler systems, both indirectly and as runoff.

The diked marsh to be disturbed by the project is in small patches (generally less than an acre) primarily within the Golf Course, but also on the north side of the creek between the levee and residential development. Diked marsh is not a habitat historically present at the site having been created by the channelization of the Creek. This habitat offer little ecological benefit beyond that of the disturbed open space and Golf Course that surrounds it. Of impacts to diked marsh, 2.86 acres will be permanently lost in the Golf Course to move the existing levees to the south and provide a larger tidal floodplain; another 0.02 acres of diked marsh will be temporarily disturbed by construction equipment at the edge of the expanded levee. On the north side of the channel 0.02 acres of diked wetland will be lost at the base of the improved levee and 0.19 acres temporarily disturbed for construction access.

Table 3: Summary of Water Bodies and Impacts

Water Body Type	ID	Wetland acres	Other Water (acres)	Temporarily Impacted (acres)	Permanently Impacted (acres)	Reason for Impact
Diked Marsh	DM-1	0.53		0.15		Levee access
Diked Marsh	DM-2	0.22		0.01		Levee access
Diked Marsh	DM-3	0.03		0.01	0.02	Levee access
Diked Marsh	DM-4	0.02		0.01		Levee access
Diked Marsh	DM-5	0.05				
Diked Marsh	DM-6	0.11				
Diked Marsh	DM-7	0.02				
Diked Marsh	DM-8	1.33			1.33	New Levee
Diked Marsh	DM-9	0.68		0.02	0.18	New Levee
Diked Marsh	DM-10	0.80			0.80	New Levee
Diked Marsh	DM-11	0.24			0.24	New Levee
Diked Marsh	DM-12	0.10			0.10	New Levee
Diked Marsh	DM-13	0.21			0.21	Golf Course
Freshwater Marsh	FM-1	0.19			0.19	Stockpile
Freshwater Marsh	FM-2	0.14			0.14	Stockpile
Tidal Salt Marsh	TSM-1	1.99		0.26	1.50	cut of floodplain bench
Tidal Salt Marsh	TSM-3	0.08			0.05	cut of floodplain bench
Tidal Salt Marsh	TSM-4	81.09		0.16	0.35	Faber Tract levee fill
Tidal Salt Marsh	TSM-5	13.80		0.33	0.01	Bay levee degrade
Tidal Salt Marsh	TSM-6	0.04			0.02	cut of floodplain bench
Tidal Salt Marsh	TSM-7	1.58		0.16	0.14	cut of floodplain bench / Bay levee degrade
Tidal Salt Marsh	TSM-8	9.98				
Tidal Salt Marsh	TSM-9	3.39		0.42	1.03	cut of floodplain bench
Tidal Salt Marsh	TSM-10	0.11				
Tidal Salt Marsh	TSM-11	0.09			0.05	Widen pump station channel
Tidal Salt Marsh	TSM-12	0.12			0.03	cut of floodplain bench
Wetlands Subtotal		116.01		1.52	6.38	
Freshwater Pond	FP-1		1.13		1.13	Stockpile
Tidal Channel and Bay Waters	TC-1		0.57	0.02		Construction access
Tidal Channel and Bay Waters	TC-2		21.82	1.59	0.80	Low flow channel reconfiguration
Tidal Pan	TP-1		0.02			
Tidal Pan	TP-2		0.13			
Tidal Pan	TP-3		0.22			
Subtotal Other Water			23.89	1.79	1.93	
PROJECT TOTAL		139.90		3.14	8.31	

Freshwater Pond and Freshwater Marsh

The freshwater pond is a feature of the Golf Course. The pond appears to be supported by water piped into it for the Golf Course and, to a lesser degree, groundwater. Along the shore of the Golf Course pond is the freshwater marsh community. The freshwater marsh is dominated by cattail (*Typha* sp.) and hardstem bulrush (*Schoenoplectus acutus*). As an artificial Golf Course feature, the pond represents low-quality habitat for sensitive species. The pond and associated freshwater marsh will be filled as part of a temporary stockpiling area within the Golf Course. Although stockpiling will be a temporary activity during the construction of the new levee, the impact to the pond will be permanent as it will not be restored.

Tidal Salt Marsh

Tidal salt marsh vegetation is found throughout the Faber Tract and along both sides of San Francisquito Creek. Tidal salt marsh habitat is primarily supported by tidal exchange. Dominant plant species in the tidal salt marsh community include Pacific cordgrass (*Spartina foliosa*), pickleweed (*Salicornia pacifica* [*S. virginica*]), perennial peppergrass (*Lepidium latifolium*), gumplant (*Grindelia stricta*), and alkali heath (*Frankenia salina*). Included within the mapped areas of tidal salt marsh are narrow bands of brackish tidal marsh along a few-hundred-foot section of San Francisquito Creek downstream of East Bayshore Road. In the brackish marsh, bulrush (*Schoenoplectus* sp.) is the dominant species rather than cordgrass and pickleweed. Ruderal vegetation intergrades with salt marsh species along the levee banks.

Impacts to tidal salt marsh are primarily from removal of accumulated sediments on both sides of the channel needed to increase flow capacity. These bands of salt marsh are located between the channel and areas of accumulated sediment, which are too high to support wetland vegetation. The removal of sediments will result in the loss of 2.82 acres of tidal salt marsh and another 0.84 acres of temporary impacts from construction access.

Filling in the low spot of the Faber Tract levee and improving the slope of the levee will remove 0.35 acres of tidal salt marsh in the Faber Tract and temporarily disturb 0.16 acres to access the site. The degrade of the Bay Levee will remove 0.01 acres of salt marsh in the bay marsh and temporarily disturb 0.33 acres for construction access.

Tidal Channel and Bay Waters

Approximately 1,100 feet of channel will be relocated due to its too close of proximity to the proposed inboard levee toe, which will permanently impact 0.80 acres of tidal channel and have temporary construction impacts to 1.59 acres. The pond that feeds the O'Conner Pump Station was mapped as tidal channel. Construction access to the site will temporarily impact 0.02 acres of this pond.

5.2 Impact to Riparian Habitat

A small area of riparian habitat exists in the Project area. This area is found along San Francisquito Creek in the southwestern portion of the Project area downstream of the Palo Alto Pump Station. Channel widening and marshplain creation will remove 0.5 acres of this riparian habitat. Remaining

riparian habitat would be protected as discussed in the environmental commitments and MM BIO11.1 discussed above. The areas marked as Riparian constitutes a portion of two mitigation areas, for both the Santa Clara Valley Water District and the City of Palo Alto.

The District mitigation area was planted as mitigation for construction of flood control measures on Matedero Creek in 2004 (U.S. Army Corps of Engineers File No. 26877S, California Department of Fish and Game SAA 1600-2003-0119-3, Regional Water Quality Control Board file 2188.07). A total of 0.64 acres of riparian habitat was planted along San Francisquito Creek for the Matedero project in addition to 1.82 acres of riparian habitat restored on-site at Matedero Creek. These 2.46 acres of riparian habitat were mitigation for 0.82 acres of disturbance from the project (a 3:1 mitigation to impact ratio). At the year 7 monitoring point, the Matedero riparian mitigation had 61% cover which was well ahead of the year 7 goal of 30%. Mitigation obligations are scheduled to be fulfilled by the end of 2014, prior to the start of construction for the San Francisquito Creek Project.

The Palo Alto mitigation area was planted as mitigation for a storm water pump station constructed adjacent to San Francisquito Creek in 2009 to improve flood protection in the area (U.S. Army Corps of Engineers File No. 2006-400320, California Department of Fish and Game SAA 1600-2007-0046-3, Regional Water Quality Control Board file 2188.07). The project ultimately required the establishment of 0.45 acres of riparian habitat, 0.36 acres of which was provided on site, and 0.027 acres of wetlands. Prior to construction the project site was used primarily for stockpiling landscaping supplies and consisted of compacted soils devoid of vegetation. Riparian and wetland vegetation occurred on the inboard side of the levee along San Francisquito Creek and a stand of predominantly ornamental, non-native trees and shrubs bordered the site. After the completion of grading and construction, the new wetland areas were seeded with a wetland seed mix and the riparian areas were seeded with a mix of native upland herbaceous species mix and planted with woody riparian plants. The mitigation was designed to be out of the footprint of the flood protection project, and no trees in the Palo Alto mitigation area are designated to removed by the project.

5.3 Impact to Trees

The Project will result in the removal of between 162 and 256 trees.¹ Of the potential of 256 trees to be removed, 220 of these are on the Palo Alto side and the remaining 36 are on the East Palo Alto side. Some of these trees are also counted in the discussion of Riparian Habitat above. The EIR states that the JPA will replace removed trees at a ratio consistent with the Tree Ordinances for East Palo Alto and Palo Alto. The current relatively high density of trees along San Francisquito Creek is not typical of the Project site's San Francisco baylands transitional habitat, which is subject to a high groundwater table and relatively high salinity content of that groundwater exchanged with the San Francisco Bay. Baylands transitional habitat did not historically support stands of trees. Also, the U.S. Fish and Wildlife Service expressed concerns about adding perching opportunities for raptors that prey on clapper rail and salt marsh harvest mouse near bay marshes. Therefore replacement trees are proposed to be provided at more appropriate off-site locations in coordination with Palo Alto and East Palo Alto's urban forest programs. While this would result in fewer trees

¹ The 95% plans for the Project show 162 trees to be removed and 94 trees as 'Inspect'. Trees designed as Inspect will be reviewed in the field to determine whether they can be protected in place or will need to be removed for construction. Another 44 trees in the Project footprint are shown to be protected.

on the site than currently exist, this is more consistent with the natural, historic state of Bay-fringe habitat.

The planting of an appropriate number of native trees at selected off-site locations (Arastradero Preserve and/or other foothills locations for Palo Alto in coordination with Palo Alto's Golf Course Project) would replace canopy along with associated ecosystem benefits at locations where an increased density of trees is needed. Compensation for tree canopy loss with native trees will result in a higher percentage of native trees and higher habitat value at both onsite and offsite locations. Palo Alto's Tree Technical Manual requires the replacement of the lost area of canopy within 10 years – this typically requires the replacement of trees at a 5:1 to 10:1 ratio depending of the size of tree lost.

5.4 Mitigation

Diked Marsh

Permanent impacts to 2.88 acres of diked marsh will be mitigated by the restoration of tidal marsh within the expanded channel. As the diked marsh lost is made up of disconnected patches that do not provide significant ecological benefits, and the mitigation habitat will be of higher quality that is appropriate to the site and in a large contiguous area connected to adjacent high quality habitat, a mitigation ratio of 1:1 is provided. The 0.20 acres of diked marsh temporarily impacted by construction equipment is expected to recover within a short period of time, and will be mitigated at a 1:1 ratio on-site.

Freshwater Pond and Freshwater Marsh

The Golf Course pond and associated freshwater marsh to be permanently removed as part of the project will be mitigated with tidal salt marsh habitat in the channel. As the 1.13 acre pond and 0.33 acres of freshwater marsh do not provide significant ecological benefits, and the mitigation habitat will be of higher quality that is appropriate to the site and in a large contiguous area connected to adjacent high quality habitat, a mitigation ratio of 1:1 is provided.

Tidal Salt Marsh

The 3.18 acres of permanent impacts to tidal salt marsh will be mitigated on-site by the restoration of tidal salt marsh habitat in the channel and enhancement of transitional habitat along the Faber Tract levee. The restored habitat will be of higher quality since it will be a larger contiguous area and better connected to adjacent high quality habitat. A ratio of 1.5 acres of mitigation for every acre of mitigation is provided to account for temporal effects, although the restored flood plain will be actively planted immediately after construction and is expected to fill in quickly.

The 1.33 acres of tidal salt marsh to be temporarily disturbed from the construction effort will be allowed to re-establish following construction. These areas will be adjacent to the restored floodplain and will benefit from the contiguity of the habitat.

Tidal Channel and Bay Waters

The temporarily impacted tidal channel will re-establish following construction with the same configuration. The 0.80 acres of channel to be relocated will provide an equivalent amount of channel habitat post-construction. The same amount of tidal channel will be present post-construction as currently exists and the overall ecological value will increase since it will be surrounded by a greater amount of tidal salt marsh.

Table 4: Summary of Impacts and Mitigation

	Temporary / Permanent	Acres	Mitigation Ratio	Mitigation (acres)
Wetlands				
Diked Marsh	Temporary	0.20	1:1	0.20 acres in place diked marsh
	Permanent	2.88	1:1	2.88 acres restored tidal wetland
Freshwater Marsh	Permanent	0.33	1:1	0.33 acres restored tidal wetland
Tidal Salt Marsh	Temporary	1.33	1:1	1.33 acres in place tidal salt marsh
	Permanent	3.18	1.5:1	4.77 acres restored tidal wetland
Waters				
Freshwater Pond	Permanent	1.13	1:1	1.13 acres restored tidal wetland
Tidal Channel / Bay Waters	Permanent	0.80	1:1	0.80 acres Restored Tidal Channel
	Temporary	1.61	1:1	1.61 In Place Tidal Channel
Other Impacts				
Riparian Habitat		0.50	4:1	2.0 acres restored tidal wetland
TOTAL IMPACTS		11.96		15.05 acres
Mitigation Required for Permanent Impacts				11.11 acres restored tidal wetland 0.80 acres tidal channel
Temporary Impacts to Restored On-site				0.20 acres diked marsh 1.33 acres tidal salt marsh 1.61 acres tidal channel
Mitigation to be Provided				5.93 acres high marsh planting 7.66 acres high marsh transition 0.80 acres tidal channel
Total Mitigation Provided				17.53 acres

Riparian Habitat

The EIR stated that riparian habitat would be restored at a mitigation-to-impact ratio of 2:1 (**MM BIO11.2**). However, after reviewing mitigation options and in discussion with the U.S. Fish and Wildlife Service, the addition of riparian trees in a tidal reach does not appear to be the best solution. Riparian woodland did not historically appear in tidal reaches of the Bay and the U.S. Fish and Wildlife Service has expressed concerns about adding perching opportunities for raptors that prey on clapper rail and salt marsh harvest mouse. Based on these concerns, the restored marshplain, which is the appropriate habitat for the Project area will be utilized as on-site, out-of-

kind mitigation. Given that the mitigation is out-of-kind a mitigation ratio of 4:1 is provided; the 0.50 acres of impact would be mitigated by 2.00 acres of restored tidal salt marsh.

5.5 Special Status Plants

As noted under “Minimization of Biological Impacts during construction,” pre-construction surveys will be conducted in the appropriate season for eight special status plants. In the unlikely event that special status plants are found that cannot be avoided during construction, a separate compensation plan will be developed (**MM BIO1.3**).

The plan will be developed by a qualified botanist in coordination with and approval of the resource agencies. The compensation area will contain a population and/or acreage equal to or greater than that lost as a result of Project implementation and will include adjacent areas as needed to preserve the special-status plant population in perpetuity. Compensation of the affected population will occur in an amount equal to or greater than the amount lost as a result of the Project to ensure that genetic diversity is preserved and no net loss of the number of individuals occurs. The quality of the population preserved will also be equal to or greater than that of the affected population, as determined by a qualified botanist. The JPA will be responsible for ensuring that the compensation area is acquired in fee or in conservation easement, maintained for the benefit of the special-status plant population in perpetuity, and funded through the establishment of an endowment. A monitoring and adaptive management plan will be developed for each compensation site.

5.6 Impacts to Faber Tract, California Clapper Rail and Salt Marsh Harvest Mouse

The project as proposed in the EIR included the degradation of a portion of the levee separating the Creek from the Faber Tract. The degraded levee would have allowed more frequent and a greater volume of water from the Creek to enter the Faber Tract during large storm events. Various concerns were raised about this proposal from the resource agencies. As a result, the Project was redesigned to avoid any increase in the frequency and/or volume of discharge from the Creek to the Faber Tract.

Since these impacts to the Faber Tract have been avoided, no monitoring of the Faber Tract as discussed in **MM BIO5.2** is proposed.

6 Performance Goals, Success Criteria and Monitoring

6.1 Marshplain Restoration and Mitigation Outcome Goals

The Project would restore approximately 13.59 acres of tidal marsh on both sides of the Creek, effectively restoring tidal influence in the Project reach. Marshplain restoration would span the entire Project extent on both banks from East Bayshore Road to San Francisco Bay.

After levee construction is complete, the tidal marsh area would be terraced and revegetated with high-marsh plants appropriate to the elevation relative to tidal levels. The high-marsh planting area would total 5.93 acres and would include alkali weed (*Cressa truxillensis*), saltgrass, alkali heath, marsh jaumea (*Jaumea carnosa*), and perennial pickleweed. The high-marsh transition planting area would total 7.66 acres including fat hen (*Atriplex patula*), alkali weed, saltgrass, alkali heath, gumweed, marsh jaumea, and western marsh rosemary (*Limonium californicum*). Native marsh plants would be used to revegetate the terraced land. Plants appropriate to the high marsh would be planted near the stream channel. Plants native to marsh transition areas would be planted in areas more distant from the Creek channel and in the upper half of the Project area as elevation gains.

Approximately 19,600 high marsh and high marsh transition wetland plants and cuttings are planned for installation. Plants will be sources from the San Francisquito Creek watershed and Baylands areas. Plant center spacing and general locations are indicated on the attached Landscape Sheets (Appendix B). The maximum acceptable soil compaction level is 85% in all areas to be planted. Soils compacted in excess of this will be loosened prior to planting.

A temporary irrigation system will be installed for use during the planting and three-year establishment phase, in order to provide a back-up water supply to the newly-installed vegetation in the event of a period of drought during the winter or spring rainy season, and for irrigation as needed during the summer. Irrigation frequency is expected to be reduced as the site develops during the establishment phase. The supplemental irrigation ensures an adequate supply of moisture to the young plants until they are fully established in the site's soils.

As the restored marshplain will provide habitat of higher quality than is being impacted (including appropriateness to the site, species composition, and contiguous area), the Project proposes that the impacted 11.96 acres of habitat is fully compensated by 13.59 acres of restored marshplain and 3.94 acres of habitat that will re-establish following construction.

The successful implementation of the marshplain will mitigate for permanent and temporary impacts to diked marsh, tidal salt marsh habitat, freshwater pond and marsh, tidal channel and bay waters, and riparian habitat as discussed in Section 5, and enhance the habitat surrounding the lower reach of San Francisquito Creek. To ensure these goals are met, annual monitoring will be conducted over a 5-year period. Performance goals will aid in determining if the site is progressing incrementally toward meeting the year-5 success criteria. Year 5 monitoring will determine if the success criteria have been achieved. Monitoring will be overseen or conducted by a qualified biologist with experience in mitigation monitoring. Final success will not be considered to have been achieved until temporary irrigation has been off for at least two years.

The performance criteria for restoration of the marshplain are:

1. Vegetative cover increases continuously throughout the period monitored for mitigation compliance;

2. Plant species composition consists of native tidal marsh species appropriate to the salinity regime.
3. Net increase of waters and wetlands as shown in a Corps wetland delineation.

6.1.1 Wetland Vegetation Qualitative Monitoring

Qualitative monitoring will provide an opportunity to assess general site conditions and year to year trends based on reconnaissance-level field observations and photo-documentation. Qualitative monitoring will occur annually during the same time frame as specified for quantitative monitoring, and occur at low tide to enable the best viewing of the marsh vegetation. Observations will include impressions of overall plant health, apparent differences in conditions within and between planting zones, prevalence or particular locations of invasive weeds, any visible problems or damage to the site and potential causes. Photo-documentation of the site will be conducted annually from at least six fixed locations showing each planting zone and the overall site. Photo points and directions will be selected during the first year of monitoring and documented on a site planting plan. Observations from the qualitative monitoring will be presented in the form of a short narrative paragraph with photographs attached.

6.1.2 Wetland Vegetation Quantitative Monitoring

The success of the marsh vegetation mitigation will be quantitatively evaluated by measuring the following:

1. Total acreage of native marsh vegetation established (success criteria 11.11 acres) and,
2. Percent cover (success criteria: 60% cover of wetland indicator species by year 5).

A formal delineation of the created jurisdictional areas will be undertaken at the site 5 years following mitigation site construction. The mitigation will be considered a success if the wetland delineation reveals that at least 15.05 acres of USACE jurisdictional area was restored.

Percent cover will be used as the primary indicator of successful establishment of wetland habitat. The final goal is 60% cover of wetland indicator species (Table 5) by the end of the monitoring period (Table 6).

Table 5: Wetland Indicator Status Category

Indicator Category	Symbol	Frequency of Occurrence in Wetlands
Obligate*	OBL	Greater than 99%
Facultative Wetland*	FACW	67-99%
Facultative*	FAC	34-66%
Facultative Upland	FACU	1-33%
Upland	UPL	Less than 1%

*Species characterized under this category are considered wetland indicator species.

Table 6: Wetland Indicator Species Percent Cover Success Criteria

	Year 2	Year 3	Year 5
Wetland Mitigation Site	15%	30%	60%

At years 1-3 and 5, percent plant cover by species will be determined in approximately 5-10% of the surface area of the mitigation area. As seen in Table 6, no performance criteria are set for Year 1 as it is anticipated that the site will still be developing. Percent cover will be monitored via quadrat sampling. The percent cover of each species occurring within each 1 meter square quadrat will be

visually estimated. The wetland indicator status of each species will be determined and the average percent cover attributed to wetland indicator species, as a group, will be calculated.

Quantitative sampling will be conducted during years 1-3 and 5. Data collection will take place during April-October of each monitoring year. Final success criteria consist of achieving at least 13.59 acres of marsh habitat at least 60% cover of wetland indicator species.

6.1.3 Invasive Plant Species Establishment

Colonization of the creek by non-native invasive plant species would jeopardize the success of the mitigation and restoration. Many of the important ecological benefits of restored tidal marsh vegetation will not be provided by invasive species. In particular, invasive non-native plant species may prevent establishment of native tidal marsh vegetation. Annual monitoring for invasive smooth cordgrass and its hybrids will occur for the duration of the monitoring for the restored tidal marsh. This effort will provide early detection and trigger prompt control efforts, before invasive cordgrass can dominate any portion of the creek. Other non-native plant species that may occur with increasing frequency in high marsh zones include Perennial Peppergrass, Russian thistle (*Salsola soda*), and New Zealand spinach (*Tetragonia tetragonioides*). Observations of these and other non-native species as listed as Tier 1 of the Regional Water Board's Fact Sheet for Wetland Projects will be recorded during tidal marsh monitoring.. Invasive species shall not exceed a maximum of 15 percent cover and shall be removed prior to going to seed and consistent with the discussion of weed management in Section 7.3.

6.1.4 Monitoring of Protected Trees

Protected trees retained on the site and located adjacent to construction activities will be monitored for the five year monitoring period and replaced as appropriate if they do not survive due to project implementation. (MM BIO13.2)

6.2 Parties Responsible for Implementation and Long-Term Management

The JPA will be the permit holder and responsible for compliance monitoring. The JPA is a regional government agency whose members include the Cities of Palo Alto, Menlo Park, and East Palo Alto; the San Mateo County Flood Control District, and the District. One or more of these entities may conduct monitoring activities, but the JPA will be responsible for preparing annual monitoring reports and submitting them to the regulatory agencies. The monitoring responsibilities specified under this MMP will end when the mitigation goals have been achieved, or when the regulatory agencies determine that sufficient progress has been made towards the mitigation requirements.

Table 7: Monitoring Summary – Projected Monitoring Duration, Frequency and Timing

Description	Year(s) for Each Monitoring Activity	Seasonal Timing
Marshplain Restoration		
Vegetation survival counts	Years 1 through 3	
Invasive Species Monitoring	Years 1 through 5	May / June
Wetland Vegetation Qualitative Monitoring	Years 1 through 5	
Wetland Delineation	Year 5	
Monitoring of Protected Trees		
Protected trees retained on the site	Years 1 through 5	May / June

7 MAINTENANCE DURING MONITORING PERIOD

Maintenance will be conducted on a routine basis for installed marshplain vegetation for the first three years after installation by the contractor for the Project. The main elements are irrigation, replanting and weed control. All maintenance activities are expected to diminish as the Project matures.

7.1 Irrigation

A temporary irrigation system will be installed for use during the planting and three-year establishment phase, in order to provide a back-up water supply to the newly-installed vegetation in the event of a period of drought during the winter or spring rainy season, and for irrigation as needed during the summer. Water is available from existing supplies adjacent to the Project. The supplemental irrigation ensures an adequate supply of moisture to the young plants until they are fully established in the site's soils. Irrigation is expected to sequentially diminish over the three-year establishment period.

7.2 Dead Plant Replacement

Installed plants will be replaced if the plant survival exceeds allowable mortality rates. Required survival rates for all plantings areas for years 1, 2 and 3 are 90, 80 and 75 percent, respectively. Replacement plants will be the same species and size as those being replaced, unless it is determined that a different plant palette is required based on site conditions. If performance goals are not achieved in years 4-5, additional plant replacement will be considered, if indicated by an evaluation of vegetation establishment and growth trends. Other options for site remediation would be considered as part of annual monitoring and reporting.

7.3 Weed Management

Weed control will be required initially, however the need for weed management is expected to become reduced over time as the site stabilizes and desirable vegetation cover increases. Weed control will focus on noxious weeds or other non-native species considered detrimental to the site. Other non-native species may be allowed on site unless deemed detrimental to growth of the installed plants or desirable volunteer plants. The site will be inspected and weeds controlled several times per year, as needed. Weeds are removed by hand tools, mechanical equipment, or herbicides that are approved by the EPA for use in aquatic environments. Weed management activities will be conducted in accordance with the District's SMP's current accepted practices at the time of the control work. Under the SMP, use of herbicides is part of an integrated pest management approach targeting the use of proper tools to reach project objectives.

8 REPORTING

The annual mitigation and monitoring report deadline is February 1st of each monitoring year, with the first annual report due the first year after Project completion. The final monitoring report is due 6 months after field monitoring activities conclude, which is currently projected to occur after completion of year 5 of the project.

8.1 Annual Monitoring Reports

The JPA will submit annual monitoring reports to USACE, USFWS, BCDC, CDFW, and RWQCB by February 1st of each year beginning the first year after completion. The annual monitoring report format will be based the 2004 Mitigation and Monitoring Proposal Guidelines developed by the San Francisco District of the US Army Corps of Engineers (USACE 2004). The outline below provides an annual report structure that will include the necessary content and detail to evaluate: (1) the restoration progress with respect to the performance criteria; and (2) the overall progress toward meeting the restoration and mitigation objectives of the project. Essential components of the annual monitoring report include the following:

8.1.1 Project Information

Including: project name; applicant information; consultant information (if appropriate); permit file number for all agencies; construction start date; and mitigation monitoring year.

8.1.2 Mitigation Site Information

Including: location of site; goals/purpose for the compensatory mitigation site; date mitigation site constructed and planting completed; summary of dates of previous maintenance and monitoring visits; name, address, and contact phone number for responsible party at JPA; and, as needed, a summary of remedial action.

8.1.3 Figures

Including a location map and site map. The site map will include: habitat types as described in the approved mitigation plan and locations of any photographic stations, landmarks, or sample points. Additional figures will present monitoring results graphically, where applicable, if these figures facilitate data interpretation and analyses.

8.1.4 Performance Criteria

Including a list of the performance criteria for the project as described in this report.

8.1.5 Tabular Results

Including: tabulated results of monitoring visits, including previous years, for evaluation versus quantifiable success criteria. Additional tables will also be included, where applicable, to facilitate data interpretation and analyses.

8.1.6 Discussion

A brief discussion of quantitative results and qualitative monitoring of the site.

8.1.7 Problems Noted and Proposed Remedial Measures.

The monitoring report will contain a discussion of problems noted during the previous monitoring year and discussion of proposed remedial measures to address these problems.

8.1.8 Appendix

Photo-documentation during the monitoring year

Field data sheets supplied upon request

9 COMPLETION

When the required monitoring period is complete and the JPA believes that the mitigation requirements have been fulfilled, the JPA shall notify the regulatory agencies when submitting the proposed final report. No more than six months after the final monitoring activities conclude, this report will be submitted to the USACE, BCDC, USFWS, CDFW, and RWQCB. This final report will provide a summary of the on-site mitigation monitoring and off-site adverse impact monitoring. The report will compare the site conditions to the performance criteria established in this document. As with annual reports, the final report will present a schedule of monitoring activities performed, monitoring methods, monitoring results, and a discussion of lessons-learned for each monitoring parameter. The final monitoring report will present this information in sufficient detail that regulatory agency staff can evaluate progress against performance criteria established for the Project and assess the success or failure to of this project in meeting its mitigation goals. Following receipt of the proposed final report, the regulatory agencies will either confirm the successful completion of the mitigation obligation or require additional years of monitoring. The JPA is not released from any mitigation obligation until written notice of completions is received from the agencies.

APPENDIX A

Biological mitigation measures

Mitigation Measure BIO1.1—Conduct Botanical Surveys

SFCJPA will retain a qualified botanist to survey suitable habitat in the Project area for special status plants. Surveys will be conducted during the appropriate blooming periods for each species as indicated in Table 3.3-3.

Table 3.3-3. Timing of Surveys for Special-Status Plants

Species	Blooming Period	Period Surveys Should Occur ^a
Alkali milkvetch	March–June	April–May
San Joaquin spearscale	April–October	July–August
Congdon’s tarplant	June–November	July–August
Point Reyes bird’s-beak	June–October	July–August
Hairless popcorn-flower	April–May	April–May
Slender-leaved pondweed	May–July	June–July
California seablite	July–October	July–August
Saline clover	April–June	April–May
^a Exact timing of surveys should account for annual variations in climate and weather; surveys should be timed to coincide with blooming periods of known local populations whenever possible.		

Surveys will follow the CNPS Botanical Survey Guidelines (California Native Plant Society 2001). Special-status plants identified during the surveys will be mapped using a handheld global positioning system unit and documented as part of the public record. A report of occurrences will be submitted to SFCJPA and the CNDDDB. Surveys will be completed before ground disturbing activities begin; survey timing will allow for follow-up mitigation, if needed. If it is determined that individuals of identified special-status plant species could be affected by construction traffic or activities, Mitigation Measure BIO1.2 and, if necessary, Mitigation Measure BIO1.3, will be implemented.

Mitigation Measure BIO1.2—Confine Construction Disturbance and Protect Special-Status Plants during Construction

Construction disturbance will be confined to the minimum area necessary to complete the work, and will avoid encroachment on adjacent habitat. If special-status plants are found, a setback buffer will be established around individuals or the area occupied by the population, based on judgment of a qualified botanist. The plants and a species-appropriate buffer area determined in consultation with agency (CDFW and USFWS) staff will be protected from encroachment and damage during construction by installing temporary construction fencing. Fencing will be brightly colored and

highly visible. Fencing will be installed under the supervision of a qualified botanist to ensure proper location and prevent damage to plants during installation. Fencing will be installed before site preparation or construction work begins and will remain in place for the duration of construction. Construction personnel will be prohibited from entering these areas (the exclusion zone) for the duration of Project construction. Fencing installation will be coordinated with fence installation required by other mitigation measures protecting wetlands, riparian habitat, and mature trees.

Mitigation Measure BIO1.3—Compensate for Loss of Special-Status Plants

If any individuals of listed special-status plants are present and cannot be effectively avoided through implementation of Mitigation Measure BIO1.2, SFCJPA will develop and implement a compensation plan. The compensation plan will preserve an off-site area containing individuals of the affected species. The plan will be implemented so that there is no net loss of special-status plants. If an off-site population is not located or is not available for preservation, SFCJPA will employ a qualified nursery to collect and propagate the affected species, collected at the appropriate time of year, prior to population disturbance at the affected areas of the Project. Transplantation will also be implemented if practicable for the species affected, including mature native plants to the extent feasible.

The compensation plan will be developed by a qualified botanist in coordination with and approval of CDFW or USFWS, depending on whether the plant has state or federal status, respectively, or both. The compensation area will contain a population and/or acreage equal to or greater than that lost as a result of Project implementation and will include adjacent areas as needed to preserve the special-status plant population in perpetuity. Compensation of the affected population will occur in an amount equal to or greater than the amount lost as a result of the Project to ensure that genetic diversity is preserved and no net loss of the number of individuals occurs. The quality of the population preserved will also be equal to or greater than that of the affected population, as determined by a qualified botanist retained by the SFCJPA. Compensation sites and populations will be subject to CDFW and USFWS approval. The SFCJPA will be responsible for ensuring that the compensation area is acquired in fee or in conservation easement, maintained for the benefit of the special-status plant population in perpetuity, and funded through the establishment of an endowment.

A monitoring and adaptive management plan will be developed for each compensation site, subject to CDFW and USFWS approval. This plan will establish success criteria for the site and will include protocols for annual monitoring of the site. The goal of monitoring will be to assess whether the plan has successfully mitigated Project impacts; monitoring will be designed to ensure that the required number of plants and/or plant acreage is being sustained through site maintenance. Factors to be monitored could include density, population size, natural recruitment, and plant health and vigor. If monitoring indicates that special-status plant populations are not maintaining themselves, adaptive management techniques will be implemented. Such techniques could include reseedling/replanting, nonnative species removal, and other management tools. The site will be evaluated at the end of the monitoring period to determine whether the mitigation has met the goal of this mitigation measure to preserve a population the same size as that affected and of equal or greater quality as that lost as a result of Project activities at the site. Criteria by which this

determination will be made will be established in the monitoring plan. The monitoring plan will also address adaptive management strategies to be adopted if the evaluation determines that the site does not meet the success criteria. In that case, a monitoring plan will stay in place until the success criteria are met.

Conservation Measure BIO2.1—Develop and Implement Worker Awareness Training

Prior to construction, Worker Awareness Training must be conducted to inform construction Project workers of their responsibilities regarding sensitive environmental resources. The training will include environmental education about nesting raptors and migratory birds, California clapper rail, salt marsh harvest mouse, California least tern, western snowy plover, California red-legged frog, San Francisco garter snake, and steelhead, as well as sensitive habitat (e.g., in-stream habitat, riparian habitat, wetlands). The training will include visual aids to assist in identification of regulated biological resources, actions to take should protected wildlife be observed within the action area, and possible legal repercussions of affecting such regulated resources.

Mitigation Measure BIO2.2—Implement Survey and Avoidance Measures to Decrease Disturbance to Western Pond Turtles

Prior to the start of construction activities at Project element sites that could support western pond turtle, SFCJPA will retain a qualified biologist to conduct preconstruction surveys for western pond turtles in all suitable habitats in the vicinity of the work sites. Surveys will take place no more than 7 days prior to the onset of site preparation and construction activities with the potential to disturb turtles or their habitat. If preconstruction surveys identify active nests, the biologist will establish no-disturbance buffer zones around each nest using temporary orange construction fencing. The demarcation will be permeable to allow young turtles to move away from the nest following hatching. The radius of the buffer zone and the duration of exclusion will be determined in consultation with CDFW. The buffer zones and fencing will remain in place until the young have left the nest, as determined by the qualified biologist. If western pond turtles are found in the Project area, a qualified biologist will remove and relocate them to suitable habitat outside the Project limits, consistent with CDFW protocols and permits. Relocation sites will be subject to agency approval. If turtles are observed during the surveys, then Mitigation Measure BIO2.3 will be implemented.

Mitigation Measure BIO2.3—Daily Surveys and Monitoring of Construction Activities to Decrease Disturbance to Western Pond Turtles

SFCJPA will retain a qualified biologist to conduct preconstruction surveys for western pond turtles in all suitable habitats in the vicinity of work sites that will be active within the three days prior to the onset of site preparation and construction activities with the potential to disturb turtles or their habitat. If no turtles are found during the daily survey, construction will commence and be monitored for the duration of work within suitable western pond turtle habitat. If a turtle is found during the daily preconstruction survey, construction in the vicinity of the turtle will not commence

until the turtle is removed from the Project area to be relocated to suitable habitat outside of the Project limits per CDFW protocols and permits. Relocation sites will be subject to agency approval. Following turtle relocation, the biologist will return to the Project area and monitor construction activities that take place within suitable western pond turtle habitat.

Mitigation Measure BIO3.1—Establish Buffer Zones for Nesting Raptors and Migratory Birds (Excluding Burrowing Owl)

Prior to the start of construction activities that begin during the migratory bird nesting period (between January 15 and August 31 of any year), SFCJPA will retain a qualified wildlife biologist to conduct a survey for nesting raptors and migratory birds that could nest along the Project corridor, including special-status species such as salt marsh common yellowthroat, Alameda song sparrow, northern harrier, and white-tailed kite. Surveys will cover all suitable raptor and migratory bird nesting habitat that will be impacted directly or indirectly through disturbance, including habitat potentially used by ground-nesting migratory bird species. All migratory bird nesting surveys will be performed no more than 2 weeks (14 days) prior to any Project-related activity that could pose the potential to affect migratory birds. If a lapse in Project-related work of 2 weeks or longer occurs, another focused survey will be conducted before Project work can be reinitiated. With the exception of raptor nests, inactive bird nests may be removed. No birds, nests with eggs, or nests with hatchlings will be disturbed. In addition, nesting bird preconstruction surveys will occur prior to ground disturbance, including site preparation.

If an active nest is discovered during these surveys, the qualified wildlife biologist will establish a no-disturbance buffer zone around the nest tree (or, for ground-nesting species, the nest itself). The no-disturbance zone will be marked with flagging or fencing that is easily identified by the construction crew and will not affect the nesting bird. In general, the minimum buffer zone widths will be 0.5-mile for bald and golden eagles, 25 feet (radius) for nonraptor groundnesting species; 50 feet (radius) for nonraptor shrub- and tree-nesting species; and 250 feet (radius) for all raptor species. Buffer widths may be modified based on discussion with CDFW, depending on the proximity of the nest, whether the nest would have a direct line of sight to construction activities, existing disturbance levels at the nest, local topography and vegetation, the nature of proposed activities, and the species potentially affected. Buffers will remain in place as long as the nest is active or young remain in the area. No construction presence or activity of any kind will be permitted within a buffer zone until the biologist determines that the young have fledged and moved away from the area and the nest is no longer active. If monitoring of active nests indicates that disturbance is affecting active nests, buffer widths will be increased until the disturbance no longer affects the nest(s). If the buffer cannot be extended further, then work within the area will stop until the nest is no longer active.

Mitigation Measure BIO4.1—Implement Survey and Avoidance Measures for Western Burrowing Owls Prior to Construction Activities

Prior to any construction activity planned to begin during the fall and winter nonnesting season (September 1-January 31), SFCJPA will retain a qualified wildlife biologist to conduct a preconstruction survey for burrowing owls. Surveys will be conducted no more than 7 days prior to

ground-disturbing activities and will cover all suitable burrowing owl habitat subject to disturbance. If any western burrowing owls are found within the disturbance area during the survey or at any time during the construction process, SFCJPA will notify CDFW and will proceed under CDFW direction. If construction is planned to occur during the nesting season (February 1- August 31), surveys for nesting owls will be conducted by a qualified wildlife biologist in the year prior to construction to determine if there is breeding within 250 feet of the construction footprint. This prior-year survey will provide the Project team advance notice regarding nesting owls in the Project area and allow ample time to discuss with CDFW the appropriate course of action if nesting owls are found. In addition, same-year preconstruction surveys for nesting western burrowing owls will be conducted no more than 7 days prior to ground disturbance in all suitable burrowing owl habitat. If the biologist identifies the presence of a nesting burrowing owl in an area scheduled to be disturbed by construction, a 250-foot no-activity buffer will be established and maintained around the nest while it is active. Surveys and buffer establishment will be performed by qualified wildlife biologists, will be coordinated with CDFW, and will be subject to CDFW review and oversight.

Mitigation Measure BIO5.1—Implement Survey and Avoidance Measures for California Clapper Rail Prior to Construction Activities

Work activities within 50 feet of California clapper rail habitat will not occur within 2 hours before or after extreme high tides (6.5 feet or above) when the marsh plain is inundated, which could prevent individuals from reaching available cover.

If work is to be conducted during the species' breeding and rearing seasons (February 1st–August 31) within 700 feet of suitable habitat, a permitted biologist will be retained to conduct protocol level surveys at the Project site including rail call surveys and rail-track surveys in appropriate habitat for California clapper rail (California Coastal Conservancy 2011). The surveys will be conducted no more than 48 hours prior to commencement of construction and maintenance activities and will be performed at dawn or dusk, the vocalization periods of highest intensity. Project activities occurring within 700 feet of active nests will be postponed until after young have fledged.

Outside of breeding season, a permitted biologist will be retained to conduct surveys of appropriate habitat for California clapper rail within the work area, including all staging and access routes, no more than seven days prior to initiation of work within suitable habitat. If individuals are observed during this survey, a biologist will conduct an additional survey immediately prior to initiation of construction activities. If individuals are observed within or near the work area, a no-disturbance buffer (minimum 50 feet) will be implemented. If the daily work area is expanded, then a qualified biologist will survey the suitable habitat prior to initiation of work and movement of equipment that day. No work will occur within the buffer until the biologist verifies that California clapper rail individuals have left the area.

If individuals are routinely observed in the work area, a species avoidance plan will be developed in coordination with USFWS and CDFW. If no individuals are observed in accordance with the survey protocols, no buffers will be required. All vegetation removal within suitable habitat of these species, as determined by a biologist, will be done by hand to the extent possible. If movement of heavy equipment is necessary in suitable habitat or within 50 feet of habitat, then a biological monitor will observe the area in front of the equipment from a safe vantage point. If these species

are detected within the area in front of the equipment, then the equipment will stop and the biologist will direct the equipment on an alternative path. If this is not possible, then equipment will stop until a clear path can be identified.

Additional conservation measures during the construction period will include:

- An annual search for and subsequent destruction of any cat feeding stations along public walkways shall be conducted
- Before the onset of winter high tides, an annual capture and removal effort of feral cats and rats in the surrounding disturbed areas shall be conducted.

Mitigation Measure BIO5.2—Produce and Implement Habitat Monitoring Plan for Habitat within the Faber Tract Prior to Construction Activities

The SFCJPA or its approved designee will be responsible for the development and implementation of a habitat monitoring plan for existing (i.e., pre-Project) habitat within the Faber Tract that will document baseline conditions prior to Project implementation. The plan will include routine monitoring of the habitat within the Faber Tract to document changes resulting from the hydrologic reconnection of San Francisquito Creek and potential subsequent flooding into the Faber Tract. The habitat monitoring plan will include adaptive management measures to rectify potential conversion of habitat types and other issues that might arise in the Faber Tract as a result of Project implementation. Additionally, contingency measures will be developed and included in the plan in the event of habitat conversion or loss resulting from the Project. Plan approval by USFWS will be necessary before implementation of activities recommended by the plan. Routine monitoring reports will be submitted to the appropriate agencies following their completion.

Mitigation Measure BIO6.1—Implement Survey and Avoidance Measures for Salt Marsh Harvest Mouse Prior to Construction

Construction and maintenance work, including site preparation, will be avoided to the extent possible within suitable habitat for this species during their breeding seasons (February 1 to November 30). As work during the species breeding seasons will be necessary, a species avoidance plan will be developed in consultation with USFWS and CDFW and implemented. The avoidance plan, at a minimum, will include the following.

- Hand vegetation removal shall start at the edge farthest from the largest contiguous salt marsh area and work its way towards the salt marsh, providing cover for salt marsh harvest mice and allowing them to move towards the salt marsh as vegetation is being removed.
- In consultation with CDFW and USFWS, exclusion fencing shall be placed around a defined work area immediately following vegetation removal and before Project activities begin. The final design and proposed location of the fencing shall be reviewed and approved by CDFW and USFWS prior to placement.
- Prior to initiation of work each day within 300 feet of tidal or pickleweed habitats, a qualified biologist shall thoroughly inspect the work area and adjacent habitat areas to

determine if saltmarsh harvest mice are present. The biologist shall ensure the exclusion fencing has no holes or rips and the base remains buried. The fenced area will be inspected daily to ensure that no mice are trapped.

Prior to initiation of work within suitable habitat, a permitted biologist will be retained to monitor the hand removal of pickleweed to avoid effects on salt marsh harvest mouse. Monitoring will occur for the duration of all clearing work within suitable habitat. If salt marsh harvest mouse are observed during clearing activities, clearing will cease and workers will move to a new area. Clearing work may begin in the area of the observation one day or more after the observation date.

During the survey, if salt marsh harvest mouse individuals are observed, or if active nests of these species are observed, proposed Project activities within 100 feet of the observation will be postponed and a no-disturbance buffer will be established. The buffer will remain in place until the biologist determines that the individuals have left the area and are not present in or near (100 feet) of the work area. If no individuals are observed in accordance with the survey protocols, no buffers will be required.

Work activities within 50 feet of salt marsh harvest mouse habitat will not occur within two hours before or after extreme high tides (6.5 feet or above) when the marsh plain is inundated, which could prevent individuals from reaching available cover.

Mitigation Measure BIO7.1—Implement Survey and Avoidance Measures for California Least Tern and Western Snowy Plover Prior to Construction Activities

Construction work, including site preparation, will be avoided to the extent possible within and near (500 feet) suitable habitat for these species during their breeding seasons (March 1 to August 31). Western snowy plover may be present within suitable habitat year-round. Prior to the initiation of work within 500 feet of suitable habitat (regardless of the time of year), a permitted biologist will be retained to conduct surveys of appropriate habitat for California least tern and western snowy plover and their nests. The surveys will be conducted no more than 48 hours prior to commencement of construction activities and will be performed during optimal observation periods when these species are most active. If active nests for California least tern or western snowy plover are observed during the survey, Project activities within 500 feet of the observation will be postponed until young have fledged. If individuals are observed outside of the breeding season within 500 feet of the work area, a biologist will establish a no-disturbance buffer. No work will occur within the buffer until the biologist verifies that individuals have left the area. If individuals are routinely observed in or within 500 feet of the work area or do not leave the work area, species avoidance plan will be developed in coordination with USFWS and CDFW. If no individuals are observed in accordance with the survey protocols, no buffers will be required.

Mitigation Measure BIO8.1—Implement Survey and Avoidance Measures for California Red-Legged Frog and San Francisco Garter Snake Prior to Construction Activities

SFCJPA will retain a permitted biologist to conduct a survey of the freshwater ponds and surrounding upland habitat prior to initiation of construction activities. The surveys will be conducted according to applicable protocols and will be performed during optimal observation

periods of the day when detection potential for these species is maximized. The survey will be conducted prior to initiation of construction, but such that enough time is allowed to coordinate with USFWS and CDFW to develop a species avoidance plan if needed. If California red-legged frog or San Francisco garter snake individuals are observed or heard during the survey, proposed Project activities within 500 feet of the observation will be postponed. A species avoidance plan will be developed in coordination with USFWS and CDFW and implemented during construction and maintenance. If no individuals are observed during the surveys, no further action will be necessary.

Mitigation Measure BIO9.1 - Implement avoidance measures for steelhead trout and longfin smelt prior to construction activities.

No in-channel construction activities will occur during the steelhead migration period (October 1–May 30), to reduce the likelihood that steelhead and longfin smelt are present during construction activities.

A qualified fisheries biologist, approved by NMFS, will survey the construction area 1 to 2 days before work on the Project begins. If water is present in the immediate construction area, the following procedures will be implemented.

- Before a work area is dewatered, fish will be captured and relocated to avoid injury and mortality and minimize disturbance.
- Before fish relocation begins, a qualified fisheries biologist will identify the most appropriate release location(s). Release locations should have water temperatures similar to the capture location and offer suitable habitat (migratory and rearing) for released fish, and should be selected to minimize the likelihood that fish will reenter the work area or become impinged on the exclusion net or screen. At this time the open reach below the Project site is anticipated to have suitable conditions for relocation.
- Seining or dip netting will be utilized to keep stress and injury to fish at a minimum. Given the salinity of the Project reach, electrofishing would be ineffective and not utilized.
- To the extent feasible, relocation will be performed during morning periods. Water temperatures will be measured periodically (every hour or so), and relocation activities will be suspended if water temperature exceeds 20°C (National Marine Fisheries Service 2000)
- Handling of salmonids will be minimized. When necessary to touch the fish, personnel will wet hands or nets before touching a fish.
- Fish will be held temporarily in cool, shaded Creek water in a container with a lid. Overcrowding in containers will be avoided. Fish will be relocated promptly. If water temperature reaches or exceeds NMFS limits, fish will be released and relocation operations will cease.
- If fish are abundant, capture will cease periodically to allow release and minimize the time fish spend in holding containers.
- Fish will not be anesthetized or measured. However, they will be visually identified to species level, and year classes will be estimated and recorded.

- Reports on fish relocation activities will be submitted to the California Department of Fish and Game (CDFW) and NMFS within 30 days of completion.
- If mortality during relocation exceeds 5 percent or mortality of any state or federally listed species occurs, relocation will cease, and CDFW and NMFS will be contacted immediately or as soon as feasible.
- Fish relocation efforts will be performed concurrent with the installation of the diversion and will be completed before the channel is fully dewatered. The fisheries biologist will perform a second survey 1 to 2 days following the installation of the diversion to ensure that fish have been excluded from the work area and spot checks will be performed at least biweekly while the diversion is in place.

Mitigation Measure BIO11.1 Identify and protect riparian habitats.

To avoid unnecessary damage to or removal of riparian habitat, the SFCJPA will retain a qualified biologist or ecologist to survey and demarcate riparian habitat on or adjacent to the proposed areas of construction in the upper reach of San Francisquito Creek. Riparian areas not slated for trimming or removal to accommodate Project construction will be protected from encroachment and damage during construction by installing temporary construction fencing to create a no-activity exclusion zone. Fencing will be brightly colored and highly visible, and installed under the supervision of a qualified biologist to prevent damage to riparian habitat during installation. The fencing will protect all potentially affected riparian habitat consistent with International Society of Arboriculture tree protection zone recommendations and any additional requirements of the resource agencies with jurisdiction. Fencing will be installed before any site preparation or construction work begins and will remain in place for the duration of construction. Riparian vegetation that must be trimmed will be trimmed by an International Society of Arboriculture certified arborist who will minimize stress and potential damage to trees and shrubs. Construction personnel will be prohibited from entering the exclusion zone for the duration of Project construction. Access and surface-disturbing activities will be prohibited within the exclusion zone.

Mitigation Measure BIO11.2—Restore Riparian Habitat

The SFCJPA will be responsible for restoring permanently affected riparian habitat at a mitigation-to-impact ratio of 2:1, and restoring temporarily affected habitat at a minimum impact-to-mitigation ratio of 1:1 to ensure no net loss of riparian habitat in the affected stream reach. The SFCJPA will develop a Mitigation and Monitoring Plan (MMP) to ensure that all removed habitat is replaced “in kind” with the appropriate native overstory and understory species to maintain structural complexity and habitat value. The MMP will be developed in the context of the federal and state permitting processes under the CWA and California Department of Fish and Game Code, and will include success criteria as specified by the permitting agencies. The MMP will also include adaptive management guidelines for actions to be taken if the success criteria are not met. The success criteria will be met if 80% of the riparian plantings become established after 10 years. Monitoring will occur, at a minimum, during years 1, 2, 3, 5, 7, and 10, with the plantings taking place in year 0. The initial annual monitoring will assess progress of the plantings according to predetermined

success criteria. If progress is not satisfactory, adaptive management actions (including replanting, nonnative species removal, etc.) could be implemented. The MMP will remain in force until the success criteria are met.

Mitigation Measure BIO12.1—Avoid and Protect Jurisdictional Wetlands during Construction

The SFCJPA will ensure that a qualified resource specialist (biologist, ecologist, or soil scientist) will clearly identify wetland areas outside of the direct impact footprint with temporary orange construction fencing before site preparation and construction activities begin at each site or will implement another suitable low-impact measure. Construction will not encroach upon jurisdictional wetlands identified by the wetland specialist. The resource specialist will use the wetland delineation (ICF *in prep* 2012) mapping prepared for the proposed Project and will confirm or modify the location of wetland boundaries based on existing conditions at the time of the survey. Exclusion fencing will be installed before construction activities are initiated, and the fencing will be maintained throughout the construction period. No construction activity, traffic, equipment, or materials will be permitted in fenced wetland areas.

Mitigation Measure BIO13.1—Transplant or Compensate for Loss of Protected Landscape Trees, Consistent with Applicable Tree Protection Regulations

Protected landscape trees slated for removal and deemed good candidates for transplantation will be considered for transplanting in conjunction with the proposed landscaping plans. Transplanted trees will be located on the site if space permits. If the number of trees to be transplanted is too large to be accommodated on the Project site, the SFCJPA will prepare a landscaping plan detailing other locations where transplanted trees will be planted, consistent with the requirements of the applicable tree protection ordinance or regulations. Transplanted trees will be subject to the monitoring and replacement requirements identified for replacement trees below.

Protected landscape trees not deemed good candidates for transplantation will be replaced. The landscaping plan for tree replacement will specifically identify the locations where replacement trees are to be planted; replacements will be planted on the site, if possible. The landscaping plan will be subject to review and approval by the agency with jurisdiction (Santa Clara County, San Mateo County, City of Palo Alto, or City of East Palo Alto).

Mitigation Measure BIO13.2—Protect Remaining Trees from Construction Impacts

Trees not designated for removal will be protected from damage during construction by the installation of temporary fencing in a manner consistent with International Society of Arboriculture tree protection zone recommendations. Fencing will keep construction equipment away from trees and prevent unnecessary damage to or loss of protected trees on the Project site. Protected trees retained on the site and located adjacent to construction activities will be monitored as specified for newly planted trees (see Mitigation Measure BIO 13.1) and replaced if they do not survive through the monitoring period.

APPENDIX B

Landscape Sheets