Attachment B: SWPPP; Mercury Monitoring; and Avoidance and Conservation Measures to Mitigate for Project Impacts for the Sears Point Restoration Project, San Pablo Bay.

In cooperation with California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS), the Sonoma Land Trust (SLT) is seeking to restore tidal wetlands and rehabilitate diked wetlands and upland habitats for a wide range of species, to protect open space, and to develop public access and educational opportunities, including extending the San Francisco Bay Trail. The Sears Point Project has been designed to minimize impacts to wetlands and waters of the State, with a tremendous net increase in the surface area of wetlands and waters of the State after project implementation of more than 38,200,000 sq. ft. (877 acres).

An Environmental Impact Statement/Report was prepared for the Sears Point Wetland and Watershed Restoration. Avoidance of impacts will be completed through a combination of adaptive management and mitigation measures. A copy of the Final Environmental Impact Statement/Report is also available on the Project website (http://sonomalandtrust.org).

Potential for Accidental Pollutant Discharge into the Waters of the State

This project could have the potential for accidental fuel and lubricant discharges into the Bay associated with the use of construction equipment and potentially maintenance equipment long-term. A Storm Water Pollution Prevention Plan (SWPPP) would be prepared for this project. The SWPPP would be prepared prior to beginning construction activities and detail the structural and procedural control measures that would be implemented by the contractor during construction activities to address soil stabilization, sediment control, sediment tracking control, wind erosion control, non-storm water discharge management, and waste management and disposal control practices. The SWPPP would specify soil and material storage locations and the control measures to be implemented at those locations to prevent conveyance of material into water bodies. The SWPPP would be consistent with Caltrans' stormwater permit for any work near Highway 37.

The SWPPP would also outline measures to be taken and Best Management Practices (BMPs) to be implemented to control and prevent, to the maximum extent practicable, non-storm water discharge of pollutants to surface waters and ground water. In addition, the SWPPP would have a plan for responding to and managing accidental spills during construction. The SWPPP would address overall management of the construction project such as designating areas for material storage, equipment fueling, and stockpiles.

Construction contractors working on the project would be contractually required to provide their employees with enhanced spill prevention and response training, to have spill response equipment available at the job site, to provide double containment for any hazardous materials or wastes at the job site, to be prepared to respond to any spill immediately, and to fully contain spills at the Site, including any open-water areas. The project sponsors would ensure that a site-specific health and safety plan is developed and implemented by the contractor as part of contract specifications.

Potential for Methylation of Mercury

Methylation of mercury is a potential effect resulting from wetland restoration projects. Mercury can be introduced to wetland projects through atmospheric deposition and through transport of mercury-laden sediments from upstream. Through a process that is not completely understood, sulfate-reducing and

iron-reducing bacteria in wetland sediments can transform elemental mercury into toxic methyl mercury, which can accumulate at higher levels in the food web. The mobility of mercury in the aquatic environment positively correlates with high acidity (low pH) and high dissolved organic carbon levels (USGS 2000). Methyl mercury is also subject to degradation into less toxic forms by microbial action and sunlight (USGS 2000). As discussed below, methylation of mercury is unlikely to be a concern at the site in the long-term; however, there may be a short-term, initial increase in methyl mercury production when the site is first opened to tidal action.

Recent work by Slotton et al. (Slotton 2008) has shown that episodically-flooded wetlands can give rise to short-duration (dissipating within one season) increases in methyl mercury production. However, any increase in methyl mercury production associated with the restoration of the Sears Point site would occur as the site is initially flooded and would be a one-time occurrence (i.e., the conditions during this one-time event would be the same as for an episodic flood in episodically-flooded wetlands). As shown by Slotton's work conducted in the Napa-Sonoma Marshes, opening ponds to tidal action in this area has in fact resulted in a small decrease in methyl mercury concentrations in biota. Consequently, it is possible that there will be an initial, short-term spike in methyl mercury in biota; however, this would be temporary. The potential spike, if any, would be an unavoidable consequence of flooding the former farmland.

Available information suggests that the long-term mercury methylation impacts of the restoration project would not pose a concern. In a study of the Hamilton Wetland Restoration Project, the U.S. Army Corps of Engineers (USACE 2007) tentatively concluded that "marsh restoration does not provide evidence for increased bioavailability." Preliminary information suggests that methylation is less likely to occur in permanently flooded environments, and more likely to occur under sequential drying and flooding conditions (Best et al. 2005). This finding is supported by the work done by Slotton et al. studying methyl mercury concentrations in biota (biosentinel fish). Methyl mercury concentrations in the Napa Sonoma Marshes, including the fully-restored Pond 2A were among the lowest in the entire study area. The study area extended from the Petaluma River east to the upper watersheds of the Sacramento/San Joaquin Delta (Slotton 2008). These findings suggest that during the development of the site to tidal marsh, production of methyl mercury would be low. Furthermore, in the study of restored marshes around San Pablo Bay, researchers found that methyl mercury production was lower in vegetated sediments than in bare sediments (Best et al. 2005), which is consistent with Slotton's findings regarding methyl mercury effects from brackish to salty tidal marshes.

Due to the uncertainties regarding mercury methylation and bioaccumulation processes, potential methyl mercury production in the action area is best managed adaptively. SLT and/or its successors in interest, CDFG and USFWS, will develop a methyl mercury adaptive management plan. The methyl mercury adaptive management plan will be developed in collaboration with other agencies with jurisdiction over contaminants in the Bay, and will include review by a Technical Advisory Committee or Group; preferably an existing group that includes representatives from multiple agencies and projects, such as the South Bay Salt Pond Project Technical Advisory Committee.

The methyl mercury adaptive management plan will include a methyl mercury monitoring plan as well as triggers for further action. To evaluate the potential effects of the proposed action on mercury in biota, methyl mercury monitoring will focus on biota, with an emphasis on resident sentinel species, preferably biosentinel fish. The monitoring will be coordinated with other methyl mercury biological monitoring conducted as part of the Regional Monitoring Program (RMP), and any other methyl mercury monitoring efforts that may be implemented in the North Bay during the designated monitoring period for the proposed action.

The plan will be developed by USFWS, CDFG and/or SLT in consultation with the responsible regulatory agencies implementing and permitting other wetland restoration projects in the Bay (such as RWQCB, BCDC, Corps, NMFS, and U.S. EPA). Staff of these agencies will be invited to be part of the

adaptive management team to guide development of the plan; determine the duration, frequency of monitoring, constituents to be monitored, and monitoring protocols; and develop corrective actions as needed to minimize potential adverse effects of methyl mercury.

The methyl mercury adaptive management plan will be modified as necessary to reflect increased understanding of mercury cycling in San Francisco Bay.

Effects to Plant and Wildlife Species

Proposed Mitigation Incorporated into the Project Design

Many of the mitigation measures from the *Sears Point Wetland and Watershed Restoration Project Final Environmental Impact Report/Environmental Impact Statement* (Sonoma Land Trust 2012) have been modified and incorporated into the Biological Assessment submitted to the U.S. Fish and Wildlife Service as conservation measures. Each of these measures has been given a unique and sequential reference number. The conservation measures were divided into site-wide and specific conservation measures. Site-wide measures are described first, followed by specific measures for tidal marsh and tidal marsh-dependent species, CRLF, and special-status fish. These measures will be incorporated into the project design when finalized in the Biological Opinion that is currently in process with USFWS. Draft measures are presented below.

Site-wide Conservation Measures

Conservation Measure 1: Conduct a Biological Resources Education Program for Construction Crews and Provide an On-site Biological Monitor, if Necessary

Before any work occurs in designated construction areas, a qualified biologist will conduct mandatory environmental education program for construction personnel regarding state and/or federally listed species that could potentially occur on-site or within the action area (e.g., California red-legged frog, California clapper rail, Western snowy plover, salt marsh harvest mouse, steelhead, Chinook salmon, and green sturgeon). The environmental education program will include a description, representative photographs, and legal status of each of federally listed species; terms and conditions of the; and the penalties for not complying with biological conservation measures.

The program will cover the restrictions and guidelines that must be followed by all construction personnel to avoid or reduce effects on federally-listed species during project implementation. SLT will ensure that the contractor and its personnel adhere to the guidelines and restrictions. All construction workers will be required to receive the training. When new workers are added to the crew, they will receive the training before being allowed to work on-site. Restrictions and guidelines that must be followed by construction personnel are listed below.

- Construction personnel will adhere to designated work zones and will not go outside these boundaries. All construction work areas will be marked to ensure that activities are confined to work zones and sensitive habitat areas are avoided.

- Project-related vehicles will observe the posted speed limit on hard-surfaced roads and a 15-mile-per-hour speed limit on unpaved roads in the action area. Off-road vehicle traffic outside designated construction areas will be prohibited.

- The contractor will provide closed garbage containers for the disposal of all food-related trash items (e.g., wrappers, cans, bottles, food scraps). All garbage will be removed daily from the project site. Construction personnel will not feed or otherwise attract wildlife to the project area.

- No pets or firearms will be allowed in the project area.

- To prevent possible resource damage from hazardous materials such as motor oil or gasoline, construction personnel will not service vehicles or construction equipment outside designated areas.

- Any worker who inadvertently injures or kills a federally-listed species or finds one dead, injured, or entrapped will immediately report the incident to the resident inspector or on-site biological monitor. The resident inspector or monitor will immediately notify the SLT, who will provide appropriate notifications to the USFWS Endangered Species Office in Sacramento, California, and CDFG. SLT will also notify USFWS of any unanticipated harm to any federally listed species associated with the proposed action.

- All construction equipment and materials that are stored at a construction site will be inspected before being used or moved. If wildlife species are present, they will be allowed to exit on their own without being handled.

- Once the Project is completed, all unused material and equipment will be removed from the action area.

- All hazardous materials, such as fuels, oils, solvents, etc., will be stored in sealable containers in designated locations that are at least 100 feet away from drainages or other aquatic habitats. All fueling and maintenance of vehicles and other equipment will occur within designated areas or at least 100 feet away from drainages or other aquatic habitats. In situations where this is not physically possible (e.g. the marine environment), refueling will be conducted in accordance with existing marine refueling standards to prevent potential fuel or chemicals from entering water bodies.

- Construction that must use lighting will minimize glare and focus the lights downward to reduce the potential effects to wildlife from light and glare.

In addition to the education program for construction workers, personnel from USFWS and CDFG, or their designee, will be present as necessary to conduct sensitive species surveys, ensure compliance with biological protection measures, and provide general biological oversight of the project construction activities.

Conservation Measure 2: Implement Water Quality Control Measures during Project Construction
SLT and its contractors will comply with conditions of construction permits from regulatory agencies, including the SFRWQCB, to protect beneficial uses of water resources. The project will comply with permit conditions to prevent degradation of water and sediment quality due to release of construction-related pollutants.

Conservation Measure 3: Implement a Hazardous Waste Spill Prevention and Control Plan
To minimize the potential for, and the effects of, spills of hazardous, toxic, or petroleum substances during construction in the project area, a Hazardous Materials Spill Prevention, Control, and Countermeasure Plan will be prepared. The plan will describe storage procedures and construction site housekeeping practices and will identify the parties responsible for monitoring and spill response. The measures and monitoring procedures required under the General Construction Permit will minimize the potential for release of hazardous materials to the environment. SLT, CDFG, and/or USFWS will routinely inspect the action area to verify that the BMPs specified in the plan are properly implemented and maintained.

Conservation Measure 4: Storm Water Management
A Storm Water Pollution Prevention Plan (SWPPP) and a Stormwater Monitoring Program will be developed and implemented as part of the construction effort. The SWPPP would specify appropriate BMPs to prevent potential run-off of soils and chemicals from the construction areas into sensitive areas within the action area. No fueling or refueling will be allowed within the interior of the existing perimeter levee within 100 feet of water bodies and the contractor would designate specific area(s) to be used, typically in a previously disturbed area. Refueling located outside of the perimeter levee would be conducted in accordance with existing marine refueling standards to prevent potential fuel or chemicals from entering water bodies.

Conservation Measure 5: Noise Avoidance and Minimization Measures
Noise avoidance and minimization measures would be implemented as necessary to avoid adverse effects on wildlife. Where feasible, construction activity will be scheduled to avoid the breeding seasons for species whose mating is dependent on vocalization. Other measures that may be implemented if appropriate and where feasible include:

- Locating construction equipment staging area, material-handling areas, and stationary construction equipment as far away as possible from sensitive species foraging, nesting, or breeding habitats
- Selecting or contractually specifying the use of lower noise equipment
- Adding mufflers on construction equipment, generators, and vehicles
- Installing temporary barriers (shielding) around stationary construction noise sources
- Scheduling construction activities to start before nesting season and discouraging use of the property by nesters that may abandon their nests after construction starts
- Scheduling activities after nesting season is over to avoid nest abandonment

Conservation Measure 6: Use Local Soil or Sediment or Comply with SFRWQCB Wetland Surface/Foundation Criteria for Placement of Soil or Sediment within Future Tidal Areas
Soil or sediment to be used in project features that are within three feet of the surface within the future tidal area shall be from locations within or adjacent to the action area, or if imported, will meet the standards for wetland surface material in the SFRWQCB Draft Guidelines (RWQCB 2000). Table 2-2 identifies screening criteria required for acceptability of imported dredge material to be used as wetland surface and wetland foundation material. Material used in constructing features within future tidal areas deeper than three feet below the surface shall be from locations within or adjacent to the action area, or shall meet the standards for wetland foundation material if imported.

Table 2-2 also includes criteria provided by USFWS for dioxins and furans. San Francisco Bay is considered impaired due to dioxins and furans in several fish species. Sediments in the Bay have not been systematically analyzed for dioxins and furans, so the locations of hotspots for these constituents have not been determined. Due to these circumstances, any dredged materials brought to the site from outside the action area may be screened for dioxins.

Chemical concentrations and associated sampling plans for dredged material or soils from outside the action area planned for use on-site will be reviewed and approved by CDFG and USFWS.

Table 2-2
Dredged Material Screening Criteria (RWQCB 2000)

Constituent	Wetland Surface	Wetland Foundation

Inorganics	(mg/kg)	(mg/kg)
Arsenic	15.3	70
Cadmium	0.33	9.6
Chromium	112	370
Copper	68.1	270
Lead	43.2	218
Mercury	0.43	0.7
Nickel	112	120
Selenium	0.64	
Silver	0.58	3.7
Zinc	158	410
Organics	(µg/kg)	(µg/kg)
PAHs, total	3,390	44,792
Chlordanes, total	2.3	4.8
DDTs, total	7.0	46.1
Dieldrin	0.72	4.3
PCBs, total	22.7	180
Dioxins (total TCDD TEQ)	0.02	0.02

Conservation Measure 7: Avoid or Minimize the Introduction or Spread of Noxious Weeds
To avoid or minimize the introduction or spread of noxious weeds, the following measures will be incorporated into the proposed project plans and specifications for the project construction sites:

- Certified, weed-free, imported erosion-control materials (or rice straw in upland areas) will be used.
- Construction supervisors and managers will be educated by the biological monitor about noxious weed identification and the importance of controlling and preventing their spread. The biological monitor will conduct a tailgate meeting before construction at which handouts identifying noxious weeds will be distributed and workers will be briefed on the techniques used to prevent their spread.
- To reduce the movement of noxious weeds into uninfested areas, the contractor will stockpile and cover topsoil removed during excavation.

Conservation Measure 8: Survey for Special-Status Plants
Special-status plant surveys will be conducted prior to initiating construction. Locations of special-status plants in proposed construction areas will be recorded using a global positioning system (GPS) unit and flagged. Surveys shall be timed so that plant surveys occur during the flowering periods of the potential species of interest.

If initial screening by a qualified biologist identifies the potential for special-status plant species to be directly or indirectly affected by work in a specific project area, the biologist will determine appropriate protective measures to minimize the impact to the plant species. These measures may include, among others, establishing an adequate buffer area to exclude activities that would directly remove or alter an identified special-status plant population or result in indirect adverse effects on the species' habitat, gathering seed, or relocating individual specimens. Any established buffer areas will be clearly marked by a qualified biologist to prevent encroachment by construction vehicles and personnel.

Conservation Measure 9: Replace Special-Status Plants.
If direct impact or loss of special-status plants is unavoidable, SLT or USFWS and CDFG as successor property owners will replace lost species to the extent practicable, following an agreed-upon revegetation

plan designed by USFWS and CDFG. SLT or USFWS and CDFG will monitor revegetation efforts as deemed appropriate.

Conservation Measure 10: Signage

The Bay Trail spine would be located on the new levee, and could therefore result in individuals straying off the trail into sensitive habitat. In addition, one segment of additional trail, south of Highway 37 and north of the railroad tracks, would be located near wildflower fields that may contain a limited number of individuals of *Viola pedunculata*, the host plant for the federally endangered Callippe silverspot butterfly. There is the potential for trampling of host plants by hikers that walk off the trail. In addition, trail users may bring dogs to the trail. To avoid or minimize the likelihood of effects on sensitive habitat, signs will be placed along the Bay Trail and other trail segments informing users of the need to remain on trails, maintain their dogs on leash and use trash receptacles. Signs will include information describing the sensitive habitat and the importance of remaining on the trail and observing other requirements of trail use.

Specific Conservation Measures for Existing and Future Tidal Marsh Areas and Tidal Marsh Species

Conservation Measure 11: Prevent the Introduction of Non-Native Tidal Vegetation During Construction and Restoration Activities.

To prevent the introduction of non-native, invasive tidal vegetation including cordgrass (*Spartina alterniflora and hybrids*), perennial pepperweed (*Lepidium latifolium*) and stinkwort (*Dittrichia graveolens*), during construction and restoration activities, the following measures will be implemented:

- A qualified botanist will conduct a non-native plant assessment of areas subject to construction activities and will recommend specific measures to minimize spread of non-native species. Measures may include the establishment of wash stations for construction vehicles and equipment to clean tires of weed seeds and other propagules before they are moved offsite, and the development of an herbicide spray program to control perennial pepperweed or other invasive weed infestations prior to construction.

- Restoration areas will be monitored for infestation of invasive plants, such as non-native cordgrasses, perennial pepperweed, stinkwort, and/or other potentially invasive species. All infestations occurring within wetland habitats will be controlled and removed to the extent feasible. A long-term monitoring plan will be developed and implemented by USFWS and CDFG.

Conservation Measure 12: Ensure Establishment of Tidal Salt Marsh Habitat within 5 Years of Project Completion.

SLT or USFWS and CDFG as successor property owners shall monitor the restoration site following completion of restoration construction to ensure that, at minimum, impacted tidal salt marsh habitat is replaced at a 3:1 ratio within 5 years of completion of the proposed action. If SLT conducts the monitoring, SLT will report to USFWS and CDFG on the status of monitoring once a year during the 5 years following project completion. Once the target acreage of tidal marsh habitat has developed, SLT will notify USFWS and CDFG that the compensation ratio has been satisfied. If the required ratio is not achieved within the first 5 years following project completion, SLT will consult with USFWS and CDFG to determine the causes for the delay in tidal marsh development, and will work with USFWS and CDFG to develop and implement appropriate adaptive management activities.

Conservation Measure 13: Avoid Operation of Equipment in the Outboard Tidal Coastal Marsh during the Breeding Period of the California Clapper Rail (February 1 to August 31)
California clapper rails are known to occur adjacent to the project site and restoration activities will occur in suitable habitat areas. Measures to avoid and minimize impacts to California clapper rails include the following:

- To minimize or avoid the loss of individual rails, activities within or immediately adjacent to tidal marsh areas will be avoided during the rail breeding season from February 1 through August 31 each year unless surveys are conducted to determine that rail locations and rail territories can be avoided, or that the proposed work area is determined to be unsuitable rail breeding habitat by a qualified biologist.
- If breeding rails are determined to be present, activities will not occur within 700 feet of an identified calling center. If the intervening distance across a major slough channel or across a substantial barrier between the clapper rail calling center and any activity area is greater than 200 feet, then the activity may proceed at that location within the breeding season. If rails are located, SLT will consult with USFWS and CDFG to determine what, if any, additional conservation measures may be required to allow construction to proceed.

Conservation Measure 14: Time Levee Lowering to Avoid Extreme High Tides
Approximately 6,850 ft of the levee bordering Tolay Creek and San Pablo Bay will be lowered to between MHHW and one foot above MHHW. This portion of the levee top and flanks currently supports upland vegetation dominated by weedy species such as mustard (*Brassica* spp.) but may be used as upland refugia by California clapper rails and salt marsh harvest mice during extreme high tides. In order to avoid the direct injury and mortality of individual clapper rails and salt marsh harvest mice, and reduce harassment, levee lowering activities adjacent to tidal marsh habitat will not occur within two hours before or after extreme high tides (6.5 feet NAVD or above, as measured at the Golden Gate Bridge), or when the marsh plain is inundated.

Conservation Measure 15: Remove Salt Marsh Harvest Mouse Habitat and Place Barrier Fencing in the Immediate Vicinity of Operating Equipment.
SLT will consult with USFWS and CDFG to evaluate appropriate methods for avoiding construction-related mortality of salt marsh harvest mice. Measures to avoid impacts to salt marsh harvest mice will include the following:

- systemic removal of pickleweed habitat to eliminate any potential habitat and to aid visual location of the species if they have not already passively relocated out of the construction zone; and
- subsequent placement of a 3-foot or greater barrier fence in which the bottom will be buried 4 inches or more below grade. The fence will be placed 20 feet outside the boundaries of the construction areas in and adjacent to coastal salt marsh habitat to prevent salt marsh harvest mice from entering the construction area.

Conservation Measure 16: Timing of Levee Breaching, Pilot Channel Construction, and Sod Removal
To minimize or avoid the loss of individual harvest mice, levee breaching or sod removal activities will only be conducted when tidal marsh vegetation targeted for removal is completely inundated. During these conditions, harvest mice are presumed absent from the inundated portion of the marsh. A USFWS-approved biologist will be present to ensure appropriate tides have been achieved prior to construction.

To minimize or avoid the loss of individual harvest mice during breach construction, pilot channel construction, and sod removal activities that occur when tidal marsh vegetation targeted for removal is exposed or vegetation that may harbor harvest mice will be removed exclusionary fencing will be placed around the perimeter of these areas during high tide events, when natural inundation has already forced harvest mice from the area, prior to construction. Pickleweed and other tidal marsh plants will be removed at levee breach locations within one month prior to start of construction activities to avoid vegetation re-growth prior to construction. Vegetation removal will likely occur at low tides. A biologist will oversee the removal of marsh vegetation to avoid impacts during plant removal. This measure does not apply to areas with low marsh vegetation (i.e., cordgrass-dominated) where harvest mice are not likely to occur.

When no exclusionary fencing has been put into place, the removal will be performed as follows: 1) biologists familiar with harvest mice will walk through and inspect vegetation prior to vegetation removal and search for sign of harvest mice or other sensitive wildlife and plants; 2) following inspection, personnel will disturb (e.g., brush) vegetation to force movement of harvest mice into adjacent tidal marsh areas on either side of the construction location; flushing of vegetation will first occur in the center, then progress toward the two sides of the construction area; 3) personnel will immediately follow vegetation flushing with manual removal of vegetation (e.g., using hand-held stringline weed trimmers), which will also be performed beginning in the center and continuing toward the two sides of the construction area; 4) a barrier (silt fence) will be placed along the perimeter of the vegetation removal area (following plant removal) to further reduce the likelihood of harvest mice returning to the mowed area prior to construction.

When exclusionary fencing has been put into place, the removal will be performed as follows: 1) exclusionary fencing will be placed around the perimeter of the work area during a high tide event when the natural inundation has already forced harvest mice from the area, 2) vegetation removal can occur utilizing either mechanical, hand-held string trimmers, or a combination thereof, and 3) in some cases vegetation removal may not occur within the excluded areas as the existing marsh vegetation may help provide construction equipment with important support.

Conservation Measure 17: Develop and Implement a Methyl Mercury Adaptive Management Plan
Due to the uncertainties regarding mercury methylation and bioaccumulation processes, potential methyl mercury production in the action area is best managed adaptively. SLT and/or its successors in interest, CDFG and USFWS, will develop a methyl mercury adaptive management plan. The methyl mercury adaptive management plan will be developed in collaboration with other agencies with jurisdiction over contaminants in the Bay, and will include review by a Technical Advisory Committee or Group; preferably an existing group that includes representatives from multiple agencies and projects, such as the South Bay Salt Pond Project Technical Advisory Committee.

The methyl mercury adaptive management plan will include a methyl mercury monitoring plan as well as triggers for further action. To evaluate the potential effects of the proposed action on mercury in biota, methyl mercury monitoring will focus on biota, with an emphasis on resident sentinel species, preferably biosentinel fish. The monitoring will be coordinated with other methyl mercury biological monitoring conducted as part of the Regional Monitoring Program (RMP), and any other methyl mercury monitoring efforts that may be implemented in the North Bay during the designated monitoring period for the proposed action.

If necessary based on monitoring results, SLT or its successors in interest, CDFG and USFWS, will develop and implement an adaptive management plan to address methyl mercury production associated with the restoration site. The plan will create a framework to review monitoring results and to develop corrective actions, in coordination with a technical advisory committee, based both on the best available science and physical and financial feasibility. Physical changes that could be made to reduce methyl

mercury production, if needed, could include change in water inundation management and vegetation conditions (Brostoff 2007 and Best, Ely and Team 2010).

The plan will be developed by USFWS, CDFG and/or SLT in consultation with the responsible regulatory agencies implementing and permitting other wetland restoration projects in the Bay (such as RWQCB, BCDC, Corps, NMFS, and U.S. EPA). Staff of these agencies will be invited to be part of the adaptive management team to guide development of the plan; determine the duration, frequency of monitoring, constituents to be monitored, and monitoring protocols; and develop corrective actions as needed to minimize potential adverse effects of methyl mercury.

The methyl mercury adaptive management plan will be modified as necessary to reflect increased understanding of mercury cycling in San Francisco Bay.

Specific Conservation Measures for California Red-Legged Frog

Conservation Measure 18: Restrict Construction Activity in Suitable Aquatic and Upland Habitat for California Red-Legged Frog to the Dry Season (April 1–November 1).

All grading activity within suitable aquatic and associated upland habitat (within 300 feet of aquatic habitat) will be conducted during the dry season, between April 1 and November 1, or before the onset of the rainy season, whichever occurs first unless exclusion fencing is utilized. Construction that commences in the dry season may continue into the rainy season if exclusion fencing is placed between the construction area and the suitable habitat to keep frogs from entering the construction area. The footprint of all ground-disturbing activities within suitable habitat will be the minimum area necessary for construction.

Conservation Measure 19: Conduct Pre-construction Surveys for California Red-Legged Frog and Monitor Construction Activities.

A qualified biologist will conduct preconstruction clearance surveys no more than 14 days before ground disturbance in aquatic and upland habitats potentially suitable for CRLF, and conduct ongoing monitoring of construction within suitable aquatic and upland habitats during construction. A USFWS-approved biological monitor will remain onsite during all activities within suitable aquatic and associated upland habitat. If a California red-legged frog is encountered during any project activity, activities will cease until the frog is removed by a USFWS-approved biologist and relocated to nearby suitable aquatic habitat outside the construction area. USFWS and CDFG will be notified within 5 working days of any California red-legged frog relocation.

Specific Conservation Measures for Special-Status Fish Species

Conservation Measure 20: Avoid Construction/Dredging in Tidal Aquatic Habitats when Rearing Federally-listed Fish Could Be Present.

To the extent feasible, avoid construction activities that could affect tidal aquatic habitats (e.g., construction associated with lowering the perimeter levee and excavating tidal channels through the outboard salt marsh) during periods when rearing juvenile salmonids, and juvenile longfin smelt could be present (typically November thru June). If construction activities must occur during periods when these species could be present, SLT shall consult with NMFS and CDFG to determine what, if any, additional conservation measures may be required to allow construction to proceed. Any dredging associated with the breaches to Tolay Creek may be done within silt curtains to minimize the potential entrainment of green sturgeon. If hydraulic dredging is utilized to excavate the Connector Channel and Breach 1, then the associated pump size would be limited to no more than 10 inches in order to restrict the approach velocity to a level unlikely to entrain green sturgeon in the area. To minimize the potential of taking longfin smelt, the following minimization measures shall be implemented: dredging may proceed anywhere when water temperature exceeds 22 degrees Celsius, and if water temperature is less than 22 degrees Celsius, no

dredging shall occur in water less than 2 parts per thousand between December 1 and June 30; downstream of the 2 parts per thousand salinity contour the dredge shall be primed and cleared within 3 feet of the bottom between December 1 and June 30 and within three feet of the surface between July 1 and November 30, and dredge operation in the water column above the substrate shall be minimized.

Conservation Measure 21: Additional Measures for Hydraulic Dredging

Green surgeon may be present in the action area any time of year. If hydraulic dredging is performed, the following additional measures will be implemented to avoid potential entrainment of green sturgeon during dredging.

- Limit the dredge pump to a maximum outlet diameter of 10 inches.

- Install fish screens or other appropriate fish exclusion devices to prevent entrainment of fish into the water intakes of the hydraulic off-loader pumps where necessary.

Conservation Measure 22: Implement Water Quality Control Measures for Project Construction and Dredging

SLT, USFWS or CDFG as successor property owners, and its contractors will comply with conditions of construction permits from regulatory agencies, including the RWQCB, to protect beneficial uses of water resources. Compliance with permit conditions would adequately prevent degradation of water and sediment quality due to project construction and dredging.