CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NUMBER R2-2013-0017

WASTE DISCHARGE REQUIREMENTS AND WATER QUALITY CERTIFICATION for:

SONOMA LAND TRUST
SEARS POINT RESTORATION PROJECT
SONOMA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter the Regional Water Board, finds that:

1. **Site Location.** The Sears Point Restoration Project (Project) includes 1,944 acres in southern Sonoma County, just north of San Pablo Bay between the mouth of the Petaluma River to the west and Tolay Creek to the east (Figure 1). Historically, agriculture was the predominant land use south of Highway 37 and grazing north of that highway. The Final Environmental Impact Review (FEIR) for the Project covers a larger area - 2,327 acres - that includes additional areas not covered by this Order. Figure 2 shows that the Project site is bisected by the Sonoma Marin Area Rail Transit (SMART) rail line into two parcels: (i) a 500-acre parcel, located north of the SMART rail line and south of Highway 37, that will be incorporated into the U.S. Fish and Wildlife Service's (USFWS) San Pablo Bay Natural Wildlife Refuge (Refuge); and (ii) a 960-acre parcel, located south of the SMART rail line, that is bounded on the east by Tolay Creek, on the south by San Pablo Bay, and on the west by an existing levee at the Sonoma Baylands. The remaining 484 acres will retain the current use and are not part of the Project. The receiving waters for the Project site are Tolay Creek, San Pablo Bay, and the Petaluma River.

2. **Permit Application.** On August 23, 2012, the Regional Water Board received an application from the Sonoma Land Trust (the Discharger) that serves as an application for waste discharge requirements (WDRs) and federal Clean Water Act section 401 water quality certification (WQC). In its application, the Discharger proposes to enhance seasonal ponds, wetlands, and a riparian corridor on the 500-acre parcel and to restore most of the 960-acre parcel to tidal marsh. The Discharger acquired the land in late 2004 and early 2005 and conducted restoration planning. In the future, the Discharger intends to transfer the 500-acre parcel north of the SMART rail line to USFWS for incorporation into the Refuge, and to transfer the 960-acre parcel south of the SMART rail line to the California Department of Fish and Wildlife (CDFW). The Discharger will continue to own and manage any portion of the property not transferred to USFWS and CDFW.

3. **Project Purpose.** The purpose of the Project is to restore natural estuarine tidal marsh on diked baylands; enhance or preserve non-tidal seasonal wetlands and existing agriculture; and provide public access, recreation and educational opportunities. Specifically the Project would:

    - Restore approximately 940 acres of tidal marsh on the 960-acre parcel;
    - Preserve and enhance 106 acres of seasonal ponds, wetland and riparian corridor while maintaining existing agriculture uses on the 500-acre parcel; and
    - Provide public recreation access south and possibly north of Highway 37.

4. USFWS issued a Biological Opinion for the Project on January 10, 2013 (which was amended on February 12, 2013), and signed a Record of Decision (ROD) on July 25, 2012, based on the FEIR, which CDFW certified as a Lead Agency for the Project. USFWS initiated consultation with the National Marine Fisheries Service (NMFS) on December 4, 2012, which is still pending. CDFW signed a Notice of Determination (NOD) approving the Project on June 22, 2012. CDFW and both federal agencies support the overall restoration to tidal marsh as a major benefit to biological species, along with the enhanced seasonal wetlands, increased recreational opportunities, and the preserved agricultural area.

5. **Existing Conditions and Projected Habitat Changes**. The Project site is currently predominantly undeveloped diked agricultural baylands with a mixture of tidal marsh, seasonal wetlands, streams, and upland habitats. Topography ranges from below sea level to about 100 feet above sea level. The permit application described in Finding 2 states that 49.5 acres of wetlands will have fill placed within them (e.g., filling ditches and marsh mounds), 6.2 acres of wetlands or other waters will be permanently filled, and 70.3 acres will be temporarily disturbed, resulting in an overall gain in wetlands or others waters of approximately 867 acres across the 1,944-acre site. Table 1 shows the Project site's existing habitats and land uses. Table 2a shows the site's existing and proposed habitats and land use changes, with projected net changes, and Table 2b shows the projected net change in wetlands and other waters.

   Overall, as shown in tables 2a & 2b, the habitat gains will be predominantly in tidal marsh and the Tolay Creek slough channel, and losses will occur primarily in agricultural lands and, to a lesser extent, in seasonal wetlands, ditches, developed areas, and vernal pools[1]. Features of the Project site that will remain unchanged include land in San Pablo Bay, freshwater marsh, ephemeral streams, wildflower fields, and non-native grassland.

6. **Benefits of Wetland Restoration**. The Project will make a large and valuable contribution to tidal wetland restoration and seasonal wetland preservation in the San Francisco Bay Estuary, which was recommended by the *Baylands Ecosystem Habitat Goals Report* (1999), the *Comprehensive Conservation and Management Plan* (1993; updated 2007), and the *San Francisco Bay Joint Venture Implementation Strategy.* These reports encourage the return of salt ponds and farmland to tidal marsh where feasible, while preserving adequate seasonal wetlands and ponds for birds. The Project will provide valuable wetland habitat and recreational benefits, while preserving agricultural land where feasible.

7. The Project is a restoration project encouraged by many natural resource and environmental agencies and organizations in the San Francisco Bay Region, including the Regional Water Board. One of the Project's goals, to provide public access and recreation, will help educate the public, achieve regional public access (e.g., the Bay Trail), and build public support for future restoration projects.

8. **Related Restoration Projects in the North Bay**. The Project is surrounded by other wetland restoration projects including 9,450 acres at the Napa River Salt Marsh Restoration Project on the western shore of the Napa River; 1,460 acres at the Napa Plant Site on the eastern shore of

[1] The 0.03 acres loss of vernal pools is mitigated by the very large gain in tidal marsh.

the Napa River; 1,575 acres at Cullinan Ranch to the east of the Project, and 322 acres at Sonoma Baylands west of the Project (Figure 3)[2].

Project Description

9. The complete description of the Project with relevant figures is found in Attachment A, which is incorporated as part of this Order[3]. Table 3 shows the planned excavation of 1.6 million cubic yards (MCY) and fill of 1.3 MCY, resulting in an excess of about 0.3 MCY for sediment shrinkage, compaction, levee maintenance, and other site features. Figure 4 shows the Project's features.

10. The Project is divided into two major components: 1) tidal marsh restoration and 2) seasonal wetland preservation and enhancement. Implementation activities for the tidal marsh include:

    - Constructing a new levee with a design height of +12 feet (North American vertical datum of 1988) south of and parallel to the SMART rail line to separate the nontidal and tidal habitats. The new levee has been designed to account for future sea level rise and would consist of a 13,000-foot long core levee, geotechnical stability berms on both sides of the core levee, and a gentle outboard slope to dissipate wave energy and provide habitat.
    - Remediating lead-contaminated soil. Approximately 12,000 cubic yards of lead-contaminated surface soils are located on the eastern portion of the tidal restoration site at the Black Point Sports Club. Consistent with a Corrective Acton Plan approved by the Regional Water Board on August 28, 2009, the contaminated soil would be remediated prior to tidal marsh restoration.
    - Lowering about 6,850 feet of existing outboard perimeter levee along San Pablo Bay to create habitat for native plants and wildlife. An additional 19,200 feet of the levee along San Pablo Bay and Tolay Creek will be graded. Some of the soil will also be used for construction and to fill in the drainage ditches or be sidecast to create topographic complexity in the marsh.
    - Excavating up to four levee breaches: Breach 1 would be located on the southernmost part of the tidal marsh area and would connect the area to San Pablo Bay through a connector channel excavated through the perimeter marsh and mudflats; Breach 2 would be located near the southwestern at the corner of Dickson Ranch and connect to Tolay Creek; Breaches 3 and 4 may occur at a later date, if necessary, and both would likely be on Tolay Creek.
    - Dredging a 2,100 foot connector channel between Breach 1 and San Pablo Bay using a clam shell or hydraulic dredge.

[2] Regional Water Board order and CIWQS numbers for these projects include: CDFW 401 Certification for Ponds 6-8 phase of the Napa River Salt Marsh Restoration Project (CIWQS #654284), Cullinan Ranch (Order No. R2-2010-0108), CDFW's Napa River Salt Marsh Restoration (Order No. R2-2004-0063), Napa Plant Site Restoration (No. R2-2007-0045), and Sonoma Baylands (Order No. R2-1993-0081), in addition to Caltrans' Guadalcanal Village mitigation project to the east.

[3] All diagrams and figures are contained in the original application form received by the Regional Water Board on August 23, 2012.

- Constructing about 29,500 linear feet of interior pilot channels to enhance water circulation. Pilot channels would have an irregular, sinuous planform layout that emulates the channel configuration of historic tidal sloughs. Ditch blocks may be placed in some agricultural ditches to prevent waters from flowing into them.
- Constructing topographic features such as marsh mounds, sidecast ridges and sidecast mounds, and gentle habitat levee edges to provide habitat diversity, dissipate wind and wave energy, and prevent erosion.
- Demolishing buildings and infrastructure.
- Relocating utility lines.
- Removing and relocating stormwater pumps. Three stormwater pumps will be removed and replaced by two new pump stations on the north side of the rail line. The new pump stations would pump stormwater from lands between Highway 37 and the SMART rail line across the rail line embankment and the new flood control levee and into the tidal restoration area.
- Pre-vegetating the tidal marsh area prior to breaching to enhance surface roughness, increase sediment trapping, develop root mass to stabilize the existing soil surface and provide seed sources for tidal marsh vegetation.
- Adaptively managing mosquito abatement.

Implementation activities for seasonal wetland enhancement and wetland-compatible agriculture include:

- Implementing agriculture modifications to enhance 106 acres of seasonal wetlands and riparian corridor to accommodate wildlife. The agricultural areas will be managed for crops and use techniques that enhance seasonal wetlands such as disking.
- Enhancing freshwater habitat and modifying the stormwater conveyance system. Riparian woodland would be planted at the end of the existing Highway 37 culvert.
- Constructing two 1.2-acre flood control detention basins at the pump stations to hold stormwater before it is pumped into the tidal marsh.
- Building an access road and relocating utility lines.
- Building the Bay Trail system.

12. **Project Schedule and Time Frame.** All construction is expected to occur over a three-year period with a construction window between April and December or as feasible based on weather. Construction activities would be implemented in a means to ensure compliance with regulatory requirements.

    Restored tidal marsh is expected to have some native tidal marsh vegetation within five years after the levees are breached. The entire restored tidal marsh may take 20-30 years to develop to maturity, though unforeseen circumstances may cause delays.

The Project should restore 30 acres of native tidal marsh over the first three to five years after the levee breach and approximately 910 additional acres over the next 20-30 years, totaling 940 acres of tidal marsh on the 960-acre parcel bordering San Pablo Bay and Tolay Creek.

13. **Mitigation Incorporated into the Project Design as Conservation Measures**. The USFWS ROD and Biological Opinion provide measures to minimize environmental harm and protect biological species and waters of the State potentially affected by the Project. These conservation measures are incorporated into this Order and are included in Attachment B. The conservation measures most relevant to water quality are: educate construction crews about appropriate methods to protect water quality and species; implement water quality control measures during Project construction; implement a hazardous waste spill prevention and control plan; manage stormwater runoff by preparing and following a stormwater pollution prevention plan (SWPPP); use soil or sediment from the Project area, or comply with the Regional Water Board's wetland beneficial reuse for dredged sediment guidelines if dredged sediment is imported to the site; avoid or minimize the spread of noxious weeds; survey special status plants; prevent nonnative tidal vegetation from entering the site; ensure tidal marsh habitat establishment within the first five years after restoration at a replacement ratio of three acres tidal marsh gained to each acre lost; avoid equipment in clapper rail habitat between February 1 to August 31; time levee lowering to avoid extreme high tides and to avoid loss of salt marsh harvest mice; develop and implement a methyl-mercury sampling and adaptive management plan; restrict construction in aquatic and upland habitats for California red-legged frog to the dry season (April 1-November 1); avoid construction/dredging in tidal aquatic habitats when federally-listed fish could be present; if hydraulic dredging occurs, follow measures to protect green sturgeon; and implement water quality control measures for project construction and dredging.

14. The Discharger shall look for ways to decrease pollutants such as oil, trash, fertilizers, pesticides, and other harmful substances in the site's runoff before it enters the restored tidal marsh from the upper watershed, which includes Highway 37and the SMART rail line. Trash racks will be installed at the pump station intake and maintained to prevent trash and debris from entering the tidal marsh. The onsite agricultural ditches and the flood control detention basins shall be managed to optimize their natural functions to remove pollutants in runoff.

15. **Sources of Sediment.** With the exception of the connector channel and pilot channel described in the Project Description (Attachment A), no additional dredged sediment will be generated for the Project. Since excavated material onsite will be adequate for filling ditches and other project construction, importing dredged sediment is not expected. If excavated sediment from onsite is insufficient to complete the Project and importing dredged material becomes necessary, the Discharger will be required to submit data characterizing the quality of all imported dredged material (Bay sediments) proposed for use as fill before placement at the Project site in accordance with Specification B of this Order.

16. **Bay Mud.** The Regional Water Board has determined that if fine-grained dredged material (Bay Mud) dries out on the surface for long periods, the following adverse effects on wetland environments can occur: it can harden, making it a poor substrate for wetland biota; it can develop deep cracks that harbor mosquitoes and increase the chances of acidification; and it can cause metals, including mercury, to become soluble, thereby increasing their potential to leach out when the site is re-flooded. The Project will dredge material from the connector channel and

the breaches and will attempt to keep the material wet until final placement. However, the final placement of the dredged material will be under seven feet of water for years after breaching, so long-term acidification should not be an issue, and monitoring is not expected to be required.

17. **Detention Basins.** The primary purpose of the detention basins is to capture precipitation and other stormwater runoff that is discharged onto the site and to pump it into San Pablo Bay (as is currently done). The detention basins may also provide habitat that red-legged frogs can use, but the presence of this species is not a Project requirement.

18. The Discharger will perform routine maintenance of the detention basins as needed to maintain the capacity of the detention basins. The bed of the detention basins could support wigeongrass, which is widespread and abundant in existing ditches. Thus, the detention basins would have the potential to support numerous wildlife species, including red-legged frogs as stated in Finding 17. Prior to conducting routine maintenance, the Discharger will consult with the staff of the Regional Water Board, the U.S. Army Corps of Engineers (Corps) and other regulatory agencies.

19. **Monitoring.** Monitoring shall be undertaken in accord with the Discharger's Monitoring and Adaptive Management Plan (MAMP), Attachment C, which is incorporated as part of this Order. A Self-Monitoring Plan (SMP), which is included as Attachment D, contains additional details for water quality monitoring and summarizes some of the MAMP monitoring in the included table. Specifically, as shown in the MAMP, within the first five years, monitoring will document changes primarily in tidal channel evolution, plants, and habitat types. Water quality will be monitored during construction and immediately after the levees are breached and will likely be completed within the first few months after the levee breach. Birds will be monitored for three years and the endangered salt marsh harvest mouse will be monitored in years four and five, if suitable habitat exists (and as funding allows). Project monitoring will occur immediately before or after the first levee breach with the collection of pre-breach baseline data to serve as a reference for Project development.

    The MAMP and SMP includes some monitoring for water quality within the first two months, shorebirds or waterfowl within the first three years, the endangered salt marsh harvest mouse, and mercury in fish, and a few others listed in tables 1 and 2 of the MAMP. In addition to the intense monitoring of the tidal marsh during the first five years, the Discharger will also monitor the enhanced seasonal wetlands, preserved vernal pools, and other enhanced areas to ensure that the condition or function does not change for the worse. These should be monitored in the beginning, middle, and end of the five-year monitoring period using a conditional or functional assessment method such as the California Rapid Assessment Method (CRAM). (See the MAMP and SMP for more specific monitoring plan details.)

    The MAMP and SMP propose a relatively short (five years overall) and abbreviated monitoring period due to lack of funds to monitor the success of the restored tidal marsh, and also because most of the existing land at Sears Point is diked farmland, with relatively few existing benefits to plants and wildlife. However, the Regional Water Board will also require that the long-term tidal marsh be assessed at five year intervals, in order to assure the long-term restoration goal of between 30 and 940 acres of tidal marsh after 30 years is met. This monitoring may be conducted by using best professional judgment in the following way: walking or boating around the Project perimeter; using free web-based satellite or aerial photos if they occur within

five year periods and can detect necessary changes with appropriate ground-truthing; using other satellite or aerial photos; measuring transects through the Project area; or any other means approved by Regional Water Board staff that are sufficient to estimate the tidal marsh acreage, by which the Discharger can determine when the native tidal marsh goal is met.

If free web-accessible satellite or aerial photographs (such as Google Earth) are available to assess the Project's success, it will help to ensure that tidal marsh is eventually established with native species and highly invasive species are kept off the site, and to monitor any excessive sediment accretion or erosion. If native tidal marsh is not achieved over the 20-30 year period of establishment, the Discharger will work with the Technical Advisory Committee (TAC) as specified in Provision D. 5 to determine if actions should be taken to encourage tidal marsh restoration with native species, to prevent some aggressive non-native tidal marsh species from taking over the site, or if the Project should be allowed to continue without intervention. The TAC will also provide guidance and recommendations for other Project issues including construction, monitoring, performance criteria and goals, and completion. The Discharger may invite representatives of any appropriate group or individual to participate on the TAC, but must invite, at a minimum, staff from the Regional Water Board, the Bay Conservation and Development Commission (BCDC), California Coastal Conservancy, CDFW, USFWS, NMFS, Corps, and other appropriate regional agencies and individuals.

A plan for methyl-mercury monitoring, which is not in the MAMP or SMP, will be developed in accordance with the requirements of the Regional Water Board's Basin Plan for mercury. However, the implementation of such a plan may wait for the results of other mercury biosentinel monitoring in restored San Francisco Bay marshes, unless the Regional Water Board's Executive Officer determines that mercury sampling should be monitored at the Project before then. (See also Finding 29 on Mercury Methylation)

20. **Basin Plan.** The San Francisco Bay Basin (Basin Plan) is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes implementation programs to achieve water quality objectives. The Basin Plan was duly adopted by the Regional Water Board and approved by the State Water Resources Control Board (State Water Board), the Office of Administrative Law, and U.S. EPA, where required. The latest version can be found at the Regional Water Board's website at: http://www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml

21. The Basin Plan includes the following beneficial uses for San Pablo Bay: Ocean, Commercial and Sport Fishing; Estuarine Habitat; Wildlife Habitat; Fish Spawning and Migration; Preservation of Rare and Endangered Species; Shellfish Harvesting; Industrial Service Supply; Navigation; Water Contact Recreation; and Non-contact Water Recreation. The Basin Plan includes the following beneficial uses for the Petaluma River: Estuarine Habitat; Wildlife Habitat; Fish Spawning and Migration; Preservation of Rare and Endangered Species; Warm and Cold Freshwater Habitat; Navigation; Water Contact Recreation; and Non-contact Water Recreation. The Basin Plan includes the following beneficial uses for Tolay Creek: Wildlife Habitat; Preservation of Rare and Endangered Species; Warm Freshwater Habitat; Water Contact Recreation; and Non-contact Water Recreation.

22. The Project is consistent with the goals of the State Wetlands Policy and California Wetlands Conservation Policy (Executive Order W-59-93, signed August 23, 1993), which is incorporated in the Basin Plan, that includes ensuring "no overall loss" and achieving a "…long-term net gain in the quantity, quality, and permanence of wetland acreages and values…". Senate Concurrent Resolution No. 28 states that "it is the intent of the legislature to preserve, protect, restore, and enhance California's wetlands and the multiple resources which depend on them for benefit of the people of the State." Section 13142.5 of the Water Code requires that the "[h]ighest priority shall be given to improving or eliminating discharges that adversely affect …wetlands, estuaries, and other biologically sensitive areas."

23. The Project is consistent with:

- Comprehensive Conservation and Management Plan
- BCDC's San Francisco Bay Plan
- San Pablo Bay Refuge Comprehensive Conservation Plan (Draft)
- CALFED Bay-Delta Program and Ecosystem Restoration Program Plan
- San Francisco Baylands Ecosystem Habitat Goals Report
- Sonoma County General Plan and Zoning Ordinance
- Bay Trail and Sonoma Bay Trail Corridor Plan
- Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California

24. **California Wetlands Portal**. It has been determined through regional, State, and national studies that tracking mitigation/restoration projects must be improved to better assess the performance of these projects, following monitoring periods that last several years. In addition, to effectively carry out the State's No Net Loss Policy for wetlands, the State needs to closely track wetland losses, gains, and mitigation/restoration project success. Therefore, the Discharger will use the California Wetlands Standard Form to provide project information related to impacts and mitigation/restoration measures. An electronic copy of the form and instructions can be downloaded at: http://www.waterboards.ca.gov/sanfranciscobay/certs.shtml . Project information concerning impacts and mitigation/restoration will be made available at the web link: http://www.californiawetlands.net .

25. **CEQA** - The California Environmental Quality Act (CEQA) requires that project effects be analyzed to prevent significant avoidable impacts and reduce or mitigate unavoidable impacts. All projects approved by State agencies must be in full compliance with CEQA. As lead agencies, CDFW and USFWS certified the *Final Environmental Impact Report/Statement (FEIR) for the Sears Point Wetland and Watershed Restoration Project* (April 2012). CDFW filed an NOD for the Project on June 22, 2012, and USFWS signed a ROD on July 25, 2012. The FEIR has been considered and relied upon in preparation of this Order. The Regional Water Board, as a responsible agency under CEQA, finds that all environmental effects have been identified for Project activities that it is required to approve and that the Project will not have significant adverse impacts on the environment with the following stipulations: 1) the MAMP (Attachment C) will be carried out by the Discharger, and 2) the CEQA mitigation provided in Attachment B, which was presented in the FEIR, will be carried out as conditioned in the FEIR's Mitigation Conservation Measures.

26. The FEIR found that after a three to five year construction period, tidal marsh restoration should take about 20-30 years to develop, barring unforeseen complications. The benefits from the

Project would outweigh adverse environmental impacts, after CEQA mitigation measures are implemented and future monitoring and adaptive management are carried out. In adopting this WDR/WQC, the Regional Water Board has eliminated or substantially lessened any significant effects on water quality. This action will assure the maintenance, restoration, and enhancement of a natural resource and protection of the environment.

27. **Water Quality Issues under CEQA for the Project** – The FEIR found that potential water quality impacts, their applicable proposed mitigation measures, and whether the impact duration is ongoing or only during the construction phase were insignificant if the Discharger adheres to the water quality monitoring and protective measures identified in the Order, including: (i) those found in the following sections of this Order, namely, Prohibitions (A), Specifications (B), Receiving Water Limitations (C), and Provisions (D); and (ii) those listed as the Conservation Measures in Attachment B.

28. The FEIR found that high turbidity, low dissolved oxygen and other pollutants generated during Project construction, especially during levee breaching could have significant impacts and require water quality control measures. The Discharger is required to develop and implement necessary water quality control measures in a SWPPP and conduct necessary water quality monitoring before and after levee breaching to ensure the receiving waters are protected. A plan for mercury will also be provided to protect water quality and is discussed below.

29. **Mercury Methylation.** The Discharger will submit a plan for monitoring methyl-mercury, which may or may not have to be implemented pending the results of other studies in the area. (See also Finding 29 on Monitoring)

    Mercury occurs naturally in the San Francisco Bay environment and has been introduced as a contaminant in various chemical forms from a variety of anthropogenic sources. Total levels of mercury in ambient San Francisco Bay sediments are elevated above naturally-occurring background levels. Although mercury often resides in forms that are not hazardous, it can be transformed through natural processes into toxic methyl-mercury. Natural accretion processes in salt marshes continually supply fresh layers of mercury-contaminated sediments that release mercury in a form that can become biologically available to mercury-methylating bacteria and subsequently bioaccumulate in the food chain. The resulting concentration of methyl-mercury depends on numerous variables, including: redox potential, salinity, pH, vegetation, sulfur, dissolved organic carbon, nitrogen, and seasonal variations in each of the identified variables.

    Breaching levees could add to methyl-mercury already at the Project site. The USFWS ROD and the Project application state that restoring the site is unlikely to cause a methyl-mercury concern in the long-term for the following reason: flooding of the site will be a one-time occurrence and will leave most of the Project under about seven feet of water until it accretes. Slotton's work (2008) showed that opening up the Napa River tidal marshes decreased methyl-mercury levels in fish. In addition, Best et al (2005) showed that methyl-mercury levels in permanently flooded sites was lower than those from sites that underwent episodic flooding. If Sears Point is flooded only once, any temporary increase in mercury levels should not re-occur or be sustained over the long-term.

    Given this possibility, the Discharger shall be prepared to adaptively manage the site for apparent problems due to methyl-mercury bioaccumulation after the breach. In any event, the

Discharger shall be prepared to produce a methyl-mercury monitoring plan on the terms noted above.

The Discharger's plan for methyl-mercury monitoring shall be in accord with the Basin Plan, which includes a TMDL for Mercury[4], and which states that wetlands may contribute substantially to methyl-mercury production and subsequent biological exposure to mercury within the Bay.

The methyl-mercury monitoring plan may be deferred pending the results of other regional methyl-mercury analyses being conducted at tidal marsh restoration sites. However, the Regional Water Board retains the discretion to require a methyl-mercury monitoring plan from the Discharger at any time.

Other Water Quality Issues

30. This Project is not suitable for coverage under the statewide Construction General Permit (CGP). For this reason, the Regional Water Board has required the Discharger to apply for and obtain WDR/WQC. There is a site-specific reason why the CGP is not appropriate here. Construction activities associated with the Project are designed to lower and breach the levees to restore the natural sediment erosion, suspension, and deposition. To require the Project to comply with the CGP is counterproductive and would actually impede restoration of tidal marsh and wetlands. To control any short-term impacts associated with the construction activities, this Order requires the Discharger to develop and implement a SWPPP to control any discharges of oil, fuels, trash, and hazardous materials and any long-term effects of such discharges on San Pablo Bay, the Petaluma River and Tolay Creek.

31. **Mosquito Abatement**. The proposed tidal wetlands at the restored site should have fewer mosquitoes than the current seasonal wetlands. The site is in the jurisdiction of the Sonoma County mosquito abatement district. The Discharger will coordinate with the district during design, implementation, and operation phases of the Project to mitigate for any increases in potential mosquito breeding habitat.

32. **Invasive Cordgrass**. Invasive cordgrass was inadvertently introduced into San Francisco Bay tidal marshes in the 1970's (predominantly *Spartina alterniflora* and *S. densiflora*) and threatens the existence of the native cordgrass (*S. foliosa*) upon which many tidal marsh species depend. To mitigate for potential impacts from cordgrass, the Discharger will cooperate with the Invasive Spartina Project to eradicate invasive cordgrass and protect the native tidal marsh species. In particular, the Discharger will follow the Invasive Spartina Project's "Best Practices" listed below, which have been incorporated into the Project:

    a. No spartina is proposed to be planted in the Project area. If circumstances arise where spartina will be planted in the Project area, the plantings will be genetically verified to be S. foliosa.

    b. The Project area should be monitored annually for the presence of non-native or hybrid spartina. In addition to field identification, representative samples of any found spartina

[1] http://www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml

should be genetically analyzed to verify absence of S. alterniflora or S. densiflora genetic markers. Any found non-native or hybrid spartina plants should be removed or killed before their first season of flowering and seed set by manual methods if feasible, or using approved pesticides if a larger stand is detected.

c. One measure of the Project's success in achieving the project objective regarding management of "the spread of non-native invasive species" is that there is no non-native or hybrid spartina found in the Project area.

d. The Project will not initiate connection of marsh with tidal flows (full or muted) at locations where S. alterniflora or S. alterniflora x S. foliosa seed or propagules are likely to get into the Project area.

e. The Project will avoid introducing non-native spartina seed or propagules into the Project area on contaminated excavators, dredges, or other equipment. The Project will require that all equipment be cleaned prior to entry into an intertidal part of the Project area if it has been in contact with non-native spartina plants, seeds, or roots.

f. Variations to the above best practices may be appropriate based on site-specific conditions and scientific analysis. Proposed variations will be developed with assistance or review from the Invasive Spartina Project. Additionally, USFWS staff will discuss any proposed variations with nearby marsh owners/managers who could be affected by the actions of the Project.

33. To assure that the hydrology is proceeding as expected to achieve the habitat goals within 20-30 years, the MAMP (Attachment C) and SMP (Attachment D) outline the targets and performance criteria within that time frame. In the event that the interim and final habitat goals are not met, the Discharger will investigate the causes for the failure and provide management recommendations to either stay on the same course or try other means of restoration.

34. The Regional Water Board notified the Discharger and interested agencies and persons of its intent to adopt WDR/WQC for the Project and provided them with an opportunity to submit their written views and recommendations.

35. The Regional Water Board, in a public meeting on May 8, 2013, heard and considered all comments pertaining to the WDR/WQC for the Project.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code and regulations, and guidelines adopted thereunder, that the Discharger, its agents, successors, and assigns shall comply with the following:

A. PROHIBITIONS

1. Discharges of water, material, or wastes which are not otherwise authorized by the Order are prohibited.

2. The direct discharge of wastes to surface waters or surface drainage courses is prohibited, except as authorized by this Order.

3. It is prohibited to import dredged materials without first following the testing and screening protocols described in Specifications B.1 and 2, and obtaining the Executive Officer's approval. Movement of onsite material within the Project site is allowed.

4. The activities subject to these requirements shall not cause a condition of pollution or nuisance as defined in sections 13050(i) and (m), respectively, of the Water Code.

B. SPECIFICATIONS

Dredged Material Screening Procedures - The Discharger shall submit data characterizing the quality of all imported dredged materials (Bay sediments) proposed for use as fill before placement at the Project site. Sediment characterization and placement shall follow the protocols specified in:

1. The Dredge Materials Management Office (DMMO) guidance document, "Guidelines for Implementing the Inland Testing Manual in the San Francisco Bay Region" (Corps Public Notice 01-01, or most current version), with the exception that the water column bioassay simulating in-bay unconfined aquatic disposal shall be replaced with the modified effluent elutriate test, as described in Attachment B of the Inland Testing Manual, for both water column toxicity and chemistry (DMMO suite of metals only); and,
2. Regional Water Board May 2000 staff summary report, "Beneficial Reuse of Dredged Materials: Sediment Screening and Testing Guidelines," or most current revised version. These levels are shown in Table 4, which are approved for the wetland surface criteria within the top three feet of the Project. Before any wetland foundation material is placed a plan must be submitted and approved by the Executive Officer to ensure that the wetland foundation material will be isolated and will not be eroded or incised by channels.
3. Modifications to these procedures may be approved on a case-by-case basis, using guidance from the two reports mentioned above, pending the Discharger's ability to demonstrate that the dredged materials are unlikely to adversely impact beneficial uses.

C. RECEIVING WATER LIMITATIONS

1. Project activities shall not cause:
   a. Floating, suspended, or deposited macroscopic particulate matter or foam in quantities sufficient to cause deleterious bottom deposits, turbidity, or discoloration in receiving waters, or to unreasonably affect beneficial uses;
   b. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;
   c. The temperature of any cold or warm freshwater habitat to be increased by more than 5 degrees Fahrenheit above natural receiving water temperature, unless a qualified biologist can demonstrate that such alteration in temperature does not adversely affect beneficial uses;
   d. Visible, floating, suspended, or deposited oil or other products of petroleum origin; and
   e. Toxic or other deleterious substances to be present in concentrations or quantities that will cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or that render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waters shall not cause violations of the following limits to be exceeded in receiving waters at any one place within 1 foot of the water surface:

   a. Dissolved Oxygen: 5.0 mg/L, minimum

      When natural factors cause lesser concentrations, then these activities shall not cause further reduction in the concentration of dissolved oxygen.

   b. Dissolved Sulfide: 0.1 mg/L, maximum

   c. pH: Variation from normal ambient pH by more than 0.5 pH units

   d. Un-ionized Ammonia: 0.025 mg/L as N, annual median; and
      0.16 mg/L as N, maximum

   e. Nutrients: Receiving waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

3. Turbidity of the receiving waters shall not increase by more than the following to the extent practicable:

Receiving Waters Background	Incremental Increase
< 50 NTU	5 NTU maximum
≥ 50 NTU	10% of background, maximum

4. The discharge shall not cause a violation of any water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board as required by both the State's Porter-Cologne Water Quality Control Act and the federal Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more stringent standards.

D. PROVISIONS

1. **Project Monitoring and Reporting for the First Five Years, Short-term**. The Discharger shall conduct monitoring and submit technical monitoring reports as described in the MAMP and the SMP (See Finding 19 on Monitoring).

   Water quality monitoring related to breaching levees is required immediately before the breach and over approximately ten monitoring events covering two months or until background levels are achieved, at which time the Discharger can notify the Regional Water Board that the water quality provision for that breach has been met. If additional monitoring is conducted to show that the Project is not causing harm to the area (e.g., if ambient monitoring shows that similar water quality levels occur naturally in the area), or if the literature shows that water quality values are not likely to cause problems, then the Discharger can request approval from the Executive Officer to cease water quality monitoring. Data shall be posted to the California

Wetlands Portal (http://www.californiawetlands.net) according to the schedule in Provision D.8.

To show progress toward achieving target habitats, monitoring is required. Appropriate baseline data shall be gathered to show the evolution from pre- to post-project restoration. Baseline data to be collected is specified in the MAMP and SMP and includes water quality, habitat development, biological species, and other pertinent parameters. Such baseline data shall be collected immediately before the levees are breached. After a baseline is established, monitoring shall proceed as specified in the MAMP and SMP, which provide target habitat goals for the site and parameters to be monitored, including procedures and locations for assuring that the beneficial uses of water and habitat will be protected and/or improved.

At the end of the beginning, middle, and end of the first five-year monitoring period, the Project shall be assessed for seasonal wetlands, vernal pools, and riparian corridors for condition using CRAM or other method designed to provide similar results, as approved by the Executive Officer.

The Discharger shall submit technical monitoring reports as described in the MAMP and the SMP every other year beginning after construction and restoration are initiated. The technical monitoring reports shall: i) analysis of all physical and biological data collected to date, and contain appropriate figures, graphs, and photos; ii) assessments of progress toward target habitat acres and functions; iii) make recommendations for future monitoring and assessment; and iv) notify the Regional Water Board of any sampling occurring during that period and any problems, and shall provide photos as appropriate. Technical monitoring reports shall be due at the end of years one, three, and five, following the breaches. In years when no data is collected or analyzed, and aerial or satellite photo review shows no substantial changes, an email can be sent to Regional Water Board staff stating those findings.

A report for the Project shall be submitted in year five after implementation of the Project and shall include the following as shown in the SMP table and report and in the MAMP: water quality through construction and a few weeks or months after levee breaches; channel and marsh development; vegetation mapping; mercury monitoring of water, sediment, or biosentinel species in accordance with regional programs, if required by the Regional Water Board after mercury data is analyzed for other nearby restoration projects; and the presence of highly invasive (detrimental) species, which should consider both plants and introduced predators; specific target species monitored (endangered species) or groups such as birds, fish, mammals.

Due Date, Technical Reports: March 31 of Year 1 and 3.

Due Date, 5-Year Monitoring Report: March 31, Year 5.

2. **Project Monitoring and Reporting after the First Five Years, Long-term.** After the Five-Year Monitoring Report, the Discharger will use best professional judgment or quantitative analysis to determine if and when the Project goal for tidal marsh is met. The Project goal is predominantly tidal marsh over the following time periods: approximately 30 acres over the short term (five years); and approximately 940 acres over the long term (20-30 years). After the initial five-year monitoring is completed, and every five years until the Project goal of approximately 940 acres of predominantly native tidal marsh vegetation is met with 75% cover,

the Project will monitor the site with one of the following four methods (or other appropriate method): free web-based aerial or satellite photography (see Provision D. 4); other aerial or satellite photography; walking or boating the Project perimeter and using professional judgment; or noting plants along a transect through the restoration area. The aim is to safely determine whether the site has evolved toward the targetted predominantly native tidal marsh, whether highly invasive species have encroached, or whether excess erosion or sedimentation has occurred. The TAC will oversee the long term monitoring.

Due Date, for a Report for Final Project Success or Change of Target Habitat: After Project goals are met or modified by the TAC.

3. **Mercury Monitoring**. The Discharger shall submit a plan for methyl-mercury monitoring. It will be developed in accord with the requirements of the Basin Plan for mercury. However, the implementation of such a monitoring plan may wait for the results of other mercury biosentinel monitoring in restored San Francisco Bay marshes, unless the Executive Officer determines that mercury sampling should be monitored at the Project before then.

   If methyl-mercury monitoring is required at the Project, the Discharger can propose a different sampling plan, which will be subject to Executive Officer approval. The selected sampling method will be determined in accordance with permit requirements, acceptable scientific methods, and available budget. Triggers and the final sampling plan will be subject to Executive Officer approval and triggers should be suggested by the TAC.

   Due Date for Methyl-Mercury Sampling Plan: the plan is not required at this time, pending the results of other mercury data analysis from nearby tidal marsh restoration projects.

4. **Aerial or Satellite Photos.** If feasible and available to show pertinent Project features, aerial or satellite photos (such as those readily available on Google Maps, or IKONOS images using multispectral satellite imagery) should be reviewed periodically to ensure that habitat evolution is occurring without any associated significant adverse or unforeseen events, such as excessive scour or erosion, sedimentation, or establishment of highly invasive plants. Collecting and comparing annual satellite photos will depend on the availability of free imagery and is meant only for rough non-technical comparisons, not quantitative GIS analysis. The short-term habitat target should be met after the five-year monitoring period, and the long-term target should be met after 20-30 years. If the habitats are not met, the TAC shall determine whether aerial or satellite photos should continue for a specified period, as defined by the TAC, until the target habitats are achieved, or whether the Project has successfully provided adequate wetland habitat benefits to justify discontinuing monitoring.

5. **TAC.** The Technical Advisory Committee (TAC) shall be organized and convened through a public process by the Discharger and shall, at a minimum, invite representatives from the Regional Water Board, BCDC, California Coastal Conservancy, CDFW, USFWS, NMFS, Corps, and other appropriate regional agencies and individuals. These representatives will be invited, but their presence on the TAC is not mandatory. The purpose of the TAC shall be to assess progress of the Project by reviewing monitoring data and to suggest adaptive management strategies. Results of the data analysis shall be presented at a meeting accessible by conference phone to the TAC annually, for discussion and comment for the initial five-year

monitoring period. Thereafter, results will be presented to interested TAC members every five years until the target habitat of about 940 acres of predominantly native tidal marsh is met. The TAC can include members of the Napa-Sonoma Marsh Restoration Group, the San Francisco Bay Joint Venture, San Francisco Estuary Institute, USGS, or any other appropriate group.

6. **Lead-Contaminated Soil Encapsulation**. Prior to breaching the levee, the Discharger shall fully implement the Regional Water Board-approved Corrective Action Plan. (http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL0609728268) Within 90 days from completing the Corrective Action Plan, the Discharger shall submit a report, acceptable to the Executive Officer, to document completion of the Corrective Action Plan.

7. **California Wetlands Portal.** The Discharger is required to use the California Wetlands Standard Form to provide project information describing impacts and restoration measures. An electronic copy of the form can be downloaded at: http://www.waterboards.ca.gov/sanfranciscobay/certs.shtml. The completed California Wetlands form shall be submitted electronically to habitatdata@waterboards.ca.gov or as a hard copy to both: 1) Regional Water Board, 1515 Clay Street, Suite 1400, Oakland, CA 94612, to the attention of California Wetlands Portal; and 2) San Francisco Estuary Institute, 4911 Central Avenue, Richmond, CA 94804, to the attention of California Wetlands Portal.

   Due Date for California Wetlands Form: 60 days after adoption of this Order.

8. **Submitting Monitoring Reports:** Monitoring reports shall be submitted either by uploading them to the California Wetlands Portal website at http://www.californiawetlands.net/tracker/ba/list, via email, or via mail at the addresses listed in Provision D.7. The Regional Water Board project manager shall be notified if monitoring reports are uploaded to the California Wetlands Portal.

   In addition to uploading the California Wetlands form and monitoring reports to http://www.californiawetlands.net/tracker/, the Discharger shall also send monitoring data and reports to the Regional Water Board as one hard copy and one electronic copy. In the case of large files, the electronic copy shall be sent on a CD or DVD or placed on an FTP site.

9. **Conservation Measures.** The Discharger shall follow the Conservation Measures listed in Attachment B.

10. **Aggressive Non-Native Plant Species**. If feasible, the Discharger shall remove and keep off the Project site aggressive non-native plant species that threaten sensitive native tidal marsh communities, including those listed under Tier I (and to a lesser extent Tier II) of the Regional Water Board's "Invasive Non-Native Plant Species to Avoid in Wetlands Projects in the San Francisco Bay Region" (2006) or other updated regional invasive species list should be kept out to the extent feasible. See: http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stream_and_wetland_protection.shtml under "Fact Sheet for Wetland and Riparian projects, Attachment 1: Invasive Non-Native Plants."

    Some of the Tier I species already occur onsite. The Discharger should review the Tier I and Tier II lists and discuss with Regional Water Board staff which species are feasible to keep off

the Project site. Invasive cordgrass (*S. alterniflora*) and the other non-native cordgrass species are a high priority for preclusion from tidal wetlands restoration sites in the Region, and USFWS staff shall coordinate efforts with the Invasive Spartina Project to eradicate this species.

11. **Runoff**. To protect the seasonal and tidal wetlands from polluted runoff, the Discharger shall manage the onsite agricultural ditches and the flood control detention basins to optimize their natural functions to remove pollutants in the site's runoff. This shall include installing, operating, and maintaining trash racks at the stormwater pump stations and implementing pollution prevention measures to control pollutants in agricultural runoff.

    Due Date for As-built Report for the pump stations and the detention basins: 60 days after construction is complete.

12. **Storm Water Pollution Prevention Plan.** The Discharger shall, before construction begins, submit a SWPPP to the Regional Water Board and shall implement required Best Management Practices (BMPs) to prevent water pollution from restoration activities. The Discharger shall use both in-water and on-land BMPs to keep sediment, soil, and other pollutants from entering Tolay Creek, the Petaluma River, and San Pablo Bay, and also provide measures to prevent and control potential spills of hazardous material into wetlands, creeks and sloughs. Contractors are required to implement BMPs identified in a the SWPPP to control soil erosion and discharges of other construction-related contaminants such as fuel, oil, grease, paint, concrete, and other hazardous material, both during and after construction. Emergency response, routine maintenance, and preventative activities should be included in the SWPPP. The SWPPP shall be submitted to the Regional Water Board for review and comment at least 45 days before construction begins and must be approved by the Executive Officer based on BMPs and other erosion control features that have been proven successful in the past.

    Due Date for SWPPP: at least 45 days before construction starts

13. **Start-up and As-Built Reports.** The Discharger shall notify the Regional Water Board by email when construction starts and ends and 30 days before levee breaching occurs. The following reports shall also be required: i) a startup report analyzing the first two months of data, and ii) an as-built report to note any changes that have occurred from the original design.

    Due Date for Notification: when construction begins, ends, and when breaches occur.

    Due Date for Startup (or Construction Completion) Report: no more than 45 days after levees are breached.

    Due Date for As-Built Report: 90 days after construction is completed.

14. **Inspections.** The Discharger shall conduct periodic inspection and maintenance of restoration features to ensure that the restoration is performing as intended. For example, routine inspection of ditch blocks for unintentional channel bypassing or erosion shall be necessary, particularly following storm events. Levee inspections for erosion or other problems should be performed at least annually. The Discharger shall summarize the results of these efforts in its biennial reports or memos.

The Discharger shall inspect water control structures and channels on the Project site periodically for debris or trash, and obstructions shall be removed to maintain desired flows. Potentially damaging obstructions shall be removed manually or mechanically to maintain flows. Routine inspection of the levees, trails and internal berms for unintentional breaching and erosion shall also be conducted. If unintentional breaching or erosion occurs, the berm or levee shall be repaired to prevent potential tidal inundation of adjacent areas, and maintain public access along the trails. The old perimeter levees will be lowered and no longer maintained, but the proposed new levee will replace these sections and will be maintained.

15. **Construction Operations**. Construction shall last no longer than three years and will occur between April and December. The Discharger must obtain prior approval from the Executive Officer to extend the construction period or alter the construction window with appropriate SWPPP BMPs.

    During construction, and until the ambient water quality is achieved after the breaches, the Discharger will adhere to conservation measures to protect water quality and species as set forth in this Order and Attachment B. The Project covers protective measures for special status species including the endangered California clapper rail, salt marsh harvest mouse, soft bird's beak, delta smelt, and others, which are listed in the Final EIR. To the extent feasible, the Discharger shall avoid construction activities in or near marsh habitat suitable for the salt marsh harvest mouse, California clapper rail, or other protected species.

    The Discharger shall minimize in-water construction during periods when listed species may be present. Construction activities shall be scheduled to avoid the local nesting periods of the special status wildlife species, to the extent practical. When construction is conducted during the nesting period of a special status species known to be present, the activities shall be restricted to maintain a 150-foot buffer between heavy equipment and the nesting sites. Construction activities shall be scheduled in such a way as to limit the period of disturbance in a particular area to as brief a time window as is practical.

    Before constructing project components within tidal marsh habitat, the Discharger shall conduct clearance surveys or implement minimization measures, as deemed necessary by USFWS and CDFW, for special-status species that have potential to occur within the construction area.

    The Discharger shall have a construction monitor onsite to ensure that the Project is constructed according to the design and construction plan. The construction monitor shall also resolve implementation questions and refer "Requests for Information" and "Submittals" to the design engineers. Construction monitoring notes and observations shall be maintained for five years after project construction is completed, and submitted to the Regional Water Board upon request.

16. **Sediment/Soil Excavation and Placement Provisions.** The Discharger shall minimize the effects of temporary increases in suspended sediment and turbidity on special status fish species by employing BMPs for turbidity control during all in-water work conducted in the sloughs and/or Bay.

To minimize the effects on special status fish species resulting from the loss of existing habitat, construction activities in river or slough areas having immersed or submersed aquatic plants shall be avoided to the maximum extent practical.

Ditch blocks shall be located in such a way as to not trap fish at low tide. Berms adjacent to starter channels shall be constructed on one side of the channel only, and shall be discontinuous, so that fish have easy access to the starter channels as the tide recedes.

17. To avoid the dredged sediment from becoming dry and hardened, making it a poor substrate for wetland biota, developing deep cracks that harbor mosquitoes, increasing the chances of acidification, and causing metals, including mercury, to become soluble, attempts will be made to keep it wet until it will be inundated under approximately seven feet of water for years and until the tidal marsh begins to accrete. If these plans change, the Discharger will notify Regional Water Board staff and the TAC.

18. **Mosquito Abatement Provision.** The Discharger shall coordinate with county mosquito abatement districts during the design, implementation, and operations of the Project.

19. **General Provisions.** The Discharger shall comply with all the Prohibitions, Specifications, Limitations and Provisions of this Order, immediately upon adoption of this Order, unless otherwise provided.

20. The Discharger shall notify the Regional Water Board immediately whenever violations of this Order occur.

21. The Discharger shall remove and relocate any wastes that are discharged at any sites in violation of this Order.

22. The Discharger shall implement and comply with appropriate BMPs to prevent and control erosion and sedimentation.

23. No debris, soil, silt, sand, cement, concrete, or washings thereof, or other construction related materials or wastes, oil or petroleum products or other organic or earthen material shall be allowed to enter into or be placed where it may be washed or pumped from the site by rainfall or runoff into Tolay Creek, the Petaluma River or San Pablo Bay. When operations are completed, any excess material shall be removed from the work area and any adjacent area where such material may be washed into Tolay Creek, the Petaluma River or San Pablo Bay.

24. Construction contractors working on the Project shall be required to provide their employees with spill prevention and response training, and shall be required to have spill response equipment available at the job site, as directed by the Discharger. Contractors shall provide double containment for any hazardous materials or wastes at the job site. Contractors shall be prepared to respond to any spill immediately and to fully contain spills in the area, including any open-water areas.

25. The Discharger shall maintain a copy of this Order at its headquarters. The Order shall be available at all times to site personnel. The Discharger shall ensure that all individuals working

on the site, including all contractors and sub-contractors, are familiar with the contents and requirements of this Order, and with all relevant plans and BMPs.

26. The Discharger shall permit the Regional Water Board or its authorized representative, upon presentation of credentials:
    a. Entry onto premises on which wastes are located and/or in which records are kept.
    b. Access to copy any records required to be kept under the terms and conditions of this Order.
    c. Inspection of any monitoring equipment, construction area(s), or monitoring method completed as part of the Project.
    d. Sampling of any discharge or surface water covered by this Order.

27. This Order does not authorize commission of any act causing injury to the property of another or of the public; does not convey any property rights; does not remove liability under federal, state, or local laws, regulations or rules of other programs and agencies; nor does this Order authorize the discharge of wastes without appropriate permits from this agency or other agencies or organizations.

28. The Discharger shall immediately notify the Regional Water Board by telephone or email whenever an adverse condition occurs as a result of the proposed discharge or construction activities. An adverse condition includes, but is not limited to, a violation or threatened violation of the conditions of this Order, significant spill of petroleum products or toxic chemicals, or other events that could affect compliance. Pursuant to Water Code section 13267(b), a written notification of the adverse condition shall be submitted to the Regional Water Board within two weeks of occurrence. The written notification shall identify the adverse condition, describe the action(s) necessary to remedy the condition, and specify a time schedule for performance, subject to modification by the Regional Water Board.

29. The Discharger shall halt work activities if dead or dying fish, or fish exhibiting stress, are observed within 1,000 feet of work activity or discharge. The Discharger shall immediately assign a qualified biologist to investigate the cause of the problem, and to identify an acceptable response, if the cause is determined to be the work activity or discharge. The Discharger shall immediately report all incidents of dead, dying, or stressed fish, as well as prescribed action plans, to the Regional Water Board by calling (510) 622-2369 and to the California Emergency Management Agency at (800) 852-7550.

30. All reports pursuant to this Order shall be prepared under the supervision of a suitable professional in the State of California.

31. This Order is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to section 13330 of the Water Code and section 3867 of Title 23 of the California Code of Regulations.

32. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to Title 23, section 3855(b) and that application

specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

33. The Discharger has paid in full the application fee for the Project of $944.00, which was received by the Regional Water Board on September 26, 2012. An annual fee for WDRs pursuant to section 13260 of the Water Code is required.

34. The Regional Water Board may modify, or revoke and reissue, this Order if present or future investigations demonstrate that the discharge(s) governed by this Order shall cause, have the potential to cause, or shall contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters. The Regional Water Board may reopen this Order to review results of the Discharger's and Regional Water Board staff's studies and new data on Section 303(d) listed contaminants and decide whether effluent limits should be revised.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on May 8, 2013.

Digitally signed by Bruce H. Wolfe
Date: 2013.05.13 18:09:19 -07'00'

Bruce H. Wolfe
Executive Officer

Tables: 1-5

Figures: 1-4

Attachments

Attachment A: Project Description from application received by Regional Water Board

Attachment B: Final EIR Conservation Measures to protect Water Quality and other Environmental Features

Attachment C: Monitoring and Adaptive Management Plan (MAMP)

Attachment D: Water Quality Self Monitoring Program (SMP)

References

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U.S. Fish and Wildlife Service. Biological Opinion (January 10, 2013). (Amendment in process)

TABLES

Sears Point Restoration Project Tables

Table 1. Existing Habitats and Land Uses at Sears Point Restoration Project	**Acres**
Agricultural Lands	1,178
Developed Area	20
Wildflower Field	1
Non-native Annual Grassland	225
Wetlands and Waters of the U.S.	520
TOTAL ACRES	1,944

Table 2a. Anticipated Habitat and Land Use Changes at Sears Point Wetland Restoration Project (includes wetlands and waters). (These targets are only goals and may not be met.)

Habitat Type	Fill Amount (cubic yards)	Existing Conditions (acres)	Anticipated Post Construction Habitats (acres)	Anticipated Post Construction Habitats (linear feet)	Net change in Habitat (acres)*	Net Change (linear feet)
Seasonal Wetland	52,750	79.887	31.017	-	-48.87	0
Vernal Pool	100	1.182	1.156	-	-0.026	0
Ditch	42050	26.882	3.866	12,900	-23.02	-67,100
Diked Brackish Marsh	800	1.128	0	-	-1.128	0
San Pablo Bay	0	70.72	70.72	-	0	0
Tidal Marsh	0	194.733	1002.684	-	807.95*	0
Tolay Creek/Slough Channel	0	137.154	269.229	48,000	132.07*	29,000*
Marsh	0	8.295	8.295	-	0	0
Ephemeral Stream	0	0.476	0.476	5,200	0	0
Agricultural Lands	-	1178	323.014	-	-855	0
Developed Area	-	20	8	-	-12	0
Wildflower Field	-	1	1	-	0	0
Non-native Annual Grassland	-	225	225	-	0	0
Total	**95,700**	**1,944.46**	**1,944.46**	**66,100**	**-**	**-38,100**

*Net Change in tidal habitat includes sloughs and tidal marsh for a total of about 940 acres of tidal restoration.

Table 2b. Anticipated Net Changes in Wetlands and Waters at the Sears Point Restoration Project.

	Pre-project Conditions		Post-project Condition
	(acres)		(acres)
Ephemeral Stream	0.476		0.476
Tolay Creek	137.154		137.15
San Pablo Bay	70.720		70.72
Marsh	8.295		8.29
Tidal Marsh	194.733		1002.68*
Vernal Pool	1.182		1.16
Seasonal Wetland	79.887		31.02
Ditch	26.882		3.87
Diked Brachish Marsh	1.128		0.000
Slough	0.000		132.07*
TOTAL	520.457		1387.44
		Net Change	**866.99**

* Net change in tidal habitat includes sloughs and tidal marsh for a total of about 940 acres of tidal marsh restoration.

Table 3. Anticipated Excavation (cut) and Fill at the Sears Point Restoration Project

ELEMENT	TOTAL			SAN PABLO BAY			TOLAY CREEK			EPHERMERAL STREAM			TIDAL MARSH WETLAND		
	LENGTH (FT)	AREA (AC)	VOLUME (CY)	LENGTH (FT)	AREA (AC)	VOLUME (CY)	LENGTH (FT)	AREA (AC)	VOLUME (CY)	LENGTH (FT)	AREA (AC)	VOLUME (CY)	LENGTH (FT)	AREA (AC)	VOLUME (CY)
South of RR															
NEW TIDAL LEVEE	12,900	77.3	813,000												
LEVEE GRADING CUT	22,400	7.0	(15,000)												
LEVEE GRADING FILL	22,400	24.6	125,000												
LEVEE LOWERING CUT	6,850	8.0	(41,950)												
LEVEE LOWERING FILL	6,850	8.0	41,950												
BREACH 1 LEVEE CUT	100	1.2	(18,000)												
BREACH 1 PILOT CHANNEL	380	1.6	(29,000)										380	1.6	(29,000)
BREACH 1 CONNECTOR	2,100	2.6	(27,000)	2,100	2.6	(27,000)									
BREACH 1 FILL	-	3.7	18,000												
BREACH 2 CUT	50	1.2	(14,000)				-	0.3	(2,000)				-	0.1	(3,000)
BREACH 2 FILL	-	2.9	14,000												
TIDAL CHANNELS	29,500	135.4	(1,093,000)												
RR CONVEYANCE DITCH	12,900	9.5	(33,000)												
SOIL REMEDIATION AREA	-	7.3	(24,000)												
DITCH BLOCKS	-	0.9	7,500												
MARSH MOUNDS CUT	-	57.5	(250,000)												
MARSH MOUNDS FILL		57.5	250,000												
SIDECAST RIDGES		2.1	12,000												
North of RR															
ACCESS ROAD	3,700	3.9	9,000												
MAINTENANCE ROAD	4,500	3.1	9,000												
RECLAMATION ROAD IMPR	4,500	2.6	2,500												
PUMP 1 DETENTION POND	-	1.5	(12,000)												
PUMP 2 DETENTION POND	-	1.5	(12,000)												
RIPARIAN BASINS	-	0.7	(5,000)												
ALLUVIAL DEPRESSIONS	-	1.4	(4,500)							315	0.0	(100)			
	total	cut	(1,578,450)												
	total	fill	1,301,950												

Table 3 (continued). Anticipated Excavation (cut) and Fill at the Sears Point Restoration Project

SEASONAL WETLAND			VERNAL POOL WETLAND			DITCH WETLAND			DIKED BRACKISH MARSH			SHORELINE BAND			TOTALS		
LENGTH (FT)	AREA (AC)	VOLUME (CY)	LENGTH (FT)	AREA (AC)	VOLUME (CY)	LENGTH (FT)	AREA (AC)	VOLUME (CY)	LENGTH (FT)	AREA (AC)	VOLUME (CY)	LENGTH (FT)	AREA (AC)	VOLUME (CY)	LENGTH (FT)	AREA (AC)	VOLUME (CY)
-	2.5	26,000				5,500	1.3	14,000							5,500	3.8	40000.00
															0	0.0	0.00
-	0.8	5,000				9,499	3.3	17,000	-	0.2	800				9,499	4.1	22000.00
												6,850	8.0	(41,950)	8,850	8.6	(38950.00)
-	0.1	500				2,000	0.6	3,000				6,850	8.0	41,950	8,850	9	45450.00
						-	0.0	(400)				100	1.2	(18,000)	100	1	(18400.00)
															380	1.6	(29000.00)
															2,100	2.6	(27000.00)
															0	0.0	0.00
						-	0.1	(1,700)							0	0.4	(5400.00)
															0	0.0	0.00
-	4.0	(32,500)				-	2.0	(16,000)							0	6.0	(48500.00)
							0.1	(440)							0	0.1	(439.68)
												-	0.6	(2,000)	0	0.6	(2000.00)
						-	0.9	7,500				-	0.1	1,000	0	1.0	8500.00
-	4.6	(20,000)													0	4.6	(20000.00)
-	4.6	20,000													0	4.6	20000.00
															0	0.0	0.00
-	0.2	1,000		0.0	100		0.1	250							0	0.4	1350.00
-	0.1	250					0.1	300							0	0.2	550.00
															0	0.0	0.00
-	0.9	(7,000)													0	0.9	(7000.00)
															0	0.0	0.00
							0.1	(670)							0	0.1	(670.15)
															315	0.0	(100.00)
														Total	35,594	49.5	

Table 4: Dredged Material Screening Criteria (RWQCB 2000) Proposed for Use at Sears Point.
--Note that burial of wetland foundation material under 3 feet of surface material is not approved, and depends on E.O. approval of a plan to isolate the material and prevent channel incision.

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

*Not required by the Water Board and the Long Term Management Strategy; may be required by USFWS

Table 5. Proposed Material that will be contained onsite with the use of BMPs.	
Type(s) of Material to be Moved	Volume (CY)
Native soils from onsite borrow areas, toe drains, tidal channel excavation, levee breaches, and levee lowering, can be used for ecotone, ditch blocks, levee reinforcement, and temporary road construction.	1. Interior Site Grading: **99,400 CY** 2. Lower perimeter levees: **25,500 CY** 3. Levee breaches: **0** Total: **124,900 CY**
Imported riprap for outfalls of pump station.	**600 CY**
	Total: **125,500 CY**

FIGURES

Base map: Sears Point CA USGS 7.5 minute togographic quadrangle
Unsectiond portion of the Petaluma Land Grant

Figure 1-1
Sears Point Wetlands and Watershed Project Action Area

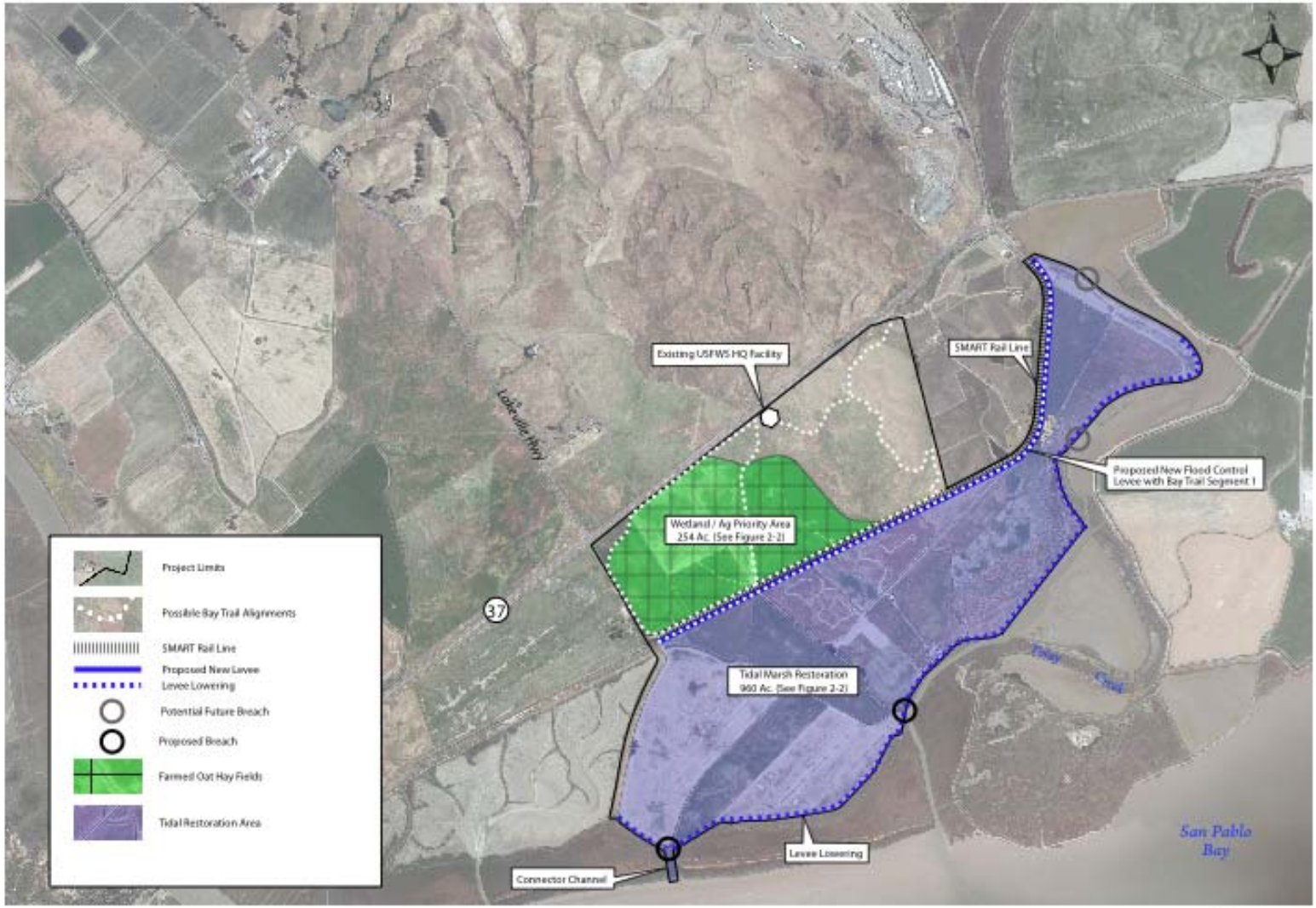

Figure 2-1
Overview of Proposed Project

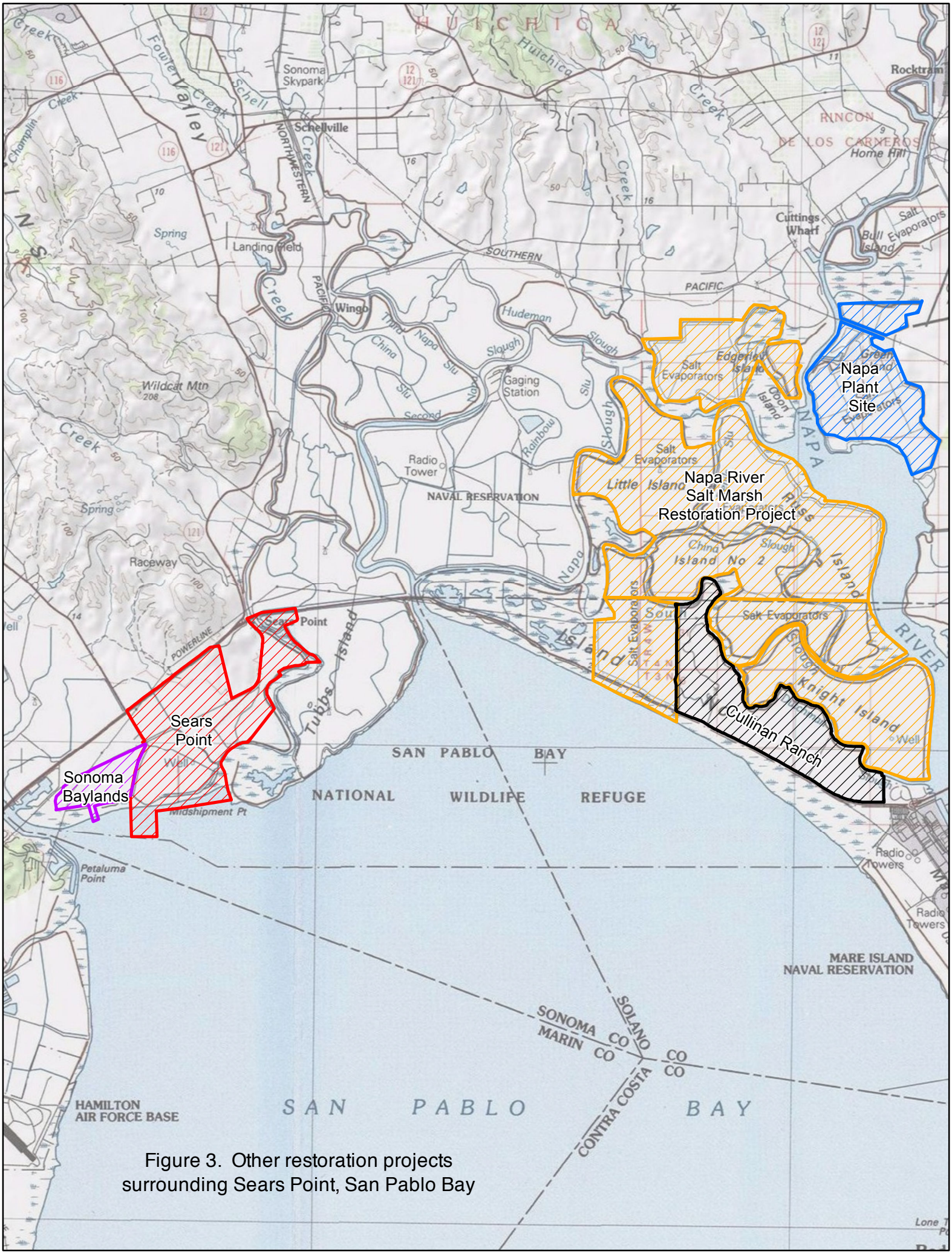

Figure 3. Other restoration projects surrounding Sears Point, San Pablo Bay

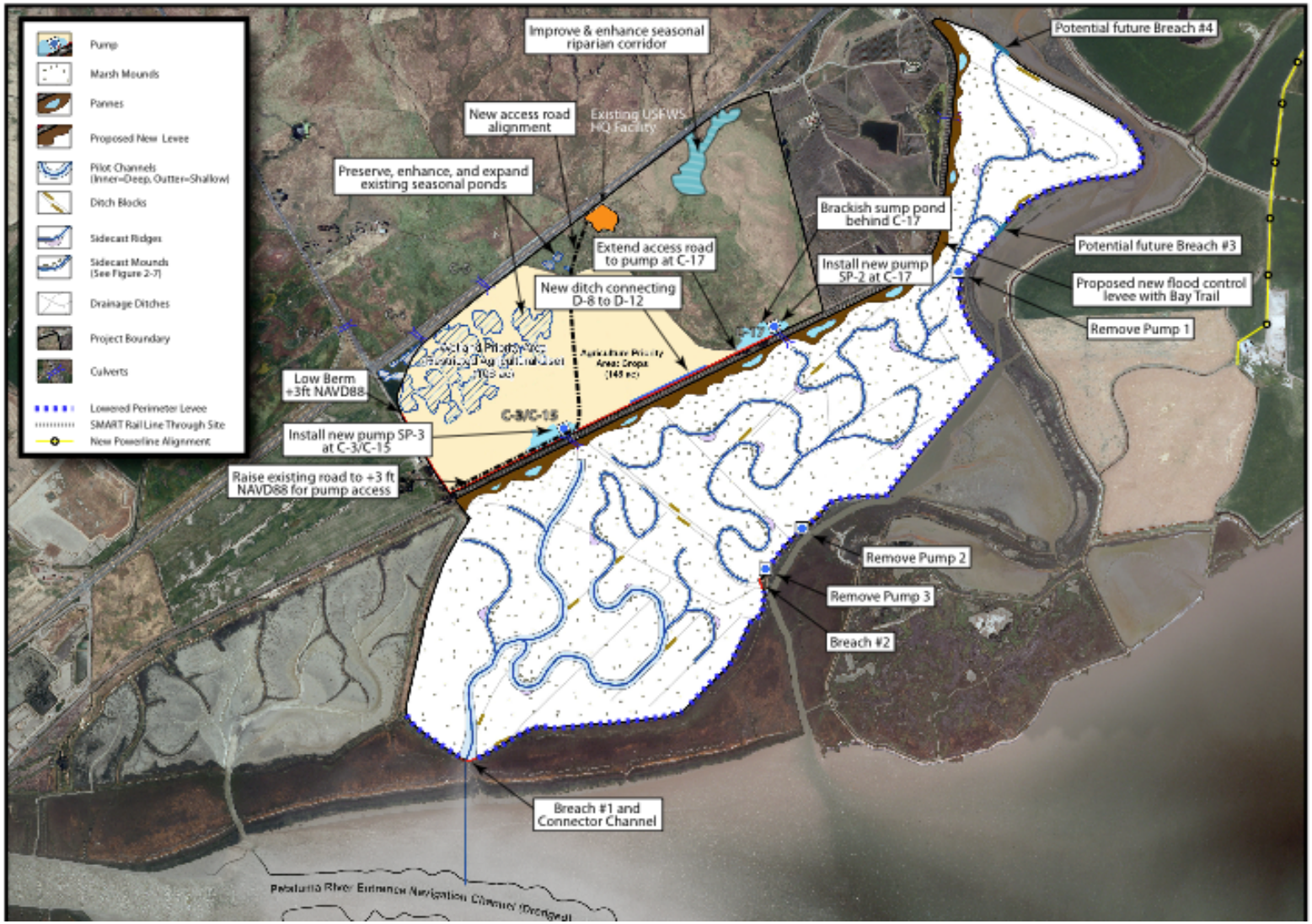

Figure 4. Sears Point Proposed Project