

Appendix D
Section 404(b)(1) Evaluation

HAMILTON WETLAND RESTORATION PLAN

SECTION 404(b)(1) EVALUATION

LEAD AGENCIES:

California State Coastal Conservancy
1130 Broadway, 11th Floor
Oakland, CA 94612-2530
Contact: Terri Nevins
510/286-4161

and

U.S. Army Corps of Engineers
Environmental Planning Section
333 Market Street
San Francisco, CA 94105-2197
Contact: Eric F. Jolliffe
415/977-8543

PREPARED BY:

Jones & Stokes Associates, Inc.
2600 V Street, Suite 100
Sacramento, CA 95818-1914
Contact: Lisa Larrabee
916/737-3000



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Project Description

Location

The Hamilton wetland restoration project is in Novato, California, on the former Hamilton Army Airfield (HAAF) and on an adjoining parcel owned by the California State Lands Commission (SLC) (Figure 1). It is located on the northwestern shoreline of San Pablo Bay (Figure 2).

General Description

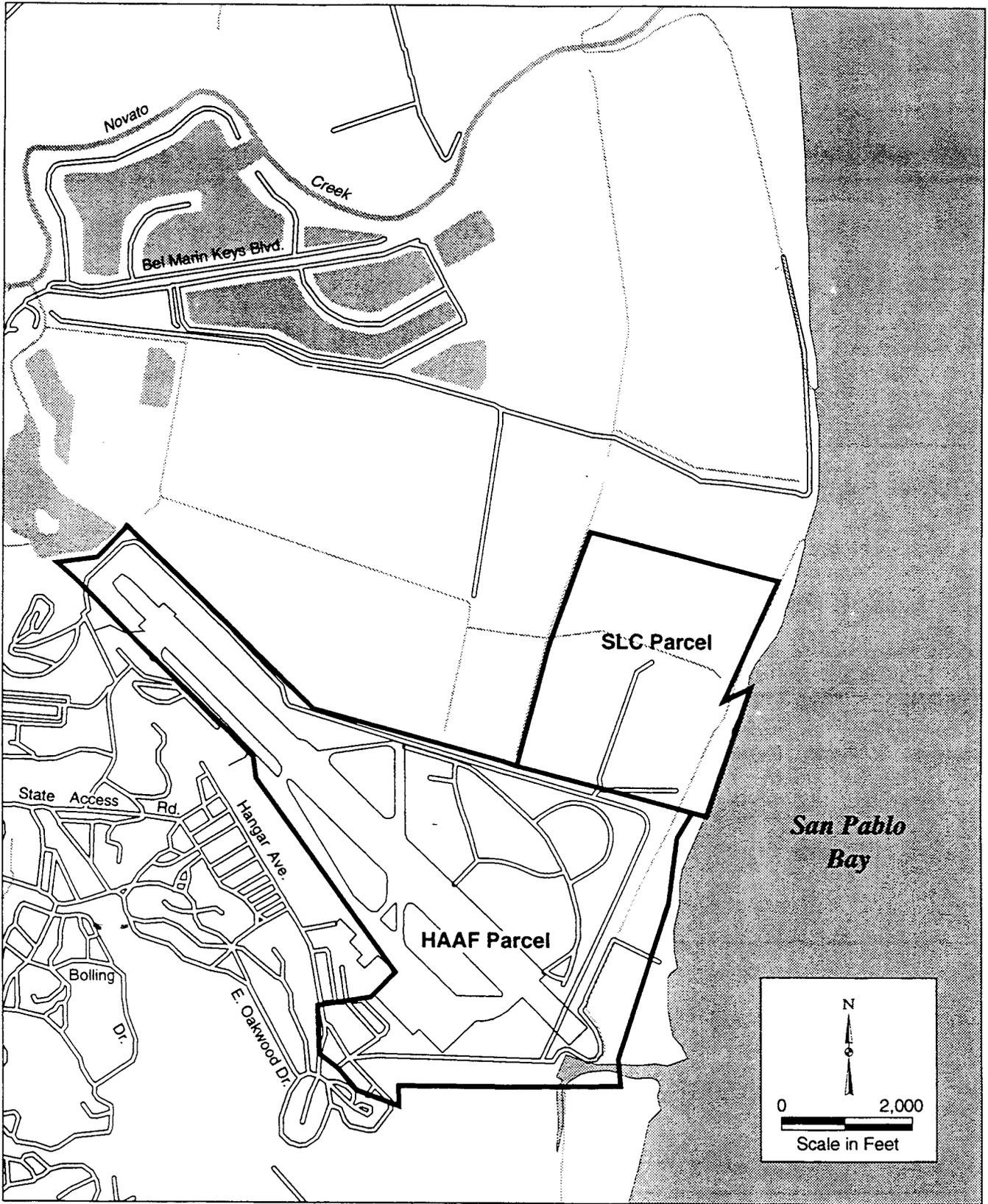
The proposed action would restore wetlands and other habitats on the HAAF and SLC parcels. Complete restoration of the wetlands is expected to take up to 50 years. Coastal salt marsh would represent the largest acreage of restored habitat, followed by tidal pannes and seasonal wetlands (Table 1). Site preparation and placement of dredged materials is estimated to take 6 years to complete and would end with breaching of the bayward levee. The period over which habitat types are expected to be restored is shown in Figures 3a and 3b.

Site preparation activities would include removing remaining buildings and structures; providing temporary drainage; relocating the Novato Sanitary District dechlorination plant and modifying its sewage outfall; installing and operating a hydraulic off-loader and piping to transport dredged material to the HAAF and SLC parcels; constructing perimeter levees, berms, and internal peninsulas; lowering the bayward levee; excavating the pilot channels; and breaching the bayward levee.

The proposed wetland restoration project could use up to 10.6 million cubic yards of dredged material. Approximately 8.5 million cubic yards would be used to restore tidal wetlands, and the remainder would be used to restore seasonal and upland wetlands. The actual amount of dredged material used at the site could be less because regardless of the amount of material deposited on the project site, the California State Coastal Conservancy (Coastal Conservancy) has committed to breaching the bayward levee and returning tidal action to the site no longer than 8 years from the time the project commences.

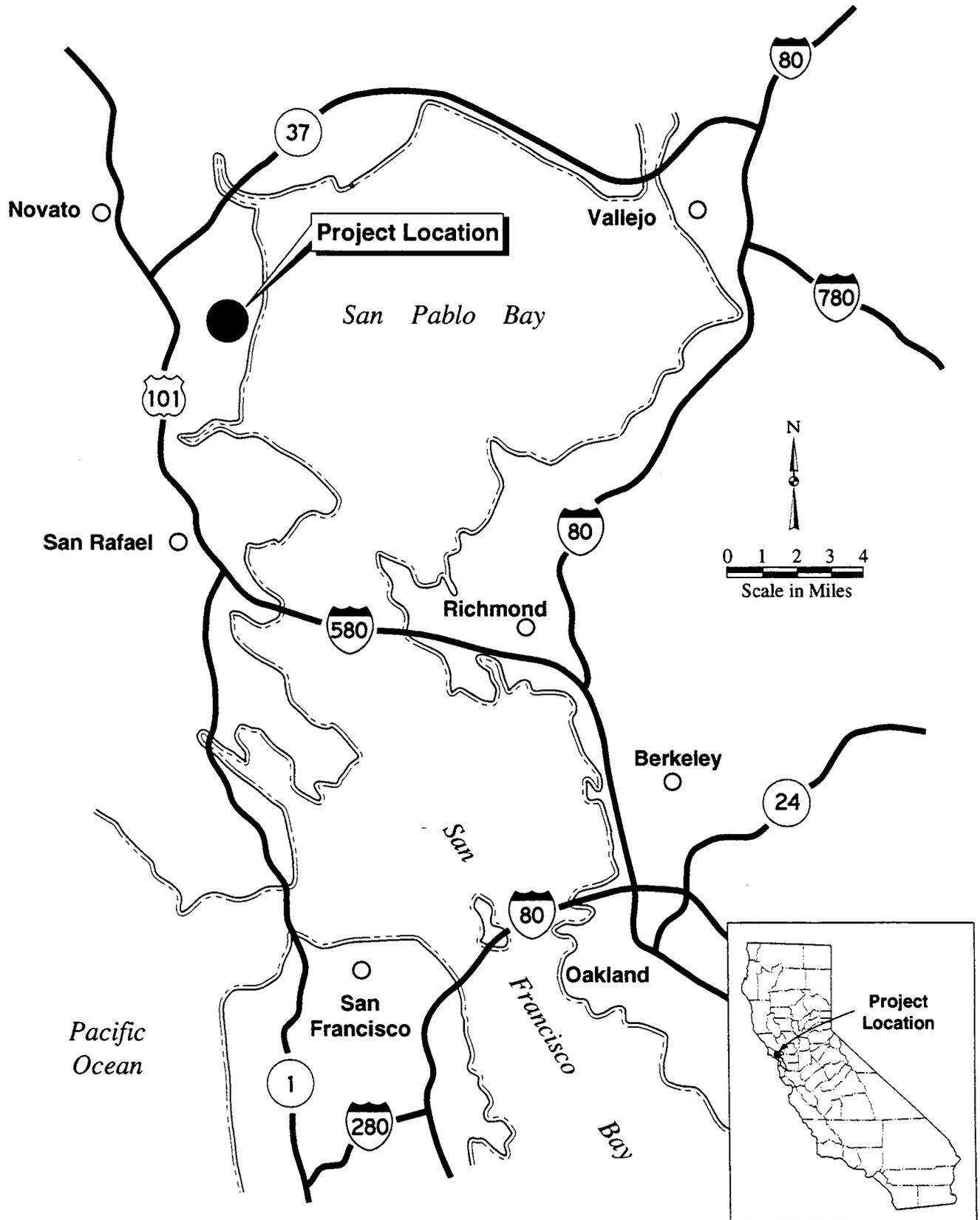
Site construction activities that would be subject to regulation under Section 404 of the Clean Water Act include:

- ◆ placing dredged material on the HAAF and SLC parcels,
- ◆ constructing pilot channels between the bayward levee and San Pablo Bay, and
- ◆ excavating material from the SLC and HAAF parcels for constructing perimeter levees and internal peninsulas.



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Figure 1
Hamilton Wetland Restoration Project Site



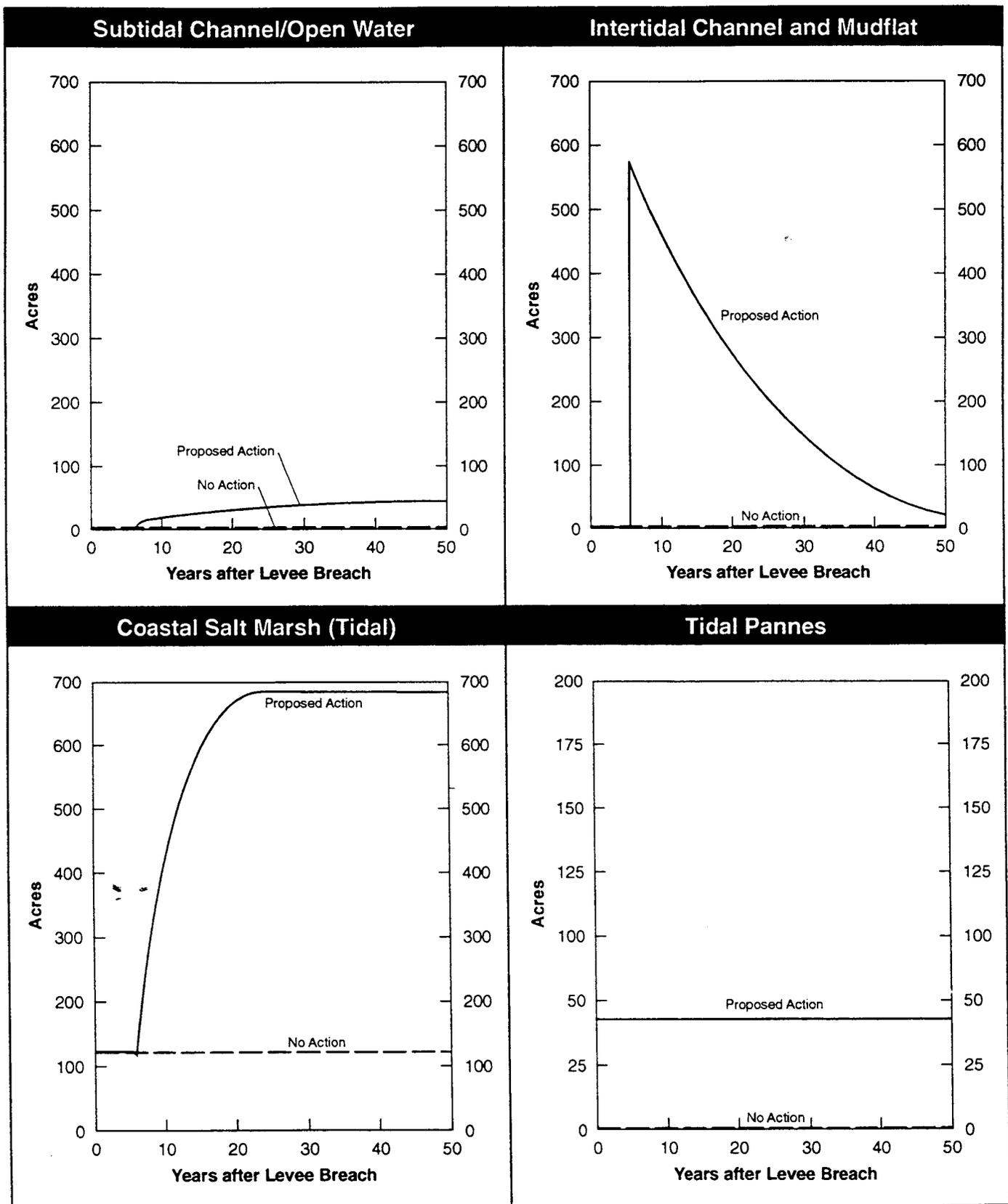
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Figure 2
Regional Location of the
Hamilton Wetland Restoration Project

Table I.
Estimated Acreage of Each Habitat Type

Habitat Type	No Action	Proposed Action ^a	
		At Levee Breach	50 Years after Levee Breach
Subtidal channel/open water	0	5	44
Intertidal channel/mudflat	0	582	22
Coastal salt marsh	120	115	690
Tidal pannes	0	41	41
Tidal ponds	0	0	4
Nontidal wetlands			
Seasonal wetlands/ponds	25	120	62
Perennial emergent marsh	4	2	2
Perennial hypersaline pond	0	0	0
Perennial brackish pond	13	0	0
Grassland	493	85	85
Developed area	284	0	0

^a Acreages of restored habitats were derived or estimated from Woodward-Clyde 1998.



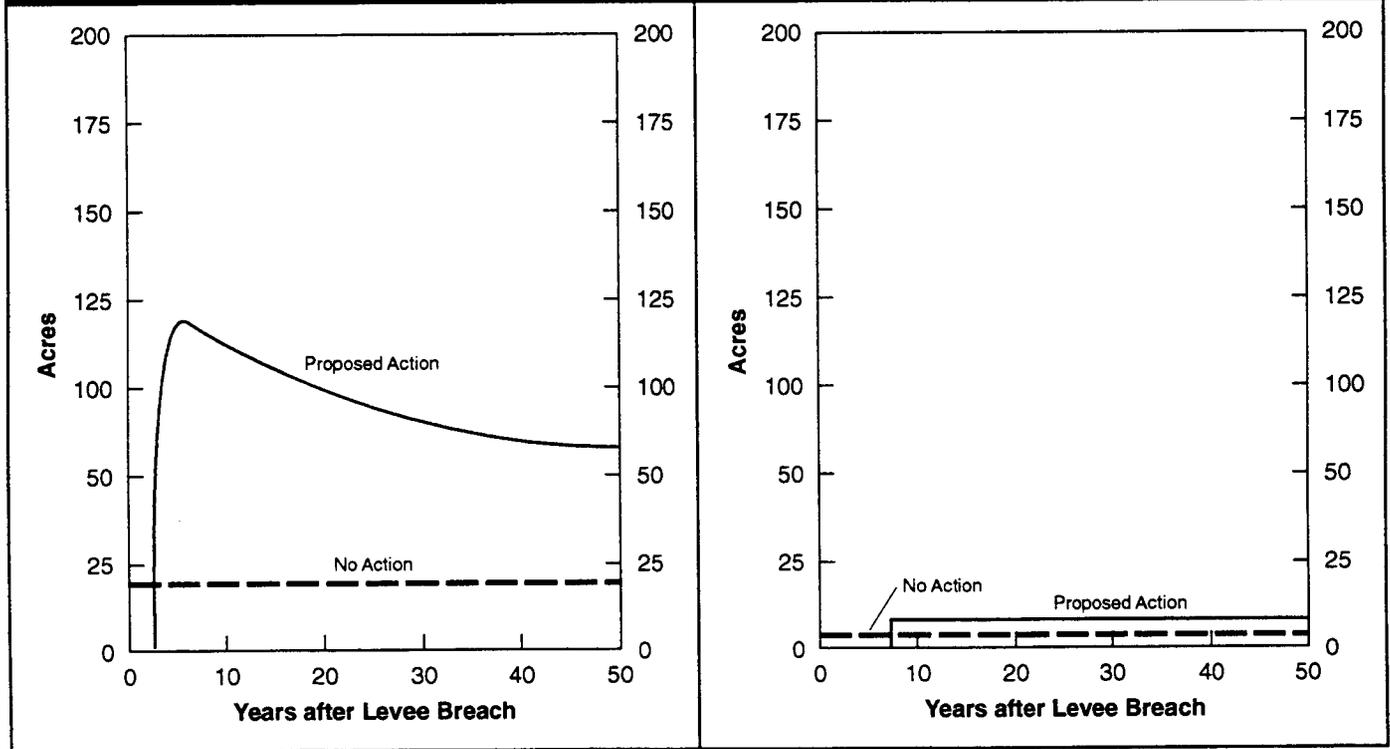
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Figure 3a
Habitat Acreages at Levee Breach and
50 Years after Levee Breach

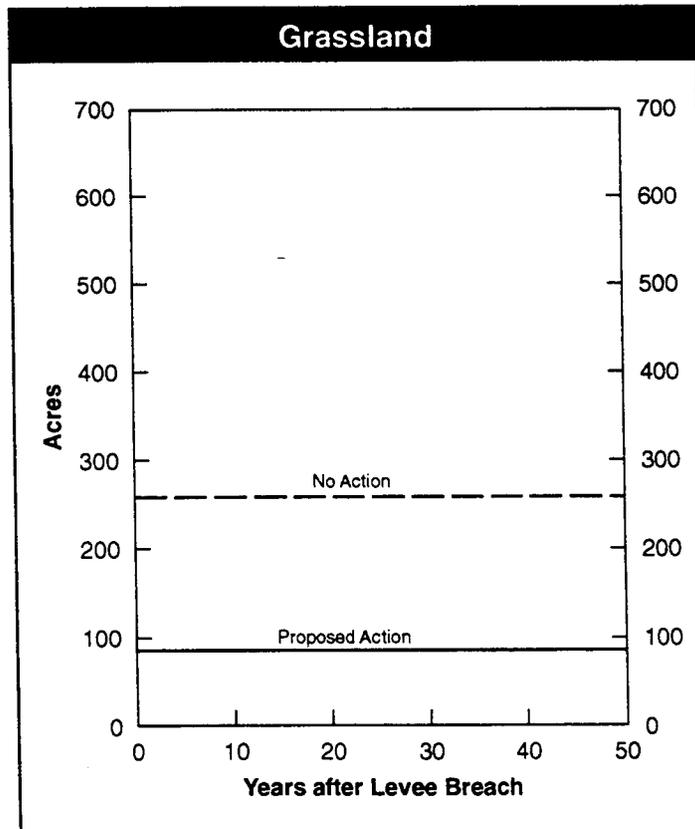
Nontidal Wetlands

Seasonal Ponds and Wetlands

Perennial Emergent Marsh



Grassland



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Figure 3b
Habitat Acreages at Levee Breach and
50 Years after Levee Breach

Authority and Purpose

The Hamilton wetland restoration project would be conducted under the authority of the Water Resources Development Act of 1998. The purpose of the project is to restore tidal and seasonal wetlands.

Dredged and Fill Material

The proposed action would be constructed using fill material excavated from the project site and dredged material imported from offsite. The most likely source of dredged material is the Oakland Harbor Navigation Improvement Project; however, dredged material also could originate from other dredging projects, including those associated with the Concord Naval Weapons Station, Southampton Shoal, Richmond Harbor, Port Sonoma, Bel Marin Keys, and Bahia Lagoon.

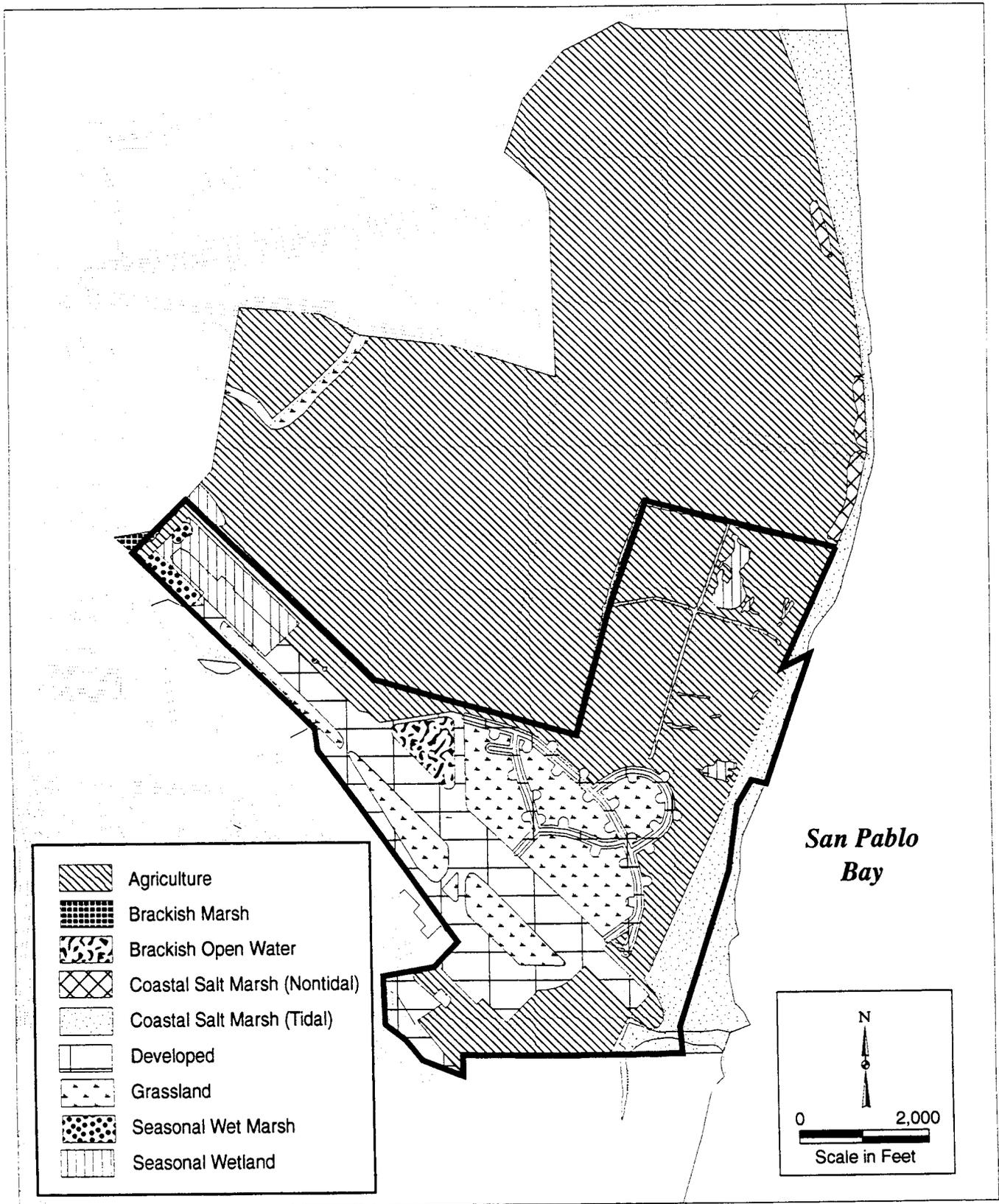
Up to 10.6 million cubic yards of dredged material could be used for the wetland restoration project. Of this total, an estimated 8.5 million cubic yards would be used to restore tidal wetlands, and the remainder would be used to restore seasonal wetlands. The total amount of dredged material placed on the site would depend on the availability of material and may be less than 10.6 million cubic yards because regardless of the amount of material deposited on the project site, the bayward levee would be breached at the end of the 8-year site preparation period.

Much of the material needed to construct the perimeter levees, berms, and internal peninsulas would be excavated from the SLC and HAAF parcels. Construction of these features would require approximately 1.7 million cubic yards of material. Most of the material needed would be excavated from the top 3 feet of the SLC parcel.

Discharge Sites

The discharge sites for the HAAF parcel were identified as part of a delineation of potential jurisdictional wetlands in 1991 (Jones & Stokes Associates 1991). The San Francisco District of the U.S. Army Corps of Engineers (Corps) initially verified the delineation in 1992 and reverified it in 1996 (U.S. Army Corps of Engineers 1996). A delineation of potential jurisdictional wetlands has been completed for the SLC parcel (U.S. Army Corps of Engineers 1998), but it has not been verified by the Corps.

Habitat types in the wetland restoration site include seasonal wetland, seasonal wet marsh, and coastal salt marsh. The locations of these habitat types are shown in Figure 4. Acreage of habitat types on the SLC and the HAAF parcel are shown in Table 2.



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Figure 4
Habitat Types at the Hamilton Wetland
Restoration Project Site

Table 2.
Acreage of Each Habitat Type in the HAAF and SLC Parcels

Habitat Type	HAAF	SLC	Total
Coastal salt marsh (tidal)	88	32	120
Coastal salt marsh (nontidal)	0	0	0
Brackish marsh	4	0	4
Brackish open water	13	0	13
Seasonal wetland	20	16	36
Grassland	259	234	493
Agriculture	0	0	0
Developed areas	284	0	284
Total	668	282	950

Seasonal wetland and seasonal wet marsh on the HAAF parcel would be eliminated because dredged material would be placed on the site. Coastal salt marsh would be eliminated because a pilot channel would be excavated between the bayward levee and San Pablo Bay and the channel would erode during tidal exchange.

Most of the seasonal wetlands on the SLC parcel would be eliminated because material would be excavated for use in constructing perimeter levees. Some coastal salt marsh would be eliminated because a pilot channel would be excavated between the bayward levee and San Pablo Bay and the channel would erode during tidal exchange.

Discharge Method

Fill material for the perimeter levees, berms, and internal peninsulas would be excavated from the SLC and HAAF parcels and placed using common construction equipment, such as scrapers, bulldozers, graders, and compactors.

Dredged material would be placed on the site through use of a hydraulic off-loader and piping. The hydraulic off-loader would be located in San Pablo Bay, approximately 34,000 feet offshore. Dredged material would be transported by barge to the off-loader, mixed with bay water to form a slurry, and pumped to either the HAAF or the SLC parcel. The placement of dredged material could be divided by location, including nontidal areas, the SLC parcel, and the tidal portion of the HAAF parcel. The wetland restoration project could begin to accept dredged material during the site preparation phase.

Factual Determinations

Physical Substrate

The construction of perimeter levees, berms, and internal peninsulas; the placement of dredged material; the excavation of pilot channels; the lowering of the bayward levee; and the excavation of levee breaches would result in the conversion of 120 acres of coastal salt marsh, 36 acres of seasonal wetlands and ponds, 4 acres of perennial emergent marsh, and 13 acres of perennial brackish ponds. This loss would be offset by the restoration of approximately 690 acres of coastal salt marsh, 41 acres of tidal pannes, 62 acres of seasonal wetlands and ponds, and 2 acres of perennial emergent marsh. In addition, approximately 85 acres of uplands, 44 acres of subtidal channel and open water, and 22 acres of intertidal channel and mudflat would be created.

The surface elevation of most of the HAAF and SLC parcels is below sea level. The bottom elevation of both parcels would be raised by the placement of dredged material and the process of natural sedimentation from San Pablo Bay. In addition, up to 3 feet of

the surface of the SLC parcel and areas in the HAAF parcel would be excavated for levee construction.

Some of the dredged material placed on the restoration site may be subject to movement by tidal forces after the bayward levee is breached. However, dredged material would be placed at an elevation to allow the final elevation of the surface of the fill to be determined by deposition of sediments from San Pablo Bay. Any movement of dredged material from the wetland restoration project site to San Pablo Bay is expected to be short term and would occur soon after the bayward levee is breached. The change to the substrate of the HAAF and SLC parcels is considered permanent.

Water Circulation, Fluctuation, and Salinity

The wetland restoration project would restore tidal action in the HAAF and SLC parcels. Tidal fluctuations would be restored to approximately 570 acres of tidal wetlands. The change in tidal currents is expected to affect only the areas of the existing salt marsh outboard of the bayward levee immediately adjacent to the subtidal channels connecting the restoration site to San Pablo Bay. Flow momentum in the subtidal channels would be dissipated rapidly by tidal waters outside the subtidal channel. Implementation of the project would not result in a measurable change in tidal fluctuation or salinity of waters in San Pablo Bay.

Suspended Particulate/Turbidity

Turbidity of waters in the wetland restoration site and San Pablo Bay is not expected to change substantially under the project. Changes in turbidity associated with constructing perimeter levees and internal peninsulas would be isolated to waters in existing drainage channels on the HAAF and SLC parcels.

The turbidity of waters in San Pablo Bay could be affected as a result of return flows of process water used to transport dredged material from the hydraulic off-loader to the restoration site. The amount of return flow is estimated to range from 20 cubic feet per second (cfs) to 50 cfs and would depend on when and where dredged materials are being placed on the restoration site. The amount of suspended material entering San Pablo Bay from the restoration site would be controlled by the Regional Water Quality Control Board (RWQCB) through project-specific waste discharge requirements (WDRs). To ensure that the project complies with the WDRs, parameters would be measured during the placement of fill material, including salinity, temperature, pH, dissolved oxygen, and suspended solids. If WDRs are exceeded, alternative measures, such as temporarily delaying the placement of dredged materials and installing physical measures to control turbidity, would be implemented.

Contaminant Determinations

The dredged material would not contain concentrations of contaminants that would harm resources in the project site. The wetland restoration project would make use of only "cover quality" sediments. Cover sediments are those that pass leaching and bioassay tests and may contain certain contaminants at concentrations less than those specified in the RWQCB interim screening criteria. Cover material must comply with RWQCB's criteria for aquatic, wetland, and upland disposal.

Aquatic Ecosystems and Organisms

The wetland restoration project would substantially increase the acreage of coastal salt marsh and seasonal wetlands and other habitat types (Table 1). Implementation of the project would result in the restoration of approximately 570 acres of coastal salt marsh and 56 acres of seasonal wetland acres of seasonal wetlands.

The U.S. Fish and Wildlife Service (USFWS) has provided the Corps with a list of threatened, endangered, and candidate fish, wildlife, and plant species that may occur in the project area. Of the species on the USFWS list, the Corps determined that Sacramento splittail (*Pogonichthys macrolepidotus*), delta smelt (*Hypomesus transpacificus*), central coast steelhead (*Oncorhynchus mykiss*), Central Valley steelhead (*Oncorhynchus mykiss*), chinook salmon (*Oncorhynchus tshawytscha*), California clapper rail (*Rallus longirostris obsoletus*), and salt marsh harvest mouse (*Reithrodontomys raviventris*) could be affected by the project (U.S. Army Corps of Engineers 1998).

One of the project objectives is to create and maintain wetland habitats that sustain viable wildlife populations, particularly for Bay Area special-status species. The project would directly benefit salt marsh harvest mouse and California clapper rail by increasing suitable habitat for these species. The increase in available aquatic habitat in the tidal marsh would benefit delta smelt, Sacramento splittail, central coast steelhead, Central Valley steelhead, and chinook salmon.

In addition, the Corps has determined that the wetland restoration project could result in short-term adverse impacts on these species. Most of these impacts would occur during the construction phase of the project and could be avoided by timing to avoid species disturbance. The Corps initiated formal consultation with the USFWS on August 18, 1998.

Human Use Determinations

The proposed discharge of dredged and fill material would comply with applicable water quality standards. The discharge would not affect municipal or private water supplies

because the HAAF and SLC parcels do not provide water for these uses. Recreational and commercial fisheries would not be affected because the HAAF and SLC parcels do not support a fishery that could be used for these purposes. The proposed discharge would not affect water-related recreation or aesthetics because public access is not allowed to the parcels.

Determination of Cumulative Effects on the Aquatic Ecosystem

As indicated above, the wetland restoration project would result in short-term loss of wetland habitat; however, this short-term loss would be offset by the substantial increase in the acreage of important tidal habitat available for sensitive wildlife and fish species. The estimated time necessary for establishing these habitats is discussed above and is shown in Figures 3a and 3b. These figures indicate that the temporary loss of existing habitat would be offset quickly by restored habitat. Implementation of the project would result in a beneficial cumulative effect by increasing habitat available for sensitive wildlife and fish species in the Bay Area region.

Secondary Effects on the Aquatic Ecosystem

The pilot channels between the HAAF and SLC parcels and San Pablo Bay may erode as a result of tidal scouring. Although the additional acreage of coastal salt marsh that would be lost through erosion has not been determined, the loss would easily be offset by the restoration of wetlands in the HAAF and SLC parcels.

Findings of Compliance or Noncompliance with Restrictions on Discharge

Finding 1

No significant adaptations of the guidelines were made relative to this evaluation.

Finding 2

The goal of the project is to create a diverse array of wetland and wildlife habitats at the HAAF and SLC parcels that benefits a number of endangered species and other migratory and resident species. This goal would be met by designing and engineering a restoration project that emphasizes simplicity, beneficially reusing dredged material, and ensuring no net loss of existing wetland habitats at the HAAF and SLC parcels. The proposed discharge has been designed to maximize beneficial environmental effects and

in effect increase the amount of aquatic habitat on the site compared to existing conditions. Because the proposed discharge would not result in a net adverse impact on the aquatic habitat (in fact, the acreage of habitat would increase substantially), no practical alternative would result in a less adverse impact on the aquatic ecosystem.

Finding 3

The wetland restoration project would not violate applicable state water quality standards. The Army has committed to remediating contaminants on the base through the Comprehensive Environmental Response, Compensation, and Liability Act and Defense Base Closure and Realignment Act processes before the HAAF parcel is transferred to the Coastal Conservancy and the SLC parcel is integrated into the project. Contaminants not addressed by this process would be remediated by the Coastal Conservancy. Only dredged material classified as "cover material" would be used in the project.

Finding 4

The wetland restoration project would affect areas inhabited by the salt marsh harvest mouse and California clapper rail, which are federally listed as endangered. The Corps has determined that the continued existence of these species would not be affected by the project and has initiated consultation with the USFWS.

Finding 5

The wetland restoration project would not result in significant adverse impacts on human health and welfare, including municipal water supplies, plankton, fish, shellfish, wildlife, and special aquatic sites; on recreational, aesthetic, or economic values; or on aquatic ecosystem diversity, productivity, or stability.

Finding 6

On the basis of the guidelines, the proposed site for the discharge of dredged and fill material for the Hamilton wetland restoration project complies with the guidelines.

The purpose of the wetland restoration project is to:

- ◆ create up to 900 acres of habitat;
- ◆ implement numerous federal, state, regional, and local plans;

- ◆ establish a partnership between state and federal agencies to accommodate habitat restoration objectives; and
- ◆ enable completion of the U.S. Army's base closure and property disposal process for HAAF.

The wetland restoration project and proposed discharge have been designed to maximize beneficial effects on the aquatic ecosystem. The proposed discharge would not result in a long-term adverse impact on the aquatic ecosystem.

Citations

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Woodward-Clyde. 1998. Draft Hamilton wetlands conceptual restoration plan. April. Prepared with H.T. Harvey and Associates and Philip Williams and Associates, Ltd. Prepared for the California State Coastal Conservancy and the City of Novato, Novato, CA.