

LYNN WOOLSEY  
6TH DISTRICT, CALIFORNIA

COMMITTEES:  
BUDGET  
ECONOMIC AND EDUCATIONAL  
OPPORTUNITIES

WASHINGTON OFFICE:  
439 CANNON BUILDING  
WASHINGTON, DC 20515-0506  
TELEPHONE: (202) 225-5161

146

**Congress of the United States**  
**House of Representatives**  
**Washington, DC 20515-0506**

DISTRICT OFFICES  
1101 COLLEGE AVE., SUITE 200  
SANTA ROSA, CA 95404  
TELEPHONE: (707) 542-7182  
FROM PETALUMA CALL:  
(707) 795-1462  
NORTHGATE BUILDING  
1050 NORTHGATE DRIVE, SUITE 140  
SAN RAFAEL, CA 94903  
TELEPHONE: (415) 507-9554  
INTERNET ADDRESS:  
woolsey@hr.house.gov

July 28, 1997

**AUG 05 1997**

Lester A. Snow, Executive Director  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, CA 95814

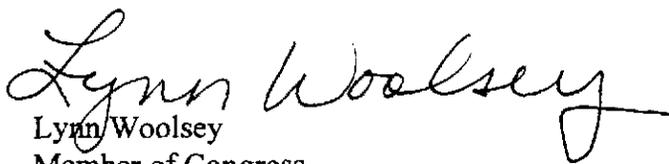
Dear Mr. Snow:

I am writing to express my support for the Marin Audubon Society's application for CALFED Category III funding to be used for marsh enhancement at Rush Creek and Cemetery Marshes, Burdell Island and the Redwood Landfill Marsh.

As I understand, funding from CALFED would allow for removal of sediment in the marsh channels in Rush Creek and Cemetery Marshes, thereby improving circulation and water quality in these marshes. It would also provide for the protection and restoration of Burdell Island and Redwood Landfill Marsh.

The Marin Audubon Society has an excellent history of other wetlands restoration projects it has overseen. Thank you for your careful consideration of their application for funding.

Sincerely,



Lynn Woolsey  
Member of Congress

LW:tf



Marin Audubon Society Box 599 Mill Valley, California 94942-0599

July 27, 1997

Kate Hansel  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, CA 95814

97 JUL 28 PM 2:14  
DINO WASHINGTON

Dear Kate,

Enclosed are four applications to CALFED for projects in the Petaluma Watershed.

The applications are for:

- Acquisition of a 180 tidal marsh and dike marsh site at Redwood Landfill and restoration of the 115 diked portion to tidal marsh.
- Enhancement of 230 acres of diked marsh at Rush Creek and about 75 acres at Cemetery Marsh in Marin County.
- Acquisition and restoration of Burdell Island, a 55-acre site, and restoration of filled portions to tidal marsh.
- A Block Grant proposal for funding to acquire in protective ownership other privately held lands in the lower Petaluma River Watershed.

If you have any questions, please call me at (415) 924-6057, fax (415) 927-3533. To facilitate my receipt of any correspondence, please address correspondence to me at: 48 Ardmore Road, Larkspur, CA 94939. Do not send to our Box.

We hope you will look favorably on these proposals.

Many thanks.

Sincerely,

Barbara Salzman  
President

*A Chapter of National Audubon Society*



Executive Summary

- a. Project Title: Redwood Landfill Marsh Acquisition and Restoration  
Co-applicants: Marin Audubon Society (MAS)  
Philip Williams and Associated LTD. (PWA)

b. Project Description and Primary Biological/Ecological Objectives The 180-acre site to be acquired is west of the Petaluma River at the Marin-Sonoma Border. The project will restore 115 acres of diked bayland to tidal marsh by removing the levee that was placed around the tidal marsh in the 1960's. The remaining 65 acres are already tidal marsh. The project will restore marsh within the historic boundaries of the 2,000-acre Petaluma Marsh, the largest undiked tidal marsh remaining in the Bay. There will be direct benefits to several fish species, including Chinook Salmon, Sacramento Splittail, and Green Sturgeon, to various special status species including the Black Rail, CA Clapper Rail, Salt Marsh Yellowthroat, and San Pablo Song Sparrow, and to migratory birds. Breaching the levee will also restore the currently fragmented floodplain habitat, thus enriching forage for shorebirds, fish and waterfowl.

The project is part of a broad effort by Marin environmental organizations and property owners to protect diked historic baylands along San Francisco and San Pablo Bays, and restore them to historic tidal marsh condition. Permanently protecting, enhancing or restoring these resources is essential for the preservation and enhancement of the Bay and Estuary.

c. Approach/Tasks /Schedule The site is the northernmost part of the 420-acre Redwood Landfill, Marin County's largest active waste disposal site. A previous owner, who developed the landfill, wanted to use the site for waste disposal, but was opposed by regulatory agencies and environmental organizations. The present owner, USA Waste, is willing to sell the 180 acres for the restoration project.

Hydrologic engineer Jeff Haltiner, Ph.D. (PWA): Dr. Haltiner has had extensive experience restoring marshes throughout the Bay and elsewhere. Biologists from the U.S. Fish and Wildlife Service, the California Department of Fish and Game, and other wildlife agencies will also participate.

To restore the site to tidal action, the existing levee will be removed and lowered in three locations on historic sloughs. Tidal waters will enter the site and drop sediments which will raise the elevations of the site sufficiently for marsh plain to restore itself. Sediment rates in this area are very high, and it is anticipated that marsh vegetation will colonize naturally within one to five years. Issues to be resolved in the feasibility/design phase are the need to include a new levee to protect the existing Northwestern Pacific railroad tracks, and the relocation of a constructed three-acre seasonal wetland.

The schedule calls for completion of acquisition by June 1998, completion of the Opportunities/Constraints Study by May 1998, submission of permit applications by June 1998, completion of environmental review by May 1999, and completion of construction by October 1999.

d. Justification for Project and Funding by CALFED This project will address the high priority stressors identified by the North Bay Technical Advisory Committee: the lack of tidal wetlands. It will contribute to the CALFED vision of restoring large areas of wetlands to assist in the recovery of special status fish populations and to provide high quality aquatic habitat for other fish and wildlife that are dependent on the Bay-Delta. This is an opportunity that must be acted upon promptly or it could be lost. Should the landfill be sold or the management change, there could be renewed attempts to expand the landfill onto the site.

e. Budget Costs and Third Party Impacts The total budget for the project ranges from \$635,000 to \$736,000, depending on whether a new levee is needed. Grants of \$25,000 from the U.S. Fish and Wildlife Service and \$1,000 from the State Coastal Conservancy have been committed for a Feasibility Study and design. MAS will contribute in-kind administrative services. The property owner is contributing an appraisal, aerial photos and base map.

The project will benefit the Department of Fish and Game's 2,000-acre Petaluma Marsh Wildlife Area and eliminate the potential for conflicting uses adjacent to the landfill and the marsh. A levee will be built to protect the railroad line to the west if necessary, and there are no known impacts to the adjacent dairy ranch.

f. Applicant Qualifications MAS completed four marsh restoration/enhancement projects involving removal of fill and restoration of tidal marshes, as well as many other restoration projects with grants from various sources. Jeff Haltiner, Ph.D. (PWA) has had extensive experience with marsh restoration in the Estuary and elsewhere.

g. Monitoring and Data Evaluation A five-year Monitoring Program will measure at least the following: sedimentation, vegetation, fish and bird use.

h. Local Support/Coordination with other Programs/Compatibility with CALFED Objectives The project complies with all applicable plans for the area. The Marin Countywide Plan contains policies supporting the protection and restoration of wetlands, migratory and special status species, and enhancing biodiversity. The current Redwood Landfill Plan does not show this site as part of the landfill. The project will advance the CALFED objective of restoring tidal and seasonal wetlands for the support of fish and other wildlife, and is supported by the San Francisco Estuary Project's Comprehensive Conservation and Management Plan.

II.

a. Project Title: REDWOOD LANDFILL MARSH ACQUISITION AND RESTORATION

b. Co-Applicants:

Marin Audubon Society (MAS)  
c/o Barbara Salzman  
48 Ardmore Rd.  
Larkspur, CA 94939  
(415) 924-6057  
Fax (415) 927-3533

Philip Williams and Associates (PWA)  
Pier 35, The Embarcadero  
San Francisco, CA 94133  
(415) 981-8363  
Fax (415) 981-5021

MAS is the lead applicant

c. MAS Non-profit 501 (c)(3) organization

d. MAS Tax ID number: 94-6076664

e. Contact Persons:

MAS - Barbara Salzman, address and phone same as above

f. Collaborators: CA Department of Fish and Game, USA Waste, Redwood Sanitary Landfill, US Fish and Wildlife Service, State Coastal Conservancy, San Francisco Bay Joint Venture, Sierra Club Marin Group, Environmental Forum of Marin, Marin Conservation League, Marin Baylands Advocates

g. RFP Group Type: Group 1: Public Works/Construction  
Group 2: Real Estate Transactions  
Group 3: Pre-project Design, Planning

Support letters attached

### III. Project Description

#### a. Description and Approach

The project will acquire and protect 180 acres of tidal and diked marsh and restore the 115 acres of diked historic bayland to tidal action. The project consists of three phases: Phase 1 will include acquisition of the site, design of the restoration project, permitting and environmental review. The restoration project will be implemented in Phase 2, and will be monitored in Phase 3.

Funding requested by this application will acquire the 180-acre site containing diked and tidal wetlands; partially fund a feasibility/design study to restore the site; implement the restoration plan and monitoring of the restored site.

The project is a collaborative effort among state and federal agencies, private industry and non-profit organizations that have come together to protect and restore these lands. The project is part of a broader effort by environmental organizations, property owners and agencies to protect diked historic baylands and tidal marshes along San Pablo and San Francisco Bays. Other partners will be sought.

Marin County forms the entire northwestern boundary of the Bay. Approximately 6,000 acres of diked baylands remain undeveloped in Marin County. Permanently protecting, and restoring or enhancing these resources is essential for the preservation and enhancement of the Bay and Estuary. Over 80% of the Estuary's tidal wetlands have been lost.

#### b. Location and Geographic Boundaries

The site is the northernmost acreage of the 600-acre Redwood Landfill, Marin County's major solid waste disposal site. It is located in the Petaluma River watershed, west of the river at the Marin-Sonoma border. To the west the site borders a Northwestern Pacific railroad line and a family-owned dairy ranch. To the east is San Antonio Creek, a tributary of the Petaluma River, and the Petaluma Marsh. San Antonio Creek and the dairy ranch form the northern border, and Redwood Landfill is to the south.

#### c. Expected Benefits

The project will restore tidal action to lands within the historic boundaries of the 2,000 acre Petaluma Marsh, the largest undiked tidal marsh remaining in San Francisco/San Pablo Bays. It will address a high priority stressor identified by the North Bay Technical Advisory Committee: the lack of tidal wetlands. It will restore habitats identified as having experienced the greatest declines: saline emergent (tidal) habitat. Tidal wetlands in the lower Petaluma River

The project will further several high priority CALFED actions, including acquisition of land on the Petaluma River from willing landowners, restoring tidal marsh but not at the expense of important seasonal wetlands, and enhancing tidal and seasonal wetlands. 180 acres of tidal marsh and diked bayland on the Petaluma River will be acquired from a willing seller. 115 acres of currently diked bayland will be restored to tidal marsh; marsh ponds will be restored which will provide functions currently provided by seasonal wetland.

The project will significantly contribute to the attainment of the CALFED vision of restoring large areas of wetlands supporting ecosystem processes, to assist in the recovery of special status fish populations and to provide high quality aquatic habitat for other fish and wildlife dependent on the Bay-Delta.

Fish Benefits: The project will preserve, protect, improve and expand habitat for many species of concern for CALFED. Restoration of this large acreage will expand feeding and resting habitat for all runs of Chinook Salmon. All runs use the marshes along the lower Petaluma River and San Antonio Creek to forage, rest and hide from predators during their passage out to the ocean. Having a larger area of marsh available as a nursery will enable young fish to increase in size and will enhance their survival ability. The restored marsh will also expand nursery habitat for Steelhead both during out-migration from the Delta and from spawning grounds in tributaries upstream on the Petaluma River.

The Petaluma River is historic spawning habitat for Splittail. Splittail spawning has occurred in the upper part of the River in recent years. San Antonio Creek, where this project is located, has a high potential for Splittail spawning in sections where there is fresh water inflow. Spawning may be occurring in these areas now, but there are no surveys taking place to confirm this. Expanding brackish tidal marshes will increase tules and rushes, which are spawning habitat as well as foraging habitat for Splittail.

Green Sturgeon also use the lower Petaluma River marshes for feeding. These bottom feeders will forage in the channels of restored marshes. Other resident fish species, Tule Perch, Shad and the non-native American Shad and Striped Bass will benefit from the additional habitat.

Special Status Species: Many special status species will benefit from this project. These are the state-listed threatened, and federally listed species of concern, Black Rail, Salt Marsh Yellowthroat and Salt Marsh Song Sparrow. Population estimates for Black Rails in the Petaluma Marsh are as high as 7,438 individuals (Evens, Page, Stenzel, Warnock, 1986) and estimates of San Pablo Song Sparrow (SF Bay Bird Observatory, 1986) are 27 breeding pair. This project would allow these populations to expand into the restored areas of historic tidal marsh. Brackish characteristics of the lower reaches of the Petaluma Marsh may be

one of the factors contributing to the high concentrations of Black Rails.

The endangered California Clapper Rail and Salt Marsh Harvest Mouse also inhabit the Petaluma Marsh. Recent surveys estimate the Petaluma Marsh Clapper Rail (Collins, Evens, Grenwell, 1994) population as 19 pairs. These endangered species also will benefit from the increased 115 acres of tidal marsh and are expected to expand their range.

Benefits for Migratory Birds: After restoration of the site to its historic tidal conditions, it is expected that use by migratory waterfowl and shorebirds will increase. Foraging habitat for migratory waterfowl and shorebirds will improve because there will be increased fish and invertebrate populations resulting from the increased intertidal habitat and nutrients.

Migratory waterfowl such as Northern Pintail, American Widgeon, and Mallard, also will benefit. It is expected that migratory diving ducks including Canvasback and Scaup, would also forage and rest in the newly opened sloughs. Habitat for resting and foraging migratory shorebirds, particularly Willet, Long-billed Curlew, and Whimbrel will also expand.

Other Ecosystem Benefits: The project will address many other stressors of concern to CALFED. Breaching the levee will restore hydrologic functions, tidal flows, historic floodplain, and will restore now-fragmented floodplain habitat. Re-introduction of tidal flows to this large site will restore historic channel meanders and associated habitats. Increasing the amount of tidal marshes will improve water quality by trapping sediments and absorbing pollutants.

Restoration will also mean additional food chain support. Nutrients from the restored marshes will contribute to productivity within the marsh and will be exported to support invertebrates in River and Bay mudflats, and fish in the open water habitats of the Bay. This will enrich foraging opportunities for shorebirds, fish and waterfowl.

Because this marsh restoration project will expand tidal habitat for a marsh that is already important, it will make a significant contribution to species richness and diversity. The expanded habitat will be even more valuable because the site is remote with little human use; therefore, conflicts between these species and other beneficial uses will be avoided.

#### d. Background and Biological/Technical Justification

This is an opportunity that must be acted on promptly or it could be lost. Should the landfill be sold or the management change, renewal of attempts to expand the landfill operations onto the site is a very real potential.

Dikes were placed around the 115 acres during the 1960's. The site has been the subject of controversy for about the last 20 years because a previous owner, who developed the landfill, attempted to move the landfill operations onto it. (See attachment of 1989 site plan showing the site as Proposed Future Sludge Processing Area.) Consistent opposition from regulatory agencies and environmental organizations kept the landfill boundaries intact. The current owner, USA Waste, has offered to sell and supports the restoration to tidal action.

The restoration project design will be based on a sound technical and scientific approach and application of the hydrologic expertise of engineer Jeff Haltiner, Ph.D., PWA. Dr. Haltiner has extensive experience restoring marshes throughout the Bay and elsewhere. Biological expertise of wildlife agencies, including the U.S. Fish and Wildlife Service and the California Department of Fish and Game, has been and will continue to be integral to designing the restoration plan.

Restoration of the site to tidal action will be relatively easy and will maximize cost effectiveness. A preliminary plan consists of four components: cutting the outboard levee to allow inundation by tidal waters, removal of the existing outboard levee, re-creation of marsh ponds, and raising of an existing low inboard levee. More specifically:

- 1) The existing outboard levee will be lowered to the elevation of the marsh plain, and the material will be used to fill an agricultural drainage channel which was probably a borrow area for material to construct the levee. If allowed to remain, the channel would divert tidal waters and inhibit reformation of tidal sloughs in the marsh.
- 2) To facilitate tidal waters flowing onto the site, deep cuts will be made in three locations through the outboard levee and any adjacent marsh, to allow maximum tidal flow from the deep waters of San Antonio Creek. To the extent possible, these cuts will be made in the locations of historic tidal sloughs, except along the south end to avoid the threat of erosion of the landfill. Sediment rates in this area are high, about two feet per year. Given the experience at other marsh restoration sites nearby in the watershed, and given the fact that the site has not subsided significantly, it is anticipated that sediment will deposit and marsh vegetation will colonize in a relatively short period of time. Our experience at other marsh restoration sites is that if there is an available seed source for native wetland plants nearby, as is the case here, plants will colonize naturally within one to five years, depending on the species.
- 3) The project will recreate historic marsh ponds. This component will restore an historic landscape feature that once existed in many marshes in the Bay but now only remains in the adjacent Petaluma Marsh. The project also will demonstrate methods to restore these historic features. These shallow ponds will also compensate for the loss of a three-acre seasonal

wetland restoration on the property. This seasonal wetland was constructed to compensate for one-half acre of seasonal wetland when the Landfill Solid Waste Facility Permit was approved. Plans exist for creation of tidal marsh ponds, but no project yet has re-created these unique features. The ponds will be restored as closely as possible to historic locations which are recorded in aerial photos from the 1950's and 60's. The ponds will be restored by constructing berms around the historic ponds areas.

Another unique feature of the site is the presence of an artesian spring. On one recent visit (July 22, 1997), over 100 sandpipers were observed feeding in this fresh water area which also supported a sizable brine fly population. This spring-seep will also be preserved as part of the project design, by construction of berms as described above.

4) If necessary, an existing inboard levee will be raised to protect the adjacent railroad tracks. The need to increase the height of this existing low levee, to protect the railroad tracks, will be determined during the constraints/opportunities analysis. The height, structural stability and adequacy of this existing low levee will be determined through engineering study. The period of concern for the railroad levee is when tidal waters will pond on the site prior to re-establishment of the marsh plain. Material to cap the levee to enhance its height and stability can be obtained on-site.

In addition to restoring tidal marsh plain, channels, and marsh ponds, the project will be designed to restore, where possible, the historic tidal marsh-upland interface that now, because of human intervention, exists in very few locations in the Estuary. There is opportunity to restore a marsh-upland/hill interface.

Another alternative is to use dredged material. This would add considerable cost to the project and would likely require dredging for barge access, which would cause damage to the Petaluma Marsh.

#### e. Proposed Scope of Work

The Scope of Work for which CALFED funding is requested:

Phase 1: Constraints/Opportunities Analysis; Acquisition of the site; and Preparation of final Marsh Restoration Plan;

Phase 2: Design drawings/Specifications; Environmental Review; Permits; bidding if necessary; Implementation of the restoration plan; and

Phase 3: Monitoring of the restoration project.

#### f. Monitoring and Data Evaluation

A five year Monitoring Program will be developed and implemented after completion of the restoration project. Monitoring

objectives and indicators will be identified to measure the success of the project in restoring tidal marsh and increasing fish and bird habitat. The monitoring plan will measure at least the following: sedimentation rates and elevations, colonization of tidal marsh vegetation, fish and bird use. MAS will provide qualified volunteers to complete bird monitoring.

If an acceptable monitoring protocol is developed by the San Francisco Estuary Institute, our team would be willing to use this protocol, or if a monitoring program is developed for the North Bay by that organization or another, we would be prepared to participate in that overall monitoring effort. This may necessitate a modification of costs.

#### **g. Implementability**

The restoration component will be based on hydrologic and biological study of the marshes. USA Waste is a willing seller. Restoration should occur during the dry months of summer to avoid difficulties of working in bay mud during the rainy season and to avoid impacts to migratory species.

The restoration project complies with all applicable plans for the area. The current Landfill Plan does not include the site. The project site is in the jurisdiction of the County of Marin. The Marin Countywide Plan has many policies supporting the protection and restoration of wetlands, the Bay, wildlife, migratory species and special status species. The project will comply with wetland protection and restoration policies of the Marin Countywide Plan.

Permits from the Army Corps of Engineers and the Regional Water Quality Control Board will be needed. It is anticipated that these can be received in one year.

The CA Department of Fish and Game endorses the restoration and will own and manage the marsh. Contact will be made with the adjacent dairy rancher. No adverse impacts to the dairy operation are anticipated.

By enhancing fish survival and water quality, which will increase fishing opportunities, the project will contribute to the local economy.

An Initial Study will be prepared. The lead agency for environmental review will be the State Coastal Conservancy.

There are no known cultural resources or hazardous materials on the site. The site was tidal marsh until the 1960's. Oat hay was grown until the early 1990s.

#### IV. Costs

This application requests funding for two phases of a two phase project as described below. It is anticipated that the project can be completed in 2 years. Phase 1 funding for an Opportunity/Constraints study, design drawings to enable permit applicants and environmental review (\$50,000 to \$75,000), will be needed by November of 1997. Acquisition funding would not be needed until the time of acquisition, which is anticipated to be by June 1998. Construction funding (\$135,000 to \$151,000) would be needed by May 1999 to begin construction in August/September of 1999.

##### a. Estimated Budget

Phase 1: Acquisition	\$ 510,000
Opportunity/Constraints/Preliminary design (partially funded by USFWS and SCC)**	0
Final Design/Construction drawings/ Permitting/Environmental Review	50,000 to 75,000*
Construction	135,000 to 151,000*
Phase 2: Post-Project Monitoring	30,000
TOTAL REQUEST TO CALFED	\$ 695,030 to 736,030*

\* Ranges reflect costs with no in-board levee work needed, and with upgrading of the existing levee to protect the railroad tracks.

\*\*The following grants have been committed to implement the Phase 1 Initial Opportunity/Constraints Preliminary Study and design: \$30,000 from the USFWS and \$1,000 from the State Coastal Conservancy. These funds are not included in, but are in addition to, the above budget amounts.

The property owner, USA Waste, is contributing an appraisal, aerial photos, base elevation map and preliminary title report. Budget acquisition costs are based on an appraisal obtained by USA Waste in July 1997.

Additional funding could be sought from the Marin Community Foundation and other agency sources.

All work will be performed by contractors. MAS is a volunteer organization that has no paid staff and no office. It does not charge fees for services or direct overhead costs. All overhead costs, miscellaneous or other direct or indirect costs, are included in the above budget.

MAS will contribute the following services in-kind: coordination and outreach, oversight, project preparation and construction, participation in project design and development, preparation of environmental review documents, completion of permit

applications, developing contracts, supervising construction, and coordinating monitoring and reporting.

The preferred construction contractor is Cooper Crane and Rigging (CCR). CCR has extensive experience with marsh restoration in San Francisco Bay and elsewhere and is frequently hired by CDFG and USFWS for work on their wetlands. PWA, MAS and CCR have worked as a team on many marsh restoration projects including all projects on the attached list, and many additional projects implemented by others. It is MAS experience from implementing marsh restoration/enhancement projects, and observing many other marsh mitigation and other projects implemented by developers and others, that CCR can provide the most experienced, cost effective, skilled and environmentally sensitive services.

Using CCR would also maximize cost effectiveness of the project because it is located very close to the restoration site. Therefore, there will be no mobilization costs. We would go to bid if required, however.

**b. Schedule Milestones**

Opportunities/Constraints Study and project design will be completed by May 1998.  
Acquisition will be completed by June 1998.  
Permits applications will be submitted by June 1998.  
Environmental Review will be completed by May 1999.  
Project construction will be completed by October 1999.  
Transfer to the Department of Fish and Game by January 2000.  
Monitoring will be conducted until 2004.

**c. Third Party Impacts**

There are only four adjacent landowners: USA Waste, a dairy family, and the Department of Fish and Game. The Department of Fish and Game supports the project and will own the site.

Restoration would benefit Redwood Landfill because it will eliminate the risk of conflicting uses adjacent to the site. Cuts in the levee will be made in sections that will not risk the structural integrity of the landfill perimeter levee which extends around the entire perimeter of the landfill. This perimeter levee prevents out-migration of leachate.

Contact will be made with the Northwestern Pacific Railroad. If needed, a levee will be designed and constructed as part of the restoration project. There are no known impacts to the adjacent dairy ranch family; contact will be made with them.

There are dilapidated fishing shacks, most of which are uninhabitable, along a section of levee which is part of the project site. The only access is via boat. The Landfill will attempt to contact users. The used shacks that are in use could be left.

## V. Applicant Qualifications

MAS will manage the project and provide services identified in "IV. a." above and will contract and supervise the dredger during construction. PWA is responsible for technical aspects of the project including Opportunities/ Constraints Study, design drawings, grading plan, specifications, construction observation.

**MAS Qualifications:** MAS has considerable experience implementing marsh restoration and enhancement projects such as this. In the last ten years MAS has completed four marsh restoration and/or enhancement projects using funds from many sources, ACL, from a private foundation, USFWS, USEPA, SCC, and MAS.

1. REDWOOD HIGH SCHOOL MARSH ENHANCEMENT PROJECT - In 1986, grants from the SCC and the Marin Community Foundation enabled MAS to develop and implement an enhancement plan for this 12 acre diked salt marsh located at Redwood High School and is owned by the School District. The project deepened and widened channels to improve water circulation and fish habitat, constructed a tide gate to allow improved water management in the marsh. In 1995, several channels were widened and ditches created to eliminate mosquito problems.

2. CORTE MADERA ECOLOGICAL RESERVE ENHANCEMENT/RESTORATION PROJECT - This project restored filled land to tidal action and created a habitat island for Clapper Rails and Black Rails at the Department of Fish and Game owned Corte Madera Ecological Reserve. ACL fines levied against two local jurisdictions for sewage spills funded implementation of this project. Construction was completed in 1990. A five year monitoring requirement has been completed which found the site is restoring as tidal marsh.

3. GALLINAS CREEK RESTORATION (in 3 Phases) - This project also was implemented with ACL fines for sewage spills in the San Rafael. MAS obtained a grant from the SCC to develop a restoration/enhancement plan for the entire site. The site is owned by the State Lands Commission and was leased by the Department of Fish and Game for the purpose of allowing this project to be implemented. Phase 1 was completed in 1992, Phase 2, also with ACL monies, in 1993, and the third and final phase of this project was completed in January 1997 with funding from the Marin Community Foundation, USFWS and the USEPA. Tidal and seasonal marsh were restored.

4. MILL VALLEY RESTORATION PROJECT - ACL fines also funded this 1992 project on a site owned by the Marin County Open Space District. Part of an old levee and a collapsed culvert were removed to restore an area of tidal marsh, isolate a section of levee for a high tide refuge for shorebirds, and to improve circulation to the adjacent tidal marsh.

Barbara Salzman, who has managed all of these projects, has won many awards for her environmental activities, including Save the Bay Founders Award, the Marin Green Award from the Marin Conservation League, and the first Environmentalist of the Year Award given by the Marin Environmental Alliance. Ms Salzman has participated by invitation in U.S. Environmental Protection Agency and National Audubon Society seminars and conferences on watershed and marsh protection and restoration.

These restoration projects have been recognized in the National Audubon Society AUDUBON magazine, and in the Coastal Conservancy's CALIFORNIA COAST AND OCEAN magazine.

**PWA Qualifications:** PWA offers professional consulting services in all aspects of hydrology, hydraulic engineering, geomorphology and water resource planning.

PWA staff possess the broad range of skills necessary for developing practical solutions to complex multi-objective water resource management problems, expanding beyond traditional, single-focus water engineering approaches.

Our staff of civil engineers, hydrologists, geomorphologists, and watershed managers has years of technical and field experience in hydraulic analysis, computer modeling, flood hazard determination, sediment transport, watershed management and environmental planning.

In addition to providing expertise in the traditional hydrologic areas of flood hazard analysis, sediment transport, and watershed modeling, PWA is a recognized leader in integrating advanced hydrologic analysis with environmental resource management and restoration.

The firm has completed numerous successful restoration and management plans for coastal estuaries, watersheds, wetlands, and riparian corridors, often working on interdisciplinary teams with resource planners, public works engineers, biologists and landscape architects. We have gained from this experience a unique perspective for developing practical solutions that are adapted to the natural and social environments.

PWA has completed more than 1000 projects for a full range of clients, including governmental agencies, developers, attorneys, citizens' groups and other consultants. We have developed solutions to a wide variety of problems, ranging from practical design to policy recommendations.

#### **Expertise in Wetlands Hydrology**

Our broad expertise enables us to assess the effects of flood flows, sediment delivery, tidal circulation and groundwater movement to solve a wide variety of problems in natural and managed fresh and salt water wetlands.

Our approach is to first gain an understanding of the natural hydraulic and hydrologic processes influencing the site. In addition, to working with many non-profit groups, local government agencies and private developers, PWA has been retained by several federal and California state agencies concerned with estuarine, marsh and coastal hydrology management. These include: the U.S. Environmental Protection Agency, the State Coastal Conservancy, the San Francisco Bay Conservation and Development Commission and the U.S. Army Corps of Engineers.

We have completed over 400 wetland restoration plans and analyses of coastal, seasonal, inland, and riparian wetlands. See attached lists of representative projects and background on PWA hydrologists who will be working on this project.

#### IV. Compliance with standard terms and conditions

The terms and conditions specified in the 1997 Category III Ecosystem Restoration Projects and Programs RFP are acceptable and can be complied with by MAS. Required forms are attached.

PWA requests consideration of the following deviations from the Attachment D Terms and Conditions:

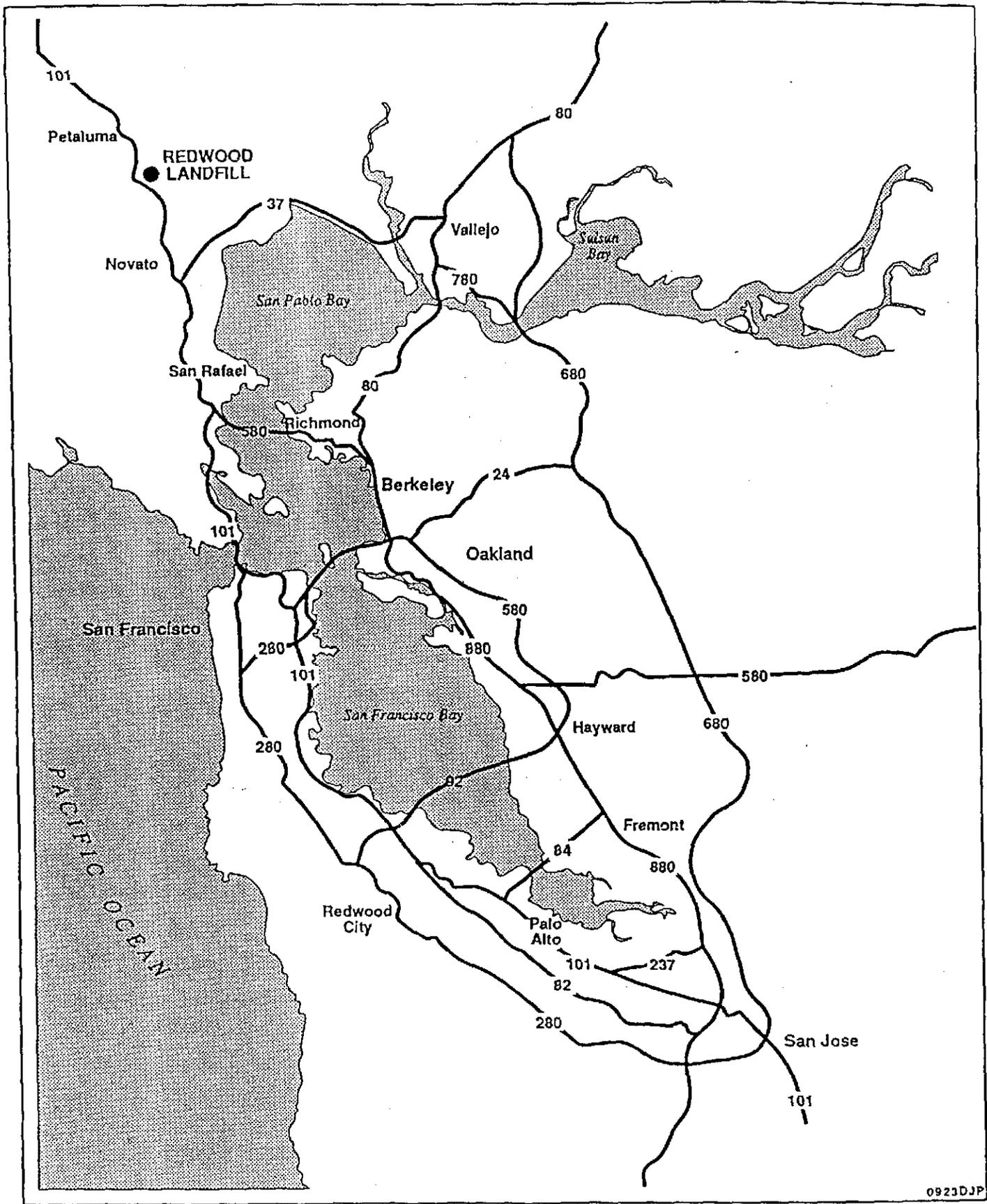
Section 8. Rights in Data: Whereas data and information obtained or received under contract shall be in the public domain, PWA would not be able to disclose or permit use of proprietary software subject to licensing or copyright restrictions. In addition, PWA wishes to limit our liability for misuse or inappropriate use of PWA generated materials for purposes outside the contract given the fact such information will be in the public domain. Therefore, we request the following language to be added to this section: "Proprietary computer software and its applications, unless expressly developed as a work product for use by the Client as part of the scope of services, remains the property of PWA or the software developer. Further, reports, recommendations and other materials resulting from PWA's efforts are intended solely for purposes of this Agreement; any reuse or modification by Client or others for purposes outside this agreement without PWA's written permission shall be at the user's sole risk."

Section 9. Indemnification: PWA requests to limit indemnification to claims of losses resulting from our negligent performance. Further, we request that PWA is indemnified and held harmless from claims or losses resulting from the negligent acts or omissions of other parties not under our control.

Section 11. In the event of termination for default, it is customary that the maximum costs applied to a Contractor be limited to the total contract amount. Under the current language a contractor could have unlimited liability which is not insurable nor appropriate (i.e. a Contractor could be asked to pay the State \$100,000 to hire someone else to complete a contract originally executed for \$20,000.)

Section 12. We request the substitute language for this section to read: "Without the written consent of the other party, neither the State nor the Contractor may assign this agreement in whole or in part."

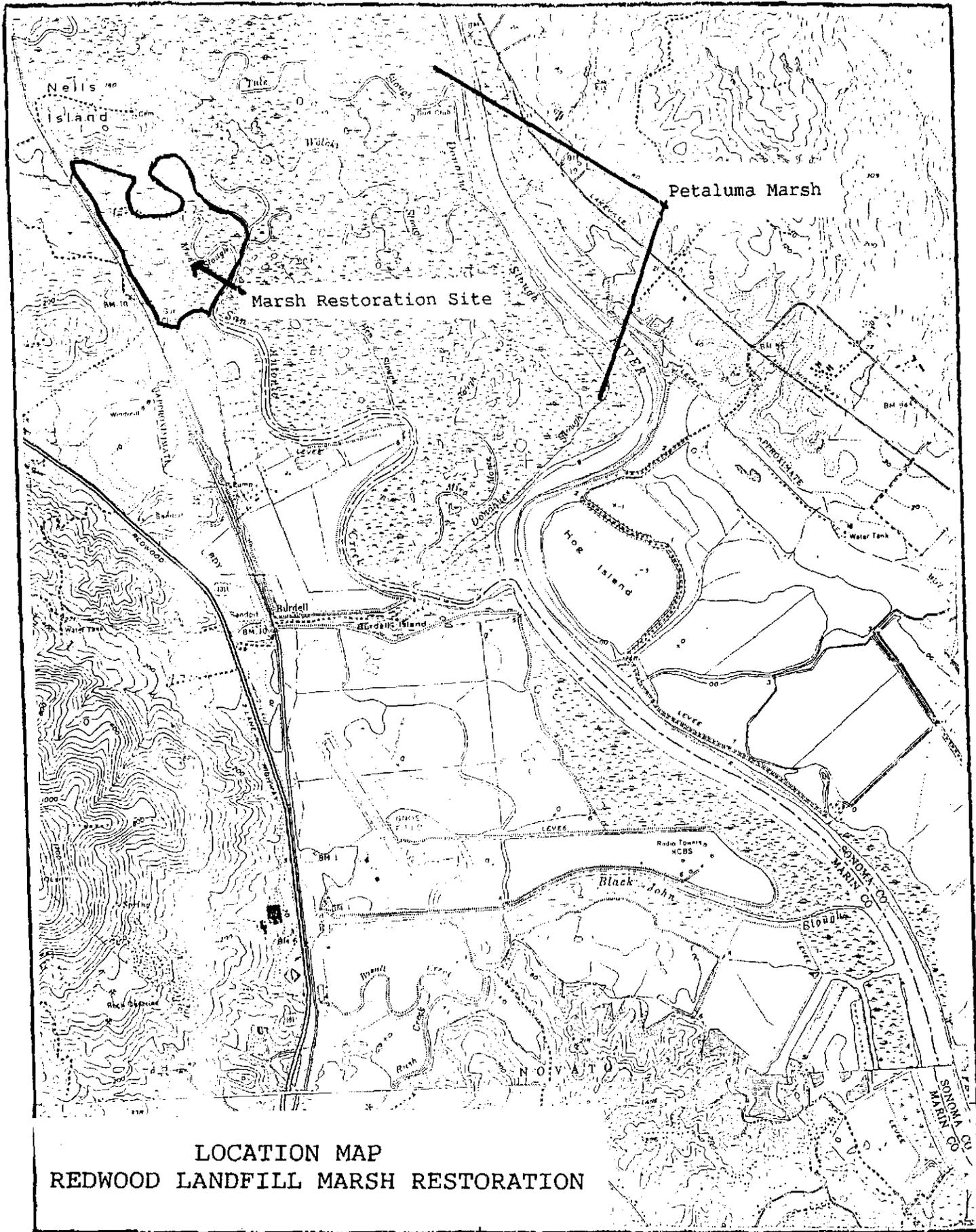
In Attachment "D1: Standard Clauses" PWA will request the following modifications: Termination Clause: Delete "The State" in sentence 1 and substitute "Either Party" may terminate this contract without cause upon 30 days advance written notice.



0923DJP

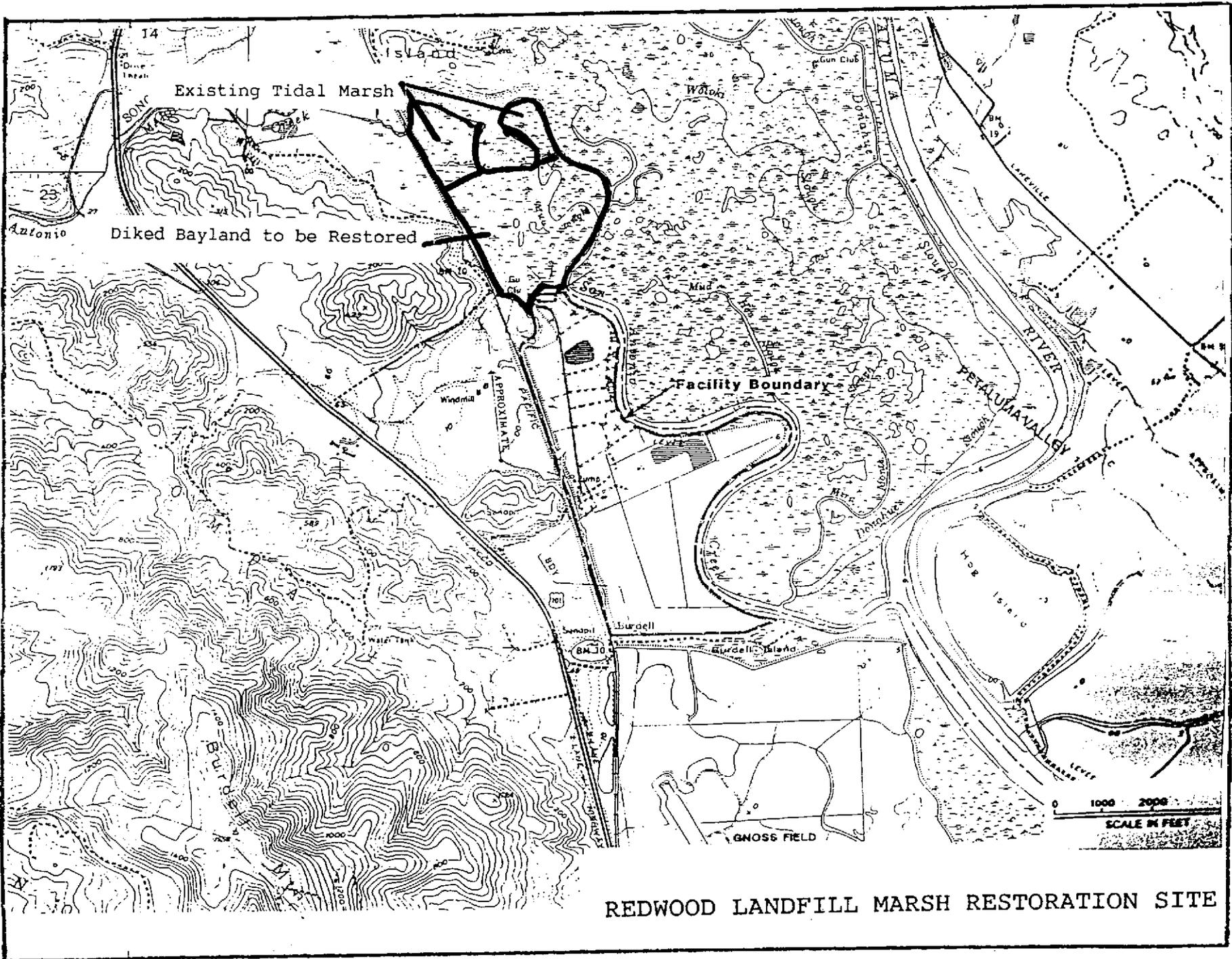
Figure 2.1-1. REGIONAL MAP

Source: Harding Lawson Associates 1992

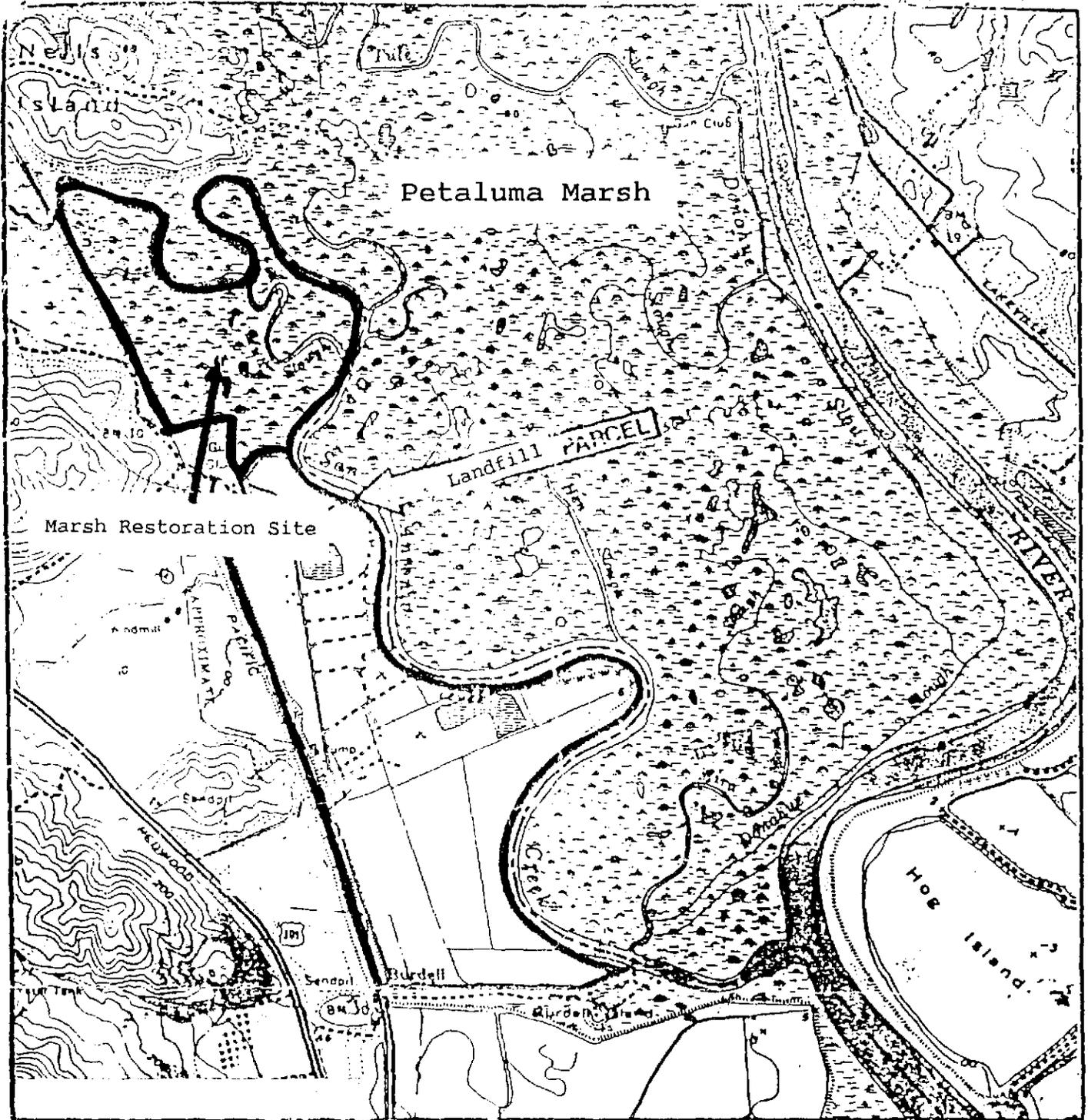


LOCATION MAP  
 REDWOOD LANDFILL MARSH RESTORATION

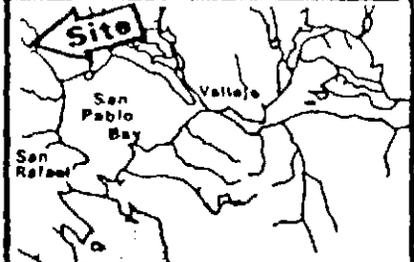
1-003239



1-003239



REDWOOD LANDFILL MARSH RESTORATION SITE



EXHIBIT

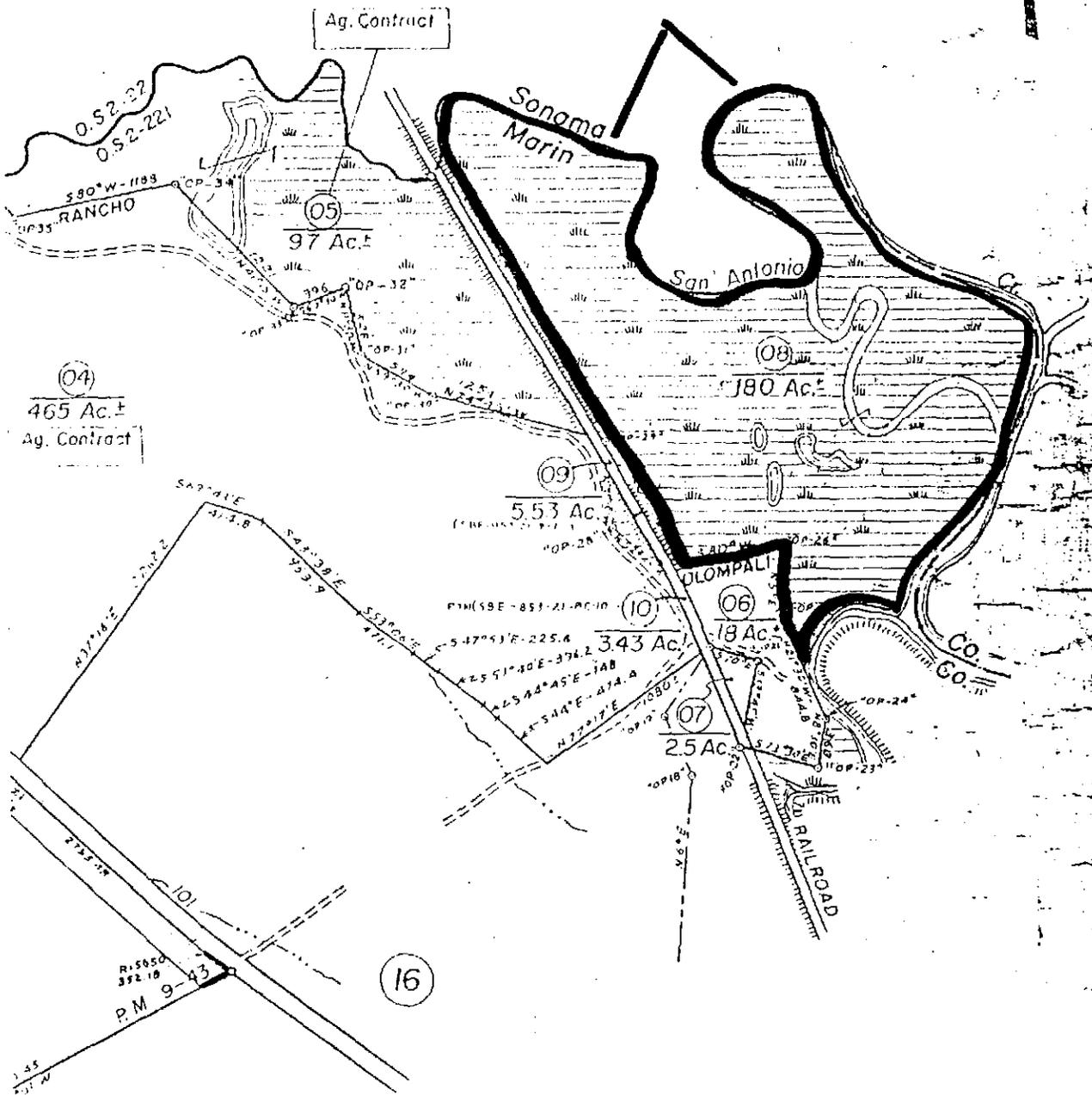
Title Study: Redwood Sanitary Land Fill W 23216

Z3 - 61 - E140  
62

EXHIBIT #

Marsh Restoration Site

1" = 1200'



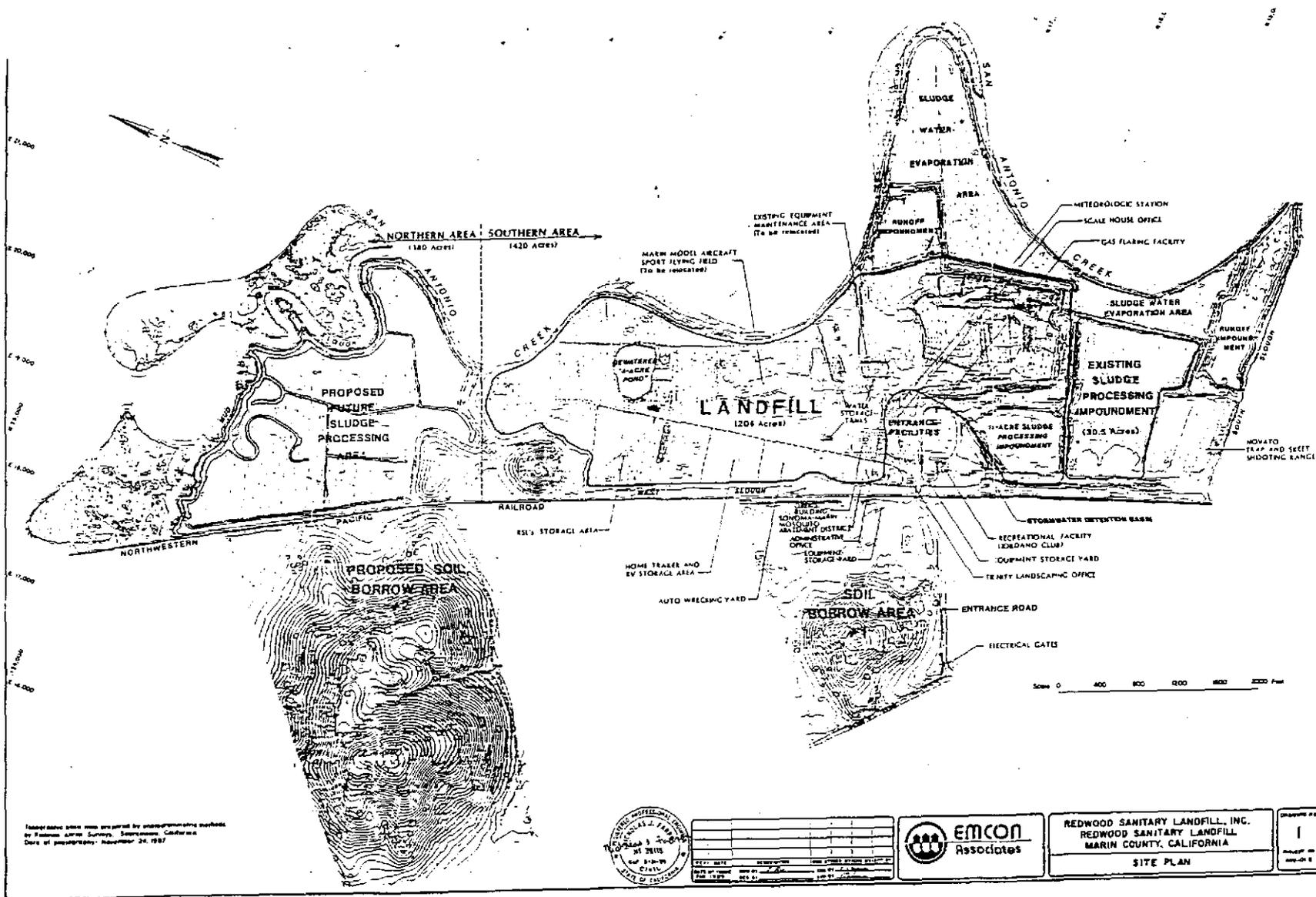
ASSESSORS PARCEL MAP

REDWOOD LANDFILL MARSH RESTORATION SITE

Assessor's Map Bk.125-Pg.13  
County of Marin, Calif.  
W. Bruce Shafer — Assessor

's Block Numbers Shown in Ellipses.  
's Parcel Numbers Shown in Circles.

1-003242



### REDWOOD LANDFILL

## 1989 PROPOSED USE OF MARSH RESTORATION SITE

1-003242

# NONDISCRIMINATION COMPLIANCE STATEMENT

COMPANY NAME

*Master Audubon Society*

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

## CERTIFICATION

*I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California*

OFFICIAL'S NAME

*Barbara Stora*

DATE EXECUTED

*7/27/97*

EXECUTED IN THE COUNTY OF

*Marin*

PROSPECTIVE CONTRACTOR'S SIGNATURE

*Barbara Stora*

PROSPECTIVE CONTRACTOR'S TITLE

*President*

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

*Master Audubon Society*

Agreement No. \_\_\_\_\_

Exhibit \_\_\_\_\_

**STANDARD CLAUSES --  
SMALL BUSINESS PREFERENCE AND CONTRACTOR IDENTIFICATION NUMBER**

**NOTICE TO ALL BIDDERS:**

Section 14835, et. seq. of the California Government Code requires that a five percent preference be given to bidders who qualify as a small business. The rules and regulations of this law, including the definition of a small business for the delivery of service, are contained in Title 2, California Code of Regulations, Section 1896, et. seq. A copy of the regulations is available upon request. Questions regarding the preference approval process should be directed to the Office of Small and Minority Business at (916) 322-5060. To claim the small business preference, you must submit a copy of your certification approval letter with your bid.

Are you claiming preference as a small business?

\_\_\_\_\_ Yes\*

  ✓   No



\*Attach a copy of your certification approval letter.

## NONDISCRIMINATION COMPLIANCE STATEMENT

COMPANY NAME

PHILIP WILLIAMS &amp; ASSOCIATES, LTD.

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

## CERTIFICATION

*I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on this date and in the county below, is made under penalty of perjury under the laws of the State of California.*

OFFICIAL'S NAME

JEFFREY P. HALTNER

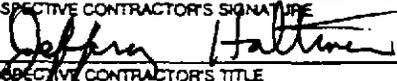
DATE EXECUTED

7/22/97

EXECUTED IN THE COUNTY OF

SAN FRANCISCO

PROSPECTIVE CONTRACTOR'S SIGNATURE



PROSPECTIVE CONTRACTOR'S TITLE

PRINCIPAL

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

PHILIP WILLIAMS &amp; ASSOCIATES, LTD.

Agreement No. \_\_\_\_\_

Exhibit \_\_\_\_\_

**STANDARD CLAUSES --  
SMALL BUSINESS PREFERENCE AND CONTRACTOR IDENTIFICATION NUMBER**

**NOTICE TO ALL BIDDERS:**

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Are you claiming preference as a small business?

\_\_\_\_\_ Yes\*

\_\_\_\_\_/\_\_\_\_ No

\*Attach a copy of your certification approval letter.

## PHILIP WILLIAMS & ASSOCIATES, LTD. REPRESENTATIVE PROJECTS

### **San Francisco Bay Long-Term Management Strategy (LTMS)**

For the U.S. Army Corps of Engineers, 1993. PWA worked with the firm of Gahagan & Bryant to develop the methodology and guidelines for disposing of dredged material in an economic and environmentally acceptable manner.

### **Sonoma Baylands Restoration Plan**

For the Sonoma Land Trust, 1989-93. PWA developed a detailed conceptual design for tidal wetland restoration using dredged material on approximately 300 acres of agricultural land on the north shore of San Pablo Bay.

### **Lake Merritt Enhancement Plan**

For the City of Oakland, 1992. As part of an overall biological and land use master plan for Lake Merritt in downtown Oakland, PWA evaluated the hydraulic function of the joint tidal/fluvial processes. In addition, we analyzed the potential for tidal marsh creation in the lake.

### **Restoration Plan for Roberts Landing Slough**

For City of San Leandro, 1990 and Citation Homes, 1991-92. PWA developed plans for restoration of degraded former tidal marshes. Tidal circulation and bed shear stress were modeled for both a fully-tidal portion and muted tidal area, and stormwater management alternatives were developed.

### **Tijuana Estuary Enhancement Study**

For State of California Coastal Conservancy, 1990. PWA developed a restoration and management plan for the 2,500-acre Tijuana National Estuary. The project included calibration and use of a tidal hydrodynamics model to predict existing estuary flow conditions. Restoration alternatives were recommended, including slough channel excavation and protection of sensitive wetland vegetation.

### **Charleston Slough Restoration Plan**

For City of Mountain View, 1989-1993. PWA modeled tidal circulation, bed shear stress and sediment deposition for various enhancement alternatives, and helped to develop restoration alternatives consistent with biological and flood control objectives.

### **Warm Springs Development Marsh Restoration Design**

For Fremont International Partners, 1981-92. In conjunction with planners, engineers, and biologists, PWA developed a conceptual marsh restoration design for 250 acres of diked wetland in South San Francisco Bay. PWA is carrying out a long-term study on slough channel adjustment, sedimentation and marsh development resulting from the project.

### **Redwood High School Marsh**

For Marin Audubon Society, 1989. Redwood High School Marsh (RHSM) represents a 12-acre

# Jeffrey Haltiner

Principal

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Dr. Haltiner has an extensive background in hydrology and water resources. During the past 25 years, he has worked on numerous projects ranging from water supply and urban runoff treatment design to impact analysis on multi-basin water transfer schemes. His recent focus has been on multiobjective watershed management and the design of environmentally sensitive flood control and river management techniques. In conjunction with this, he has managed a variety of projects and authored a series of papers on urban stream restoration by integrating physical, biological, and land-use planning elements. To protect existing riparian corridors, he has worked on a series of master plans in urbanizing areas which include creek preservation and enhancement as central design features. This is accomplished within the framework of an integrated watershed management plan that incorporates the natural processes of flood flows, sediment transport, and channel dynamics into the planning process.

Much of Dr. Haltiner's work is oriented toward planning for extreme events, either floods or droughts. His doctorate in statistical hydrology focused on riverflow and rainfall/snowmelt forecasting. He has managed numerous flood hazard analyses for FEMA as well as local, state, and private clients. In coastal flood analyses, he has pioneered techniques to address the joint probability of stormwater runoff and tidal events. A critical element in modern engineering is the development of viable projects integrating design, cost and environmental factors. Dr. Haltiner has completed a variety of flood management, urban development and coastal/fluvial wetland restoration projects providing assistance in project design, environmental review and permit acquisition, bidding, construction inspection, mitigation compliance, and monitoring. Many of these projects are technically complex and politically controversial; project success results from a combination of knowledge, experience, and trust by both the client and the regulatory agencies.

Dr. Haltiner remains active in education, teaching a graduate hydrology course at the University of California at Berkeley. He teaches a variety of short courses for private clients and agencies on watershed management and river/wetland restoration. He has also developed PWA's "Educational Outreach Program" to provide water education to students from the elementary to high school level.

<b>Education</b>	Ph.D., 1985	Civil Engineering (Hydrology and Water Resources) Colorado State University, Fort Collins
	M.S., 1976	Earth Resources (Hydrology and Meteorology) Colorado State University, Fort Collins
	B.S., 1972	Civil Engineering (Honors), University of Notre Dame, South Bend, IN

<b>Professional Registration</b>	C029231	Civil Engineer, CA
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<b>Professional Experience</b>	1990-Present	Managing Director Philip Williams & Associates, Ltd., San Francisco, CA
	1994-Present	Visiting Lecturer, Civil Engineering Department of Hydraulic and Coastal Engineering University of California, Berkeley

remnant of the thousands of acres of tidal wetland that formerly existed between the Bay and Mt Tamalpais, covering the area now occupied by Corte Madera and Larkspur. While fill was placed over all the other marsh lands, RHSM was allowed to remain as a flood control pond. The former marsh received no regular water circulation, had poor water quality and degraded habitat value.

The primary goal in the marsh restoration plan was to allow controlled tidal circulation while not compromising the flood storage capacity of the wetland. This was accomplished with the construction of an innovative adjustable tide gate which allows limited tidal inflow, but full outflow. Tidal circulation is reduced during the winter (potential flood) months, and increased during the dry summer months. Improved circulation was also accomplished by deepening the existing channels and constructing a series of new channels to provide flow to isolated areas.

Public access is provided by a bike/walkway around one side of the marsh; a low fence and landscaped berm restrict access and disturbance to the marsh.

- 1990, 1993 Visiting Lecturer, Environmental Planning  
Dept. of Landscape Architecture, University of California, Berkeley
- 1986-1989 Principal  
Philip Williams & Associates, San Francisco, CA
- 1981-1985 Ph.D. Candidate/Research Assistant  
Colorado State University, Fort Collins
- 1980-1981 Consulting Hydrologist  
Philip Williams & Associates, San Francisco, CA
- 1977-1979 Hydrologist/Meteorologist  
Environmental Impact Planning (EIP) Corporation, San Francisco, CA
- 1976 Research Associate  
U.S. Naval Postgraduate School, Monterey, CA
- 1974-1976 Master's Candidate/Research Assistant  
Colorado State University, Fort Collins
- 1972-1974 Civil Engineer  
U.S. Public Health Service, Portland Office, OR

**Professional  
Societies**

American Society of Civil Engineers  
Society of Wetland Scientists  
American Water Resources Association

**Selected Publications**

- Haltiner, J., J.B. Zedler, K.E. Boyer, G.D. Williams and J.C. Callaway, in press. "Influence of physical processes on the design, functioning and evolution of restored tidal wetlands in California (USA)". *In: Wetlands Ecology and Management*.
- Haltiner, J., 1997. Multi-objective management of incised streams in California. Proceedings: Conference on Management of Landscapes Disturbed by Channel Incision, USDA Sedimentation Laboratory, Oxford, MS, May 20-22.
- Haltiner, J.P., G.M. Kondolf and P.B. Williams, 1996. "Restoration Approaches in California" Chapter 11. *In* A. Brooks and D. Shields (eds.) *River Channel Restoration*, John Wiley & Sons, 433 pp.
- Haltiner, J.P., 1995. "Environmentally Sensitive Approaches to River Channel Management" Chapter 33. *In*: C. Thorne *et al.* (eds) *River, Coastal and Shoreline Protection*, John Wiley & Sons, 784 pp.
- Haltiner, J.P., 1993. Extreme events and coastal wetlands. Proceedings: 1993 ASCE International Symposium on Engineering Hydrology. San Francisco, CA, July 25-30.

- Haltiner, J.P., 1993. Urban stream restoration: An alternative to traditional flood control design. Proceedings: Society of Wetland Scientists Western Division Conference, Davis, CA, March 26-27.
- Haltiner, J.P., 1992. The land interface. In: Physical Processes in Estuarine and Coastal Wetland Management, Short Course presented at the University of California, Berkeley, June 9-13.
- Haltiner, J.P., and D. Thor, 1991. Sedimentation processes in Morro Bay, California. Proceedings: Coastal Sediments '91 Conference, ASCE Waterway, Port, Coastal, and Ocean Division, Seattle, WA, June 25-27.
- Haltiner, J.P., and R. Sanz, 1990. Wetland enhancement in a desert environment. Presented at the Society of Wetland Scientists Eleventh Annual Meeting: Wetlands: The Next Decade, Breckenridge, CO, June 4-6.
- Haltiner, J.P., 1988. Seasonal, multivariate stochastic models for drought analysis. *Eos Transactions*, AGU, 69(44):1550.
- Haltiner, J.P., and J.D. Salas, 1988. Development and testing of a multivariate, seasonal ARMA (1,1) model. *Journal of Hydrology*, v. 104, pp. 247-272.
- Haltiner, J.P., and J.D. Salas, 1988. Short-term forecasting of snowmelt runoff using ARMAX models. *Water Resources Bulletin*, 24(5).
- Haltiner, J.P., and P.B. Williams, 1987. Hydraulic design in salt marsh restoration. Proceedings: National Symposium on Wetland Hydrology, Association of State Wetland Managers, Chicago, IL, Sept. 16-18.
- Haltiner, J.P., and P.B. Williams, 1987. Slough channel design for salt marsh restoration. Proceedings: Eighth Annual Meeting of the Society of Wetland Scientists, Seattle, WA, May.
- Haltiner, J.P., and J.D. Salas, 1985. Stochastic forecasting of snowmelt runoff. Proceedings: 1985 Western Snow Conference, Boulder, CO, April.
- Haltiner, J.P., J.D. Salas, and S. Phanwon, 1985. Methods for analyzing drought properties. Project Report for Colorado Experiment Station Research Grant: Water Availability for Energy Development in Northwest Colorado.
- Harvey, H.P., P.B. Williams, and J.P. Haltiner, 1982. Guidelines for enhancement and restoration of diked historic baylands. Technical Report published by the San Francisco Bay Conservation and Development Commission.
- Lansigan, F.L., J.P. Haltiner, and *et al.*, 1982. Drought effects on water availability for energy development in Northwest Colorado. Presented at the 18th American Water Resource Association Conference, San Francisco, CA, October 10-15.

## Rachel Z. Kamman

Senior Associate

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Ms. Kamman has broad experience in both surface and sub-surface hydrology, with expertise in near-shore coastal and riverine hydrodynamic and sediment transport processes. During her six years as a consulting hydraulic engineer, Ms. Kamman has characterized and assessed soil and surface/subsurface water quality, applied flow and contaminant transport models to a wide variety of systems, and provided technical support in planning, restoration and litigation. Most recently, she has focused on developing and applying both physical and numerical models to assess and improve circulation, sediment and contaminant transport processes in large bays and estuaries. In addition, Ms. Kamman is interested in wetland and riparian habitat protection and restoration, influences of near-shore wave and fluvial hydrodynamic processes on geomorphic change, and natural beach and bank stabilization.

<b>Education</b>	M.Eng., 1994	Civil Engineering (Coastal and Hydraulic Engineering), University of California, Berkeley
	B.A., 1988	Civil Engineering (Hydraulic and Water Resources), Lafayette College, Easton, PA

<b>Professional Registration</b>	C056655	Civil Engineer, CA
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<b>Awards</b>	1994	Outstanding Graduate Student Instructor Award University of California, Berkeley
	1992	Tucker Fellowship, University of California, Berkeley

<b>Professional Experience</b>	1997-Present	Senior Associate Philip Williams & Associates, Ltd., San Francisco, CA
	1994-1996	Hydrologist/Associate Philip Williams & Associates, Ltd., San Francisco, CA
	1993-1994	Graduate Student Researcher, Coastal Wave/Sediment Interaction Graduate Student Instruction, Hydrology Department of Hydraulic & Coastal Engineering University of California, Berkeley
	1992	Staff Engineer Geomatrix Consultants, Inc., San Francisco, CA
	1988-1991	Engineer/Staff Engineer ENVIRON International Corp., Princeton, NJ
	1986-1988	Computer Systems Coordinator, Department of Civil Engineering Laboratory Teaching Assistant, Department of Biology Lafayette College, Easton, PA

## **Selected Project Experience**

**Pickleweed Park and Seastrand Marsh Habitat Mitigation Plan, 1995.** Prepared for the US Army Corps of Engineers. Designed hydraulic structures and breaches to restore tidal action in two wetland areas adjacent to the San Rafael Canal and San Francisco Bay. A one-dimension model was used to design structures and maximize tidal actions within the wetlands without increasing the risk of local flooding.

**Mugu Lagoon Hydrodynamic and Water Quality Model, 1995.** Prepared for the US Navy. Applied DIVAST, a two-dimensional hydrodynamic and contaminant transport model, to simulate the tidally driven circulation, and contaminant and sediment transport within the lagoon. The model will be used to plan future data collection, restoration and erosion control projects. Other possible applications of the model include assessing the impacts of stormwater discharges, floods and sedimentation.

**Assessment and Application of US Bureau of Reclamation Project Simulation (PROSIM) Model, 1994-Present.** Prepared for the US Fish and Wildlife Service (USFWS). Reviewed and assessed the logic and structure of PROSIM, the water use and distribution model used by the Bureau of Reclamation for water allocation and planning for the California Central Valley Project. Defined explicit and implied model assumptions and constraints used for simulations required under the Central Valley Project Improvement Act (CVPIA). Use of the model to help the USFWS develop instream flow and operational requirements that maximize habitat benefits under the CVPIA is ongoing.

**Tijuana Estuary Salinity Model Development, 1994-1995.** Prepared for the Pacific Estuarine Research Laboratory, San Diego. Developed and integrated a fractional step solute transport model, with a one-dimensional hydrodynamic model, ESTFLO, to simulate the existing water circulation and salinity distributions within the estuary. Application of a two-dimensional hydrodynamic and contaminant transport model for the study of the influence of freshwater discharge and tidal fluctuations on salinity.

**North Fork Feather River Cresta and Rock Creek Dams Sediment Pass Through Study, 1994.** Prepared for Plumas County and Pacific Gas and Electric Company (PG&E). Analysis of the evolution of river and reservoir bed profiles for the development of reservoir management practices incorporating sediment pass through exchanges at two PG&E operated reservoirs on the North Fork of the Feather River.

## **Professional Societies**

American Society of Civil Engineers  
American Geophysical Union  
Sigma Xi

## **Selected Reports & Publications**

Goodwin, P. and R. Z. Kamman (PWA Report), 1995. Tidal Circulation In Mugu Lagoon: A Preliminary Assessment. For PRC Environmental Management and the Environmental Division, Naval Air Station, Point Mugu, California.

Kamman, R. K. and R. Coats (PWA Report), 1995. San Rafael Canal Flood Damage Reduction Project: Hydraulic Design for Habitat Mitigation Measures at Pickleweed Park and Seastrand Marsh. For the US Army Corps of Engineers, San Francisco District.

Ruggles, R. and R. Zimmon, 1988. Movement of Chloride Ions in Saturated Soil Samples During Freezing. Proceedings: 15th Annual Water Resources Conference, ASCE, Norfolk, VA, June.



**Harry J. Moore**  
Fifth District Supervisor  
**Chair, Board of Supervisors**  
**County of Marin**

July 28, 1997

Kate Hansel  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, CA 95814

Re: Marin Audubon Society Category III Proposal for Marsh Enhancement at Rush Creek  
and Cemetery Marshes Burdell Island, and Redwood Landfill Marsh

Dear Ms. Hansel:

As Supervisor for the District in which these marsh restoration and enhancement projects would occur, I am pleased to have the opportunity to express my support for these worthy proposals all of which are located in the watershed of the Petaluma River.

- **Rush Creek Marsh and Cemetery Marsh Enhancement Project:** The County owns the Cemetery Marsh and is helping to fund installation of new gates. The requested CALFED funding for removal of sediment in the marsh channels would greatly benefit circulation and water quality, and the overall management of these marshes.
- **Burdell Island:** Marin County has been interested and involved in attempts to protect this site for many years. An effort to purchase it fell through last year. We welcome the help of a CALFED grant to enable protection and restoration of this important site.
- **Redwood Landfill Marsh:** The opportunity to protect and restore such significant acreage of tidal marsh at a reasonable cost is unique. Restoration of this marsh would greatly benefit fish and wildlife that depend on the Petaluma River and the Petaluma Marsh.

The Marin Audubon Society is experienced with restoring marshes and has been a partner with the County in enhancing and restoring other marshes.

I strongly recommend your favorable consideration of these proposals.

Sincerely,

  
Harry J. Moore  
Chair of the Board

Suite 315 • 3501 Civic Center Dr. • San Rafael, California 94903-4193 • Telephone (415)499-7331 • FAX(415)499-3646

E-Mail: hmoore@midas.co.marin.ca.us

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I-003254

**SAN FRANCISCO BAY JOINT VENTURE**

mailing address: Coastal Conservancy, 1330 Broadway, Suite 1100, Oakland, CA 94612  
phone: 510-286-6767 fax: 510-286-0470

July 24, 1997

**MANAGEMENT BOARD:**

*Bay Area Audubon Council*  
*Bay Area Open Space Council*  
*Bay Conservation & Development Commission*  
*Bay Planning Coalition*  
*Bay Area Regional Watershed Network*  
*California Department of Fish and Game*  
*Citizen's Committee to Complete the Refuge*  
*Coastal Conservancy*  
*Ducks Unlimited*  
*National Audubon Society*  
*P G & E*  
*Regional Water Quality Control Board, San Francisco Bay Region*  
*Save San Francisco Bay Association*  
*Sierra Club*  
*U.S. Fish & Wildlife Service*  
*Wildlife Conservation Board*

Kate Hansel  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, CA 95814

RE: Category III Proposals from Marin Audubon Society:  
Burdell Island, Rush Creek/Cemetery Marsh, Redwood  
Landfill Marsh, Bahia

Dear Kate:

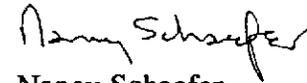
I am writing on behalf of the member organizations of the San Francisco Bay Joint Venture in support of the Marin Audubon Society's Category III proposals. Endorsement of these wetlands restoration projects was voted unanimously at the Joint Venture's Management Board meeting on July 10.

All of these projects are located in the Petaluma River watershed and their completion will greatly benefit fish and wildlife in the region by restoring both tidal and seasonal wetlands. The Petaluma River is an important watershed to several CALFED priority species including the delta smelt, Sacramento splittail and chinook salmon.

The Marin Audubon Society has a strong track record for completing good wetlands restoration projects and is a solid partner in the San Francisco Bay Joint Venture.

We urge you to consider these proposals favorably.

Sincerely,



Nancy Schaefer  
Coordinator

Cc: SFBJV Management Board



## Trout Unlimited of California

July, 23, 1997

Mr. Lester Snow  
Executive Director  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, Cal. 95814

Re:--Burdell Island Acquisition and Restoration—Rush Creek/Cemetery Marsh  
Enhancement—Redwood Landfill Marsh Restoration Projects.

Dear Mr. Snow:

Trout Unlimited, basically a grassroots organization, has a special interest in the restoration of California's salmon and steelhead trout fishery. Many of our 8000 California members are involved in "hands on" restoration projects throughout the state.

We have had the opportunity to review the excellent projects descriptions and was impressed with the ecosystem and fishery benefits. Our members are very supportive of the projects. It is obvious that the projects will greatly improve the water quality in the San Pablo and San Francisco Bays and the adjacent Wildlife Refuge. This area is well recognized as a nursery area for the outgoing Sacramento and San Joaquin River juvenile salmon and steelhead. The improved water quality will greatly enhance their survival on their journey to the ocean.

As America's leading coldwater fisheries conservation organization, we strongly recommend your approval of the projects and will be looking forward to your accomplishing your mission to double the natural spawning anadromous fishery of the Central Valley.

Respectfully submitted

  
Stan Griffin  
Regional Vice-President  
Southwest Region

5200 Huntington Ave. #300, Richmond, CA 94804-5416 • Phone 510-528-5390 • Fax 510-525-3664

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*Protecting and Improving Your Fishing Future*