CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

TENTATIVE ORDER

WASTE DISCHARGE REQUIREMENTS FOR:

CITY OF MARTINEZ
ALHAMBRA CREEK SEDIMENT REMOVAL PROJECT, MARTINEZ, CONTRA COSTA COUNTY

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

1. The City of Martinez (hereinafter Discharger) proposes to excavate approximately 4,000 cubic yards of accumulated sediment from the eastern floodplain of Alhambra Creek to restore the project area to the originally permitted design elevations. All work will be conducted above the mean high water line using an excavator, and will be isolated from the tidal channel of Alhambra Creek with silt fencing or other appropriate barriers. Excavated material will be disposed of at an approved upland location, and the area will be revegetated with appropriate native wetland vegetation.

2. In 1998 and 1999, the reach of Alhambra Creek between Marina Vista and the Union Pacific Railroad Bridge, in downtown Martinez was modified to improve flood conveyance and the habitat quality of the reach. The project included an expanded creek channel and an excavation of an adjacent floodplain/marsh-plain terrace. This work was conducted in conjunction with the Martinez Intermodal Facility project, a transportation project developed on the site under the leadership of the Discharger. In addition, other related work included the replacement of the constricted UPRR Bridge with a wider and higher span, and subsequent channel improvements in Downtown Martinez.

3. Larger rain events in December 2005 and January 2006 deposited approximately 4,000 cubic yards of sediment over the floodplain reducing the capacity of Alhambra Creek to convey runoff during heavy storms and reducing the value of the floodplain habitat.

4. The sediment removal activities on the floodplain will result in temporal impacts to 1.2 acres of seasonal wetlands along the floodplain of Alhambra Creek (Attachment A). The accumulated sediment will be removed from the floodplain and the design elevations established in the 1999 Martinez Intermodal Project will be restored. Wetland vegetation will be replanted in accordance with the design specifications in the *Final Wetland Mitigation and Monitoring Plan, Martinez Intermodal Facility, Alhambra Creek, Martinez, Contra Costa County, July 1997.*

5. In a letter dated June 2, 2008, the U.S. Army Corps of Engineers (Corps) stated that Corps authorization would not be required since the project will not involve the discharge of dredged or fill material into a water of the United States, including adjacent wetlands, pursuant to Section 404 of the Clean Water Act (33 U.S.C. Section 1344), and will occur above the shoreline reached by the historic mean high water pursuant to Section 10 of the river and Harbors Act of 1899 (33 U.S.C. Section 403). The channel is subject to the jurisdiction of the Water Board, pursuant to the State's Porter-Cologne Water Quality Act (California Water Code § 13000 et seq.), and is also subject to the jurisdiction of the California Department of Fish and Game (CDFG), pursuant to the State of California's Fish and Game Code.

6. **Mitigation**: To mitigate for temporal impacts to 1.2 acres of seasonal wetlands the Discharger will construct approximately 0.275 acres of wetlands adjacent to the Martinez Regional Shoreline Salt Marsh Enhancement Project during the summer of 2009. This is a one time mitigation to compensate for the temporal impacts of maintenance dredging of the floodplain in a six year cycle. If additional floodplain sediment removal activities are necessary before six years have passed, additional mitigation will be required. The wetlands will be designed and planted in accordance with the specifications established in the *Martinez Regional Shoreline Salt Marsh Enhancement Project – Phases 1 and 2 Mitigation and Monitoring Plan, December 27, 2002.*

7. The Martinez Salt Marsh Enhancement Project involved the restoration of approximately 11.1 acres of enhanced tidal marsh and slough channels in the Martinez Regional Shoreline Park located along Alhambra Creek and provided mitigation credit for several Caltrans projects including the Carquinez Bridge Seismic Retrofit and Replacement, the 1-80 Richmond Parkway, the Benicia-Martinez Bridge, and the High Occupancy Vehicle Lane for Highway 680.

8. Mitigation for temporal impacts was determined by the following formula: the size of the wetland area impacted (1.20 acres), time for wetland recovery (12 months), divided by the time between maintenance sediment removal activities (72 months); thus requiring 0.2 acres of mitigation. If sediment removal activities are necessary before 6 years have lapsed or the year 2014, then this one-time mitigation package will need to be increased. The six year interval was determined by the length of time since the project was constructed (1999) until sediment accumulation on the floodplain required maintenance (2005).

9. On March 14, 2008, the Discharger submitted an application for Waste Discharge Requirements for the Project.

10. The Water Board has determined to regulate the proposed discharge of fill materials into waters of the State by issuance of Waste Discharge Requirements (WDRs) pursuant to Section 13263 of the California Water Code (CWC). The Water Board considers WDRs necessary to adequately address impacts and mitigation to beneficial uses of waters of the State from this Project, to meet the objectives of the California Wetlands Conservation Policy (Executive Order W-59-93), and to accommodate and require appropriate changes

over the life of the Project and its construction.

11. The *Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan) is the 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 programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Water Board and approved by the State Water Resources Control Board, U.S. EPA, and the Office of Administrative Law where required. The latest version is December 22, 2006. This Order is in compliance with the Basin Plan.

12. The Basin Plan Wetland Fill Policy (policy) establishes that there is to be no net loss of wetland acreage and no net loss of wetland value when the project and any proposed mitigation are evaluated together, and that mitigation for wetland fill projects is to be located in the same area of the Region, whenever possible, as the project. The policy further establishes that wetland disturbance should be avoided whenever possible, and if not possible, should be minimized, and only after avoidance and minimization of impacts should mitigation for lost wetlands be considered.

13. The goals of the California Wetlands Conservation Policy (Executive Order W-59-93, signed August 23, 1993) include ensuring "no overall loss" and achieving a "...long-term net gain in the quantity, quality, and permanence of wetland acreage and values...." Senate Concurrent Resolution No. 28 states that "[i]t 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 CWC requires that the "[h]ighest priority shall be given to improving or eliminating discharges that adversely affect...wetlands, estuaries, and other biologically sensitive areas."

14. It has been determined through regional, state, and national studies that tracking of 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 both wetland losses and mitigation/restoration project success. Therefore, we require that the Department use a 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://water24a/sanfranciscobay/certs.shtml . Project information concerning impacts and mitigation/restoration will be made available at the web link: http://www.wetlandtracker.org.

15. The California Environmental Quality Act (CEQA) requires all projects approved by State agencies to be in full compliance with CEQA, and requires a lead agency to prepare an appropriate environmental document for such projects. The Water Board, as a responsible agency under CEQA, finds that all environmental effects have been identified for Project activities which it is required to approve, and that those proposed Project

activities, with the implementation of the mitigation identified in Finding 6, above will not have significant adverse impacts on the environment. The lead agency's CEQA Findings are presented in the Project's environmental documents (*Martinez Intermodal Project, Final Environmental Impact Report, December 11, 1994* and the *Martinez Intermodal Station Project Final Environmental Assessment, May 1996.*)

16. The Water Board has notified the U.S. Army Corps of Engineers (Corps), California Department of Fish and Game (CDFG), the City of Martinez, Contra Costa County, and other interested agencies and persons of its intent to prescribe WDRs for this discharge.

17. The Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

18. This Project file is maintained at the Water Board under Site No. 02-43-C0882.

IT IS HEREBY ORDERED that the Discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following, pursuant to authority under CWC Sections 13263 and 13267:

A. Discharge Prohibitions

1. The direct discharge of wastes, including rubbish, refuse, bark, sawdust, or other solid wastes into surface waters or at any place where they would contact or where they would be eventually transported to surface waters, including flood plains, is prohibited.

2. The discharge of floating oil or other floating materials from any activity in quantities sufficient to cause deleterious bottom deposits, turbidity, or discoloration in surface waters is prohibited.

3. The discharge of silt, sand, clay, or other earthen materials from any activity in quantities sufficient to cause deleterious bottom deposits, turbidity, or discoloration in surface waters is prohibited.

4. The wetland excavation activities subject to these requirements shall not cause a nuisance as defined in CWC §13050(m).

5. The groundwater in the vicinity of the Project shall not be degraded as a result of the Project activities or placement of fill for the Project.

6. The discharge of materials other than storm water, which are not otherwise regulated by a separate NPDES permit or allowed by this Order, to waters of the State is prohibited.

B. Provisions

Project Implementation Deadlines

1. The Discharger shall comply with all Prohibitions and Provisions of this Order immediately upon adoption of this Order or as provided below.

2. The Discharger shall conduct excavation activities on the floodplain at the Project site between September 11 and October 15, 2008.

3. The Discharger shall provide the Water Board with as built construction plans for the wetland mitigation area within 275 days of adoption of this order.

4. The Discharger shall complete construction of approved mitigation activities at the Martinez Salt Marsh Enhancement Project within 365 days of adoption of this Order.

Monitoring Requirements

5. To assess the effectiveness of vegetation reestablishment in the areas of Alhambra Creek where silt is removed, the Discharger shall implement a monitoring plan along the de-silted reaches of Alhambra Creek. This monitoring plan shall include photo-documentation, and vegetation assessment in the Project areas. Various representative sites shall be photo-documented prior to the initiation of de-silting work. The Applicant shall prepare site maps with the photo-documentation points clearly marked. Following construction, the Applicant shall photographically document the immediate post-construction condition of the Project reach, and submit a report to the Water Board including the pre-and post-desilting photographs, and a map with the locations of the photo-documentation points. This report shall be submitted to the Water Board within 60 days of completing desilting activities;

6. The Discharger shall photo-document the Project work area, including the representative areas noted above, at least twice a year, for a period of three years following desilting activities, with the requirement of wetland vegetation recovery to 90% of pre-work conditions by the end of one year. These photos shall be representative of the dry and wet season conditions and vegetation growth;

7. The Discharger shall implement a vegetation monitoring program for a period of three years following desilting activities. Representative plots of the desilted area shall be surveyed to document the percent cover for planted and seeded native species. The area should be maintained during the three year monitoring period with the goal of establishment of 85% native species at the completion of monitoring, and the requirement of 90% of existing vegetation cover conditions within one year.

Mitigation Requirements

8. The mitigation area adjacent to the Martinez Regional Shoreline Salt Marsh Enhancement Project will be constructed at an approximate elevation 3 NGVD based on a high tide elevation of 4 NGVD. The mitigation area will be monitored for three years following construction in accordance with the performance standards in the *Martinez Regional Shoreline Salt Marsh Enhancement Project – Phases 1 and 2 Mitigation and Monitoring Plan December 27, 2002* (Attachment B).

9. A formal wetland delineation will be conducted to verify wetland establishment in Year 3 in accordance with USACE's 1987 guidelines (Environmental Laboratory, 1987) or the current USACE approved methods for wetland delineation. Field data points will be sampled and data on hydrology, vegetation, and soils will be recorded. A map will be prepared showing the extent of salt marsh within the project area.

10. The percentage range of perennial pepperweed shall be maintained to 0-10% of the vegetated area within the intertidal and low marsh and 0-15% within the high marsh and upland areas. Spartina alterniflora will be completely controlled in the mitigation site during the monitoring period. Other 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 Water Board's "Invasive Non-Native Plant Species to Avoid in Wetlands Projects in the San Francisco Bay Region" (2006) shall be kept off site to the extent feasible.

Reporting Requirements

11. The Discharger is required to use the standard Wetland Tracker form to provide Project information describing impacts and mitigation/restoration measures within 14 days from the adoption of this Order. The completed Wetland Tracker form shall be submitted electronically to wetlandtracker@waterboards.ca.gov, or, shall be submitted as a hard copy to both: 1) San Francisco Bay Regional Water Quality Control Board (see letterhead for address), to the attention of Wetland Tracker, and, 2) San Francisco Estuary Institute, 7770 Pardee Lane, Oakland, CA 94621-1424, to the attention of Mike May;

12. The annual reports shall be submitted to the Executive Officer of the Water Board by December 31 of each year, for 3 years after the Project and mitigation are completed. The annual report shall include an assessment of the vegetation monitoring results, and all photo-documentation from that year for each area. The report shall indicate whether seasonal wetlands are becoming established in these areas, the approximate acreage of these features, and the extent of non-native vegetation present.

Other Provisions

13. No equipment shall be operated in areas of flowing or standing water; no fueling, cleaning, or maintenance of vehicles or equipment shall take place within any areas where an accidental discharge to waters of the State may occur.

    The Discharger shall immediately notify the Water Board by telephone whenever an adverse condition occurs as a result of this Project. Such a condition includes, but is not limited to, a violation of the requirements of this Order, a significant spill of petroleum products or toxic chemicals, or damage to control facilities that would cause noncompliance. Pursuant to CWC §13267(b), a written notification of the adverse condition shall be submitted to the Water Board within two days of occurrence. The written notification shall identify the adverse condition, describe the actions necessary to remedy the condition, and specify a timetable, subject to the modifications of the Water Board, for the remedial actions.

14. The Discharger is considered to have full responsibility for correcting any and all problems that arise in the event of a failure that results in an unauthorized release of waste or wastewater.

15. The discharge of any hazardous, designated or non-hazardous waste as defined in Title 23, Division 3, Chapter 15 of the California Administrative Code, shall be disposed of in accordance with applicable state and federal regulations.

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

17. In accordance with CWC §13260, the Discharger shall file with the Water Board a report of any material change or proposed change in the ownership, character, location, or quantity of this waste discharge. Any proposed material change in operation shall be reported to the Executive Officer at least 30 days in advance of the proposed implementation of any change. This shall include, but not be limited to, all significant new soil disturbances, all proposed expansions of development, or any change in drainage characteristics at the Project site. For the purpose of this Order, this includes any proposed change in the boundaries of the area of wetland/waters of the State to be dredged.

18. The Discharger shall maintain a copy of this Order at the Project site so as to be available at all times to site operating personnel and agencies.

19. The Discharger shall permit the Water Board or its authorized representative at all times, upon presentation of credentials:

    a. Entry onto Project premises, including all areas on which wetland fill or wetland mitigation is located 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 treatment equipment, monitoring equipment, or monitoring method required by this Order.

d. Sampling of any discharge or surface water covered by this Order.

20. 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 other agencies or organizations.

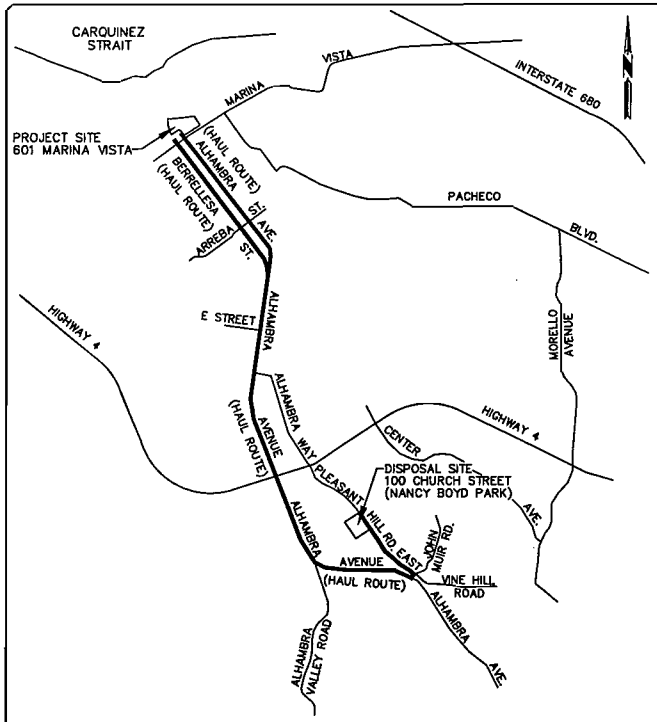
21. The Water Board will consider rescission of this Order upon Project completion and the Executive Officer's acceptance of notices of completion of mitigation for all mitigation, creation, and enhancement projects required or otherwise permitted now or subsequently under this Order.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, complete, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on _____, 2008.

_____

Bruce H. Wolfe
Executive Officer

Attachment A: Alhambra Creek Sediment Removal Project Map 2008
Attachment B: Section 4 Monitoring Plan for Martinez Regional Shoreline Salt Marsh Enhancement Project – Phase 1 and 2 Mitigation and Monitoring Plan



HAUL ROUTE FOR DISPOSAL OF SEDIMENT

SCALE: 1"=1,320'±

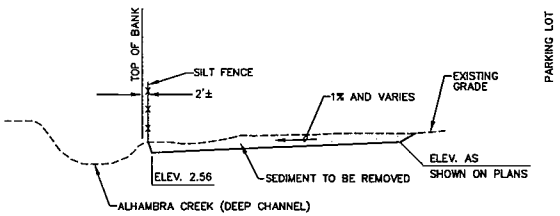
NOTES:

LEAVING PROJECT SITE

- RIGHT ON MARINA VISTA
- LEFT ON BERRELLESA STREET (BECOMES ALHAMBRA AVENUE)
- LEFT ON JOHN MUIR ROAD
- LEFT ON PLEASANT HILL ROAD EAST
- LEFT ON CHURCH STREET

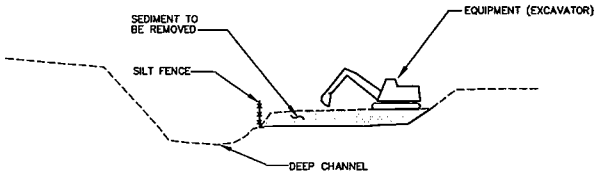
RETURNING TO PROJECT SITE

- LEFT ON CHURCH STREET
- RIGHT ON PLEASANT HILL ROAD EAST
- RIGHT ON JOHN MUIR ROAD
- RIGHT ON ALHAMBRA AVENUE
- RIGHT ON ESCOBAR STREET
- LEFT ON ESTUDILLO STREET
- LEFT ON MARINA VISTA



TYPICAL SECTION

(LOOKING DOWNSTREAM)
SCALE: 1"=20' HORIZ.
1"=10' VERT.

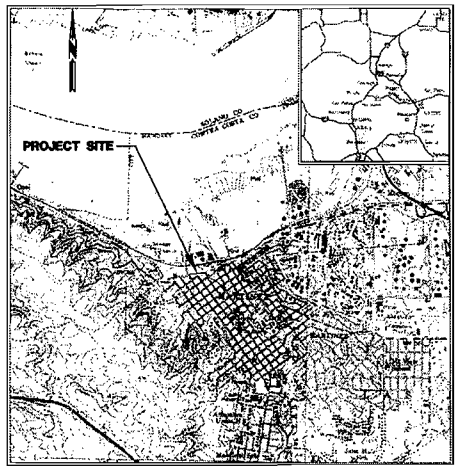


CONCEPT PLAN

NOT TO SCALE

NOTES:

1. NO STOCKPILING OR SPREADING OF MATERIALS ON-SITE.
2. EQUIPMENT LIMITED TO EXCAVATOR AND HAND OPERATED TOOLS.



VICINITY MAP

SCALE: 1"=2000'±

GENERAL NOTES

1. VERTICAL DATUM: MEAN SEA LEVEL. PROJECT BENCHMARK IS THE CROSS AT THE NORTH END OF THE PEDESTRIAN BRIDGE, ELEV.=10.19
2. HORIZONTAL CONTROL: TOP OF EAST BANK – ALHAMBRA CREEK
3. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (USA) AT 1-800-642-2444 A MINIMUM OF 72 HOURS PRIOR TO ANY EXCAVATION.

SHEET INDEX

DATE	MARK	REVISION	INIT.

Designed by: JWZ
Drawn by: MLWH
Checked by:
Reviewed by: JWZ
Date: JUNE, 2008

REGISTERED PROFESSIONAL ENGINEER JAMES W. ZUMWALT NO. 33371 EXP. 12/31/08 CIVIL STATE OF CALIFORNIA

ZUMWALT ENGINEERING GROUP
Civil Engineering/Project Management
2420 Camino Ramon, Suite 210 San Ramon, California 94583
Tel.(925)830-9018 Fax(925)830-0023

APPROVED

City Engineer
R.C.E. _____
DATE: _____

CITY OF MARTINEZ

2008 ALHAMBRA CREEK SEDIMENT REMOVAL PROJECT, MARINA VISTA TO UPRR BRIDGE

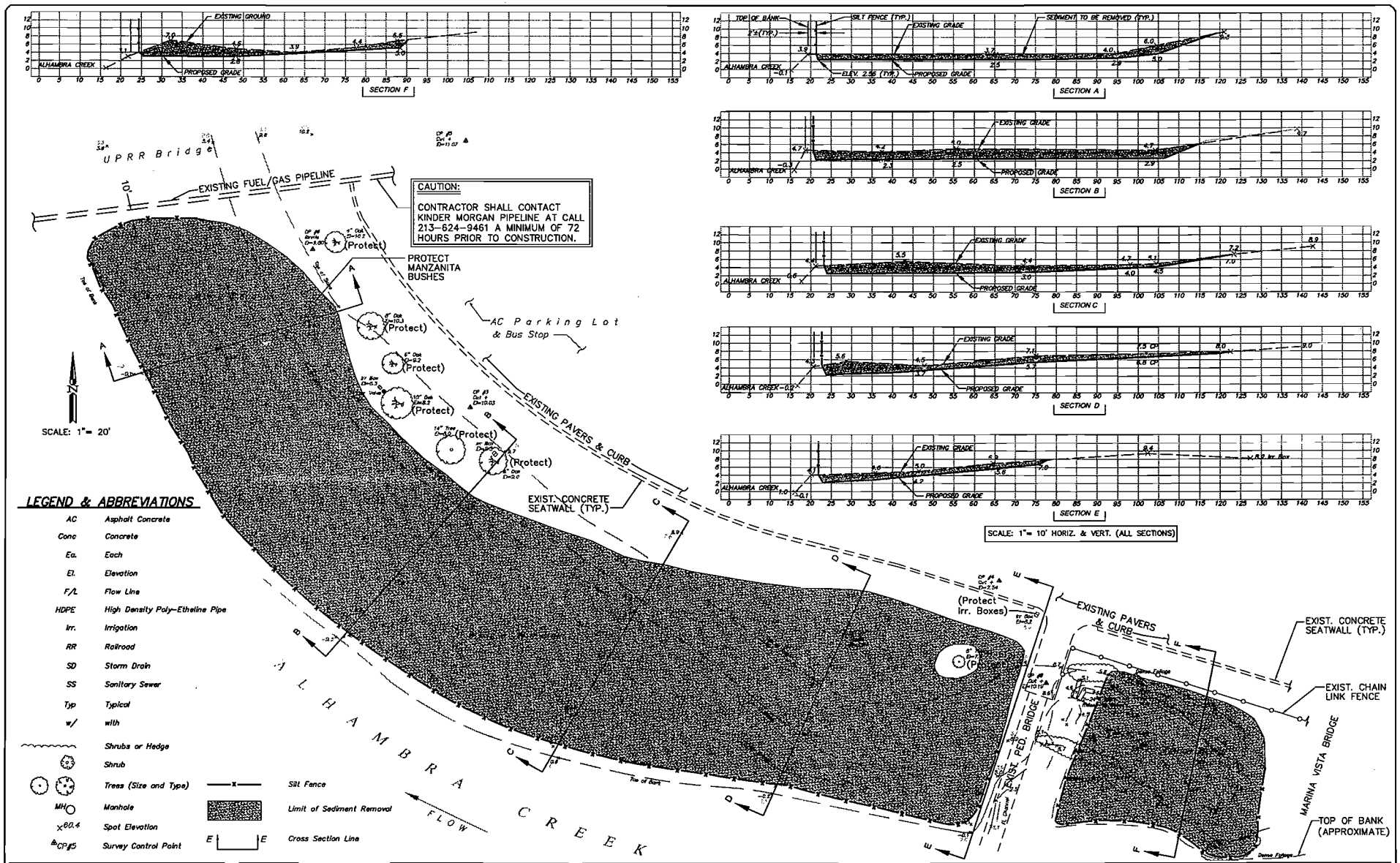
CITY OF MARTINEZ CONTRA COSTA COUNTY

TITLE, VICINITY MAP, TYPICAL SECTION AND HAUL ROUTE EXHIBIT

SCALE: AS SHOWN
JOB NUMBER: C3005

SHEET No. 1 OF 2

Attachment A: Alhambra Creek Sediment Removal Project 2008



DATE	MARK	REVISION	INIT.

Designed by: JWZ
Drawn by: MLWH
Checked by:
Reviewed by: JWZ
Date: JUNE, 2008

ZUMWALT ENGINEERING GROUP
Civil Engineering/Project Management
2420 Camino Ramon, Suite 210 San Ramon, California 94583
Tel.(925)830-5016 Fax(925)830-5023

TOPOGRAPHIC SURVEY BY:
Lapiana, Cronin, Cooper, Morris & Peers, Inc.
dba LCC, Inc.
Civil Engineering · Land Surveying
830 Estudillo Street
Martinez, California 94553-1620
(925) 228-4218 Fax (925) 228-4638
SCALE: 1"=20' (Plan)

APPROVED
City Engineer
R.C.E.
DATE:

2008 ALHAMBRA CREEK SEDIMENT REMOVAL PROJECT, MARINA VISTA TO UPRR BRIDGE
CITY OF MARTINEZ CONTRA COSTA COUNTY

SEDIMENT REMOVAL PLAN AND SECTIONS

SCALE: AS SHOWN
JOB NUMBER: 03005
SHEET No. 2 OF 2

4. MONITORING PLAN

The monitoring at the mitigation site is designed to track compliance with the permit conditions, and more broadly to demonstrate that the site is evolving into a healthy marsh. The monitoring data collected over the ten-year monitoring period will be utilized to demonstrate that the mitigation project has successfully met the requirements of the various agency permits or provide data for adaptive management. The performance measures presented below were developed from the mitigation requirements included in the permits secured by Caltrans related to the impacted sites and the mitigation site. The monitoring plan includes hydrologic, geomorphic, and biologic parameters at the mitigation site to demonstrate whether the performance measures have been met at the conclusion of the ten-year monitoring period. The monitoring results will also be utilized to assess the health and establishment of the mitigation site and to identify any problems that may be impeding the establishment of a healthy wetland habitat at the mitigation site.

Site and habitat monitoring results shall be compared to relevant performance measures (Table 4) to judge project success. The USACE, FWS, CDFG, RWQCB, BCDC, and EBRPD will determine whether the performance measures described in Table 4 have been met at the end of the ten-year monitoring period. If performance measures have not been achieved at the end of the ten-year monitoring period, or if significant contingency measures, *e.g.* planting, irrigation, grading, etc., are implemented after the eighth year of monitoring, the maintenance and monitoring period could be extended or additional actions could be required based on consultation with the agencies. If it appears that the site is evolving and will meet performance measures in the future, the above-mentioned agencies may determine that further maintenance is not required.

4.1 PERFORMANCE MEASURES

Performance measures are based on mitigation goals, permit requirements, known constraints of the site, and similar project performance objectives. The mitigation effort shall be considered successful when the performance measures listed in Table 4 are met. While a ten-year monitoring period is anticipated, the monitoring can be curtailed by the agencies if the performance measures are met prior to Year 10.

The performance measures for this project are defined as follows:

Hydrologic Conditions — The tidal range in the upper reaches of the tidal drainage networks will be at least 90% of the tidal range near the mouths of each drainage network. The tidal range is the effective tidal range, measured from high tide down to a reference elevation equal to site grade at the upper reach location.

Geomorphic Conditions — The slough channel network will support a tidal range of at least 90% in the upper portions of the marsh. Acreage of total wetlands and shallow water juvenile fish habitat will be sufficient to meet Caltrans' mitigation obligations.

Habitat Development	Desired native plant species will populate the restoration area. The complex of intertidal marsh, low tidal marsh, high tidal marsh, and upland planting zones will represent a diversity of native species. This measure takes into consideration the dynamic nature of a tidal system. Changes to the microenvironments and minor elevation changes may result in a dominance of one species in specific areas or in transitions from one set of species to another.
Natural Recruitment	The project site will be evaluated during monitoring for evidence of natural recruitment of desired species, including any volunteer native species in the mitigation areas.
Plant Health and Vigor	Container plant health and vigor for trees and shrubs planted in the high tidal and upland planting zones will be measured and evaluated during the monitoring. Growth in the tree and shrub species survival will demonstrate a trend towards healthy establishment. Survival of the marsh gumplant will be 50% by Year 10.
Wetland Cover	In the intertidal, low tidal and high tidal marsh areas, vegetative cover of wetland species (FAC or wetter) will be at least 50% by Year 10.
Weed Control	The objective of weed control is to allow native species to become well established and to greatly reduce competition for planted natives. Noxious weed species that shall be controlled to the greatest extent practicable include: perennial peppergrass, smooth cordgrass (Spartina alterniflora) or other non-native cordgrass species, tree tobacco (Nicotiana glauca), giant reed (Arundo donax), yellow star thistle (Centaurea solstitialis), alkali Russian thistle (Salsola soda) or others to be identified during the monitoring period. Non-native annual grasses and non-native tidal marsh wetland species found on site shall be tolerated when they do not threaten native plant establishment. The accepted percentage range of perennial pepperweed will be 0-10% of the vegetated area within the intertidal and low marsh and 0-15% within the high marsh and upland areas. These acceptable ranges should be maintained over the ten-year monitoring period.
Remedial Actions	The remedial actions identified during the monitoring period shall be implemented in good faith, including, but not limited to: replanting (may require supplemental irrigation), reseeding, weed control, erosion repairs, and debris removal.
Maintenance Measures	The mitigation site shall not require significant maintenance measures (seeding or planting, significant weed control and erosion repairs) during the final two years of the monitoring period. If this is required, at the agencies' discretion, an extension of the monitoring period may be necessary. Significant weed control is defined as necessary removal of large stands of noxious weeds within the project

area. Erosion repair is considered significant when the erosion threatens the integrity of structures on site or a channel conveyance. Temporary irrigation, if used beyond year three of the monitoring period, may result in an extension of the monitoring period.

Table 4. Performance Measures

Performance Measures	Performance Measure Assessment	Remedial Actions
Successful creation of 5.34 acres of USACE jurisdictional wetlands or waters of the U.S. The definition of a successful wetland mitigation effort will be that the area is dominated by wetland indicator species, with a clear indication that wetland hydrology and morphology is present. Hydric soils may or may not develop in the ten-year monitoring time frame.	Formal wetland delineations will be conducted during Years 5 and 10 in accordance with USACE's 1987 guidelines (Environmental Laboratory, 1987) or the current USACE approved methods for wetland delineation. Field data points will be sampled and data on hydrology, vegetation and soils will be recorded. A map will be prepared showing the extent of wetlands within the project area.	If sufficient acreage of wetlands or others waters of the U.S. have not been successfully created, the applicant will consult with the USACE, RWQCB, FWS, and CDFG to determine remedial actions. Additional grading within the project site, planting/seeding and monitoring may be necessary, unless it is considered likely that the site is evolving toward the attainment of the required acreages.
Successful creation of 1.80 acres of juvenile fish habitat. Juvenile fish habitat will be defined as shallow water sloughs less than 4 meters in depth, with a tidal connection to Alhambra Creek.	During the monitoring period transect data taken on slough channel dimensions will be used to estimate the acreage of juvenile fish habitat.	If sufficient acreage of juvenile fish habitat has not been created, the applicant will consult with the FWS and CDFG to determine remedial actions. Additional grading and/or monitoring may be necessary, unless it is considered likely that the site is evolving toward the attainment of the required acreages.
Habitat development and natural recruitment for intertidal marsh, low tidal marsh and high tidal marsh will be demonstrated by the end of the ten-year monitoring period. The percent cover of native wetland species (FAC or wetter) within the monitoring plots will be at least 50 percent by Year 10.	The goal of this standard is to demonstrate a trend toward establishment of self-sustaining wetlands. The species diversity, percent cover of wetland species vs. non-wetland species, and percent cover of native versus non-native wetland species will be evaluated during the spring and fall monitoring visits in years 1-10.	If a trend toward establishment is not evident by Year 5, remedial measures such as supplemental planting/seeding, weed eradication, grading or modification of pond hydrology will be implemented. If standard is not met at end of Year 10, remedial actions may be required and additional monitoring may be warranted, as determined in consultation with USACE, RWQCB, FWS and CDFG.

Performance Measure	Performance Measure Assessment	Remedial Actions
Habitat development and natural recruitment of shrub species within the high tidal marsh and upland zones will be demonstrated by the end of the ten-year monitoring period.	The health and vigor of shrubs within the established plots will be measured and evaluated. Growth and survival of shrub species will demonstrate a trend towards healthy establishment. The survival of marsh gumplant will be estimated for all portions of the mitigation site annually. Marsh gumplant will demonstrate a survival rating of 50% over the ten-year monitoring period. If it is found, through the monitoring period, that cover of native species is greater than 85% and/or additional gumplant plantings would be detrimental to preserving the diversity of native species on site, a 50% survival of gumplant will not be necessary.	During the monitoring period, shrubs that do not survive will be re-planted at the discretion of the Restoration Biologist. This may or may not include overplanting so that at the end of the ten-year monitoring period the performance standard is met. If the standard is not met at end of Year 10, additional planting will be required and additional monitoring may be warranted, as determined through consultation with the USACE, RWQCB, FWS, CDFG, and EBRPD.
Control of perennial pepperweed (*Lepidium latifolium*) will be maintained throughout the ten-year monitoring period.	The percentage range of perennial pepperweed will be 0-10% of the vegetated area within the intertidal and low marsh and 0-15% within the high marsh and upland areas. These acceptable ranges should be maintained over the ten-year monitoring period.	During the ten-year monitoring period perennial pepperweed will be controlled using measures that are appropriate for areas adjacent to water resources (mowing at the flowerbud stage followed by application of Rodeo® herbicide treatment to resprouting stems).
Remedial actions identified during the post-construction monitoring period were followed, including but not limited to weed control, replanting and erosion control.	Annual report will confirm that remedial actions were followed.	If remedial actions are not conducted, applicant will consult with USACE, RWQCB, FWS, CDFG and EBRPD, as required, to identify measures that may be necessary.
The 1.3 acre parcel east of Alhambra Creek and south of the Martinez Regional Shoreline Park shall be protected by a FWS-approved conservation easement.	A copy of the easement will be provided to the CDFG, USACE, RWQCB and FWS.	The easement will be provided to the aforementioned agencies in order for the performance measures to be satisfied.
Public access amenities shall be maintained in a serviceable condition.	Monitoring will include observations of channel armoring, the integrity of the abutments of the boardwalks and bridge, and serviceability of trails. The EBRPD will certify that these amenities are maintained.	Maintenance and renovation of public access amenities.

4.2 HYDROLOGIC MONITORING

The hydrologic component of the monitoring plan is designed to track tidal action in the enhanced marsh areas. Hydrologic monitoring data shall be interpreted and evaluated by staff experienced with wetland restoration. Specifically, monitoring should reveal whether or not slough channels are large enough to expose the marsh to the full tidal range that is characteristic of healthy mature marshes. The hydrologic monitoring should demonstrate that the tidal range above desired equilibrium grades in the upper reaches of the tidal drainage networks is at least 90% of the tidal range near the mouths of each drainage network. If an adequate tide range is established during Year 1 monitoring, it may not be required during future monitoring.

Three recording tide gages will be installed at the locations shown in Figure 2. Gage 1 will be located on a piling between the arched pedestrian bridge and the mouth of Alhambra Creek. Since it is close to the mouth of Alhambra Creek, this location will essentially capture the tidal signal in Carquinez Strait. Gage 2 will be located under the new boardwalk structure that crosses the main slough channel in Area 1. This gage will capture the tidal signal at the downstream end of the main tidal slough system in the marsh. Gage 3 will be located in one of the smaller channels in the upper portion of the Area 1 slough system. This gage will capture the tidal signal reaching the areas of the marsh system that are most distant from the tidal source. As such, the tidal signal at Gage 3 will likely represent the most attenuated tidal regime at the site. If the tidal range at Gage 3 is representative of a healthy marsh, then the rest of the enhanced marsh system is likely receiving adequate tidal range.

Gages will be installed during the rainy season and will collect data for at least a one-month period during each monitoring year. This period will capture some of the more significant high and low tides of the year to evaluate how the site functions under more extreme tidal conditions associated with winter storms.

The water quality parameters of temperature and salinity will be collected at least once per season during hydrologic and biologic monitoring visits (Section 4.5). The salinity measurements will help to determine the suitability of the mitigation site for juvenile fish habitat including delta smelt. Delta smelt are most abundant in waters with a salinity of 2 ppt. However, since salinity is dependent upon annual runoff into the Bay, there are no performance measures directly related to salinity.

4.3 GEOMORPHIC MONITORING

Geomorphic monitoring is designed to understand how the form of the marshes and creek channel is evolving in response to the physical processes of sedimentation and erosion at the site. Geomorphic monitoring data will be interpreted and evaluated by staff experienced in wetland restoration.

4.3.1 Marsh Plan View – Aerial Photography

The plan view of the marsh will be monitored using aerial photography. Aerial photos will be taken of the site at a scale that can distinguish the details of the newly constructed channel networks. During every

other monitoring year new aerial photographs will be taken and changes in channel layout will be compared to the previous aerial photographs. Newly-formed channels and significant changes to the constructed layout will be noted in each monitoring year. Since natural marshes evolve in their layout over time, detailed performance measures for the plan view layout of the marsh are not necessary. However, if significant atrophy of the constructed slough channel system is revealed by aerial photography, intervention may be necessary to keep the marsh system evolving on a positive trajectory. Slough channel atrophy may be considered significant if accompanied by a corresponding drop in tidal range in the upper reaches of the marsh system.

Aerial photos will be taken during low-tide conditions so that marsh mud-flat areas can be viewed. Aerial photographs taken to evaluate marsh layout will also support biological monitoring tasks (Section 4.5).

4.3.2 Marsh Transects & Cross-sections

The cross-sectional geometry of the marshplain and channel system will be monitored using ground-surveyed transects. Six slough channel / marshplain transects, four creek / marshplain cross sections and one thalweg profile will be surveyed approximately at the locations indicated in Figure 2. These transects will allow monitoring at key areas including the mouth of the main slough channel in Area A and floodplain/marshplain areas directly adjacent to Alhambra Creek. Four of the previously established and surveyed Alhambra Creek cross-sections, X1, X2, X3, and X4 in Figure 2 (PWA, 2001), will be used for this monitoring effort. The surveys will extend far enough on each side of Alhambra Creek to capture the entire re-graded floodplain/marshplain. All cross sections were surveyed following construction to provide baseline data, and will be surveyed again in each monitoring year. Transect starting and ending points will be permanently marked in the field to facilitate reoccupation in subsequent monitoring years.

Marsh transects will provide detailed information on changes in slough channel dimensions and marshplain/floodplain elevations. If marsh tidal range falls below adequate levels for a healthy marsh (Section 4.1), transect data may provide insights into the reasons for this drop and may indicate key areas for remediation. Transect data will indicate whether or not marshplain areas are receiving sedimentation at the expected rates, and will also show changes in flood conveyance in Alhambra Creek. Furthermore, the acreage of juvenile fish habitat can be estimated from transect data to evaluate the success of Caltrans' mitigation.

It is important that marsh transects are established and surveyed in conjunction with the vegetation monitoring. The establishment and colonization of marsh vegetation is directly related to elevation changes. It is for this reason that having an elevation data set tied into vegetation monitoring is critical to any monitoring effort. Vegetation monitoring is discussed in Section 4.5.4.

4.3.3 Sedimentation Rate

Sedimentation plates will be installed at the five locations shown in Figure 2, to monitor the rates of estuarine and fluvial sedimentation occurring in the marsh and floodplain areas. Locations of the sedimentation plates were selected to provide a distribution of sedimentation data across the site.

Sedimentation data will yields insights about the evolutionary trajectory of the marsh toward maturity. This information will be useful for future marsh restoration design in the Carquinez Strait region. There are no performance measures for sedimentation rates.

4.4 PHOTO-DOCUMENTATION

Sixteen permanent photo-documentation stations will be established at the thirteen locations shown in Figure 2. Photos taken during monitoring years at these locations will provide further evidence for the rate of evolution of the marsh and floodplain areas, document the condition of bridge abutments and engineered bank protection, and provide a vivid reminder of changes that have occurred at the site as a result of the project.

4.5 BIOLOGIC MONITORING

Biologic monitoring will provide for an understanding of the habitat, wetland development, and the ecological processes involved. It will allow for direction of maintenance and identify the need to modify conditions in order to achieve a self-sustaining wetland ecosystem through adaptive management. The objective is to establish native vegetation that will be self-sustaining without the need for more than minimal maintenance over the long term.

4.5.1 Post Construction Conditions and Monitoring Baseline

As-built plans exhibiting the actual numbers and location of the plantings will be completed prior to initiation of the first year of monitoring. The plans shall also identify the location of the permanent photo points that have been established in the field. These permanent photo points will be marked in the field with permanent markers and their locations noted by a global positioning system (GPS).

Upon completion of the as-built plans, a letter will be sent to FWS, CDFG, USACE, RWQCB, BCDC, and EBRPD notifying them of the completion of the mitigation work and the start of the monitoring period.

4.5.2 Restoration and Wildlife Biologists

Restoration and Wildlife Biologists will be responsible for conducting the biologic monitoring. The Restoration and Wildlife Biologists will conduct the site and habitat monitoring programs and prepare reports documenting the restoration program for Caltrans' submittal to the USACE, CDFG, RWQCB, FWS, BCDC, and the EBRPD. At a minimum, the Restoration Biologist will have expertise in restoration ecology with at least three years experience in restoration design and implementation, including experience in wetland restoration. The Wildlife Biologist shall, at a minimum, have expertise in wildlife biology with at least three years experience in habitat evaluation and identification of habitat requirements.

4.5.3 Site Restoration Monitoring Methodology

Site monitoring is necessary to qualitatively evaluate plant health and to identify and correct problem areas. It is a subjective process and relies on the ecological and horticultural expertise of the Restoration Biologist.

The Restoration Biologist will visit the mitigation areas throughout the ten-year monitoring period to evaluate growth and vigor of the vegetation and, recruitment of native species and to assess any problems on site. At a minimum, the site shall be evaluated no fewer than two times per year (early spring and early fall).

The Restoration Biologist will walk the site and document any problems potentially requiring corrective action. The Restoration Biologist will provide specific recommendations regarding biological and mechanical erosion control, debris removal, exotic plant control, irrigation prescriptions, replanting, species cultural requirements and treatments, pest control, and fencing.

4.5.4 Vegetation Monitoring

The Restoration Biologist will be responsible for vegetation monitoring and reporting.

4.5.4.1 Vegetation Habitat Monitoring Methodology

Habitat monitoring will consist of a quantitative assessment of species cover and diversity in the four planting zones and evaluation of the vigor, survival and cover of high tidal shrub and tree species, and upland tree species. Within the four planting zones, intertidal, low tidal, high tidal, and upland, permanent plots will be established for data collection.

These plots will measure one meter by one meter (1m x 1m) and will be permanently marked in the field using markers identified by plot number. During the first monitoring visit when the monitoring plots are established, they will also be mapped on the as-built plans. GPS positions of these plots will also be collected for ease of re-establishment should the markers be removed or lost during the monitoring period. A total of eighteen plots will be established within the intertidal planting zone, five plots within the high tidal zone, five plots within the low tidal zone, and three plots within the upland planting zone.

Photographs showing overall views of the mitigation area will be taken from the permanent photo points during each visit. Field notes and photographs will clearly depict plant height, vigor, visual estimates of cover, and survivorship. Observations will be recorded on field data sheets. Data collected will be summarized and reported annually. Data will be compared from year to year in annual report submittals.

4.5.4.2 Low and High Tidal Marsh and Intertidal Marsh Plantings

Vegetative cover of the intertidal marsh, low tidal marsh, high tidal marsh and upland zones will be monitored annually in the spring (late April to early May) and fall (late September or early October) for a period of ten years following implementation.

This evaluation will allow an accurate assessment of species cover and diversity. All species found within the plots will be recorded. Any special status plant species or plants listed by the California Native Plant Society will be recorded and reported to the California Natural Diversity Database. Percent cover for each of the recorded species will be estimated visually using values of cover classes (trace = < 1%, 1 = 1-5%, 2 = 6-15 %, 3 = 16-25%, 4 = 26-50%, 5 = 51-75%, 6 = 76-95%, 7 = 96-100%) (Daubenmire, 1968 in Tiner, 1999). The percent cover of wetland species versus non-wetland species and native versus non-native species will also be determined for reporting purposes. Photographs will also be used to document the percent cover.

4.5.4.3 High Tidal and Upland Shrub Plantings

Within the plots established in the high tidal marsh and upland planting zones, the vigor and height for each of the shrub plantings will be monitored. This will occur bi-annually in the early spring and early fall for a period of ten years following implementation. The early fall monitoring visit will be timed such that implementation of recommended remedial plantings can occur in the late fall/early winter months.

During the fall monitoring visit, the shrubs identified in the plots will be assigned a vigor rating as follows:

1 - Excellent: healthy plant with vigorous growth, no necrotic or chlorotic leaves; no other signs of damage.

2 - Good: plant appears healthy, but with limited signs of vigorous growth.

3 - Adequate: plant healthy but with no signs of vigorous growth; some necrosis or damage may be present.

4 - Poor: low vitality, but plant with at least some signs of life; plant severely damaged, weak or stressed, or main stem dead.

5 - Dead.

These ratings will be used to determine whether the shrubs have achieved the desired performance measures. Any plantings that exhibit a vigor rating of 4 or 5 will require replanting.

In addition to vigor ratings within the plots, an overall estimation of the survival of marsh gumplant will be made for the entire mitigation site. This survival count will be estimated in portions of the mitigation site for Areas A, B, C, D and 1. Larger areas (A and 1) can be further divided to allow ease of estimation. These survival estimates will be recorded and reported annually and compared from year to year. While the objective is to obtain a 50% survival rating, if it is found, through the monitoring period, that cover of native species is greater than 85% and/or additional plantings would be detrimental to preserving the diversity of native species on site, marsh gumplant replacements will not be necessary.

4.5.4.4 Aerial Photo Interpretation

In addition to the site monitoring visits, an aerial photo will be taken every other year in mid July (or as close as practicable) to illustrate the development of the wetland system. Photo interpretation will focus on tracking perennial peppergrass (*Lepidium latifolium*) population on site. The aerial photo will be taken during the blooming period that occurs from early summer through fall. Taking the aerial photo in July should optimize the visibility of flowering plants. However, because flowering is dependent upon weather conditions, the optimal time may vary and this should be monitored in the field to ensure the most favorable conditions.

Perennial pepperweed is an aggressive weed species. It is found in large populations directly adjacent to the mitigation site and has a high potential for invasion. Because this species has such a high potential to invade the mitigation site and can displace wildlife, perennial pepperweed shall be closely monitored and continuous maintenance shall be performed and anticipated so that it does not form a monoculture throughout the site.

Because of the close proximity of large populations of perennial pepperweed to the mitigation site, some re-colonization is expected. However, it is desirable to control re-colonization of the site to the greatest extent possible. The accepted percentage range of perennial pepperweed will be 0-10% of the vegetated area within the intertidal and low marsh and 0-15% within the high marsh and upland areas. These acceptable ranges shall be maintained over the ten-year monitoring period.

If it is possible, other vegetation types will be tracked throughout the monitoring period to follow their development within the mitigation site. The photo interpretation of species on site will be verified after receipt of the photo during the early fall site visit.

4.5.5 Wildlife Monitoring

Wildlife habitat monitoring by the Wildlife Biologist will be conducted concurrently with vegetation monitoring. During all site visits, incidental sightings of wildlife will be recorded for inclusion in annual reports. The primary focus of wildlife monitoring will be the establishment of delta smelt habitat as described below in Section 4.5.5.1.

Additionally at the request of the EBRPD, several other special-status species will be considered during the annual monitoring. The monitoring methods described below for Sacramento splittail, salt marsh harvest mouse and California clapper rail were designed to examine and assess the presence of habitat for these species. These evaluations are intended to identify whether or not the mitigation area may potentially support the following special-status species. Focused surveys to determine the presence or absence of these species is not included as part of this monitoring plan. This qualitative analysis is not required and will not be used to determine the success or failure of the mitigation site. A list of parameters to qualitatively assess during monitoring is included below.

4.5.5.1 Delta Smelt

Habitat characteristics for the delta smelt will be evaluated using information gathered during geomorphic mapping of the slough channels. Additionally, periodic temperature and salinity readings taken will also be used. Several short additional visits will be completed during the summer months to take salinity and temperature readings at the project site for delta smelt habitat evaluation.

Habitat Considerations

- In Suisun Bay, found most often in shallow-water areas less than 4 meters deep
- Can tolerate salinities of 0 to 14 ppt, but are most often found in brackish water at 2 ppt

Mitigation Monitoring Criteria

1) Depth of sloughs (Area of slough less than 4 meters in depth determined with hydrological data collected by PWA);
2) Salinity

4.5.5.2 Sacramento Splittail

Habitat Considerations

- Require flooded vegetation in riparian habitats for spawning (late January through July; predominantly February through April) and rearing, and adequate outflow between April and June to prevent entrapment.
- Can tolerate salinities as high as 10-18 ppt, but prefer salinities of 6-10 ppt at temperatures between 15-25 C°.

Mitigation Monitoring Criteria

1) Depth of sloughs (determined with hydrological data collected by PWA)
2) Salinity and Temperature

4.5.5.3 Salt Marsh Harvest Mouse

Habitat Considerations

- Require dense cover
- Prefer moderate to highly saline environments
- Vegetation preferences include pickleweed and saltgrass; will not use areas dominated by bulrush, rush or cattails
- Will not likely cross open unvegetated areas such as unvegetated dikes or roads
- Will use old bird nests for their own nests

Mitigation Monitoring Criteria

1) Heights of plants, *e.g.* best habitat is provided by vegetation that is 12 inches or greater;
2) Density of vegetation;
3) Species composition;

4) Salinity; and
5) Area of tidal influence.

4.5.5.4 California Clapper Rail

Habitat Considerations

- Will utilize salt and brackish marshes in both the upper and lower marsh zones
- Vegetation preferences in the upper zone are dominated by pickleweed, with saltgrass, alkali heath, and jaumea.
- Vegetation preferences in the lower marsh zone are Pacific cordgrass
- Low marsh areas require sparse vegetation, mudflats, and intricate network of tidal channels. High marsh areas require dense vegetation.

Mitigation Monitoring Criteria

1) Height of tallest plant:
   a) At marshlands near Mean High Water, best if at least 19 inches.
   b) At marshlands of higher elevation, shorter vegetation may be utilized.
2) Density of vegetation:
   a) Abundant, dense high marsh cover
3) Species composition.
   a) Composition should consist predominantly of pickleweed with cordgrass, gumplant and other high marsh plants.
4) Area of tidal influence.
   a) Direct tidal circulation should be sufficient to allow the full tidal cycle.

4.6 REMEDIATION

Remediation will be necessary only if the performance measures for the monitored parameters are not met. Remediation could include re-excavating slough channels at various locations to allow full tidal action, or installing wetland plantings to encourage vegetation in areas that are not re-vegetated naturally. Once the project is implemented, the site is expected to function naturally without requiring extensive remediation, however some yearly maintenance will likely be necessary.

4.7 REPORTING

Two forms of reporting are appropriate to communicate monitoring data over the course of the monitoring period. The first is a brief memorandum report format. In a memorandum report discussion of monitoring methods will be brief, and the general results of monitoring will be summarized. Actual monitoring data will not be reported in full. If necessary, remedial actions indicated by monitoring data will be highlighted and a schedule for action will be identified.

The second form of report is a more comprehensive monitoring report that details monitoring methods, reports all monitoring data collected (including water-level data, survey transects, sedimentation data,

biological data, and photos) and provides ample discussion of the implications of monitoring data for site evolution. Reports will include summaries of vegetation monitoring including species diversity, species cover estimates, observations, and data summaries regarding the health and vigor of shrub and tree plantings and plant survival, and remedial planting recommendations. The results of the wildlife monitoring will be summarized. These results will be compared with the performance measures for the project. Recommendations for remedial actions will include consideration of replanting, vandalism, herbivory, irrigation, and weed control.

The schedule for when each of these reports is required is shown in Table 5. If, through the monitoring process, it is determined that remedial measures are required in order to obtain a successful project, it is anticipated that a contingency plan will be developed in coordination with the appropriate agencies and will be submitted by Caltrans to the appropriate agencies for review and approval prior to implementation.

Reports (both memorandums and comprehensive monitoring reports) will be prepared and then submitted by Caltrans to the appropriate project stakeholders and permitting agencies, including the City of Martinez, EBRPD, FWS, USACE, BCDC, and CDFG by December 31st of each year.

4.8 MONITORING AND REPORTING SCHEDULE

The following table provides a summary of all the monitoring activities planned for the mitigation site, the timing of each monitoring activity, and the years each monitoring activity is expected to occur at the Martinez Regional Shoreline Marsh site. In addition to the tasks outlined in Table 5, during the first year (winter 2002/2003) monitoring locations for water-level recorders, marsh transects and cross-sections, sedimentation plates, biological data collection, and photo-documentation will be established. It should also be noted that the monitoring schedule described is adaptive. If initial monitoring reveals that changes in the system are occurring very slowly, the frequency of hydrologic monitoring can be reduced. The hydrological monitoring year begins in the fall of 2002. The biological monitoring year will begin in 2003 with the first monitoring visit in the spring. A report summarizing the first year of monitoring will be submitted by December 31 following each monitoring year.

Table 5. Summary of Mitigation Monitoring and Reporting Schedule for Martinez Salt Marsh Enhancement Project

Mitigation Monitoring Activity	Time of Year	Years Required
Hydrologic Monitoring		
• Water level and tidal range	Winter months	2003 & 2004-2012 (if necessary)
• Salinity and temperature	Periodically throughout year	2003-2007, 2009, & 2012
Geomorphic Monitoring		
• Marsh plan view	July (via Aerial Photo)	2003, 2005, 2007, 2009, & 2012
• Marsh transects and cross-sections	Spring	2003-2007, 2009, & 2012
• Sedimentation	Spring	2003-2007, 2009, & 2012
Photo Documentation		
• Aerial Photo	July	2003, 2005, 2007, 2009, & 2012
• Ground based Photos	Spring	2003-2012
Biologic Monitoring		
A. Vegetation Monitoring		
• Low and high tidal marsh	Spring & Fall	2003-2012
• Intertidal marsh plantings	Spring & Fall	2003-2012
• High tidal and upland plantings	Spring & Fall	2003-2012
• Aerial photo interpretation	July (via aerial photo)	2003, 2005, 2007, 2009, & 2012
• Formal Wetland Delineation	Fall	2007 & 2012
B. Wildlife Monitoring		
• Delta smelt	Spring, Summer, & Fall	2003-2012
• Sacramento splittail	Spring, Summer, & Fall	2003-2012
• Salt marsh harvest mouse	Spring & Fall	2003-2012
• California clapper rail	Spring & Fall	2003-2012
Reporting		
• Comprehensive Monitoring Report	December 31	2003, 2005, 2007, 2009, & 2012
• Memorandum Report	December 31	2004, 2006, 2008, 2010, & 2011

4.9 PROJECT SIGN-OFF

The mitigation project will be considered successful and eligible for sign-off with the permitting agencies if, the performance measures identified in Section 4.1 have been successfully met without any remedial action required for the final two years of the monitoring period. If monitoring indicates that this milestone is achieved prior to completion of the required ten-year monitoring period, Caltrans may apply for project sign off early - potentially curtailing the ten-year monitoring period. If monitoring over the ten-year period indicates that the performance measures have not been fully achieved but that the mitigation project is evolving into a healthy wetland habitat and the performance measures are likely to be achieved in the future, Caltrans may apply for project sign off from the permitting agencies. However if

the performance measures have not been fully achieved, the permitting agencies may require remedial actions and/or additional monitoring before granting project sign-off.

In the comprehensive monitoring reports, progress towards meeting the performance measures will be evaluated. Once monitoring indicates that the performance measures have been successfully met and no remedial actions have been required for two full years, a final comprehensive monitoring report will be submitted to the permitting agencies. The final comprehensive monitoring report will review the performance measures and discuss how the monitoring data indicates that the project has successfully met each performance standard. After submission of the final comprehensive monitoring report, Caltrans will request that each permitting agency sign-off on the successful mitigation project.