

**Final Environmental Assessment/Initial Study
Sacramento River Bank Protection Project, Pocket Area Erosion Sites, Sacramento
California**



June 2006

**Prepared by
U.S. Army Corps of Engineers & The Reclamation Board**



USACE



Notice of Determination

Appendix D

TO: *Office of Planning and Research* FROM: Reclamation Board
3310 El Camino Ave. Sacramento, CA 95821

Street Address:

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Contact: Deborah Condon (916) 574-0371

County Clerk Phone: _____ County of: _____
Lead Agency (if different from above): _____ Address: _____
Contact: _____ Phone: _____

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2006042037

Project Title: Sacramento River Bank Protection Project, Pocket Erosion Sites, Sacramento, CA

Project Location (include county): Greenhaven northbounds, Garcia Bend southbounds along the west side of Sacramento River Levees, Sacramento County 95831

Project Description: The Reclamation Board, in association with the U.S. Army Corps of Engineers through the SRBPP, is proposing to repair eight erosion sites located on the waterside of the left bank of the Sacramento River. Four of the eight sites are included among 24 critical erosion sites in Governor Schwarzenegger’s February 24, 2006 Declaration of State of Emergency of California Levee System and March 7 Executive Order S-01-06. Encroachment of erosion into the banks at these sites requires immediate work to prevent levee failure.

This is to advise that the Reclamation Board has approved the above described project on May 19, 2006 and has made the following determinations regarding the above described project.

1. The project [___ will ___ X will not] have a significant effect on the environment.
2. ___ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
X A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [X were ___ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [X was ___ was not] adopted for this project.
5. A statement of Overriding Considerations [___ was X was not] adopted for this project.
6. Findings [X were ___ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the Negative Declaration, is available to the General Public at: Signature (Public

Agency) _____ Title: _____

Date: _____ Date Received for filing at OPR: _____

Authority cited: Section 21083, Public Resources Code.

Reference: Sections 21000-21174, Public Resources Code. **Revised 2005**

PROPOSED MITIGATED NEGATIVE DECLARATION

PROJECT: SACRAMENTO RIVER BANK PROTECTION PROJECT, POCKET AREA EROSION SITES, SACRAMENTO CALIFORNIA

LEAD AGENCY: California State Reclamation Board

AVAILABILITY OF DOCUMENTS: The initial study for this proposed mitigated negative declaration is available for review at the Department of Water Resources, Division of Flood Management, 3310 El Camino Avenue, Sacramento, California 95825 and on the Department of Water Resources' website at: <http://www.recbd.ca.gov>.

Questions or comments regarding this proposed mitigated negative declaration and initial study may be addressed to:

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PROJECT DESCRIPTION:

The California Reclamation Board (Reclamation Board) in partnership with the U.S. Army Corps of Engineers under the Sacramento River Bank Protection Project is proposing to repair eight erosion sites along the left bank of the Sacramento River on the waterside of the Sacramento River Flood Control System levee at River Mile (RM) 49.6L, 49.9L, 50.2L, 50.4L, 50.8L, 51.5L, 52.4L and RM 53.1L. The combined repair lengths will total 4,436 linear feet and are within a 3.5 mile river reach bounded by Sutterville Road on the North and Freeport Boulevard on the south. The project area is located in Sacramento County in the southern portion of the City of Sacramento and adjacent to the Pocket Area neighborhood.

Four of the eight sites are included among 24 critical erosion sites in Governor's Schwarzenegger's February 24, 2006 Declaration of State of Emergency of California Levee System and March 7, 2006 Executive Order S-01-06. Repair of all 8 sites is necessary to allow certain levees of South Sacramento to receive Federal Emergency Management Authority (FEMA) certification for providing protection against a 1-in-100 year flood event. Encroachment of erosion into the banks at these sites requires immediate work to prevent levee failure.

Bank protection measures to be implemented at the eight erosion sites would include (1) protecting the toe of the bank with rock revetment both below and above the mean summer water level (MSWL) (2) placing one foot of soil fill on the revetment at elevations above the MSWL, (3) placing additional and preserving in-place existing in-stream wood material (IWM) clusters

for fish habitat, and (4) planting pole and container plants to stabilize the bank and to provide riparian habitat and potential shade.

Construction of bank protection would take up to 5 months. The Reclamation Board has directed the preparation of an initial study/proposed mitigated negative declaration (IS/MND) on the proposed project in accordance with the requirements of the California Environmental Quality Act (CEQA). An IS/MND describes the project and its potential impacts on the environment and concludes that any potentially significant impacts that may result from the proposed project can be avoided, eliminated, or reduced to a level that is less than significant, by the adoption and implementation of specified mitigation measures.

FINDINGS:

An initial study has been prepared to assess the proposed project's potential effects on the environment and the significance of those effects. Based on the initial study, the Reclamation Board has determined that the proposed project would not have any significant effects on the environment once mitigation measures are implemented. This conclusion is supported by the following findings:

- ▶ The project would result in no impacts to: agriculture resources, cultural resources, hazards and hazardous materials, land use and planning, mineral resources, population and housing, public services, recreation, utilities and service systems.
 - Although there are no known cultural resources that might be disturbed, mitigation is included to address the potential for discovering archaeological or paleontological resources and/or human remains during the construction phase of the project.
 - Although the project would have no known significant impacts from hazardous materials, mitigation is included that requires a hazardous materials management plan to address unforeseen hazardous events.
- ▶ The project would result in less-than-significant impacts to: aesthetics and recreation.
- ▶ Mitigation would be implemented to reduce potentially significant impacts to less-than-significant levels for:
 - Air Quality -short-term construction-related emissions
 - Biological Resources - potential impacts on special-status species and their habitat
 - Hydrology/Water quality -potential erosion during construction
 - Noise - short-term construction-related noise

Mandatory Findings of Significance:

- ▶ The project will not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the

number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory

- ▶ The project will not have environmental effects that are individually limited, but cumulatively considerable.
- ▶ The project would not have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly.
- ▶ The project would not achieve short-term environmental goals to the disadvantage of long-term environmental goals.
- ▶ No substantial evidence exists that the project would have a negative or adverse effect on the environment.

PROPOSED MITIGATION MEASURES:

The following mitigation measures will be implemented by the Reclamation Board to avoid or minimize potential environmental impacts. Implementation of these mitigation measures would reduce the potential environmental impacts of the proposed project to a less-than-significant level.

- ▶ **Mitigation Measure 4.5.1- Air Quality.** Implement applicable measures to reduce short-term construction-generated emissions and if necessary, provide payment of an off-site air quality mitigation fee to fund regional air quality programs
- ▶ **Mitigation Measure 2.10 - Biological Resources - Off Site Mitigation.** For any mitigation not met using on-site measures, off Site mitigation will be implemented on the right bank of the American River 0.5 miles above the confluence with the Sacramento River for impact to riparian and aquatic habitat that benefit key special-status species including listed salmonid species and delta smelt, Valley Elderberry Longhorned Beetle and several other wildlife species.
- ▶ **Mitigation Measure 4.3.4 - Biological Resources – Elderberry.** Maintain a buffer around elderberry shrubs to avoid impact to the valley elderberry longhorn beetle or transplant elderberry shrubs if avoidance measures cannot be implemented.
- ▶ **Mitigation Measure 4.3.4 - Biological Resources - Swainson’s Hawks and other birds.** Conduct pre-construction surveys for raptor nests and maintain a buffer to avoid any identified active nests during construction.
- ▶ **Mitigation Measure 4.3.4 - Biological Resources - Listed Fish Species.** Confined work within specified fish avoidance “work windows,” between July 1 and November 30.

▶ **Mitigation Measure 4.3.4 - Biological Resources** - Listed Fish Species Habitat. Design sites to retain and enhance structural and hydraulic complexity of nearshore zones.

▶ **Mitigation Measure 4.10.2 – Cultural Resources.** Immediately halt construction activities if any cultural resources or human remains are discovered until an evaluation is made by a qualified archaeologist.

▶ **Mitigation Measure 4.4.4 - Hazardous Materials.** Prepare a hazardous materials management plan.

▶ **Mitigation Measure 4.6. 4 - Noise.** Limit construction to the hours of 7 a.m. to 6 p.m.

▶ **Mitigation Measure 4.4.4 - Water Quality – Turbidity.** Prepare a Storm Water Pollution Prevention Plan (SWPPP).

▶ **Mitigation Measure 4.7.4 – Traffic.** Prepare a traffic control management plan

▶ The project incorporates all applicable mitigation measures, as listed below and described in the initial study.

▶ This mitigated negative declaration reflects the independent judgment of the lead agency.

In accordance with Section 21082.1 of the California Environmental Quality Act, the Reclamation Board has independently reviewed and analyzed the initial study and proposed mitigated negative declaration for the proposed project and finds that the initial study and proposed mitigated negative declaration reflect the independent judgment of the Reclamation Board. The lead agency further finds that the project mitigation measures will be implemented as stated in the mitigated negative declaration.

I hereby approve this project:

Dated: _____

By: _____

Ben Carter
President

By: _____

Teri Rie
Secretary

Approved as to Legal Form
And Sufficiency

Scott Morgan
Counsel

TABLE OF CONTENTS

1.0 PURPOSE AND NEED FOR ACTION..... 1

- 1.1 Proposed Action 1**
- 1.2 Project Location 1**
- 1.3 Background 1**
- 1.4 Project Authority 2**
- 1.5 Purpose of the EA/IS 2**
- 1.6 Decisions that must be made..... 2**

2.0 ALTERNATIVES..... 3

- 2.1 No Action 3**
- 2.2 Alternative 1: Proposed Action..... 3**
- 2.3 Alternative 2 3**
- 2.4 Overall Project Features 3**
- 2.5 Work at Each Erosion Site..... 4**
- 2.6 Habitat Disturbance 10**
- 2.7 Construction Staging Areas 11**
- 2.8 Construction Sequencing and Equipment..... 11**
- 2.9 Haul Routes, Borrow Areas, and Traffic..... 11**
- 2.10 Off Site Mitigation: Pocket Sites and RM 56.7 at American River RM 0.5..... 12**
- 2.11 Mitigation Monitoring Plan 14**
- 2.12 Maintenance Activities and Work Windows..... 14**
- 2.13 Construction and Maintenance Schedule..... 15**

3.0 RESOURCES ELIMINATED FROM DETAILED ANALYSIS 15

- 3.1 Climate..... 15**
- 3.2 Land Use 15**
- 3.3 Socioeconomics and Environmental Justice..... 15**
- 3.4 Prime and Unique Farmland 16**
- 3.5 Hazardous, Toxic, and Radiological Waste..... 16**
- 3.6 Soils and Geomorphology..... 16**

4.0 RESOURCES ANALYZED IN DETAIL FOR POTENTIAL PROJECT EFFECTS.. 17

- 4.1 Vegetation and Wildlife..... 17**
 - 4.1.1 Existing Conditions..... 17**
 - 4.1.2 Environmental Effects..... 20**
 - 4.1.2.1 Alternative 1: Proposed Action..... 20**
 - 4.1.2.2 Alternative 2 21**
 - 4.1.3 Mitigation..... 21**
- 4.2 Fish 21**
 - 4.2.1 Existing Conditions..... 21**
 - 4.2.2 Environmental Effects..... 21**
 - 4.2.2.1 Alternative 1: Proposed Action..... 22**
 - 4.2.2.2 Alternative 2 22**
 - 4.2.3 Mitigation..... 22**
- 4.3 Special-Status Species..... 23**
 - 4.3.1 Existing Conditions..... 23**

4.3.2 Environmental Effects	29
4.3.2.1 Alternative 1: Proposed Action.....	29
4.3.2.2 Alternative 2	31
4.3.3 Mitigation.....	31
4.4 Water Quality.....	34
4.4.1 Existing Conditions.....	34
4.4.2 Environmental Effects.....	35
4.4.2.1 Alternative 1: Proposed Action.....	35
4.4.2.2 Alternative 2	36
4.4.3 Mitigation.....	36
4.5 Air Quality.....	37
4.5.1 Existing Conditions.....	37
4.5.2 Environmental Effects.....	39
4.5.2.1 Alternative 1: Proposed Action.....	39
4.5.2.2 Alternative 2	42
4.5.3 Mitigation.....	42
4.6 Noise.....	43
4.6.1 Existing Conditions.....	43
4.6.2 Environmental Effects.....	44
4.6.2.1 Alternative 1: Proposed Action.....	44
4.6.2.2 Alternative 2	45
4.6.3 Mitigation.....	45
4.7 Traffic	46
4.7.1 Existing Conditions.....	46
4.7.2 Environmental Effects.....	46
4.7.2.1 Alternative 1: Proposed Action.....	46
4.7.2.2 Alternative 2	47
4.7.3 Mitigation.....	47
4.8 Recreation and Navigation Safety	48
4.8.1 Existing Conditions.....	48
4.8.2 Environmental Effects.....	49
4.8.2.1 Alternative 1: Proposed Action.....	49
4.8.2.2 Alternative 2	50
4.8.3 Mitigation.....	50
4.9 Esthetics/Visual Resources.....	51
4.9.1 Existing Conditions.....	52
4.9.2 Environmental Effects.....	52
4.9.2.1 Alternative 1: Proposed Action.....	53
4.9.2.2 Alternative 2	53
4.9.3 Mitigation.....	53
4.10 Cultural Resources	53
4.10.1 Existing Conditions.....	53
4.10.2 Environmental Effects.....	54
4.10.2.1 Alternative 1: Proposed Action.....	55
4.10.2.2 Alternative 2	55
4.10.3 Mitigation.....	55

5.0 CUMULATIVE AND GROWTH-INDUCING EFFECTS	55
5.1 Cumulative Effects.....	55
5.2 Other Local Projects.....	58
5.3 Growth-Inducing Effects.....	60
6.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS.....	60
6.1 Federal Requirements	60
6.2 State of California.....	62
6.3 Local Plans, Policies, and Permits.....	63
7.0 COORDINATION AND REVIEW OF THE DRAFT EA/IS	64
8.0 FINDINGS.....	64
9.0 LIST OF PREPARERS.....	64
10.0 REFERENCES.....	65

Tables

- Table 1. Locations and Lengths of Erosion Sites**
- Table 2. Site Acreages for the Pocket Erosion Project**
- Table 3. Material Quantities for Pocket Bank Protection Sites**
- Table 4. Land Cover Types at each Pocket Area Erosion Site**
- Table 5. Length of IWM measured at Pocket Erosion Sites**
- Table 6. Elderberry Shrub Survey Results of the Pocket Area**
- Table 7. Average Flows at Freeport Gauge by Season**
- Table 8. Ambient Air Quality Standards**
- Table 9. Emission Sources and Assumptions Used to Determine Air Emissions**
- Table 10. Maximum Daily Construction Emission Estimates (lbs per day)**
- Table 11. Maximum Daily Construction Emission Estimates (tons per year)**
- Table 12. Construction Equipment Noise Levels**

Plates

- Plate 1. Pocket Erosion Location and Vicinity Map**
- Plate 2. Detailed Project and Plan View Map**
- Plates 3 -10. Typical Cross Sectional View of each Erosion Site**
- Plate 11. Conceptual Design for Lower American River Mitigation Site 0.5 Pocket Bank Protection Project**

Appendices

- Appendix A. USFWS Species List**
- Appendix B. CNDDDB Table of Special Status Plant and Animal Species**
- Appendix C. State 401 Water Quality Certification Waiver**
- Appendix D. Section 404(b) (1) Evaluation**
- Appendix E. Air Quality Emissions Data**
- Appendix F. Environmental Checklist Form**
- Appendix G. California SHPO Section 106 Compliance**
- Appendix H. Response to Comments on Draft EA/IS**

1.0 PURPOSE AND NEED FOR ACTION

1.1 Proposed Action

The U.S. Army Corps of Engineers (Corps) and the State of California Reclamation Board (RecBd), with assistance from the Sacramento Area Flood Control Agency (SAFCA), propose to implement bank protection measures to prevent ongoing streambank erosion and achieve Federal Emergency Management Agency (FEMA) certification of the 100-year flood plain along the Sacramento River.

These bank protection measures would be implemented at eight erosion sites located near the Pocket area (river miles [RM] 49.6 to 53.1 Left) in the city of Sacramento (Plate 1). The measures would include (1) protecting the toe of the bank with rock revetment both below and above water levels, (2) placing 1 foot of non-engineered fill on the revetment at elevations above the mean summer water level (MSWL), (3) placing and preserving existing in-stream wood material (IWM) clusters for aquatic habitat, and (4) planting pole and container plantings to stabilize the bank and provide riparian habitat.

1.2 Project Location

The project area extends along the Sacramento River from RM 49.6 to 53.1 near the Pocket area in the city of Sacramento. The eight erosion sites are located between Riverside Avenue near the intersection with 43rd Avenue, and Garcia Bend Park (Plates 1 and 2). The RM locations and lengths of the eight sites are listed in Table 1.

Table 1. Locations and Lengths of Erosion Sites¹

Work Site (RM)	Site Length (feet)
49.6	298
49.9 ¹	59 & 209
50.2	1,473
50.4 ¹	41 & 288
50.8	894
51.5	888
52.4	166
53.1	120
Total	4436

¹ Work site consists of two reaches

1.3 Background

The Pocket area is located between the east bank of the Sacramento River, and Interstate 5 bounded by Sutterville Road on the north and Freeport Boulevard to the south in the city of Sacramento. The area, which was once agricultural, has almost completely developed into

residential neighborhoods and commercial areas over the last 30 years. The Pocket area is among several remaining areas of Sacramento that does not have FEMA 100-year certification.

The original levees along the Sacramento River in this area were set back so that there was a minimum 50-foot bench between the existing bank and the waterside levee toe. Over the years, continual erosion of the existing river bank has threatened the stability of the levee in the Pocket area. Most of the erosion appears to be due to wave run-up from tidal and wind action, as well as recreational boat traffic during the summer months. Revetment has been placed along this area of levee over the years by private landowners, the Corps, historic reclamation districts and most recently by DWR's Maintenance Area 9.

The Corps, RecBd, and SAFCA, and their consultants have made several field assessments for the Pocket area over the last few years. Their final assessment has determined that erosion of the banks between elevations 2 feet and 8 feet National Geodetic Vertical Datum (NGVD) at these eight sites has undermined the bank so that it weakens and caves in during higher flow events. This project would protect these areas from further erosion while maintaining existing vegetation and IWM as much as possible. Completion of the work would also achieve FEMA certification for this area of Sacramento.

1.4 Project Authority

This project is a component of the Sacramento River Bank Protection Project (SRBPP), which was authorized by Congress under the Flood Control Act of 1960 (Public Law 86-645). Congress authorized the SRBPP in accordance with the recommendations of the Chief of Engineers in Senate Document No. 103, 86th Congress, Second Session, entitled "Sacramento River Flood Control Project, California," dated May 26, 1960. Authorization for environmental features associated with the project was provided in the Water Resources Development Act of 1990.

1.5 Purpose of the EA/IS

This Environmental Assessment/Initial Study (EA/IS) (1) tiers from the Programmatic Environmental Impact Report/ Environmental Impact Statement (EIR/EIS) prepared for SRBPP in 1987, (2) describes the existing environmental resources in the project area, (3) evaluates the effects of the alternatives on those resources, and (4) if the effects are significant, determines the need for a Supplemental EIS/EIR. If a SEIS/SEIR is not required a Finding of No Significant Impact (FONSI) and Negative Declaration (NegDec) would fulfill the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), respectively.

1.6 Decisions that must be made

The District Engineer, commander of the Sacramento District, must decide whether or not the proposed refinements qualify for a FONSI under NEPA or whether an EIS must be prepared. In addition, the Reclamation Board must decide if the proposed action qualifies for a Mitigated NegDec under CEQA or whether an EIR must be prepared.

2.0 ALTERNATIVES

2.1 No Action

Under this alternative, no action would be taken to halt erosion and protect the levee at the eight erosion sites. As such, the banks would continue to erode, increasing the risk of levee failure and subsequent flooding in the Pocket area. This erosion would continue to worsen through wave wash, floodflows, and human disturbance. Eventually, emergency repair measures would need to be implemented to protect the levee system from failing.

2.2 Alternative 1: Proposed Action

This alternative proposes to implement bank protection measures to prevent ongoing streambank erosion at RM's 49.6, 49.9, 50.2, 50.4, 50.8, 51.5, 52.4, and 53.1 along the Sacramento River. Overall project features; work at each erosion site; habitat disturbance; construction staging area; construction sequencing and equipment; haul routes, borrow areas, and traffic; maintenance activities and work windows; and construction and maintenance schedule are described below. This alternative would use the d50 riprap rock revetment with an average diameter of 10 inches.

2.3 Alternative 2

Alternative 2 would be the same as Alternative 1 except that 6 inch diameter round cobble revetment would be used for toe protection. The use of this cobble would increase the maintenance requirements of the site as compared to Alternative 1.

2.4 Overall Project Features

The bank protection measures in the overall project would consist of (1) reinforcement of the bank toe with a total of 4,436 LF of rock revetment approximately 5 feet thick at elevations varying between minus 27 and 10 feet NGVD over a total area of 375,290 square feet (8.62 acres), (2) placement of a 1-foot-thick layer of non-engineered fill at elevations varying from 5 to 11 feet NGVD on top of the rock revetment over an area of 176,500 square feet (4.05 acres), beginning above the MSWL (3) retention of existing or placement of new IWM for a total of 1,177 LF at elevations varying from 5 to 10 feet NGVD for aquatic habitat, and (4) planting of vegetation at elevations varying from 5 to 10 feet NGVD to provide bank stabilization and riparian habitat.

Approximately 72,800 cubic yards of rock revetment would be placed along the embankment and would extend up to 75 feet out from the riverbank. About 199,395 square feet (5.0 acres) of this rock-covered area would be below the mean summer water line. Approximately 14,100 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir (threaded) fabric to prevent soil loss during the first high water before vegetation has established. Upon completion, the bank slopes at the sites would be 3H:1V

(measured from the toe of the bank to an elevation of 10 feet NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area totals 240,280 square feet [5.52 acres]).

Existing living and dead IWM will be left in place and additional IWM would be placed along the sites at approximately 50- to 75-foot intervals to provide bank protection and aquatic habitat during winter and spring flows. This newly placed IWM would be a minimum 15 feet long and maintain a canopy minimum of 20 feet wide, and would retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs would be planted along the sites starting at elevations varying from 8 to 11 feet NGVD. Large potted plants would and willow cuttings be installed in larger rock voids. Standing and fallen trees at the sites would be protected in place, and all areas disturbed during construction that are above the MSWL would be protected with erosion control measures such as hydroseeding and plug plantings.

The overall project would alter approximately 4,440 feet of channel bank and contiguous channel bottom during construction, approximately 8.62 acres.

Table 2. Site Acreages for the Pocket Erosion Project

Site	Total Project Area (Acres)	Approx. Pre-Project Area above Water Line (Acres)	Approx. Pre-Project Area Below Water Line (Acres)	Post-Project Area above Water Line (Soil and Planting Area) (Acres)	Post-Project Area Below Water Line (Acres)
49.6	0.51	0.09	0.42	0.24	0.27
49.9	0.49	0.14	0.35	0.24	0.25
50.2	2.71	0.34	2.37	1.05	1.66
50.4	0.60	0.09	0.51	0.35	0.26
50.8	1.44	0.21	1.23	0.94	0.49
51.5	2.24	0.20	2.04	0.96	1.28
52.4	0.30	0.03	0.27	0.18	0.13
53.1	0.32	0.02	0.30	0.09	0.23
Total	8.62	1.12	7.50	4.04	4.58

2.5 Work at Each Erosion Site

This section provides specific details on the proposed work at each erosion site. Cross-sectional views of each site are shown on Plates 3-10.

River Mile 49.6

The bank protection measures at RM 49.6 would consist of (1) reinforcement of the bank toe with a total of 298 LF of rock revetment approximately 5 feet thick between the elevations of minus 13 and 10 feet NGVD over a total area of 22,350 square feet (0.51 acre), (2) placement of a 1-foot-thick layer of non-engineered fill varying from 5 to 11 feet NGVD on top of the rock revetment above the MSWL and covering an area of 10,500 square feet (0.24 acre), (3) planting of vegetation from an elevation of 8 feet to 11 feet NGVD to provide bank stabilization and

riparian habitat, and (4) retention of existing and placement of new IWM for a total of 57 LF at an elevation of 5 feet NGVD for aquatic habitat..

Approximately 4,500 cubic yards of rock revetment would be placed along the embankment and would extend up to 60 feet out from the riverbank. About 11,920 square feet (0.27 acre) of this rock-covered area would be below the mean summer water line. Approximately 800 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the sites would be 3H:1V (measured from the toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area total 14,900 square feet or 0.34 acre).

Riparian trees and shrubs would be planted along the site starting at 8 to 11 feet NGVD and extending to the top of the bank. Existing live and dead IWM would be retained along the work site to provide aquatic habitat during winter and spring flows. The newly placed IWM would be a minimum 15 feet long and maintain a canopy minimum of 20 feet wide, and would retain limbs and root wads (to the extent feasible) for maximum habitat value. Large potted plants and willow cuttings would be installed in larger rock voids. Standing and fallen trees at the site would be protected in place with carefully placed rock, and all areas disturbed during construction above the MSWL would be treated with erosion control measures such as hydroseeding and plug plantings.

River Mile 49.9

The bank protection measures at RM 49.9 would consist of (1) reinforcement of the bank toe with a total of 268 LF of rock revetment approximately 5 feet thick between the elevations of minus 16 and 10 feet NGVD over a total area of 21,440 square feet (0.49 acre), (2) placement of a 1-foot-thick layer of non-engineered fill varying from 5 to 11 feet NGVD on top of the rock revetment above the MSWL and covering an area of 11,000 square feet (0.25 acre), (3) planting of vegetation from an elevation of 8 to 11 feet NGVD to provide bank stabilization and riparian habitat, and (4) retention of existing and placing new IWM for a total of 70 LF at an elevation of 5 feet NGVD for aquatic habitat .

Approximately 5,300 cubic yards of rock revetment would be placed along the embankment and would extend up to 60 feet out from the riverbank. About 10,988 square feet (0.25 acre) of this rock-covered area would be below the mean summer water line. Approximately 1,000 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the two work sites would be 3H:1V (measured from the toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area total 13,400 square feet or 0.31 acre).

Riparian trees and shrubs would be planted along each of the two work sites starting at 8 to 11 feet NGVD and extending to the top of bank. Live and dead IWM already on site would be

added to with new IWM along the work site to provide and aquatic habitat during winter and spring flows. The placed IWM would be a minimum 15 feet long and maintain a canopy of 20 feet wide, and would retain limbs and root wads (to the extent feasible) for maximum habitat value. Large potted plants and willow cuttings would be installed in larger rock voids. Standing and fallen trees at the sites would be protected in place, and all areas above the MSWL disturbed during construction would be treated with erosion control measures such as hydroseeding and plug plantings.

River Mile 50.2

The bank protection measures at RM 50.2 would consist of (1) reinforcement of the bank toe with a total of 1,473 LF of rock revetment approximately 5 feet thick between the elevations of minus 13 and 10 feet NGVD over a total area of 117,840 square feet (2.71 acres), (2) placement of a 1-foot-thick layer of non-engineered fill above MSWL varying from 5 to 11 feet NGVD on top of the rock revetment and covering an area of 55,000 square feet (1.26 acres), (3) planting of vegetation from an elevation of 8 to 11 feet NGVD to provide bank stabilization and riparian habitat, and (4) retention of existing IWM and placement of additional IWM for a total of 309 LF of IWM at an elevation of 5 feet NGVD for aquatic habitat.

Approximately 25,000 cubic yards of rock revetment would be placed along the embankment and would extend up to 50 feet out from the riverbank. About 72,177 square feet (1.66 acres) of this rock-covered area would be below the mean summer water line. Approximately 3,700 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the site would be 3H:1V (measured from the toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area total 81,015 square feet or 1.86 acres).

Riparian trees and shrubs would be planted along the site starting at 8 to 11 feet NGVD and extending to the top of the bank. Live and dead IWM already on site would be added to with new IWM along the work site to provide aquatic habitat during winter and spring flows. The added IWM would be a minimum 15 feet long and maintain a canopy minimum of 20 feet wide, and would retain limbs and root wads (to the extent feasible) for maximum habitat value. Large potted plants and willow cuttings would be installed in larger rock voids. Standing and fallen trees at the site would be protected in place by carefully placed rock, and all areas disturbed during construction above the MSWL would be treated with erosion control measures such as hydroseeding and plug plantings.

River Mile 50.4

The bank protection measures at RM 50.4 would consist of (1) reinforcement of the bank toe with a total of 329 LF of rock revetment approximately 5 feet thick between the elevations of minus 8 and 10 feet NGVD over a total area of 26,320 square feet (0.60 acre), (2) placement of a 1-foot-thick layer of non-engineered fill varying from 5 to 11 feet NGVD on top of the rock revetment above the MSWL and covering an area of 12,000 square feet (0.27 acre), (3) planting

of vegetation from an elevation of 8 to 11 feet NGVD to provide bank stabilization and riparian habitat, and (4) retention of existing and placement of additional IWM for a total of 95 LF at an elevation of 5 feet NGVD for aquatic habitat.

Approximately 6,000 cubic yards of rock revetment would be placed along the embankment and would extend up to 40 feet out from the riverbank. About 11,186 square feet (0.257 acre) of this rock-covered area would be below the mean summer water line. Approximately 1,200 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the two work sites would be 3H:1V (measured from the toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 NGVD (sloping area total 14,805 square feet or 0.34 acre).

Existing live and dead IWM would be added to with additionally placed IWM along the two work sites at to provide aquatic habitat during winter and spring flows. The placed IWM would be a minimum 15 feet long and maintain a canopy minimum of 20 feet wide, and would retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs would be planted along each of the two work sites starting at elevations varying from 8 to 11 feet NGVD. Large potted plants would be installed in larger rock voids. Standing and fallen trees at the sites would be protected in place by careful rock placement, and all areas disturbed during construction would be treated with erosion control measures such as hydroseeding and plug plantings.

River Mile 50.8

The bank protection measures at RM 50.8 would consist of (1) reinforcement of the bank toe with a total of 894 LF of rock revetment approximately 5 feet thick between the elevations of minus 5 and 10 feet NGVD over a total area of 62,580 square feet (1.44 acres), (2) placement of a 1-foot thick layer of non-engineered fill varying from 5 to 11 feet NGVD on top of the rock revetment above the MSWL and covering an area of 36,000 square feet (1.04 acres), (3) planting of vegetation from an elevation of 8 to 11 feet NGVD to provide bank stabilization and riparian habitat, and (4) retention of existing and placement of additional IWM for a total of 304 LF at an elevation of 5 feet NGVD for aquatic habitat .

Approximately 10,000 cubic yards of rock revetment would be placed along the embankment and would extend up to 30 feet out from the riverbank. About 21,456 square feet (0.49 acre) of this rock-covered area would be below the mean summer water line. Approximately 3,300 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the site would be 3H:1V (measured from the toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area total 31,290 square feet or 0.72 acre).

Existing live and dead IWM would be retained and added to with additionally placed IWM along the site and provide aquatic habitat during winter and spring flows. The placed IWM would be a minimum 15 feet long and maintain a canopy of 20 feet wide, and retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs would be planted along the site at elevations varying from 5 to 10 feet NGVD and extending to the top of the bank. Large potted plants and willow cuttings would be installed in larger rock voids. Standing and fallen trees at the site would be protected in place by careful rock placement, and all areas disturbed during construction would be treated with erosion control measures such as hydroseeding and plug plantings.

River Mile 51.5

The bank protection measures at RM 51.5 would consist of (1) reinforcement of the bank toe with a total of 888 LF of rock revetment approximately 5 feet thick between the elevations of minus 18 and 10 feet NGVD over a total area of 97,680 square feet (2.24 acre), (2) placement of a 1-foot-thick layer of non-engineered fill varying from 5 to 11 feet NGVD on top of the rock revetment above the MSWL and covering an area of 40,000 square feet (0.92 acre), (3) planting of vegetation from an elevation of 8 to 11 feet NGVD to provide bank stabilization and riparian habitat, and (4) retention of existing IMW and placement of 231 LF of IWM at an elevation of 5 feet NGVD for aquatic habitat and bank stabilization.

Approximately 15,000 cubic yards of rock revetment would be placed along the embankment and would extend up to 65 feet out from the riverbank. About 55,944 square feet (1.28 acres) of this rock-covered area would be below the mean summer water line. Approximately 3,200 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the site would be 3H:1V (measured from the toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area total 66,600 square feet or 1.53 acres).

Existing live and dead IWM would be added to with additionally placed IWM, along the site at approximately 50- to 75-foot intervals to provide bank protection and aquatic habitat during winter and spring flows. The placed IWM would be a minimum 15 feet long and maintain a canopy of 20 feet wide, and retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs would be planted along the site at elevations varying from 5 to 10 feet NGVD and extending to the top of the bank. Large potted plants and willow cuttings would be installed in larger rock voids. Standing and fallen trees at the site would be protected in place by careful rock placement, and all areas disturbed during construction would be treated with erosion control measures such as hydroseeding and plug plantings.

River Mile 52.4

The bank protection measures at RM 52.4 would consist of (1) reinforcement of the bank toe with a total of 166 LF of rock revetment approximately 5 feet thick between the elevations of

minus 7 and 10 feet NGVD over a total area of 13,280 square feet (0.30 acre), (2) placement of a 1-foot-thick layer of non-engineered fill varying from 5 to 11 feet NGVD on top of the rock revetment above the MSW. Land covering an area of 7,000 square feet (0.16 acre), (3) planting of vegetation from an elevation of 8 to 11 feet NGVD to provide bank stabilization and riparian habitat, and (4) retention of existing and placement of additional IWM for a total of 63 LF at an elevation of 5 feet NGVD for aquatic habitat and bank stabilization.

Approximately 2,000 cubic yards of rock revetment would be placed along the embankment and would extend up to 25 feet out from the riverbank. About 5,644 square feet (0.13 acre) of this rock-covered area would be below the mean summer water line. Approximately 600 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the sites would be 3H:1V (measured from the toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area total 7,470 square feet or 0.17 acre).

Existing live and dead IWM would be added to by placing additional IWM along the site to provide aquatic habitat during winter and spring flows. The added IWM would be a minimum 15 feet long and maintain a canopy minimum of 20 feet wide, and retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs would be planted along the site starting at elevations varying from 8 to 11 feet NGVD and extending to the top of the bank. Large potted plants and willow cuttings would be installed in larger rock voids. Standing and fallen trees at the site would be protected in place by careful placement of rock, and all areas disturbed during construction above the MSWL, would be treated with erosion control measures such as hydroseeding and plug plantings.

River Mile 53.1

The bank protection measures at RM 53.1 would consist of (1) reinforcement of the bank toe with a total of 120 LF of rock revetment approximately 5 feet thick between the elevations of minus 27 and 10 feet NGVD over a total area of 13,800 square feet (0.32 acre), (2) placement of a 1-foot-thick layer of non-engineered fill varying from 5 to 11 feet NGVD on top of the rock revetment above the MSW. Land covering an area of 5,000 square feet (0.11 acre), (3) planting of vegetation from an elevation of 8 to 11 feet NGVD to provide bank stabilization and riparian habitat, and (4) retention of existing and placement of additional IWM for a total placement of 48 LF at an elevation of 5 feet NGVD for aquatic habitat.

Approximately 5,000 cubic yards of rock revetment would be placed along the embankment and would extend up to 75 feet out from the riverbank. About 10,080 square feet (0.23 acre) of this rock-covered area would be below the mean summer water line. Approximately 300 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the site would be 3H:1V (measured from the

toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area total 10,800 square feet or 0.25 acre).

Existing live and dead IWM would be added to by placing additional IWM along the site to provide aquatic habitat during winter and spring flows. The placed IWM would be a minimum 15 feet long and maintain a canopy minimum of 20 feet wide, and retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs would be planted along each of the sites starting at elevations varying from 8 to 11 feet NGVD and extending to the top of bank. Large potted plants and willow cuttings would be installed in larger rock voids. Standing and fallen trees at the sites would be protected in place by careful rock placement and all areas disturbed during construction above the MSWL, would be treated with erosion control measures such as hydroseeding and plug plantings.

Table 3 shows the amount of IWM and fill to be used for each erosion site. The quantity of fill and IWM may vary slightly from estimated due to potential erosion occurring during the flood season prior to construction. Additionally, placement of quantities of IWM at an individual site may vary from what is described above due to safety concerns. Final placement locations shall be determined at the time of construction.

Table 3. Material Quantities for Pocket Bank Protection Sites

Site	Current IWM (Linear Feet)	Functioning IWM to Remain (Linear Feet)	IWM to be Placed (Linear Feet)	Rock Revetment (Cubic Yards)	Soil Placed (Cubic Yards)
49.6	125	63	57	4,500	800
49.9	78	38	70	5,300	1,000
50.2	560	280	309	25,000	3,700
50.4	72	36	95	6,000	1,200
50.8	116	54	304	10,000	3,300
51.5	240	124	231	15,000	3,200
52.4	5	3	63	2,000	600
53.1	0	0	48	5,000	300
Total	1196	597	1177	72,800	14,100

2.6 Habitat Disturbance

Construction would be conducted to minimize disturbance of existing vegetation and IWM at the sites. Trees and vegetation would be cleared only to allow construction equipment to access the site, and some pruning or trimming of tree limbs and shrubs would be necessary prior to placing fill material. The exact amount at each site cannot be specified until time of construction due to changing site conditions from the ongoing erosion. To the extent feasible, however, vegetation would not be removed, and existing IWM would be covered with rock, effectively anchoring the material in place.

There would be no grubbing or contouring of the sites. All fill materials would be placed on existing undisturbed ground with no excavation or movement of existing materials onsite. All

construction activities, including clearing, pruning, and trimming of vegetation, would be supervised by a qualified biologist to ensure that these activities have a minimal effect on natural resources. A total maximum of 700 linear feet of vegetation may need to be removed from the erosion sites if necessary.

2.7 Construction Staging Areas

Construction of all bank protection activities except planting and staging would be conducted on the waterside of the riverbank from a barge or on top of the rock placed during construction. The contractor would only use the top of the levee and adjacent waterside grassy area for staging of vehicles and plant materials and other associated construction equipment if necessary. If the grassy area is used, protective fencing will be installed to prevent vehicles from getting too close to the waterside edge of the existing berm. The contractor would access the eight erosion sites from the Sacramento River and minimize access from the landside to reduce the effects of noise and traffic on adjacent residential areas. Staging areas can be seen on Plate 2.

2.8 Construction Sequencing and Equipment

The contractor would primarily construct the bank protection sites from cranes mounted on barges in the Sacramento River. The contractor would first place rock revetment from the rock toe up to an elevation of 5 feet NGVD. While the rock is being placed, the additional IWM will be anchored under the riprap. Then the contractor would begin placing sandy soil into the void space between 5 and 10 feet NGVD. Once the contractor has completed the bench from 8 to 10 feet NGVD, a 1-foot-thick layer of soil would be placed over the bench area for planting medium. The contractor may choose to use excavators, loaders, and other construction equipment on the construction area once the rock revetment has reached 5 feet NGVD.

Once construction of the bench is completed, the contractor would begin placing fill materials, as well as installing the IWM and plantings on the sites. The contractor could then decide to place fill material along the entire length of the site and install the plantings, or they could decide to construct only a section at a time, depending on material and equipment availability, or feasibility of construction. Willow cuttings and grass will be installed after construction in the fall, whereas containerized plants will be installed the following spring following seasonal high water.

2.9 Haul Routes, Borrow Areas, and Traffic

Most construction equipment would access the site by barge from the Sacramento River. Some access of construction equipment onto the levee may be necessary by utilizing the main roads in the Pocket neighborhood. Construction vehicles would drive on Pocket Rd. and Riverside Blvd. from I-5 and enter the levee at Garcia Bend Park on the south or by Arabella Way (off Pocket Rd.) and Riverside Blvd. from 43rd Street on the north. These two entrance points contain existing paved ramps that lead to the top of the levee.

Construction materials including riprap would be hauled from a commercial or previously permitted quarry or borrow site located within 100 miles of the sites. Construction

personnel would make a total of 7 round trips to and from the quarry or borrow site each day. Construction signs would be posted along the haul routes within the Pocket neighborhood, and flaggers would be used, as necessary, to minimize traffic problems and ensure public safety near the construction sites.

2.10 Off Site Mitigation: Pocket Sites and RM 56.7 at American River RM 0.5

Off-site mitigation may be implemented on the right (north) bank of the American River 0.5 mile above the confluence with the Sacramento River. Plate 11 shows the conceptual design for the RM 0.5 site. Access to the site is through Discovery Park. The site length is approximately 1,000 feet, the width varies from 0 to 300 feet measured from the edge of the river, and the project footprint is approximately 4 acres. Construction activities would be initiated during 2006 and/or 2007 dependent on cultural resource studies, VELB transplant windows, and in-water work windows. This reach of the lower American River was substantially altered by the massive amounts of sediment deposited as a result of hydraulic mining in the upper watershed and overturning and redepositing of the riverbed by extensive dredge mining within the American River. In addition, the riverbed had been substantially lowered in the last 50 years as upstream dam construction has significantly reduced sediment input and has increased scour. The result is an elevated floodplain that has significantly altered the natural relationship between the river and the surrounding floodplain. On the elevated floodplain the desirable riparian communities are not reproducing and the floodplain is rarely available to fish as the riverbed has scoured deeper and deeper. In 2001 the proposed mitigation site was also subject to a high intensity wildfire that significantly altered the native riparian vegetation community. Much of the large cottonwood, elderberry, and other native vegetation were fire-killed. Subsequent natural recruitment was very limiting, and today the site is highly degraded and largely dominated by invasive forbs, annual grasses, trees, and shrubs such as Himalayan blackberry.

The purpose of this mitigation site is to mitigate any impacts on riparian and aquatic habitat that may be caused by this project or future flood control projects on the Sacramento and American River. This site will be assessed using the Standardized Assessment Methodology (SAM) model for its ability to generate mitigation credits. The objective of the design of this mitigation area is to restore natural habitats that will benefit key special-status species, including fish, VELB, and several other wildlife species. A primary design component is the creation of juvenile salmonid habitat by constructing a vegetated bench with a range of elevations that will be inundated by typical winter and spring river stages. The range of elevations is designed to provide shallow (1 to 3 feet of) inundation in the target seasons and to create several planting zones related to hydrologic characteristics. The planting zones will provide a mixture of vegetation types to protect against erosion and provide cover for salmonids.

The grading and planting plan is also designed to minimize predator fish species habitat and eliminate potential fish stranding in an existing closed depression in the terrace at the site. The project design is intended to be consistent with management objectives for Discovery Park, including those presented in the River Corridor Management Plan for the Lower American River. The design of the overall project requires some initial site preparation and transplanting of elderberry shrubs located on the elevated floodplain of the grading footprint. These shrubs

will be excavated to a designated elderberry transplant location adjacent to the excavation area, but within the overall project footprint. The elderberry shrubs found in the grading footprint are surrounded and overtopped by invasive ruderal vegetation (primarily Himalayan blackberry) that has hampered their development and reduced the overall ecological quality of the site. The transplant area is also dominated by nonnative vegetation that has prohibited the natural recruitment and development of native riparian species. The transplant area can accommodate shrubs transplanted from the grading footprint of the proposed mitigation site as well as transplanted shrubs that may be required for future projects, including bank protection projects. Up to 5 acres would be designated for elderberry shrub transplants and general restoration. Transplanting shrubs in this area will require initial site preparation involving the removal of nonnative vegetation such as Himalayan blackberry while retaining what native vegetation there is. These actions will result in substantial improvements in the quality and quantity of riparian and VELB habitat throughout the proposed mitigation area.

The Corps estimates that project activities may affect 272 stems of the blue elderberry shrub, habitat of the VELB at the Pocket Erosion sites and RM 0.5 mitigation site on the American River. The Corps estimates that 75% of the stems are between 1-3 inches and 25% are between 3-5 inches.

The Corps would delineate 5 acres in the current foot print or adjacent area for elderberry and riparian restoration. The Corps will overlap the area for VELB compensation to the extent possible with that of the compensation planned for listed fish species. The transplants from the approximately 5 acres would be placed in the project area as would the 612 elderberry seedlings. This area would not be used for transplants from other projects.

The Corps would compensate for these potential losses according 1999 Conservation Guidelines for the VELB. The Corps would compensate for 204 stems at a ratio of 2:1 and 68 stems would be compensated at a ratio of 3:1. Removing invasive species from the transplant site and new elderberry restoration site would improve habitat conditions. Restoration of the area affected by the 2001 fire would also occur through the project and active maintenance of the site. The mitigation project would return the site to higher functioning riparian habitat than exists currently. The predominant project feature is a large graded bench with an elevation range between 4.0 and 12 feet covering approximately a 2.0-acre area. The majority of this area is between elevation 5 and 9 feet. These elevations are designed to produce shallow inundation at average spring and winter river stages of 8 feet and 9.5 feet, respectively. The bench area grading includes two sloping depressions that are designed with inlets from the main channel to facilitate full drainage of the project site and reduce the risk of stranding fish during the transition to very low water river stages. Overall, the site will support a broad range of riparian habitat, providing a thick band of vegetation near the river and a less dense and varied palette over the rest of the project footprint. The design also includes the incorporation of IWM to provide enhanced fish cover along the bank and brush mattresses to control erosion primarily from wave wash. A distribution of relatively level benches at various elevations stepping at approximately 1-foot increments will provide shallow water for seasonally diverse salmonid rearing opportunities at target river stages.

A separate NEPA/CEQA document shall be prepared prior to the construction for the project located at RM 0.5 Left on the American River. Environmental effects of the project at 0.5 have not been fully identified at this time and require additional surveys and coordination prior to the determination of project's effect on the human environment. Additional regulatory approvals from the appropriate agencies will be sought during the design phase at RM 0.5.

2.11 Mitigation Monitoring Plan

The Corps shall, within 12 months of the onset of construction of the Pocket bank protection sites, submit a detailed, site-specific monitoring plan for the resource agencies to review. Once reviewed, this monitoring plan shall be incorporated into the above-referenced O&M manual and implemented at the Pocket bank protection sites. Monitoring is necessary to ensure that the vegetated benches/IWM structures are functioning as projected to the benefit of federally listed fish species. The Corps and local sponsor shall submit a yearly report of monitoring results at the Pocket bank protection sites to the resource agencies by December 31 of each year. Monitoring is to be conducted until such time as the projected benefits of mitigation actions to federally listed fish species can be either substantially confirmed or discounted.

The Corps shall also develop, with the assistance of the Inter-Agency Working Group (IWG) and the ultimate approval of the resource agencies, a broader fisheries and aquatic ecosystem monitoring plan for the SRBPP action area. Larger-scale aquatic monitoring is also necessary to ensure that the various experimental SRBPP on-site mitigation features are functioning in a manner that enhances habitat value and offsets adverse bank protection effects. Monitoring is also necessary to determine the adverse effects associated with the loss of river function and increased habitat fragmentation associated with the project. Monitoring will evaluate the effectiveness any restoration measures implemented to return natural fluvial function (i.e., setback levees, restoration of eroding banks, etc.). The results of large-scale monitoring will be used to develop future minimization measures and conservation ratios with respect to federally listed species and will help determine whether SRBPP mitigation features require long-term maintenance or must be modified to reduce unforeseen adverse impacts on listed species and the ecosystems in which they occur.

2.12 Maintenance Activities and Work Windows

The erosion repair sites would need limited maintenance over the life of the project. Anticipated maintenance activities during the initial establishment period, typically 3-5 years, would include removal of invasive vegetation determined to be detrimental to the success of the project, pruning and watering of planted vegetation to promote optimal growth, maintenance of beaver exclusion fencing, replacement vegetation planting, monitoring of navigational hazards, and placement of fill and rock revetment if the site is damaged during high flow events or vandalism. Once established, the riparian vegetation should be self-maintaining. Placement of the bank protection material would disturb no more than 300 feet a year during maintenance activities.

In coordination with Federal and State resource agencies, any in-water work needed for maintenance would be conducted during appropriate time periods to avoid adverse effects to fish.

The current acceptable in-water work “window” for listed salmonids is July 1 to October 30 in any year (Construction would begin in July only if approved by the USFWS which is dependent on the distribution of Delta smelt in June surveys). It is anticipated that no more than 600 cubic yards of material a year would need to be placed at the sites in order to provide sufficient protection. Should greater than 600 cubic yards be placed in any year, the operating and maintaining agency would obtain the necessary permits from regulatory agencies.

2.13 Construction and Maintenance Schedule

Placement of rock revetment, fill, and IWM would be completed during one construction season. Vegetation plantings would be installed and maintained during that same construction season and then maintained for an additional 3 years. In-water construction would be completed during the established special-status species work window of July 1 through October 30 (Construction would begin in July only if approved by the USFWS which is dependent on the distribution of Delta smelt in June surveys). The Corps has requested to the USFWS that the work window be extended through November 30 during the first year of construction. If construction is initiated during 2006, in-water construction would begin on approximately July 1. Maintenance activities may occur year round in the overbank and dry areas, but would avoid any elderberry shrubs by 100 feet or other distance coordinated with the U.S. Fish and Wildlife Service.

3.0 RESOURCES ELIMINATED FROM DETAILED ANALYSIS

3.1 Climate

This project would not result in any changes to climate; therefore, climate is not discussed in this document.

3.2 Land Use

This project would not result in any changes in land use; therefore, land use is not evaluated in detail in this document. Specifically, there would be no change to the adjacent land uses, including recreation, and the conversion of natural riparian bank to a riprap slope would not result in a change in land use because the project has been designed to promote the revegetation and maintain habitat values of the sites.

3.3 Socioeconomics and Environmental Justice

Since land use would not change, the socioeconomics of the project area are not expected to change. Marinas and other recreational values near the sites would not be affected. Also, there would be no substantial loss or addition of jobs or revenue as a result of the proposed project. In addition, there would be no effect on environmental justice because there are no minority or low-income groups in the project area.

3.4 Prime and Unique Farmland

Construction is not proposed on any land designated as prime or unique farmland. No agricultural lands would be taken out of production due to the proposed project.

3.5 Hazardous, Toxic, and Radiological Waste

Hazardous materials and wastes are those substances that, because of their physical, chemical, or other characteristics, may pose a risk of endangering human health or safety or of endangering the environment (California Health and Safety Code Section 25260). Types of hazardous materials include petroleum hydrocarbons, pesticides, and volatile organic compounds (VOCs). In the Central Valley, most hazardous waste sites are associated with agricultural production activities and may include storage facilities and agricultural pits or ponds contaminated with fertilizers, pesticides, or herbicides.

There are no known hazardous, toxic, and radiological waste (HTRW) sites that would be affected by the proposed project. A literature review, interviews, and site survey revealed no known occurrences of HTRW onsite. Since the project would not involve any known HTRW sites, HTRW has been eliminated from further consideration.

The possibility exists that fuels, lubricants, and other construction materials could enter the human environment during construction. As a result, the construction contractor would be required to prepare a hazardous materials control and response plan prior to construction.

3.6 Soils and Geomorphology

The Sacramento Valley is underlain by marine sedimentary rocks overlain by recent alluvial deposits, and to a lesser extent some volcanic rocks. The levees and river sediments with the project site are composed of Quaternary alluvium deposits comprising of loose to medium dense, unweathered gravel, sand, silt and clay. These sediments, which are estimated to have been deposited 200 to 10,000 years before present formed levees and floodplains along the Sacramento River.

The river channel at the project site is approximately 750 feet wide between shorelines. The channel invert is -24 feet below mean sea level. Large chunks of concrete rubble on the levee slopes were placed over time as ad hoc riprap. However, it is currently being undercut and masks the true level of scour at the site (U.S. Army Corps of Engineers 2004).

Since there is no removal of existing cobbles, riprap, and concrete chunks from the existing levee, construction related effects to the bank and underlying soils will be less than significant. The addition of a 1-foot soil layer would actually improve conditions by allowing planting benches to establish vegetation and secure the shore preventing further erosion.

4.0 RESOURCES ANALYZED IN DETAIL FOR POTENTIAL PROJECT EFFECTS

4.1 Vegetation and Wildlife

Vegetation, habitat, and wildlife mapping surveys were conducted in 2004 and 2005 utilizing both aerial photos and ground truthing techniques to determine locations that may be affected by construction and maintenance activities. The Corps has received a final Fish and Wildlife Coordination Act Report (CAR) from the Sacramento USFWS office and has incorporated their recommendations and mitigation measures into this document.

4.1.1 Existing Conditions

The Pocket Area project site contains four different land cover types. These include riparian forest, scrub/shrub, ruderal herbaceous, and open water (i.e., Sacramento River) (Table 4). Each of these land cover types is described briefly below.

Table 4. Land Cover Types at each Pocket Area Erosion Site

River Mile	Land Cover Type (acreage)			
	Riparian Forest	Riparian Scrub/shrub	Ruderal Herbaceous	Open Water
49.6	0.47	0.08	0.36	0.42
49.9	0.50	N/A	0.36	0.35
50.2	1.17	0.18	2.37	2.37
50.4	0.51	N/A	0.22	0.51
50.8	0.94	0.11	0.42	1.23
51.5	1.27	0.02	0.82	2.04
52.4	0.62	N/A	0.12	0.27
53.1	0.30	N/A	0.20	0.3
Total	5.8	0.4	4.9	7.5

Tree and vegetation surveys were performed in December 2004 and January 2005. The locations of elderberry trees/shrubs are shown in Plate 2. Trees were defined as all woody vegetation with a diameter-at-breast-height (dbh) of 4-inches or greater. Each tree was labeled with an aluminum tree tag with an individual tree number corresponding with each erosion site. The tags were placed approximately 4.5 feet above the ground. A survey crew from the Corps recorded the exact location and elevation of each tree on the waterside of the levee in September and December 2004, and January 2005. The tree survey included identifying the tree species, measuring the height, measuring dbh, determining the root status, and assessing the general condition of each tree.

Riparian Forest Habitat

Riparian forest and scrub/shrub vegetation within the Pocket area is composed of mature native and nonnative trees and shrubs occurring in a narrow band along the river's edge and on the levee slope. Along a majority of the erosion sites, trees and shrubs grow interspersed among each other with heights ranging from a few feet above ground to almost 100-feet over the shoreline. The riparian habitat in the project area is classified as great valley riparian forest (Holland, 1986). There are approximately 5.8 acres of riparian forest within the limits of work.

The taller riparian forest vegetation provides overhead and instream shaded riverine aquatic (SRA) cover habitat for aquatic species. SRA cover is an important component for fish habitat. Within the limit of work for the Pocket Area erosion sites riparian vegetation provides overhead SRA cover on approximately 4,836 linear feet (64%) of the low-flow summer shoreline. The riparian forest has a tall overstory of deciduous broadleaf trees, primarily cottonwood (*Populus fremontii*), willows (*Salix* spp.) and valley oak (*Quercus lobata*). Other native riparian forest species include box elder (*Acer negundo*), California black walnut (*Juglans hindsii*), western sycamore (*Platanus racemosa*), California laurel (*Umbellularia californica*), and Oregon ash (*Fraxinus latifolia*). The nonnative riparian forest species that contribute to the riparian forest overstory include English elm (*Ulmus minor*) and black locust (*Robinia pseudoacacia*).

Riparian Scrub/Shrub Habitat

The shorter riparian scrub/shrub community occurs in small, disjunctive patches within each Pocket Area erosion site, usually as thickets of intertwined vegetation below the forest canopy. Riparian scrub/shrub vegetation primarily occurs at the low and mid-bank landscape position. The riparian scrub/shrub cover type consists of riparian tree species that are less than 20 feet in height. Species occurring in the riparian scrub/shrub community include cottonwood, willow, elderberry (*Sambucus mexicana*), Himalayan blackberry (*Rubus discolor*), wild grape (*Vitis californica*), and poison oak (*Toxicodendron diversilobum*). There is approximately 0.4 acre of riparian scrub/shrub within the limits of work.

The habitat values for the riparian forest and scrub/shrub are significant, however they provide less habitat value than would be expected if the riparian corridor were wider with a more complex vegetation structure. This is the result of the linear nature of the erosion sites, the narrow width of the riparian corridor, and the predominance of the ruderal herbaceous understory. The riparian forest provides important nesting, cover, and foraging habitat for a diverse group of wildlife species. The riparian trees provide suitable nesting and roosting habitat for raptors and numerous songbirds. Several migratory birds also use the riparian canopy for foraging and cover while moving along their migration route. Although the scrub/shrub understory does not provide dense cover for mammals, small mammals such as raccoon, striped skunk and Virginia opossum are expected to occur at the project site.

The riparian forest and scrub/shrub community in the Pocket area is also subject to human disturbance from pedestrians and bicyclists who frequent the paved and gravel trail on the levee crown. Many local residents utilize the entire levee for a variety of activities such as

jogging, bicycling, walking dogs, horseback riding, fishing, and swimming. This could result in disturbance to nesting and foraging wildlife.

Ruderal Herbaceous

In some locations the riparian scrub/shrub understory is primarily dominated by ruderal herbaceous vegetation, including annual grasses such as brome grasses (*Bromus* spp.), ryegrass (*Lolium perenne*), wild oat (*Avena fatua*) and forbs such as horsetail (*Equisetum hymela*), sedges (*Carex* spp.), rushes (*Juncus* spp.), filaree (*Erodium botrys*), wild radish (*Raphanus raphanistrum*), and Bermuda buttercup (*Oxalis pes-carpae*). The dominant weedy species include wild mustard (*Brassica* spp.), bristly oxtongue (*Picris echioides*) milkthistle (*Silybum marianum*), and prickly thistles (*Cirsium* spp.) The ruderal herbaceous community, as a stand alone land cover type, occurs on the waterside of the levee within gaps in the riparian forest canopy and scrub/shrub communities. There are approximately 4.9 acres of ruderal herbaceous land cover within the limits of work.

Open Water

The Sacramento River is located on the west side of the project site. The riparian forest and scrub/shrub vegetation at the outboard toe of the slope are located at the approximate summer water surface elevation. No wetlands occur in the project area. The amount of open water riverine habitat within the limits of work is 5.0 acres. This was determined by multiplying the length of each site by an average of 50 feet out into the middle of the river.

In-stream Woody Material (IWM)

A survey to locate IWM was conducted from December 6 to 23, 2004. The purpose of the survey was to record locations of woody debris that were submerged beneath the water as well above the waterline up to the 5-foot contour at mean summer water (MSW). Any woody debris (branches, logs, fallen trees, roots, etc.) that was in close proximity and extending into the water was measured and recorded. Table 5 shows the length of IWM recorded for each erosion site in the Pocket area. Table 5. shows the total IWM in the project area, not the total IWM affected which is shown in Table 3.

Table 5. Length of IWM measured at Pocket Erosion Sites

Pocket Erosion Site	Length (ft)
River Mile 49.6	262
River Mile 49.9	290
River Mile 50.2	882
River Mile 50.4	56
River Mile 50.8	314
River Mile 51.5	314

A boat was used to access the IWM along the banks. At each location of IWM, both ends of woody material were marked using a Trimble GeoTracker3 global positioning system (GPS) unit. The following was recorded for each area of woody debris: (1) length; (2) width; (3) distance from shoreline protruding out into the river; (4) diameter of width (often given as a range); (5) type (e.g., simple log, rootwad); (6) orientation to the bank (i.e., parallel or perpendicular); and (7) structural complexity. Digital photographs were taken at representative sites. Photographs were also taken of live trees and shrubs that were common but not recorded.

4.1.2 Environmental Effects

Significance Criteria

Effects on vegetation and wildlife were considered significant if the project would:

- Interfere with the movement of any resident or migratory wildlife species. Result in substantial loss, degradation, or fragmentation of any natural vegetation communities and wildlife habitat.

4.1.2.1 Alternative 1: Proposed Action

Approximately 8.62 acres of the project area (1.12 acres above mean summer water levels and 7.5 acres below mean summer water levels) will be directly affected (i.e., covered with rock revetment and soil) by construction activities at the Pocket erosion sites. This disturbance would include increased noise levels from generators, staging areas, vehicles, and river barges. Temporary displacement of local wildlife due to increased human presence is likely to occur during construction activities. There would be no grubbing or contouring of the sites. All fill materials would be placed on existing undisturbed ground with no excavation or movement of existing materials onsite. Some trimming or pruning of trees and shrubs may be necessary in order to access each erosion site and conduct work. A qualified biologist will be on site monitoring to ensure these activities have a minimal effect on natural resources. A total maximum of 700 linear feet of vegetation may need to be removed from the sites; however the exact amount at each site cannot be specified until time of construction due to changing site conditions from the ongoing erosion. Existing IWM would remain in the river and be covered with rock, effectively anchoring the material in place. The effects on ruderal herbaceous vegetation would occur due to the placement of earthen fill, rock revetment, and construction equipment placed or driven on the levee slope.

Heritage trees would not likely be affected by construction unless pruning is unavoidable in order to place fill around the root crowns to protect their roots from further erosion and root loss. The effects to vegetation and wildlife are temporary and will be less than significant once the mitigation measures as described below are implemented.

4.1.2.2 Alternative 2

Alternative 2 would have the same effects on vegetation and wildlife as Alternative 1 listed above.

4.1.3 Mitigation

The implementation of Alternative 1 would include the offsite mitigation area, which would fully offset onsite effects to vegetation. Alternative 1 would also implement a portion of the necessary mitigation onsite, and would incorporate the offsite mitigation area to the extent necessary to fully mitigate onsite effects to vegetation. Therefore, no mitigation beyond what is incorporated into the project description is required for effects to vegetation and wildlife.

4.2 Fish

This section describes the non-special-status fish resources and habitats present at the project site. Special-status fish species are discussed in this section; however, a detailed analysis is provided in the Special-Status Species section (Section 4.3).

4.2.1 Existing Conditions

Non-listed species that occur within Central Valley streams and rivers, including the project site include Sacramento splittail, striped bass, American shad, largemouth bass, and several species of minnows, sunfish, and catfish.

Factors affecting abundance for common species are similar to those affecting special-status species. These factors are discussed in detail in the Special-Status Species Section 4.3. The discussion of effects to special-status species resulting from changes in these factors adequately addresses any impacts to common species. However, effects to common species as a result of changes in these factors are not considered significant because they are not of special-status.

4.2.2 Environmental Effects

Significance Criteria

Effects on fisheries would be considered significant if construction or operation of the project would:

- Substantially interfere with the movement of any resident or migratory fish.
- Substantially diminish habitat for fish or result in displacement of spawning fish such that year-class strength is substantially reduced.
- Involve production and discharge of materials that pose a hazard to fish.

4.2.2.1 Alternative 1: Proposed Action

The Sacramento River channel and bank would be affected by construction of the bank protection. Construction would require one season (July 1 to November 30) and would include placement of new riprap (4,436 LF approximately 5 feet thick), non-engineered fill (1 foot thick) on top of the rock, instream woody material (330 LF), and planting riparian vegetation at various elevations along the bank. The overall project would disturb approximately 4,436 feet of channel bank and contiguous channel bottom during construction. About 5.0 acres of open water habitat would be affected during construction.

Short-term increases in turbidity and suspended sediment may disrupt feeding activities of common fish species or result in temporary displacement from preferred habitats. High concentrations of suspended sediment can also bury stream substrates that provide habitat for aquatic invertebrates, an important food source for green sturgeon. Consequently, growth rates of fish could be reduced if suspended sediment and turbidity levels substantially exceeded ambient levels for prolonged periods.

Toxic substances used at construction sites, including gasoline, lubricants, and other petroleum-based products could enter the Sacramento River as a result of spills or leakage from machinery or storage containers. These substances can kill aquatic organisms through exposure to lethal concentrations or exposure to nonlethal levels that cause physiological stress and increased susceptibility to other sources of mortality. Petroleum products also tend to form oily films on the water surface that can reduce dissolved oxygen levels available to aquatic organisms. The effect on fish will be less than significant once the mitigation measures as described below are implemented.

4.2.2.2 Alternative 2

Alternative 2 would have the same effects on fisheries as Alternative 1 listed above.

4.2.3 Mitigation

The Corps will require the contractor to submit to the Regional Water Quality Control Board (RWQCB) a notice of intent to discharge stormwater before construction activities begin and will develop and implement a storm water pollution prevention plan (SWPPP) as required by the conditions of a National Pollutant Discharge Elimination System (NPDES) permit. The Corps will prepare a SWPPP that identifies best management practices (BMPs) for discharges. The SWPPP will include an erosion control and restoration plan, a water quality monitoring plan, a hazardous materials management plan, and post-construction BMPs. The BMPs will be maintained until all areas disturbed during construction have been adequately revegetated and stabilized.

The specific BMPs that will be incorporated into the SWPPP will be determined during the final stages of project design. However, the SWPPP is likely to include one or more of the following standard practices, which are commonly used during the construction and postconstruction phases of levee improvement projects:

- Conduct earthwork during the dry season (July 1-November 30)
- Stage construction equipment and materials on the landside of the subject levee reaches. To the extent possible, stage equipment and materials in areas that have already been disturbed.
- Minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations.
- Stockpile soil and grading spoils on the landside of the subject levee reaches, and install sediment barriers (e.g., silt fences, fiber rolls, straw bales) around the base of stockpiles to intercept runoff and sediment during storm events. If necessary, cover stockpiles with geotextile fabric to provide further protection against wind and water erosion.
- Install sediment barriers on graded or otherwise disturbed slopes as needed to prevent sediment from leaving the project site and entering nearby surface waters.
- Use and store hazardous materials, such as vehicle fuels and lubricants, in designated staging areas located away from surface waters. Implement a spill prevention and control plan that specifies measures that will be used to prevent, control, and clean up hazardous material spills.
- Install plant materials to stabilize cut and fill slopes and other disturbed areas once construction is complete. Plant materials may include an erosion control seed mixture or shrub and tree container stock. Temporary structural BMPs, such as sediment barriers, erosion control blankets, mulch, and mulch tackifier, may be installed as needed to stabilize disturbed areas until vegetation becomes established.
- Implementation of the BMPs specified in the erosion control plan and SWPPP would substantially reduce the potential for accelerated erosion and sedimentation to occur as a result of construction-related ground and vegetation disturbance.

4.3 Special-Status Species

This section describes the special-status species, specifically federal and state listed species and candidate species, which may be present or have the potential to occur at the project site.

4.3.1 Existing Conditions

Special-status species that have the potential to occur in the vicinity of the project area were determined through a review of various sources including a USFWS species list (Updated February 1, 2006, Appendix A) and a review of the California Natural Diversity Database (CNDDDB, Appendix B). Those species that are likely to occur within the vicinity of the project area are further evaluated in the following sections.

Ten special-status wildlife species occur or have the potential to occur in the project area. These species include: valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Cooper's hawk (*Accipiter cooperii*), Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), Central Valley steelhead (*Oncorhynchus mykiss*), Sacramento River winter-run Chinook salmon (*O. tshawytscha*), Central Valley spring-run Chinook salmon

(*O. tshawytscha*), delta smelt (*Hypomesus transpacificus*), green sturgeon (*Acipenser medirostris*), and late fall/fall-run Chinook salmon (*O. tshawytscha*).

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle is federally listed as threatened. The USFWS has designated critical habitat for the valley elderberry longhorn beetle along the American River Parkway and an area within the Sacramento metropolitan area (54 FR 48229). The project site does not fall within the two areas designated as critical habitat.

A California endemic species, the valley elderberry longhorn beetle is found in scattered populations throughout its range. The species' range includes most of the California Central Valley (Barr, 1991). The adults feed exclusively on elderberry (*Sambucus mexicanus*) foliage and are active from early March through early June. The beetles mate in May and females lay eggs on living elderberry shrubs. Larvae bore through the stems of the shrubs to create an opening in the stem within which they pupate. After metamorphosing into an adult, the beetle chews a circular exit hole through which it emerges (Barr 1991).

Elderberry shrub surveys were performed by the Corps at the Pocket area erosion sites in September and December 2004 and January 2005. These surveys were conducted in accordance with USFWS valley elderberry longhorn beetle conservation guidelines (U.S. Fish and Wildlife Service 1999). Elderberry shrubs (VELB) were identified by walking up river along the levee starting from Garcia Bend Boat Launch Marina, (150 feet downstream from RM 49.6) and continuing to about 200 feet upriver from the upstream limit of RM 53.1. Both sides of the levee were surveyed for this entire length. A total of 29 shrubs were found; 26 on the landside of the levee and 3 on the waterside of the levee (Table 6). All of these shrubs have stems greater than 1-inch in diameter and therefore provide habitat for valley elderberry longhorn beetle. Exit holes were observed on all but 4 shrubs. One elderberry shrub is located within the project construction boundaries, at the RM 50.8 site (Plate 2). Fifteen other elderberry shrubs are located within 100 feet of the construction boundaries, and 13 shrubs are located between sites along the levee, but more than 100 feet from any individual erosion site.

Additionally, approximately 26 elderberry shrubs (with 227 stems) are located within the project footprint at the lower American River RM 0.5 mitigation site. Approximately 40 shrubs (with 303 stems) are located within 100 feet of this footprint.

Table 6. Elderberry Shrub Survey Results of the Pocket Area

Elderberry Shrub Number	Shrub Associated with Site	Number of Stems Greater than 1-inch in Diameter, by Stem Diameter Category			Exit Hole Information		Shrub located in Riparian Habitat?
		Quantity of Stems 1–3 inches	Quantity of Stems 3–5 inches	Quantity of Stems >5 inches	Exit Holes Present?	Diameter of Stem on Which Exit Hole Occurs	
VELB01	49.6 (south of site)	12	2	3	Yes	3-5 inches	Yes
VELB02	n/a	0	0	2	Yes	>5 inches	No
VELB03	n/a	1	1	2	Yes	All diameters	No
VELB04	n/a	2	0	0	No	n/a	No
VELB05	n/a	0	1	2	Yes	3-5 inches and >5 inches	No
VELB06	n/a	2	1	1	Yes	All diameters	No
VELB07	n/a	1	0	2	Yes	>5 inches	No
VELB08	n/a	3	1	0	No	n/a	No
VELB09	n/a	14	2	0	Yes	1-3 inches and 3-5 inches	Yes
VELB10	n/a	1	1	2	Yes	All diameters	No
VELB11	n/a	0	0	1	Yes	>5 inches	No
VELB12	n/a	3	2	5	Yes	3-5 inches and >5 inches	No
VELB13	n/a	0	1	0	No	n/a	No
VELB14	50.4 (east of site)	5	3	0	Yes	3-5 inches	No
VELB15	50.4 (east of site)	0	1	0	Yes	3-5 inches	No
VELB16	50.4 (east of site)	0	0	1	Yes	>5 inches	No
VELB17	50.4 (east of site)	0	1	0	Yes	3-5 inches	No
VELB18	50.4 (east of site)	0	0	2	Yes	>5 inches	No
VELB19	50.4 (east of site)	2	0	1	Yes	>5 inches	No
VELB20	50.4 (east of site)	4	0	0	No	n/a	No
VELB21	50.4 (east of site)	3	1	0	Yes	3-5 inches	No

Elderberry Shrub Number	Shrub Associated with Site	Number of Stems Greater than 1-inch in Diameter, by Stem Diameter Category			Exit Hole Information		Shrub located in Riparian Habitat?
		Quantity of Stems 1–3 inches	Quantity of Stems 3–5 inches	Quantity of Stems >5 inches	Exit Holes Present?	Diameter of Stem on Which Exit Hole Occurs	
VELB22	50.4 (east of site)	3	1	0	Yes	1-3 inches and 3-5 inches	No
VELB23	50.4 (east of site)	3	0	0	Yes	1-3 inches	No
VELB24	50.8 (east of site)	0	0	3	Yes	>5 inches	No
VELB25	50.8 (east of site)	1	1	1	Yes	All diameters	No
VELB26	50.8 (east of site)	1	1	1	Yes	All diameters	No
VELB27	50.8 (east of site)	3	0	0	Yes	1-3 inches	No
VELB28	50.8	1	1	1	Yes	All diameters	Yes
VELB29	n/a	15	0	8	Yes	>5 inches	No

Swainson's Hawk

The Swainson's hawk is state-listed as threatened and federally identified as a species of concern. The mature riparian vegetation in the Pocket Area provides suitable nesting; however, the riparian habitat in the project area is narrow and subject to human disturbance (i.e., pedestrian and levee maintenance traffic). Swainson's hawk may use any of the trees in the project area for roosting. No foraging habitat exists in the project area or on the east side of the river; however, suitable foraging habitat does exist on the west side of the river.

Cooper's Hawk

The Cooper's hawk is federally listed as a Species of Concern. The hawk breeds throughout most of California in a variety of woodland habitats, including riparian and oak woodlands (Harris 1991). Cooper's hawk are known to be permanent residents in the project vicinity. This species is also expected to occur as a transient and winter resident in the study area.

Although Cooper's hawks have not been recorded at the project site, the project site provides suitable habitat for this species. A CNDDDB records search did not identify any occurrences of Cooper's hawk in the study area (California Natural Diversity February 2004). Cooper's hawk has been observed in the residential area to the east of the project site (USFWS observations). The mature riparian vegetation provides suitable nesting; however riparian habitat in the project area is narrow and subject to human disturbance (i.e., pedestrian and levee maintenance traffic). Cooper's hawk may use any of the trees in the project area for roosting.

White-tailed Kite

The white-tailed kite is state and federally identified as a species of concern. White-tailed kites have steadily decreased throughout much of California since the late 1970s. Declines have been especially evident in southern California (Garrett and Dunn 1981), along the south coast (Marantz 1986) and in the San Joaquin Valley (Small 1994). Local populations appear to still be relatively healthy along the north and east San Francisco Bay and in the Sacramento-San Joaquin Delta.

White-tailed kites were not observed during the field survey and no nests or nest-building activities were observed in 2005. There are no CNDDDB occurrences of white-tailed kite for the project site (California Natural Diversity Database 2004). White-tailed kites have been observed downstream of the project site and in the residential area to the east of the project site (Jones & Stokes field observation). The mature riparian vegetation provides suitable nesting; however riparian habitat in the project area is narrow and subject to human disturbance (i.e., pedestrian and railroad traffic). White-tailed kite may use any of the trees in the project area for roosting. No foraging habitat exists in the project area or on the east side of the river; however suitable foraging habitat does exist on the west side of the river.

Chinook Salmon

Sacramento River winter-run chinook salmon are listed under both the ESA and CESA as endangered (59 FR 440, January 4, 1992). Central Valley spring-run Chinook salmon have been listed under the ESA and CESA as threatened (64 FR 50393, September 16, 1999). Central Valley fall/late fall-run Chinook salmon are identified as a candidate species under the ESA (64 FR 50393, September 16, 1999). Critical habitat was designated for Sacramento River winter-run Chinook salmon, and does encompass the project area.

Chinook salmon occur at the project site, either as adults migrating upstream to their spawning habitat, or as juveniles, rearing and migrating towards the ocean. Juvenile Chinook salmon tend to utilize bank habitat more frequently than the main channel, as it provides increased protection, shade, and food.

Central Valley Steelhead

Central Valley steelhead were listed under the ESA as a threatened species (63 FR 13347, March 19, 1998), and have been identified under CESA as a species of special concern. Central Valley Steelhead occurs at the project site, either as adults migrating upstream to their spawning habitat, or as juveniles, rearing and migrating towards the ocean. Juvenile steelhead tend to utilize bank habitat more frequently than the main channel, as it provides increased protection, shade, and food.

Delta Smelt

Delta smelt are listed under both the ESA and CESA as a threatened species (58 FR 12854, March 5, 1993). Critical habitat was designated and does include the project area. Estuarine rearing habitat for juvenile and adult delta smelt is typically found in the waters of the lower Delta and Suisun Bay where salinity is between 2 and 7 ppt. Delta smelt tolerate 0-ppt to 19-ppt salinity. They typically occupy open shallow waters but also occur in the main channel in the region where fresh water and brackish water mix. The zone may be hydraulically conducive to their ability to maintain position and metabolic efficiency (Moyle 2002).

The Sacramento River provides a migration pathway between freshwater and ocean habitats for adult and juvenile steelhead and all runs of Chinook salmon. Migration habitat conditions include streamflows that provide suitable water velocities and depths that provide successful passage. Flows in the Sacramento River provide the necessary depth, velocity, and suitable water temperature. Larval and early juvenile delta smelt are transported by currents that flow downstream into the upper end of the mixing zone of estuary where incoming saltwater mixes with out-flowing freshwater (Moyle et al. 1992). Reduced flow may adversely affect transport of larvae and juveniles to rearing habitat.

4.3.2 Environmental Effects

Significance Criteria.

Effects on special status species would be considered significant if construction or operation of the project would:

- Adversely affect critical habitat
- Result in an unmitigated take of a special status species
- Adversely affect a special status species

4.3.2.1 Alternative 1: Proposed Action

The proposed action at the Pocket erosion control sites is likely to affect, likely to adversely affect the following listed species: Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, Delta smelt, valley elderberry longhorn beetle, and green sturgeon. Project effects also include alteration of the designated critical habitat of winter-run Chinook salmon, spring-run Chinook salmon, steelhead, and Delta smelt.

Construction effects may include localized disturbance or displacement of adult and juvenile Delta smelt, Chinook salmon, steelhead, and sturgeon from noise, suspended sediment, and turbidity generated during in-water construction activities. The potential also exists for injury or mortality of juvenile salmonids and other fish species that may not be able to readily move away from channel or nearshore areas directly affected by construction activities. The potential for adverse effects will be minimized by restricting in-water activities to the period July 1-November 30 and implementing the proposed minimization and avoidance measures for each species.

Long-term effects of the project on the habitat of listed fish species include alteration of river hydraulics, instream and overhead cover, and substrate conditions along the seasonal low- and high-flow shorelines of the project sites. Implementation of the project would result in temporary losses of riparian vegetation and permanent losses of IWM (an assumed 50% reduction) along the summer-fall and winter-spring shorelines. These cover losses will occur concurrently with the construction of a soil-covered vegetated bench that will increase the availability of shallow-water habitat for juvenile salmonids during the primary periods of occurrence in the project area (fall, winter, and spring high-flow periods). Cover losses will be offset to some extent by the placement of additional IWM on the bench. Over time, the establishment and growth of riparian vegetation on the bench is expected to increase habitat values by increasing the extent of instream and overhead cover available to juvenile salmonids under average winter and spring flows. In contrast, habitat values during periods of low juvenile abundance (early fall prior to the initial seasonal increase in flow and reduction in water temperature in the lower Sacramento River) are not expected to recover because of the permanent loss of shallow-water habitat (unvegetated), net loss of IWM, and installation of rock revetment along the summer-fall shoreline (Jones and Stokes 2006).

At most sites, the project would result in long-term gains in habitat values for Delta smelt spawning and incubation life stages (adults, eggs, and larvae). These gains reflect the positive response of these life stages to increases in the availability of shallow water, flooded vegetation, and IWM on the constructed bench during winter and spring flows.

No changes would occur in the dominant substrate type (fine sediment). In contrast, project effects at RM 50.4 include replacing existing rock revetment (10-inch diameter rock on the 2:1 slope) with fine sediment (0.01-inch diameter sediment on the constructed bench), resulting in a long-term deficit in winter-spring habitat values that exceed the gains in habitat values at all other sites. This result can be traced to the Delta smelt spawning and incubation response relationship for bank substrate size, which assumes that survival of eggs and larvae drops rapidly to zero as substrate sizes decrease below 0.25 inches in diameter (D50) and that all substrates greater than or equal to 0.25 inches in diameter are optimal (Jones and Stokes 2006)

Although project conservation measures will achieve a long-term replacement of riparian and SRA habitat, project construction will, however, temporarily reduce habitat quality and permanently replace naturally eroding substrate with riprap. In addition, the proposed action has the potential to indirectly affect 17 elderberry shrubs located within 100 feet of the construction limits.

Of the 11.10 acres of terrestrial habitat within the project area, effects of the proposed action may include the removal or disturbance of approximately 1.12 acres of riparian and ruderal herbaceous habitat. No trees are expected to be removed, yet it is assumed that several trees would be affected by the placement of rock revetment around their bases and trimming or pruning may be necessary. Perhaps as much as 700 linear feet of trees may be trimmed or removed to facilitate the placement of rock by barge.

In consideration of the above information, the proposed action is not likely to result in jeopardy to these species as long as the applicable conservation measures are adhered to. The conclusion of non-jeopardy is based on the Corps' commitments to 1) minimize temporary habitat losses through the incorporation of onsite mitigation features (e.g., constructed bench, riparian plantings, and anchored IWM) in the project design, and 2) offset permanent, incremental adverse effects of riprap on fluvial processes and associated habitat values through the implementation of proven conservation measures (e.g., setback levees, removal of riprap) at an off-site conservation area. Concurrent implementation of these conservation measures would adequately avoid, minimize, and mitigate adverse effects to the Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, Delta smelt, and green sturgeon, as well as adverse effects to designated critical habitat of the winter-run Chinook salmon, spring-run Chinook salmon, steelhead, and Delta smelt.

Incidental take of Sacramento River winter-run Chinook salmon, Central Valley steelhead, Central Valley spring-run and fall/late-fall Chinook salmon, Delta smelt, green sturgeon, and VELB may occur through the impairment of essential behavior patterns (e.g., feeding, escape from predators) as a result of reductions in the quantity and quality of habitat. In addition, individuals of listed species may be killed, injured, or harassed during construction activities. Incidental take during construction activities is most likely to occur during in-water construction activities (e.g., placing rock revetment riprap along/below shoreline and planting

bench above summer flow conditions). Construction is scheduled during low flow summer months which would reduce the likelihood of killing or injuring the above mentioned species. Once construction is complete, the shoreline would return to favorable habitat conditions for aquatic species as a result of the mitigation measures described below, installation of IWM, and riparian vegetation establishment. The overall net effect of this project would make temporary construction effects less than significant.

Swainson's Hawk and other Raptors

In the event nesting or roosting Swainson's hawks and other raptors are identified, the Corps will coordinate with the CDFG to identify measures to ensure these raptors are not adversely affected. Disturbance from construction activities that may affect Swainson's hawk and other raptors include increased noise levels from generators, staging areas, vehicles, and river barges. Temporary displacement of local wildlife due to increased human presence is likely to occur during construction activities. The Pocket Area is currently used by locals who walk, jog, fish, and bring their dogs and horses onto the levee for recreational purposes. Both feral and domestic cats may also pose a problem for any type of successful nesting activities that may occur. Therefore, it is likely that raptors would avoid areas where the above daily activities occur in close proximity to potential nesting trees making project effects less than significant.

4.3.2.2 Alternative 2

Alternative 2 would have the same effects on vegetation and wildlife as Alternative 1 listed above.

4.3.3 Mitigation

The Corps' mitigation program for project effects on special-status species is based on the mitigation measures described below, and on- and offsite mitigation described in Section 2.9. Mitigation for project effects on special-status species will include both on- and off-site mitigation for the Pocket Erosion Sites and RM 56.7 Additional detail will be added to the mitigation measures described below during the final design phase of the project. The mitigation program will be revised and finalized as the project impacts are updated with additional detail and suitable mitigation lands are identified and acquired. However, the types of impacts are not expected to change and the extent of impacts is expected to be reduced through avoidance and minimization strategies to be exercised during the final design process. Therefore, the mitigation measures below, together with the mitigation incorporated into the project description, are adequate to avoid significant effects under both NEPA and CEQA.

Elderberry Shrubs

The Corps will use the Elderberry GPS location map to determine vehicle and equipment haul routes and work areas. Orange exclusion fencing will be installed around each elderberry shrub and shrub cluster as identified from the map. The Corps will attempt to perform construction without affecting elderberry shrubs by staying outside the 100-foot buffer zone to the greatest extent possible. However, as a result of the dimensions of the work areas, it is

anticipated that work could occur within the 100-foot buffer zone of some elderberry shrubs. In areas where encroachment on the 100-foot buffer has been approved by USFWS, the Corps will provide a minimum setback of at least 20 feet from the dripline of each elderberry plant. The one shrub located within construction limits is at the northeastern-most corner of the RM 50.8 site and will be avoided. A 20 foot buffer shall be provided for the elderberry shrub at RM 50.8. Should this buffer be infeasible the Corps would compensate for the shrubs according to the USFWS 1999 Conservation Guidelines for the VELB. The Corps would transplant this shrub and or compensated for it at a location acceptable to the USFWS and RecBd. At USFWS's discretion, a plant that is unlikely to survive transplantation because of poor condition or location, or a plant that would be extremely difficult to move because of access problems, may be exempted from transplantation.

The Corps will also erect signs every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable from a distance of 20 feet and must be maintained for the duration of construction.

A qualified biologist will brief contractors on the need to avoid damaging the elderberry plants and the possible penalties for not complying with these requirements. The Corps will instruct all work crews about the status of the beetle and the need to protect its elderberry host plant.

The Corps will restore any damage done to the buffer area (area within 100 feet of elderberry plants) during construction and provide erosion control and re-vegetate with appropriate native plants. No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant will be used in the buffer areas, or within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.

Following completion of river bank improvement activities, the Corps will perform a post-construction evaluation of the elderberry shrubs to determine whether any shrubs were damaged by construction activities. If damage occurs to elderberry shrubs, the Corps will consult with USFWS on appropriate mitigation.

Swainson's Hawks and other Raptors

Prior to construction a USFWS approved biologist will survey and record locations of active nesting sites beginning in the middle of March and continue bi-weekly for two months to determine nesting locations. This biologist will use survey protocol published in Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley" (parts 2, 3, 4, and 5) as a guide. For those nests located, surveys will then continue through fledging of the chicks, which may occur as late as the middle of August. After nest establishment, nest sites would be monitored weekly.

The detailed surveys will include all areas indicated as well as a ½ mile buffer around the erosion sites (all construction sites, borrow sites, disposal sites, staging areas, and haul routes). All Swainson's hawk sightings, nesting behavior, and nest sites will be recorded and mapped with GPS coordinates included.

CDFG requires that a ½-mile buffer be established around all active Swainson's hawk nests between March 1 and August 15 (California Department of Fish and Game 1994). However, due to the relatively narrow width of the project area and the location and dimensions of the proposed work areas and access roads to riparian vegetation that could provide nesting habitat for Swainson's hawk, a ½-mile buffer may not be feasible in all areas. The Corps will maximize the buffer width around active nest sites on a site-by-site basis and will consult with CDFG on the buffer widths before commencing construction activities. If possible, the Corps would delay construction and maintenance around individual raptor nests until after the young have fledged.

Salmon, Steelhead, Green Sturgeon, and Delta Smelt

To avoid or minimize potential impacts on these listed species, in-water activities will be scheduled for the period July 1-November 30. Juvenile winter-run Chinook salmon, spring-run Chinook salmon, Central Valley steelhead, green sturgeon, and delta smelt could be present at the time of in-water construction activities.

Several project features were designed to address the need for ecologically functional shallow-water and floodplain habitat in the confined reaches of the lower Sacramento River. The low bench and associated vegetation and IWM are designed to retain and enhance the structural and hydraulic complexity of the nearshore zones relative to existing conditions. Key objectives include increasing the availability (habitat area), accessibility (frequency of inundation), and quality (shallow water and instream cover) of nearshore habitat for juvenile Chinook salmon during the periods of peak abundance in the lower Sacramento River. This design is also expected to benefit other native fish species that use nearshore zones and floodplains for spawning and early rearing in the winter and spring (e.g., Sacramento splittail, Delta smelt).

The retention of existing IWM and the installation of additional IWM would effectively retain and create fisheries habitat and more IWM recruitment and retention during winter and spring flows. All branches, limbs and twigs would be retained to the extent practicable to maintain the size, volume, and complexity of IWM. One side of the IWM, however, would be sheered straight to allow a flat alignment of each finished IWM piece against the finished riprap surface. The trees would be placed and anchored by placement of rock so as not to create a hazard for boaters or swimmers at low mean summer water levels. Signage may also be placed if necessary.

4.4 Water Quality

4.4.1 Existing Conditions

The Sacramento metropolitan area is situated at the confluence of the American and Sacramento Rivers in a low-lying flood basin. Levees along these rivers provide flood control for the Sacramento Valley and conveyance for waters flowing from the Sierra Nevada to the Sacramento–San Joaquin Delta. High winter flows can stress levees and berms, weakening them and causing them to fail in certain locations. To maintain the integrity of the flood control system, locations with the potential for failure are identified and remedied. Along the Sacramento River, the Pocket area has been identified as at risk for failure because of erosion on the waterside of the levee.

The Sacramento and American Rivers are the major surface water bodies in the immediate vicinity of the project area. The reach of the Sacramento River including that within the project area is characterized by a very low gradient and a low-velocity flow and is composed almost entirely of deep flatwater with a sand bed. River stage is controlled by flow in the Sacramento and American Rivers, including upstream controlled dam releases, and is subject to diurnal tidal fluctuation. Very little sediment is stored in bars, and the bank-building process typical of lowland alluvial rivers no longer occurs. The channel in the project area is approximately 750 feet wide.

The Corps conducted a study of the hydrology at this site based on the Freeport gauge located approximately 8 miles downstream of the site (U.S. Army Corps of Engineers 2004). Daily flow information is available from 1948-2002 at this location. Results of the study indicate that the annual maximum peak flow (50% chance exceedence) is estimated to be 75,000 cfs. The mean seasonal flows are presented in Table 7 below.

Table 7. Average Flows at Freeport Gauge by Season

Season	Mean Flow at Freeport (cubic feet per second)
Winter	24,100
Spring	21,200
Summer	15,600
Fall	13,800

During the summer and fall months the variation of flows is mild, indicating low variability in daily flow. This is due to minimal precipitation and the influence of reservoir regulation. Winter and spring months, however, experience variations in daily flows. In addition, this reach of the Sacramento River is influenced by year-round diurnal tidal action.

The upper reaches of the Sacramento River generally have excellent mineral and nutrient quality, with a low total dissolved solids (TDS) content. As water flows into the Central Valley, its quality typically degrades because of water diversions and returns. Sources of degradation

include waste discharges such as treated municipal wastewater, urban storm water runoff, and irrigated agricultural return flows.

The average Total Suspended Solids concentration, as recorded for water collected from the Sacramento River just downstream of the project site, near Freeport, is 27 milligrams per liter (mg/L) (Sacramento River Coordinated Monitoring Program 2000). Data generally indicate that in the vicinity of the project area, the Sacramento River has relatively low concentrations of most constituents compared to applicable regulatory criteria or guidelines described in the Central Valley RWQCB's Sacramento River Basin Plan (1998).

4.4.2 Environmental Effects

Significance Criteria

An effect was considered to be significant and to require mitigation if it would result in one or more of the following:

- Alteration in the quantity and quality of surface runoff.
- Degradation of water quality.
- Violation of any water quality standards or waste discharge requirements.
- Substantial alteration of the existing drainage pattern of the site or area, such that flood risk and/or erosion and siltation potential would increase.
- Placement of structures that would impede or redirect flood flows within a 100-year flood plain.
- Exposure of people, structures, or facilities to significant risk from flooding, including flooding as a result of the failure of a levee or dam.
- Creation of or contribution to runoff that would exceed the capacity of an existing or planned stormwater management system.
- Reduction in groundwater quantity or quality.

4.4.2.1 Alternative 1: Proposed Action

Effects on water quality that could result from construction activities were qualitatively evaluated on the basis of construction practices and materials to be used, the location and duration of the activities, and the potential for water-quality or beneficial-use degradation of water bodies near the proposed project. Operational effects on surface hydrology and water quality were evaluated qualitatively on the basis of the proposed project's potential to significantly alter the surface runoff patterns, increase the quantity of runoff, or generate additional sources of pollution. It is assumed that standard pollution prevention measures, including erosion and sediment control measures, good housekeeping, proper control of non-stormwater discharges, and hazardous spill prevention and response measures will be implemented as part of the project design. The need for pollution prevention measures is reiterated throughout this section where appropriate and where potential water quality impacts are likely to occur.

The bank protection measures in the overall project would consist of (1) reinforcement of the bank toe with a total of 4,436 LF of rock revetment approximately 5 feet thick at elevations varying between minus 27 and 10 feet NGVD. Approximately 72,800 cubic yards of rock revetment would be placed along the embankment and would extend up to 75 feet out from the riverbank. About 199,395 square feet (5.0 acres) of this rock-covered area may be below the mean summer water line. Approximately 14,100 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed on top of the rock revetment and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water before vegetation has established. Upon completion, the bank slopes at the sites would be 3H:1V (measured from the toe of the bank to an elevation of 10 feet NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area totals 240,280 square feet [5.52 acres]).

The placement of this riprap within the channel would temporarily generate increased turbidity in the immediate vicinity of the project area. The placement of riprap on the toe to the water surface could result in a plume of sediments generated from the channel bottom and the channel side, becoming suspended in the water and could generate turbidity levels above those identified as acceptable by the Basin Plan (the Basin Plan identifies a change in turbidity above 10% of the ambient turbidity as significant) (Central Valley Regional Water Quality Control Board 1998).

The placement of these rocks on the silts and sands within the river has the potential to be significant. However, the Corps and the RWQCB agreed upon specific standards to be met during implementation of projects under the SRBPP, however this waiver is now expired and a new application to the RWQCB has been submitted (Appendix C). A 404 (b) 1 analysis for the project under the Clean Water Act is shown in Appendix D.

Small volumes of petroleum products (fuel, engine oil, and hydraulic line oil) would be temporarily used and handled to operate the construction equipment. There is a danger that these materials may be released in accidental spills and result in harm to the environment. The Corps will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that would reduce water quality effects to a less-than-significant level.

4.4.2.2 Alternative 2

Alternative 2 would have the same effects water quality as Alternative 1 listed above.

4.4.3 Mitigation

The Corps would implement a Storm Water Pollution Prevention Plan before and during construction to minimize turbidity generating activities. The Corps will monitor turbidity and settleable solids to avoid violation of basin standards. The contractor would be required to develop and implement a hazardous materials management plan prior to initiation of construction. The plan would include best management practices to (1) reduce the likelihood of spills of toxic chemicals and other hazardous materials during construction, (2) describe a specific protocol for the proper handling and disposal of materials and contingency procedures to

follow in the event of an accidental spill, and (3) describe a specific protocol for the proper handling and disposal of materials should materials be encountered during construction.

The Corps' contractor will conduct water quality tests specifically for increases in turbidity and sedimentation cause by construction activities:

- Sampling location – Water samples for determining background levels shall be collected in the Sacramento River within the general vicinity for each erosion construction site. Testing to establish background levels shall be performed at least once a day when construction activity is in progress. Water samples for determining down current conditions shall be collected in the Sacramento River at a point 5 feet out from the shoreline and 300 feet down current of each erosion site:
- Turbidity – During working hours, the construction activity shall not cause the turbidity in the Sacramento River down current from the construction sites to exceed 25 NTU's above background levels.
- Settleable Solids – During working hours, the construction activity shall not cause the settleable solids in the Sacramento River down current from the construction sites to exceed 0.5 ml/L above background levels.

The water quality certification waiver is shown in Appendix C.

4.5 Air Quality

4.5.1 Existing Conditions

Construction would occur within the Sacramento Valley Air Basin. The air basin is bounded by the Coast Ranges to the west and the Sierra Nevada to the east. The Carquinez Strait, a sea-level gap in the Coast Ranges, is located 50 miles southwest, and the intervening terrain is very flat. The prevailing wind direction in Sacramento is southwesterly, resulting from marine breezes through the Carquinez Strait. During winter, when the sea breeze diminishes, northerly winds occur more frequently, but southerly winds still predominate.

A relatively stable high pressure zone positioned off the coast diverts storms to the north, away from California, during the spring, summer, and early fall. The dry, warm, subsiding air of this system produces an atmospheric condition known as a subsidence inversion where warm air overlies cooler air. Subsidence inversions may be several thousand feet deep and, together with strong sunlight, can produce worst-case conditions for smog, of which ozone is the largest single component. In conjunction with this high-pressure zone, a thermal trough (a low-pressure zone caused by intense surface heating) is normally positioned over the Central Valley. The relative positions of these pressure zones cause air to blow through the Carquinez Strait to the Sacramento Valley. This helps cool the region, but it also carries pollutants from upwind, urban sources.

During the late fall, winter, and early spring, the high-pressure zone shifts to the south, allowing numerous storm fronts to sweep through the region. Typically, over 30 of these winter

storms can be expected per year, accounting for virtually all of the precipitation Sacramento receives in a typical year (about 18 inches in an average year). Periods of stagnation between storms are characterized by very light winds. Surface inversions, which can form under these conditions, are most often observed in the morning from October to February.

Air quality in the air basin is regulated at the Federal, State, and regional agencies. At the Federal level, the U.S. Environmental Protection Agency (EPA) is responsible for overseeing implementation of the Federal Clean Air Act. The Air Resources Board is the State agency that regulates mobile sources and oversees implementation of State air quality laws, including the California Clean Air Act.

The primary agency that regulates air quality on a regional level in the project area is the Sacramento Metropolitan Air Quality Management District (SMAQMD). Regional planning and attainment of air quality goals also involve the neighboring local air quality agencies of El Dorado County Air Pollution Control District, Feather River Air Quality Management District, Placer County Air Pollution Control District, and Yolo-Solano Air Quality Management District. SMAQMD and these local agencies have permit authority over stationary sources, act as the primary reviewing agencies for environmental documents, and develop regulations that must be consistent with, or more stringent than, Federal and State air quality policies.

Pursuant to the Federal Clean Air Act, the U.S. EPA has established national ambient air quality standards for criteria pollutants, including ozone, carbon monoxide (CO), and particulate matter of respirable size (PM₁₀ and PM_{2.5}). California's ambient air quality standards are generally more stringent than the national standards. The national and State standards for ozone, and CO, and PM₁₀ are shown in Table 8.

Table 8. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ¹	National Standards ²	
			Primary ³	Secondary ⁴
Ozone	8 hour	--	0.08 ppm	0.08 ppm
	1 hour	0.09 ppm	0.12 ppm	0.12 ppm
Carbon monoxide	8 hour	9.0 ppm	9 ppm	--
	1 hour	20 ppm	35 ppm	--
PM ₁₀	Annual geometric mean	30 µg/m ³	--	--
	Annual arithmetic mean	--	50 µg/m ³	50 µg/m ³
	24 hour	50 µg/m ³	150 µg/m ³	150 µg/m ³
PM _{2.5}	Annual arithmetic mean	--	15 µg/m ³	15 µg/m ³
	24 hour	--	65 µg/m ³	65 µg/m ³

¹California standards for ozone, carbon monoxide, and suspended particulate matter (PM₁₀) are values that are not to be exceeded.

²National standards, other than ozone and those based on annual averages or annual arithmetic mean, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

³National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

⁴National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
ppm = parts per million; ug/m³ = micrograms/per cubic meter.
Source: California Air Resources Board, 1993.

The Sacramento Valley Air Basin does not consistently meet several applicable State air quality standards (California Air Resources Board, 1996). Depending on the pollutant, the boundaries of the attainment areas vary. The air basin, including Sacramento County and the bordering areas of Placer and El Dorado Counties, is designated as a severe nonattainment area for the Federal and State ozone standards. For CO, the Sacramento urbanized area was reclassified from nonattainment to attainment of the Federal and state standards in 1998; therefore, the project area is considered to be a maintenance area for CO. For the Federal PM₁₀ standards, only Sacramento County has been designated a nonattainment area; however, redesignation to attainment has been requested by SMAQMD. For the State PM₁₀ standards, the entire air basin is considered a nonattainment area.

4.5.2 Environmental Effects

Significance Criteria

The project would have a significant adverse effect on air quality if it would:

- Violate applicable air quality standards.
- Contribute substantially to an existing or projected air quality violation.
- Expose sensitive receptors to substantial pollutant concentrations.

4.5.2.1 Alternative 1: Proposed Action

This section describes the potential air quality effects of the Proposed Action, including exhaust emissions from construction equipment and worker commute and delivery vehicles, fugitive dust generated by construction activities and vehicle travel over unpaved roads. In order to complete the analysis, information was collected on construction activities, duration, and timing; equipment use and activities for each construction year.

Emissions associated with vehicle exhaust for employee commute vehicles and delivery trucks were estimated using SMAQMD Road Construction Emission Model Version 5.1, with EMFAC 2002 emission factors, the latest version of this California Air Resources Board model (SMAQMD, 2003) (Appendix E). These emissions were based on a 95-mile round trip for delivery trucks and a 20-mile commute each way for workers. Emissions associated with the operation of construction equipment were estimated using the Sacramento Metropolitan Air Quality Management District's Guide to Air Quality Assessment in Sacramento County (SMAQMD, 2004). Construction equipment data were estimated in the form of equipment descriptions and potential use of all equipment being used simultaneously for 8 hours a day. This information was used to estimate daily and annual exhaust emissions for construction equipment.

Fugitive dust emissions from vehicle travel over unpaved roads and construction activities were estimated using data and emission factors from SMAQMD Road Construction Emission Model Version 5.1, with EMFAC 2002 emission factors, the latest version of this California Air Resources Board model (SMAQMD, 2003)

Table 9 summarizes the input information and assumptions regarding construction activities used to estimate construction emissions. For each construction year, the table lists the anticipated cubic yards of material to be imported from the river barge, the anticipated number of employee commute trips, the anticipated number of delivery and haul truck trips, and the construction equipment anticipated to be used.

Thresholds developed by the SMAQMD and the U.S. EPA were used in determining the significance of project-related air quality effects. Emissions would be considered significant if emissions exceeded the local thresholds established by the SMAQMD for construction activities.

These thresholds were established to assist in CEQA analyses within the SMAQMD boundaries:

- 85 pounds per day of NO_x
- 85 pounds per day of ROG
- 50ug/m³ of PM₁₀

Table 9. Emission Sources and Assumptions Used to Determine Air Emissions

Emission Source	Pocket Area Erosion Sites
Material placed (from river barge)	72,800 cubic yards of riprap 14,100 cubic yards fill material 1,117 linear feet of IWM
Employee commute trips	7 employee trips/day, 20 miles each way
Delivery truck trips/ Debris haul truck trips	7 truck trips 95 miles average round trip 10 cubic yards average load 30 hauling days
Fuel-fired construction equipment	Crane Barge (2) Pick Up trucks (2) Tug Boats (2) Motor Boat (1)

Emissions for the project would be considered significant under NEPA if annual emissions exceeded U.S. EPA's general conformity thresholds. Conformity thresholds are based on the de minimis thresholds included in the U.S. EPA's general conformity guidelines, as applicable for the Sacramento area. The thresholds are:

- 25 tons per year of NO_x
- 25 tons per year of ROG

- 100 tons per year of CO
- 100 tons per year of PM₁₀

Potential air pollutants generated during construction include PM₁₀ emissions from debris-moving activities and vehicle travel on unpaved roads, and exhaust emissions from operation of construction equipment, delivery and haul trucks, and employee vehicles. Tailpipe exhaust emissions include ozone precursors (NO_x and ROG) and PM₁₀. The air quality estimates are based on waterside construction equipment emissions (barges and boats) as well as landside emissions (trucks) that amount to 7 vehicle and employee trips per day to and from the levee.

Table 10 presents the maximum daily emission estimates in pounds per day (lb/day) for construction of the Proposed Action when hauling occurs and Table 11 presents the average annual emissions in tons per year (ton/yr) when rock placement occurs.

Table 10. Maximum Daily Construction Emission Estimates (lbs per day)

Project Component	July 1 to Nov. 30		
	NO _x	ROG	PM ₁₀
Pocket Erosion Sites	244	41	19
Threshold	85	85	50ug/m ³

Table 11. Average Yearly Construction Emission Estimates (tons per year)

Project Component	July 1 to Nov. 30		
	NO _x	ROG	PM ₁₀
Pocket Erosion Sites	6.3	1	<1
Threshold	25	25	100

Based on this analysis, SMAQMD thresholds would be exceeded for NO_x under the proposed action. This exceedence would occur if all construction equipment operated simultaneously for 12 hours straight per typical construction day. However, the only 12 hour shifts being conducted for the majority of the project duration would be the two barge cranes. These barges would be anchored in the water at each erosion site that is being repaired. The tugboats would only be used to push and pull the barges into position prior to anchoring. Therefore, average emissions would be far less on a given day work is being conducted on a particular erosion site. Emissions from trucks, motor boats, and other construction equipment would only run when being used and never exceed the daily threshold. Federal conformity for NO_x would not be exceeded. Federal conformity for ROG, PM₁₀, and CO would not be exceeded. No sensitive receptors (residences and schools) are located in the project area. Since the majority of work will be conducted below the water surface PM₁₀ emissions would not

exceed more than $50\mu\text{g}/\text{m}^3$ for the 1.12 acres of above water work. Therefore, no sensitive receptors would be affected by short-term increases in dust and other air pollutants.

4.5.2.2 Alternative 2

Alternative 2 would have the same effects on air quality as Alternative 1 listed above.

4.5.3 Mitigation

Significant air quality effects have been identified, and the Corps would implement the following mitigation measures for NO_x emissions in years where SMAQMD thresholds and Federal thresholds of significance are exceeded.

- The Corps' contractor will provide a plan, for approval by the SMAQMD, demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction¹ compared to the most recent CARB fleet average at time of construction.
- The Corps and RecBd would pay the SMAQMD an offsite mitigation fee that would be based on the incremental significant emissions at a rate of \$13,600/ton (or other negotiated amount) of NO_x , and that the fee would be paid to SMAQMD prior to beginning construction. This mitigation fee would be used as offsite mitigation within the air basin to mitigate NO_x from other ongoing construction projects. The payment is calculated to be \$129,744.00 for exceedence of 159 lbs above the 85lbs/day or 9.5 tons during the construction of the project. This payment may be adjusted prior to construction once the contractor submits a more detailed emission analysis on the equipment used for construction along with implemented mitigation measures.
- The Corps' contractor will submit to the SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory will include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory will be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the contractor will provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.
- Reducing NO_x emissions from off-road diesel powered equipment
- Require injection timing retard of 2 degree on all diesel vehicles, where applicable.
- Install high pressure injectors on all vehicles, where feasible.
- Encourage the use of reformulated diesel fuel.
- Electrify equipment, where feasible.
- Maintain equipment in tune with manufacturer's specifications.

- Install catalytic converters on gasoline-powered equipment.
- Substitute gasoline-powered for diesel-powered equipment where feasible.
- Use compressed natural gas or onsite propane mobile equipment instead of diesel powered equipment, where feasible.

Controlling visible emissions from off-road diesel powered equipment:

- The project would ensure that emissions from all off-road diesel-powered equipment used on the project site do not exceed 40 percent opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) would be repaired immediately, and Corps and SMAQMD would be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment would be made at least weekly, and a monthly summary of the visual survey results would be submitted throughout the duration of the project except that the monthly summary would not be required for any 30-day period in which there is no construction activity. The monthly summary would include the quantity and type of vehicles surveyed, as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section would supersede other SMAQMD or State rules or regulations.

Also, additional best management practices would be implemented for ozone and PM₁₀ to help protect ambient air quality conditions. BMP's for this project are as follows:

- The contractor would perform routine tuning and maintenance of construction equipment to ensure that the equipment is in proper running order.

The contractor would monitor dust conditions along access roads and within the construction area to ensure that the generation of fugitive dust is minimized. Specific action measures include:

- Periodic application of water to disturbed areas, at least two times per day during hot weather.
- Suspension of soil-disturbing activities during periods with winds over 25 miles per hour.

With the implementation of these mitigation measures, the project would not exceed SMAQMD thresholds and Federal Thresholds of Significance for the project. As a result, potential emissions due to the project would be below the level of significance for air quality.

4.6 Noise

4.6.1 Existing Conditions

Sound levels in the project area are governed primarily by vehicle and truck activity driving South River Road along the west bank of the river and watercraft activity on river itself. The Pocket area residential neighborhood along the east bank is fairly quiet since there are no industrial type activities occurring within a few miles.

Noise sensitive land uses are generally defined as locations where people reside or where the presence of air emissions could adversely affect the use of the land. Typical sensitive receptors include residents, school children, hospital patients, and the elderly, among others. The City of Sacramento Noise Ordinance states that exterior noise limits will not exceed 50 dB between 10:00 p.m. and 7:00 a.m. and 55 dB between 7:00 a.m. and 10:00 p.m. for residential and agricultural areas. However, construction activities between the hours of 7:00 a.m. and 6:00 p.m., Monday through Saturday, and 9:00 a.m. and 6:00 p.m. on Sunday are exempt from this ordinance. The ordinance further states that internal combustion engines in use on construction sites must be equipped with suitable exhaust and intake silencers which are in good working order.

The Corps has no adopted noise standards applicable to the construction and operation of its facilities. Because the project lies within the City of Sacramento, the City's noise policies and regulations are applicable to the proposed project. The City has established policies and regulations concerning the generation and control of noise that could adversely affect their citizens and noise-sensitive land uses. The General Plan is a document required by state law that serves as the city's blueprint for land use and development. The General Plan provides an overall framework for development in the City and protection of its natural and cultural resources. The Noise Element of the General Plan contains planning guidelines relating to noise. The noise ordinance is an enforcement mechanism for controlling noise in the City.

4.6.2 Environmental Effects

Significance Criteria

Based on City of Sacramento noise standards and the other relevant standards, the following significance criteria have been developed for this project. Noise from construction activities is considered significant if it would exceed:

- Applicable City of Sacramento noise ordinance limits.

4.6.2.1 Alternative 1: Proposed Action

Work is anticipated to occur for up to 10 hours per day, six days a week over a 120-day period. Significant noise generating activity is expected to occur during the first 60 days of the 120 period when installation of riprap, fill materials, and IWM occurs. The remaining 60 day period would be used for plant establishment. Table 9 summarizes the typical construction noise levels from each type of equipment that would be used during construction activities. To determine a combined-source noise level, a reasonable worst-case assumption is that the three loudest pieces of equipment would operate simultaneously and continuously over at least a 1-hour period.

Table 12. Construction Equipment Noise Levels

Construction Phase and Equipment	Number of Equipment Pieces	Typical Noise Level (dB) 50 feet from Source
Crane	2	82
Motor Boat	1	82
Pick Up Truck	2	65
Tugboat	2	82

Source: Federal Transit Administration 1995, Geier & Geier Consulting 1997

Implementation of the project would increase noise and vibration levels along project access routes and near the project site. Heavy construction equipment would be used to clear some vegetation, import rock and embankment materials, prepare river banks, place rock on the toe of the bank, and place trees over the revetment as IWM. Residences are located approximately within 200 feet from each Pocket erosion site. The levee that lies between the river and the residence is approximately 30 to 40 feet high providing some screening from the generated noise. Additionally there is a dense riparian forest area that also provides screening.

Equipment typically used in construction of bank protection (bulldozers, heavy trucks, loaders, excavators, and backhoes) generates peak noise levels ranging from 80 dB to 90 dB at a reference distance of 50 feet. Rock dumping may generate the highest levels, however, possibly reaching 100 dB. Noise produced by these activities would be reduced over distance at an average rate of about 6 dB per doubling of distance in open landscapes. Where the existing river bank and riparian forest serve as sound barriers, it would be expected to reduce noise at nearby residences by up to an additional 15 dB. While not all sources of noise would be shielded by the river bank and forest, it is likely that most severe noise generation would occur on the waterside of the riverbank and be somewhat attenuated by the riverbank. Materials hauled by trucks on the levee crown would typically be the source of noise and vibration having the greatest potential to disturb neighboring residents since this activity is not necessarily shielded by the levee. Hauling by trucks on the levee crown would be intermittent, and haul speed limits would be imposed in order to reduce noise and vibration levels. Considering these factors, intermittent peak sound levels of 56 dB would be expected at the nearest residence.

Given that noise and vibration would be limited to daytime hours and would not subject residences to prolonged noise exposure above 55 to 65 dB (occasionally peaking at 65 dB) or severe noise levels above 80 dB, these potential effects are considered less than significant if normal measures to prevent unnecessary noise are implemented.

4.6.2.2 Alternative 2

Alternative 2 would have the same effects on noise as Alternative 1 listed above.

4.6.3 Mitigation

Noise generated by construction activities during the proposed construction hours is exempt from the City ordinance. Therefore, this effect is less than significant. No mitigation is required.

4.7 Traffic

4.7.1 Existing Conditions

The Pocket area erosion sites are located just up river from Garcia Bend Park and Boat Launch Facility and extend up to the intersection of Riverside Blvd. and 43rd Avenue. The two-lane boat launch is free to the public and is open 24-hours a day. This park and boat launch are popular in the spring and summer with lots of in and out traffic utilizing the athletic fields, boating and fishing, jetskiing, biking, walking and jogging. Access to Garcia Park is located off Pocket Rd. This main street runs the same direction as the river. Several residential homes and neighborhood streets exist between Pocket Rd. and the east bank levee. There are many pedestrian access points to reach the levee from these streets. Traffic along Pocket Rd and Riverside Blvd is usually busiest during work commute hours. Vehicle access is restricted onto the levee. The Department of Water Resources conducts maintenance and operations on the levees as necessary throughout the year.

4.7.2 Environmental Effects

Significance Criteria

Effects to traffic and transportation as a result of implementing the proposed project were analyzed based on the significance criteria set forth in the State CEQA Guidelines. Effects were found to be significant if the project would:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system
- Exceed either individually or cumulatively, a level of service standard established by the by the county congestion management agency for designated roads and highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature or incompatible uses;
- Result in inadequate emergency access;
- Result in inadequate parking capacity; or
- Conflict with adopted policies, plans, or programs supporting alternative transportation.

4.7.2.1 Alternative 1: Proposed Action

All riprap, soil backfill, and cut tree placement shall be performed from a barge on the waterside only. Installation of willow cuttings, plantings, seeding, and plant maintenance will be performed from the landside. The Corps' contractor will access the levee crown at four

locations: Garcia Bend Park, Pocket Road Staging Area 1 Ramp, Arabella Way Access Ramp, and the Riverside Avenue Access Ramp. The levee crown access road will be limited between Garcia Bend Park and the Riverside Avenue Access Ramp. Several pipe gates are located in this stretch.

There would be approximately 14 truck trips a day entering the site to deliver construction materials and remove construction debris as necessary. These trips would take place during business hours of 6:00 a.m. to 5:00 p.m. However, most trips would occur during off-peak traffic hours, from 9:00 a.m. to 4:00 p.m. Overall, this effect is considered less than significant. In order to avoid any potential delays or safety issues on Pocket Rd., levee system, or other haul routes, a traffic control plan would be developed and implemented by the Corps' contractor.

4.7.2.2 Alternative 2

Alternative 2 would have the same effects on traffic as Alternative 1 listed above.

4.7.3 Mitigation

The construction contractor will coordinate with local public works or planning departments, including the City of Sacramento, to prepare a traffic control plan during construction. The traffic control plan, developed by the contractor, will include a traffic management plan with specific measures to manage traffic in the project area and along haul routes that will be submitted to the City of Sacramento for review and approval prior to the start of construction. The purpose of the plan will be to:

- reduce, to the extent feasible, the number of vehicles (construction and other) on the roadways adjacent to the project area;
- reduce, to the extent feasible, the interaction between construction equipment and other vehicles; and
- promote public safety through actions aimed at driver and road safety.

The traffic control plan will include the following measures:

- Through access for emergency vehicles will be provided at all times.
- Access will be maintained for driveways and private roads.
- Adequate off-street parking will be provided for construction-related vehicles throughout the construction period.
- Roadway segments or intersections that are at or approaching an LOS that exceeds local standards will be identified.
- A plan will be provided for construction-generated traffic, to avoid these locations at the peak periods, either by traveling different routes or by traveling at nonpeak times.
- Traffic controls on major roads and collectors should include flagpersons wearing bright orange or red vests and using “stop/slow” paddles to direct drivers.
- Access to public transit should be maintained, and movement of public transit vehicles will not be impeded as a result of construction activities.

- Coordination with SCTD will be required regarding lane closures (partial or entire) that occur on bus routes and to provide notice of construction that could affect transit service routes so that SCTD can adjust routes or schedules. SCTD will require adequate lead-time to develop temporary service changes caused by construction and for providing notice of those changes to the public.
- Construction warning signs will be posted in accordance with local standards or those set forth in the Manual on Uniform Traffic Control Devices (Federal Highway Administration 2000) in advance of the construction area and at any intersection that provides access to the construction area.
- Written notification will be provided to appropriate contractors regarding appropriate routes to and from construction sites and weight and speed limits for local roads used to access construction sites.
- A sign will be posted at all active construction sites that give the name and telephone number or electronic mail address of the Corps staff member to contact with complaints regarding construction traffic. The sign should be at least one square yard in size.

The traffic control plan to be developed by the construction contractor, will be included in the construction specifications, implemented by the construction contractor throughout the construction period, and monitored by the Corps.

4.8 Recreation and Navigation Safety

4.8.1 Existing Conditions

The Sacramento River along the project area has several recreation facilities and public access points administered by the Counties of Sacramento and Yolo and the Cities of Sacramento and West Sacramento. There are also several private marinas in the area. Popular water-dependent activities include swimming, boating, and fishing. Levee and river bank activities include walking, jogging, horseback riding, bicycling, picnicking, and sightseeing. Boating activities predominantly take place in summer months, and fishing is a year-round activity. Water-dependent activities account for approximately 52 percent of the recreation uses on the Sacramento River (County of Sacramento and U.S. Bureau of Reclamation 1997).

The Pocket area is one of the most popular destinations for both locals and tourists to gain access and utilize the river. Garcia Bend Park and Boat Launch Facility has become one of the busiest locations along the river. As a result of this popularity significant jetski and boating activities have contributed to increased erosion along the bank in this part of Sacramento County. This increase in erosion has contributed to the development of important habitat for fish and wildlife species. Fishing and sightseeing in or around this habitat has become more common.

Portions of the project area have steep slopes, existing riprap and vegetation that make access for recreation difficult while other portions of the project area provide high quality recreation opportunities along the riverfront. Private river access from the Pocket area has become an important issue since development in this neighborhood began. Several homes up

and down the river contain private floating boat docks (berths) and walkways allowing residents to access the river. These docks are shown in Plate 2.

4.8.2 Environmental Effects

Significance Criteria

Effects on recreation would be considered significant if implementation of an alternative would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.
- Result in a substantial loss of recreational opportunities.
- Substantially increase the risk of injury to recreationists in or adjacent to the project area.

4.8.2.1 Alternative 1: Proposed Action

During construction from July through November, the erosion site locations and immediate areas adjacent to the sites would be closed to public. However, the levee would be open along the east bank with signs posted warning of construction activities within the vicinity.

Detours and alternate routes will be implemented as necessary. Most of the erosion sites are inaccessible due to steep slopes and thick vegetation so recreation activities would not be displaced as a result of construction. Garcia Bend Park and Boat Launch Facility would continue to operate normally and signs will be posted at the park and dock area warning the public of the construction activities along the riverbank. It is anticipated that the barge and tugboats would occupy approximately 200 feet of the river channel.

The placement of soil, riprap, vegetation, and IWM along the bank would be designed to enhance the natural qualities of the area. Fishing, boating, and swimming opportunities in the area would remain substantially the same as before construction, with the exception of the temporary closures. Existing trees would remain in place to provide shade, nesting, and quality habitat for wildlife. The installation of rocks, soil and native vegetation, IWM, and their post-construction appeal to recreationists would not be substantially diminished when compared to existing conditions. As a result, there would be no substantial loss of recreational values at each erosion site.

Existing IWM and underwater vegetation poses a threat to recreationists who travel near the river bank. Most boat operators, jetskiers, and swimmers usually avoid sections of river

where snags, downed trees, strainers, logs, and concrete debris occur. Implementation of the project would fortify and secure existing IWM, add new highly visible IWM that is visible from at the mean summer water surface elevation (5 feet NGVD), and place uniform riprap along the bank. Therefore, foot entrapment would be avoided in the proposed project area by the use of relatively uniform gradation in rock sizes, including a full range of small, medium, and large rocks that would preclude the presence of large voids. A more gradual slope and a plantable soil surface would replace the very steep banks of the erosion sites. This modification would reduce the current risk of falling to bank users. In addition, should watercraft become stuck at this site, or should a swimmer need to get out of the water, the riprap would provide an area that could be easily accessed.

To ensure that fish habitat is at the highest quality possible, the project would incorporate the anchoring of IWM so that it lies within the flowing channel without floating downstream. The IWM clusters would be placed at elevations ranging from 8 to 11 feet NGVD, which are typically not inundated during the summer or fall. The IWM clusters act as fish habitat for sensitive species that use the Sacramento River, such as Chinook salmon and steelhead.

It is likely that the private boat dock and walkway located at RM 50.8 erosion site will be removed due to its proximity within the project footprint. The placement of riprap, IWM, and riparian vegetation establishment (planting bench) would impede boat access to this berth. During periods of low flow such as typical summer flow conditions, the riprap and planting bench would be exposed at the surface or just beneath the surface preventing any successful boat access to the shoreline. The owner of this dock will be notified by the Recbd and measures will be taken to move this dock to another location.

Access to the boat docks at RM's 50.4, 51.5, and 52.4 may be temporarily halted due to the presence of construction equipment (boats, barges, landside staging and storage material) working at these erosion site locations.

4.8.2.2 Alternative 2

Alternative 2 would have the same effects on recreation and navigation safety as Alternative 1 listed above.

4.8.3 Mitigation

The placement of IWM would incorporate the following design factors to minimize the risk to recreationists:

- The design would ensure local approach visibility and would incorporate the use of natural indicators, such as a partially emergent portion of the IWM, in combination with vegetation on the low elevation areas, to act as a visual warning of the presence of shallowly submerged hardscape so as to reduce the hazard to power boaters and paddlers. This would ensure visual warning so that boaters, swimmers, and other recreationists would have adequate time to avoid the IWM and possible injury or damage to property.

- IWM would be placed in a manner that reduces its ability to act as a “strainer”, thus reducing the risk to recreationists flowing with the river current, especially swimmers and those in canoes. Specifically, the outboard portions of IWM would be oriented in a downstream direction or would be installed in the form of relatively compact rootwads that would tend to deflect watercraft and reduce the risk for entrapment or straining within the IWM.
- Detours and alternate routes will be imposed as necessary on the levee portions that occur within the construction zones so recreationists can avoid any hazards and still utilize the Pocket area not affected by project activities.
- Construction personnel will notify boaters and jetskiers if they approach within 100 feet of in water construction equipment (barges and tugboats, etc.) to stay away and avoid driving close to the construction zone.

4.9 Esthetics/Visual Resources

The term “esthetics” typically refers to the perceived visual character of an area, such as of a scenic view, open space, or architectural facade. The aesthetic value of an area is a measure of its visual character and visual quality combined with viewer response (Federal Highway Administration 1983). This combination may be affected by the components of a project (e.g., buildings constructed at heights that obstruct views, hillsides cut and graded, open space changed to an urban setting), as well as variable elements such as light, weather, and the length and frequency of viewer exposure to the setting. Aesthetic impacts are changes in viewer response as a result of project construction and operation.

Visual Character

Visual character is the appearance of the physical form of the landscape composed of natural and human-made elements including topography, water, vegetation, structures, roads, infrastructure, and utilities—and the relationships of these elements in terms of form, line, color, and texture.

Visual quality

Visual quality is evaluated based on the relative degree of vividness, intactness, and unity as modified by its visual sensitivity. Vividness is the visual power or memorability of landscape components as they combine in striking or distinctive visual patterns. Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes as well as in natural settings.

Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the artificial landscape (Federal Highway Administration 1983). High-quality views are highly vivid, relatively intact, and exhibit a high degree of visual unity. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity.

Viewer response is the psychological reaction of a person to visible changes in the viewshed, defined as all of the surface area visible from a particular location (e.g., an overlook)

or sequence of locations (e.g., roadway or trail) (Federal Highway Administration 1983). The measure of the quality of a view must be tempered with the overall sensitivity of the viewer and viewer response. Viewer sensitivity is dependent on the number and type of viewers and the frequency (e.g., daily, seasonally) and duration of views (i.e., how long a scene is viewed). Visual sensitivity is also modified by viewer activity, awareness, and visual expectations in relation to the number of viewers and the viewing duration.

4.9.1 Existing Conditions

The project area is located south of downtown Sacramento along the left bank of the Sacramento River in the Pocket neighborhood. The erosion sites are located on the waterside of the levee and consist of existing riprap and concrete debris, fallen trees and IWM, soft sandy bank (eroded), uneven shoreline (undercut), dense vegetation, tall mature trees, and several scour holes (caves) and an expansion of shallow sandy natural beach area. Over 4,400 feet of river bank in the Pocket area will be repaired to prevent further erosion.

The appearance of the opposite bank of the channel is similar to the project area but does not show significant signs of erosion. An abundance of tall mature trees and vegetation dominate the riverbank across from these erosion sites. The vividness, intactness, and unity of this reach are moderate to high because of the scenic views it provides of the river and the presence of mature riparian vegetation. Viewers of the erosion sites would be described as those traveling South River Blvd., boaters, and recreationists using the levee.

Several homes and their backyards are situated adjacent to the toe of the landside levee in the Pocket area. Since the levee crown exceeds 30 feet from the toe in some areas, most homeowners view the landside slope covered with ruderal and shrubby vegetation. A few tall mature trees provide shade and block views from the levee toward these residences. Two story homes next to the levee overlook the crown and provide views of mature riparian vegetation, the entire river channel, and opposite bank. In addition several homeowners have planted trees along the landside slope to enclose their backyards and increase privacy from viewing individuals that utilize the levee. Shade is an important factor that prevents direct sunlight and light reflection off the river surface from entering into many homes of the Pocket area.

4.9.2 Environmental Effects

Significance Criteria

Significance criteria were developed based on the State CEQA Guidelines. Effects were considered significant if the project would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or

- Create a new source of light or glare which would adversely affect day or nighttime views in the area.

4.9.2.1 Alternative 1: Proposed Action

A crane on top of a barge or on top of the levee would be visible at the project area. Boaters, pedestrians and bicyclists using the Pocket levee, or motorists traveling on South River Road would be able to see the construction equipment. The equipment would be visible for approximately 120 days. The presence of construction equipment would degrade the visual quality of scenic vistas from the levee top and river to low vividness, intactness and unity. However, because these effects are temporary, it would last no longer than the construction duration. These effects are considered to be less than significant.

Visual effects from the placement of riprap and rock onto the bank would be offset by the installation of IWM, soil fill, and tree plantings. These features would successfully establish and cover the riverbank within a 2 year period.

4.9.2.2 Alternative 2

Alternative 2 would have the same effects on esthetics/visual resources as Alternative 1 listed above.

4.9.3 Mitigation

Revegetation and site restoration, as incorporated into the project would add more visual resources to areas that have been degraded and improve viewshed opportunities for the Pocket neighborhood. No trees are anticipated for removal thus preserving the existing visual resources. Therefore, no mitigation is required.

4.10 Cultural Resources

4.10.1 Existing Conditions

Construction of the SRBPP has resulted in continuous investigations of historical and archeological resources along the Sacramento River. Numerous literature and record searches, field examinations, and mitigation efforts have been performed. The region around the area of potential effects (APE) has a concentration of known historic resources (see Plate 2 for project footprint).

Records and Literature Search

Records and literature searches were conducted at the North Central Information Center at California State University, Sacramento on February 24, 2004 and January 12, 2005.

Approximately 90 percent of the APE has been previously surveyed. These surveys were conducted by K.J. McIvers in 1987; Environmental Sciences Associates in 1996; Far Western Anthropological Research Group, Inc. (FWARG), in 1990 and 1995; the Corps in 2001; Jones & Stokes Associates, Inc. (J&S) in 1997; PAR and Associates in 1988; Peak and Associates in 1984, 1985, 1987, and 1988; and Roger H. Werner in 1988. These surveys discovered the following resources outside the APE:

- CA-SAC-26 – The only known prehistoric site near the proposed mitigation site APE is a Nisipowinan Village Site, also known as “Joe’s Mound,” located in Discovery Park. Known ethnographically as *Pujune*, the site was listed on the National Register of Historic Places (NRHP) in 1971. Artifacts noted at the site include burned bone, freshwater mussel shell, fire-affected rock, and ground stone fragments.
- CA-SAC-29 – Located north of the APE, this site was leveled by cultivation and construction of a house. Previous investigations indicate that artifacts were present.
- CA-SAC-30 – Although leveled by cultivation, auger investigations revealed charcoal deposits at this site, located north of the APE near Chicory Bend.
- CA-SAC-41 – The Deangelis Ranch site has been partially excavated and found to contain a variety of prehistoric and historic deposits. Found at the site were midden deposits, biface and projectile point fragments, debitage, groundstone fragments, shell beads, baked clay, possible human bone, and mammal, bird, and fish bone.
- CA-SAC-42 – Previously recorded as the Souza Mound, this site is located near Pocket Road in a residential area. Construction of homes and roads has affected the site although the mound is still visible.
- CA-SAC-43 – Located partially under the levee and south of the APE, this site consists of two collections, one including human remains and associated artifacts recovered in 1939 to 1940 and a second including a diversity of artifact forms and midden constituents obtained in 1968. Occupation dates to 2400-600 B.P. This site was fully analyzed, evaluated, and mitigated for by the Corps through FWARG in 1995.

Within the APE is the Sacramento River East Bank Levee. The levee was constructed in 1909 by local landowners within Reclamation District No. 1. Since its construction, the levee has been modified numerous times, with work completed in 1928, 1943, and 1956-57. The levee was also likely reconstructed and raised to its current dimensions in the 1930’s or early 1940s.

Field Survey

Most of the APE has already been surveyed. However, since some of the previous surveys date back to a decade ago or longer, the APE was resurveyed in its entirety on March 27 and 30, 2006. These field site visits indicated the presence of private boat docks and gangways which appear to be modern. No other known prehistoric or historic resources have been observed within the APE.

4.10.2 Environmental Effects

Significance Criteria

An alternative would be considered to have a significant adverse effect on cultural resources if it:

- Diminishes the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association. Types of effects include physical destruction, damage, or alteration; isolation or alteration of the character of the setting; introduction of elements that are out of character; neglect; and transfer, lease, or sale.

4.10.2.1 Alternative 1: Proposed Action

No known cultural resources would be affected by this alternative. Most of the APE was previously surveyed between 1987 and 2001. Field surveys of those areas not previously surveyed and where the surveys were completed a decade ago or longer were conducted prior to project construction to determine whether there are cultural resources within the project area. In spring 2006 J&S will conduct trenching investigations at American River RM 0.5 to determine the boundary of CA-SAC-26. Pending these results, the mitigation site will avoid CA-SAC-26 with a buffer of at least 50 feet.

The proposed project would have no effect on known prehistoric or historic resources. The possibility exists that potentially significant unidentified cultural remains could be encountered during project construction. The probability of any effects on archeological sites is considered to be very unlikely due to the past channel meandering and erosion within the river corridor. If buried or otherwise obscured cultural resources are encountered during construction, activities in the area of the find will be halted, and a qualified archeologist will be consulted immediately to evaluate the find.

Should any potentially significant cultural resources be discovered, compliance with 36 CFR 800.13(b), "Discoveries without prior planning," would be implemented. Data recovery or other mitigation measures might be necessary to mitigate adverse effects to significant properties.

4.10.2.2 Alternative 2

Alternative 2 would have the same effects on cultural resources as Alternative 1 listed above.

4.10.3 Mitigation

Since no cultural resources would be affected by the proposed project, no mitigation would be required.

5.0 CUMULATIVE AND GROWTH-INDUCING EFFECTS

5.1 Cumulative Effects

Vegetation and Wildlife

Section 4.1 identifies the effects of the proposed action on vegetation and wildlife. The proposed project would halt erosion and reduce further natural recruitment of IWM from the existing riparian area on the bank. This would be offset by the installation of 1,177 linear feet of IWM and plantings that would naturally recruit IWM and provide habitat for vegetation and wildlife. The project would implement site-specific habitat and erosion measures that benefit vegetation and wildlife. The incremental effect of the proposed action is not cumulatively considerable and therefore less than significant.

Fisheries and Aquatic Habitat

Section 4.2 identifies the effects of the proposed action on fisheries and aquatic habitat. The proposed project would halt erosion and reduce further natural recruitment of IWM from the existing riparian area on the bank. This would be offset by the installation 1,177 linear feet of IWM and plantings that would naturally recruit IWM and provide habitat for aquatic habitat. Because the project would implement site-specific habitat and erosion measures that benefit vegetation and wildlife, the incremental effect of the proposed action is not cumulatively considerable and therefore less than significant.

Special Status Species

Section 4.3 identifies the effects of the proposed action on special status species. Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, Delta smelt, valley elderberry longhorn beetle, and green sturgeon. Project effects also include alteration of the designated critical habitat of winter-run Chinook salmon, spring-run Chinook salmon, steelhead, and Delta smelt.

The project is not likely to affect the valley elderberry longhorn beetle with the incorporation of mitigation measures in section 4.3.4. However, it is expected that this project would affect Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, Delta smelt, and green and Swainson's hawk. These effects would be attributed to all land development activities in the Central Valley where special status species occur. However, the cumulative effect of this and other projects is less than significant since the project and all other project actions affecting special status species are under the jurisdiction of the U.S. Fish and Wildlife Service and National Marine Fisheries Service, and subject to compensation measures required by the agencies.

Effects to other special status species by other flood control projects are expected to be less than significant since they would be regulated under Section 7 or 10 of the Federal Endangered Species Act or by the California Department of Fish and Game. These agencies would work with project proponents to compensate for their actions to a level that would reduce their effects to less than significant.

Water Quality

Section 4.4 identifies the construction-related water quality effects of the proposed action, including the potential for increased turbidity due to soil and sediment disturbance. Related effects may also occur as a result of other local projects including the lower American River levee improvements and future Sacramento River Bank Protection Projects. Such effects could result from all land development activities within the local watershed area.

Minimizing construction-related water quality effects is required by the Clean Water Act. The program for implementing Clean Water Act requirements is managed locally by the Central Valley Regional Water Quality Control Board (RWQCB), and projects are required to comply with the statewide permit for general construction activity. This typically involves the implementation of site-specific stormwater best management practices, SWPPP, to avoid and minimize the release of stormwater to offsite receiving waters. Such best management practices are proposed as mitigation for soil and sediment disturbance under the proposed action. Because the project would implement site-specific mitigation consistent with the RWQCB program, the incremental effect of the proposed action is not cumulatively considerable and therefore less than significant.

Air Quality

As described in Section 4.5, the proposed action would result in construction-related effects on air quality. Construction of levee improvements, dam raise, and bridge construction would have similar air quality effects because of the substantial amount of earthmoving activity involved. All projects would generate criteria pollutants such as NO_x, ROG, PM₁₀, and CO. In fact, all construction activity within the air basin would contribute to current air quality violations in the same way as the proposed action. Because of the nonattainment status of the air basin, additional contributions are potentially significant cumulative effects.

Mitigation for the proposed action consists of best management practices and the implementation of offsite mitigation including dust control, requiring the contractor to properly tune and maintain construction equipment, payment of \$129,744.00 for exceedence of 159 lbs above the 85lbs/day or 9.5 tons during the construction of the project for reductions of NO_x from mobile source construction equipment, and the purchase of additional air quality credits, if necessary. Since thresholds are exceeded and mitigated by the offset of other mobile source and stationary source emitters, the project's incremental contribution to the significant cumulative effect is not cumulatively considerable and therefore less than significant.

Noise

As described in Section 4.6 the project would not have a significant effect on noise and therefore would not contribute to any cumulative effect on noise.

Traffic

As described in Section 4.7 the project would not have a significant effect on traffic and therefore would not contribute to any cumulative effect on traffic. A traffic control plan will

implemented as described in Section 4.7.4 Mitigation. Because the project-specific effects are less than significant, cumulative effects would be less than significant as well.

Recreation and Navigation Safety

As described in Section 4.8 project-specific effects would not have a significant effect on recreation and navigation. No other projects have been identified that would contribute to reduction in recreation opportunities on the Sacramento and American River. The loss of recreational opportunities along the Pocket area would be temporary. The dock at RM 50.8 would be relocated up river outside the project boundary and away from the rock revetment. Because the project-specific effects are less than significant, cumulative effects would be less than significant as well.

Esthetics/Visual Resources

As described in Section 4.9 the project would not have a significant effect on esthetics or visual resources, and therefore would not contribute to any cumulative effect on visual resources and esthetics.

Cultural Resources

Project specific effects on cultural resources are described in Section 4.10. No other projects have been identified that would contribute to a reduction or destruction of cultural resources at the Pocket area. Because the project-specific effects are less than significant, cumulative effects would be less than significant as well.

5.2 Other Local Projects

American River Common Features-Pocket Geotech Project

The project entails repairs to two sections (Reaches 2 and 9) of the levee in the Pocket area to correct through-seepage and under-seepage in order to receive Federal Emergency Management Agency certification for the levee system. Reach 2 extends from RM 52.1 to RM 52.4, and Reach 9 extends from RM 45.5 to RM 45.7. The project will be conducted in partnership between the Corps, the Reclamation Board, and the Sacramento Area Flood Control Agency (SAFCA) under the American River Common Features Project. Construction is expected to begin in July 2006 and end by October 2006.

The levee repairs will require the construction of cutoff walls to alleviate the seepage problems. The two alternatives being considered for construction are a bentonite slurry wall or deep soil mixing (DSM). Due to the depth of the proposed cutoff wall in Reach 2 (110 feet), DSM is the only method capable of reaching that depth. The through-seepage in Reach 9, however, will only require a cutoff wall to a depth of 40 feet. Both DSM and the slurry wall technique are being evaluated for accomplishing this repair. This project will be conducted during the erosion site repair but will not interfere with any construction activities related to the erosion sites.

Long-Term Reoperation of Folsom Reservoir

The current approved flood-control diagram for Folsom Reservoir requires 400,000 acre-feet of flood storage capacity during the flood season. However, the reservoir is currently operated for additional flood storage capacity through an agreement between the U.S. Bureau of Reclamation and the SAFCA. This “interim reoperation” requires a variable flood storage capacity of 400,000 to 670,000 acre-feet, depending on upstream storage conditions. A long-term reoperation plan is currently being prepared to update the approved flood control diagram to a variable 400,000 to 600,000 acre-feet of required flood storage capacity. An additional component of the long-term reoperation plan is to reconfigure the penstock intake shutters to a 1-1-2-2-3 configuration. An Environmental Impact Report was recently prepared by SAFCA for this action (SAFCA, 2000). Quantitative analysis of operational changes in this EIR focused on the change from a fixed 400,000 acre-foot flood control diagram (1-1-7 shutter configuration) to a variable 400,000 to 600,000 acre-foot diagram (1-1-2-2-3 shutter configuration). The assumptions for this analysis included the completion of the outlet modifications and surcharge storage projects.

Folsom Dam Mini Raise

The Corps through the construction of the Folsom Dam Mini Raise plan would strengthen the dam and reduce the annual probability of flooding in Sacramento from 1 in 90 to 1 in 230 when implementing other authorized components of the American River Watershed Project. It also includes environmental restoration features for wildlife habitat along the lower American River Parkway. In addition, temperature control shutters at Folsom Dam would be mechanized to improve the regulation of water temperature to increase native salmon and steelhead populations.

Folsom Bridge Project

The Corps will be constructing a new bridge downstream of Folsom Dam Road. Part of the American River Watershed Project, the new bridge will alleviate traffic congestion in downtown Folsom associated with the closure of Folsom Dam Road. The road formerly accommodated 18,000 vehicles a day. Construction is scheduled to begin in 2006 and be completed in 2007.

Folsom Dam Advanced Release

The Corps in coordination with the Department of Interior is in the process of updating the Flood Management Plan for Folsom Dam to increase flood protection through increased release capacity generated by the modification of the outlets at Folsom Dam. Dam releases would be increased based on the Advanced Hydrologic Prediction System of the National Weather Service.

Lower American River Common Features Project

The Corps, SAFCA, and the Rec Board are implementing ongoing programs for levee stability in the lower American River and elsewhere in the Sacramento area. The lower American River levee projects are being implemented pursuant to the WRDA 96 and WRDA 99 authorizations and other programs. Substantial levee improvement work is currently underway.

Sacramento River Bank Protection Project

The Sacramento River Bank Protection Project (SRBPP) was authorized to protect the existing levees and flood control facilities of the Sacramento River Flood Control Project. The SRBPP is a long-range program of bank protection authorized by the Flood Control Act of 1960. The SRBPP directs the Corps to provide bank protection along the Sacramento River and its tributaries, including that portion of the lower American River bordered by Federal flood control project levees. Beginning in 1996, erosion control projects at five sites covering almost 2 miles of the south and north banks of the lower American River have been implemented. Additional sites at RM 149 L and 56.7 L on the Sacramento River totaling one half mile have been constructed since 2001. On going design for approximately one mile of bank protection in the “Pocket” is the subject of this document. This SRBPP is an ongoing project, and additional sites requiring bank protection will continue to be identified and repaired indefinitely until the remaining authority of approximately 30,000 linear feet is exhausted.

5.3 Growth-Inducing Effects

In general, the project would not directly remove obstacles to growth, result in population increases, or encourage and facilitate other activities that could significantly affect the environment. New development must be consistent with existing City and County general plan policies and zoning ordinances regarding land use, open space, conservation, flood protection, and public health and safety. In addition, all development would need to comply with applicable environmental laws and regulations and would require approval by local authorities.

6.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

6.1 Federal Requirements

Endangered Species Act (16 U.S.C. 1531 et seq.). A list of threatened and endangered species that may be in the project area was obtained from the USFWS on May 16, 2005, and updated on February 1, 2006 (Appendix A). The Corps concluded that the proposed action is likely to adversely affect the valley elderberry longhorn beetle, delta smelt, Central Valley steelhead, Central Valley fall/late-fall run Chinook salmon, or the winter-run Chinook salmon. The Corps initiated formal consultation with the USFWS and NMFS in February 2006 and will be receiving their Biological Opinions in June 2006. The Corps will implement all terms and conditions outlined in each Biological Opinion.

Clean Water Act (33 U.S.C. 1251 et seq. (1976 & SUPP II 1978)). The proposed action includes placement of materials in the waters of the United States. Sediment removal may result in the temporary resuspension of sediments in the nearby area. A section 401 water quality

certification application addressing these activities is included in Appendix C and the 404(b) (1) evaluation for the project is included as Appendix D.

Clean Air Act (42 U.S.C. 1857 et seq.), as amended and recodified (U.S.C. 7401 et seq. (SUPP II 1978)). The Corps has completed an analysis of air quality effects of the project. The proposed action would potentially exceed local air quality standards; and however, the project would not exceed the Federal de minimus criteria. A payment of \$129,744.00 would be made to the SMAQMD to offset future emissions. Air quality emissions data is included in Appendix E.

Magnuson-Stevens Fishery Conservation and Management Act. Chinook salmon species that may be affected by this project are covered under fishery management plan. The Corps has determined that this project will adversely affect Essential Fish Habitat (EFH) and require a consultation under the Magnuson-Stevens Fishery Conservation and Management Act. A NOAA Fisheries biological opinion outlining EFH terms and conditions will be issued to the Corps in June 2006. These terms and conditions will be implemented into the project.

Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.). The Corps has received a Fish and Wildlife Coordination Act Report (CAR) from the Sacramento USFWS office and will incorporate their recommendations and mitigation measures outlined in the report into the final EA/IS.

National Environmental Policy Act (42 U.S.C. 4321 et seq.). This EA/IS and the FONSI serve as public notification of the proposed project. The 30 day public comment review period has ended and all comments received for the Draft EA/IS were addressed and incorporated into this Final EA/IS. Following the public comment period and issuance of a final EA/IS and the final FONSI, the environmental documentation required by this Act will be completed.

National Historic Preservation Act of 1996, amended (16 U.S.C. et seq.). The Corps had completed consultation with SHPO and will be in compliance with Section 106 of the National Historic Preservation Act (36 CFR 800). Letters to potentially interested Native Americans were sent on November 15, 2005, asking for their knowledge of locations of archeological sites, or areas of traditional cultural interest or concern.

Portions of the APE including borrow sites, mitigation sites, and staging areas not previously surveyed will be surveyed before project construction. In the event that cultural resources are located within the project area, a determination of eligibility to the NRHP would be required in order to comply with the National Historic Preservation Act of 1966. A letter received from CA SHPO on May 4, 2006 concurs with the Corps' determination that the project will not adversely affect NRHP-eligible or listed properties (Appendix G). The project may proceed as planned.

Wild and Scenic Rivers Act (16 U.S.C. 1271 et seq.). The purpose of the Wild and Scenic Rivers Act is to preserve and protect wild and scenic rivers and immediate environments for the benefit of present and future generations. The lower Sacramento River has not been designated as a component of both the Federal and State Wild and Scenic Rivers systems.

The proposed action would neither adversely affect the resources for which the river was designated nor adversely affect the river's free-flowing status. All construction activities would be confined to the lower Sacramento River.

Executive Order 11988, Flood Plain Management. This executive order requires the Corps to provide leadership and take action to (1) avoid development in the base (100-year) flood plain; (2) reduce the hazards and risk associated with floods; (3) minimize the effect of floods on human safety, health, and welfare; and (4) restore and preserve the natural and beneficial values of the base flood plain. The proposed action is in compliance with this executive order.

Executive Order 11990, Protection of Wetlands. This order directs the Corps to provide leadership and take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in implementing civil works. The proposed action is in compliance with this executive order. The proposed action would not result in the loss or degradation of any wetlands.

Executive Order 12898, Environmental Justice. Environmental justice refers to "nondiscrimination in Federal programs substantially affecting human health and the environment" and "providing minority communities and low-income communities' access to public information on, and an opportunity for public participation, matters relating to human health or the environment." In particular, it involves preventing minority and low-income communities from being subjected to disproportionately high and adverse environmental effects of Federal actions.

The proposed action is in compliance with this Executive Order. Project construction is confined to the east bank and levee along the Sacramento River and would not affect any minority or low-income communities.

Farmland Protection Policy Act (7 U.S.C. 4201 et seq.). This act requires a Federal agency to consider the effects of its actions and programs on the Nation's farmlands. The proposed action would not result in the loss of any farmland.

6.2 State of California

California Environmental Quality Act. This final document has been adopted as a joint EA/IS following public comment and fully complies with CEQA requirements. Adoption of the Mitigated Negative Declaration by the California Department of Water Resources following the public review of the Draft EA/IS is in full compliance under CEQA. A Notice of Determination (NOD) has been filed.

State Water Resources Control Board, Division of Water Quality, and California Regional Water Quality Control Board, Central Valley Region. The draft NEPA/CEQA document has been forwarded to the Regional Water Quality Control Board. The Section 401 certification under the Clean Water Act has been completed following NEPA/CEQA documentation; a water quality certification waiver is included in Appendix C.

State Water Resources Control Board, Division of Water Rights. The proposed action consists mainly of constructing streambank protection and facilities to construct those modifications described in the proposed action (preferred alternative). No water rights approvals would be required.

Delta Protection Act (1992) and Land Use and Resource Management Plan for the Primary Zone for the Sacramento/ San Joaquin River Delta. The Delta Protection Act (Act) was enacted in 1992 in recognition of the increasing threats to the resources of the Primary Zone of the Delta from urban and suburban encroachment having the potential to impact agriculture, wildlife habitat, and recreation uses. Pursuant to the Act, a Land Use and Resource Management Plan for the Primary Zone (Management Plan) was completed and adopted by the Commission in 1995. The Delta Protection Commission has determined the Sacramento River Bank Protection Pocket Erosion Sites Project is located in the Secondary Zone of the Legal Delta. The Corps has reviewed the Management Plan for the Primary Zone and determined that affects to the Primary Zone are less than significant. The recommendations and policies addressed in the Management Plan and are consistent with the Corps' determination and compliance with the Act.

California Department of Fish and Game, Region 2. The CDFG requires a Streambed Alteration Permit for any activity that will change the natural state of any lake, river, or stream in California. Since the proposed action is a Federal project, there is no need to obtain a Streambed Alteration Agreement.

State Mining and Geology Board. The Surface Mining and Reclamation Act (SMARA) requires that an entity seeking to conduct a surface-mining operation obtain a permit from, and submit a reclamation plan to, the SMARA lead agency overseeing that operation. The proposed action does not involve any activities that might potentially be classified as surface mining. Riprap material will be imported from a commercial quarry site. Soil and fill will be purchased from a commercial distributor.

State Lands Commission. The State Lands Commission has exclusive jurisdiction over all ungranted tidelands and submerged lands owned by the State and the beds of navigable rivers, sloughs, and lakes. A project cannot use these State lands unless a lease is first obtained from the State Lands Commission. The SRBPP has a Master Lease PRC 7203.9 approved by the Commission on May 16, 1988 for bank protection work. Each new bank protection project such as those proposed for the Pocket area requires an amendment to this lease. The Reclamation Board has filed an application for an Amendment to the Sacramento River Bank Protection Master Lease PRC 7203.9 on April 20, 2006. The Application will be heard by the State lands Commission at its June 27 meeting. No change in EA/IS is needed.

6.3 Local Plans, Policies, and Permits

Sacramento Metropolitan Air Quality Management District. Air quality analysis based on coordination with the Sacramento Air Quality Management District shows that project emissions would exceed daily thresholds for NO_x. The Corps' contractor will submit a fee payment of \$129,744.00 to the SMAQMD to offset future emissions. Air quality emissions data is included in Appendix E. However, since the project is located in a non-attainment area, best management

practices for ozone and particulate matter would be implemented to help protect ambient air quality conditions. Accordingly, the project is in compliance with the local air district standards after mitigation and fees are paid.

7.0 COORDINATION AND REVIEW OF THE DRAFT EA/IS

The Draft EA/IS was circulated for 30 days to agencies, organizations, and individuals known to have a special interest in the proposed action. Comments were received and incorporated into this final EA/IS. This project is being coordinated with all relevant government agencies and organizations including the USFWS, NOAA Fisheries, SHPO, California Department of Fish and Game, RecBd, SAFCA, and County of Sacramento.

8.0 FINDINGS

Based on the information in this Final EA/IS, the Corps finds that the proposed action would not result in significant effects on the quality of the human environment and therefore does not require preparation of an environmental impact statement. A FONSI has been signed and accompanies this Final EA/IS.

9.0 LIST OF PREPARERS

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Historian

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Archeologist
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Deborah Condon
Staff Environmental Scientist
State Department of Water Resources

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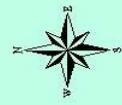
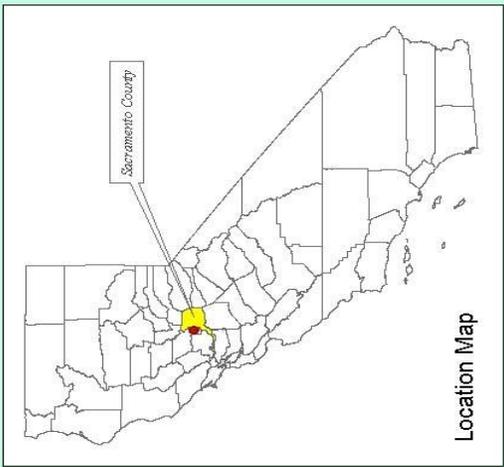
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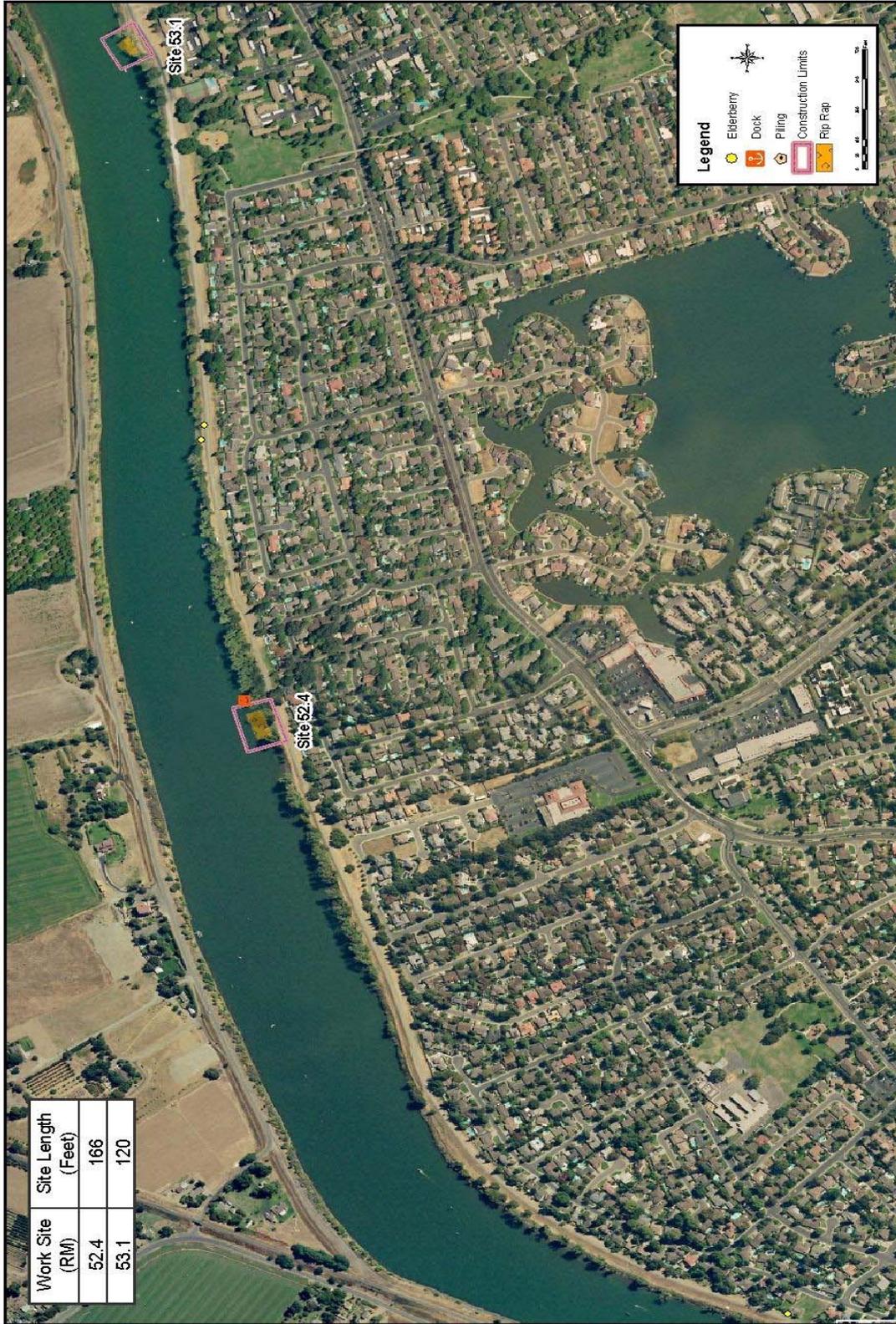
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Plates



USACE
US Army Corps of Engineers
Sacramento District
PSS 24030
1 Mar 06

**PLATE 1
POCKET EROSION LOCATION AND VICINITY MAP**



Work Site (RM)	Site Length (Feet)
52.4	166
53.1	120

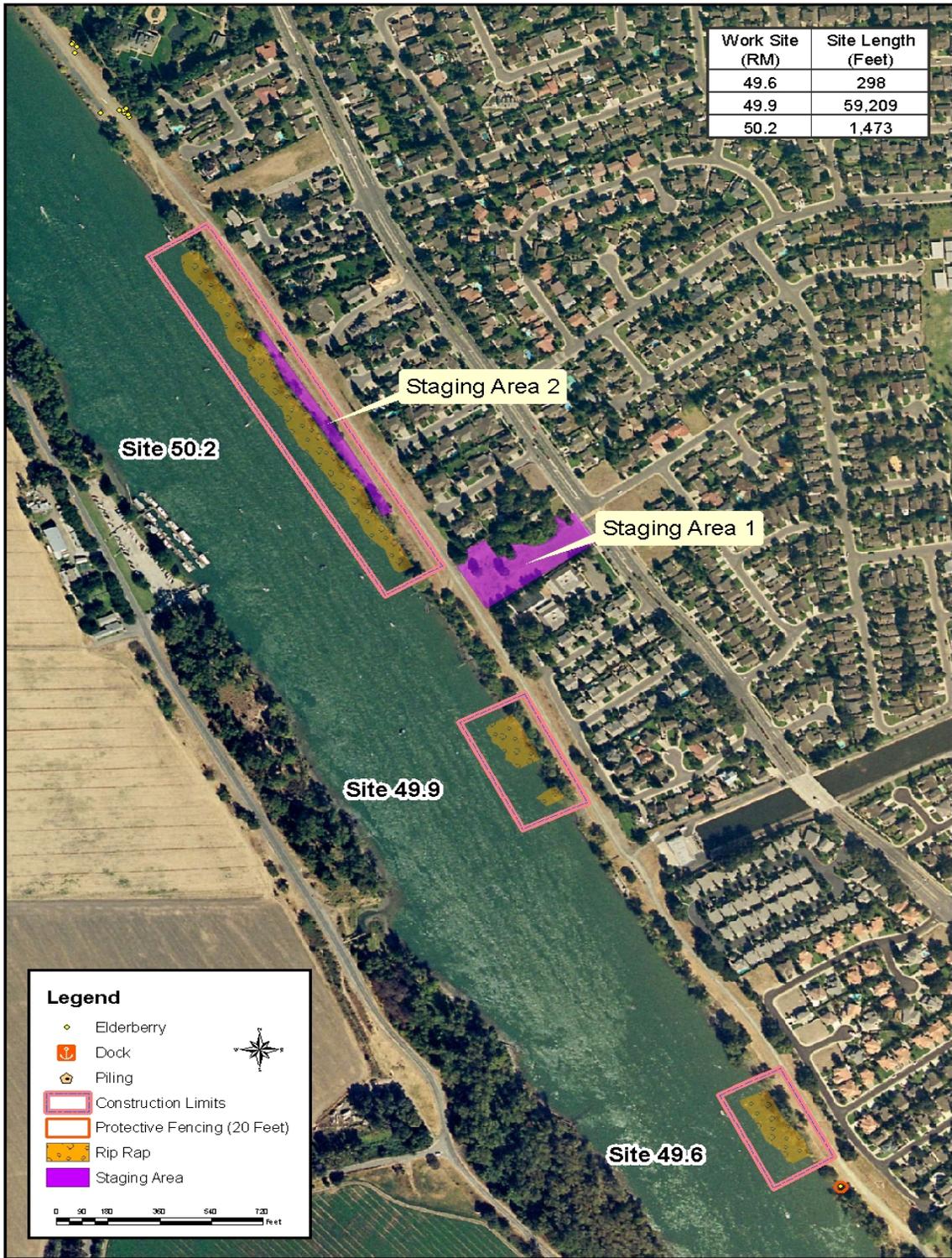
**PLATE 2-1
DETAILED PROJECT AND PLAN VIEW MAP**

KCI
 U.S. BANK GROUP
 12500
 12500



**PLATE 2-2
DETAILED PROJECT AND PLAN VIEW MAP**

US Army Corps of Engineers
Sacramento District
GIS Section
8 Mar 06

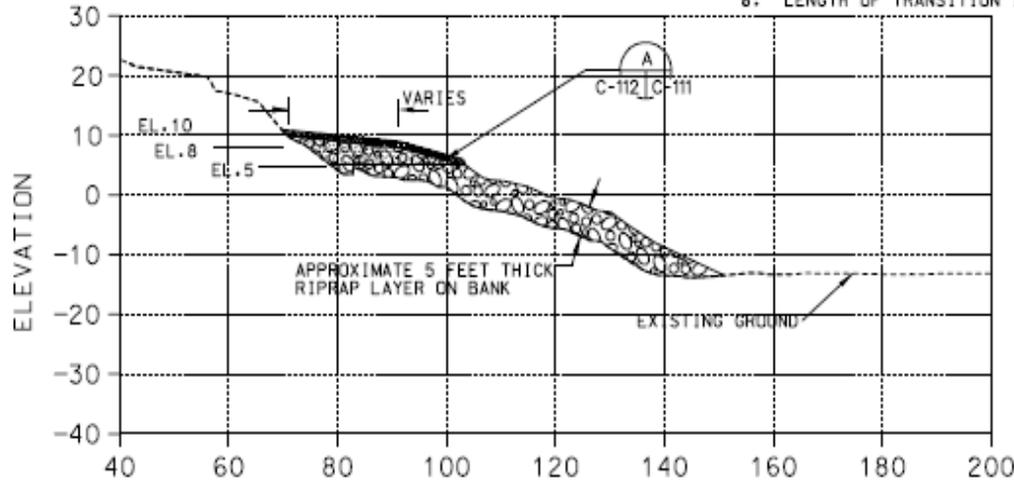


**PLATE 2-3
DETAILED PROJECT AND PLAN VIEW MAP**

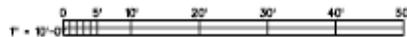

 US Army Corps of Engineers
 Sacramento District
 GIS Section
 9 Mar 06

CONSTRUCTION NOTES:

1. WATER LEVEL AT TIME OF CONSTRUCTION IS EXPECTED TO VARY FROM EL. 3.0 TO EL. 6.0 . RIPRAP BERM BACKFILL SHALL BE PLACED WHEN WATER LEVEL IS AT EL. 5.0 OR LOWER ONLY.
2. PLACE RIPRAP BERM BACKFILL IN RIPRAP VOIDS DOWN TO EL. 5.0 .
3. PLACE "RIPRAP BERM BACKFILL" IN RIPRAP FROM EL. 5.0 TO 1 FOOT ABOVE RIPRAP SURFACE.
4. PROTECT STANDING TREES IN PLACE.
5. FALLEN TREES AND LOGS TO REMAIN IN PLACE. MAINTAIN RIPRAP COVER OVER FALLEN TREES BY INCREASING RIPRAP HEIGHT EQUAL THEIR DIAMETER (HUMP UP THE RIPRAP).
6. SLOPE VARIES ON SECTIONS. MAINTAIN 5-FOOT RIPRAP THICKNESS.
7. FOR PLANTING SEE LANDSCAPE REVEGETATION SITE PLAN AND DETAILS #1 AND #2.
8. LENGTH OF TRANSITION IS 10 FEET AT START AND 7 FEET AT END.



SITE 49.9L R-1, TYPICAL CROSS SECTION 1
SCALE 1"=10' C-103|C-112



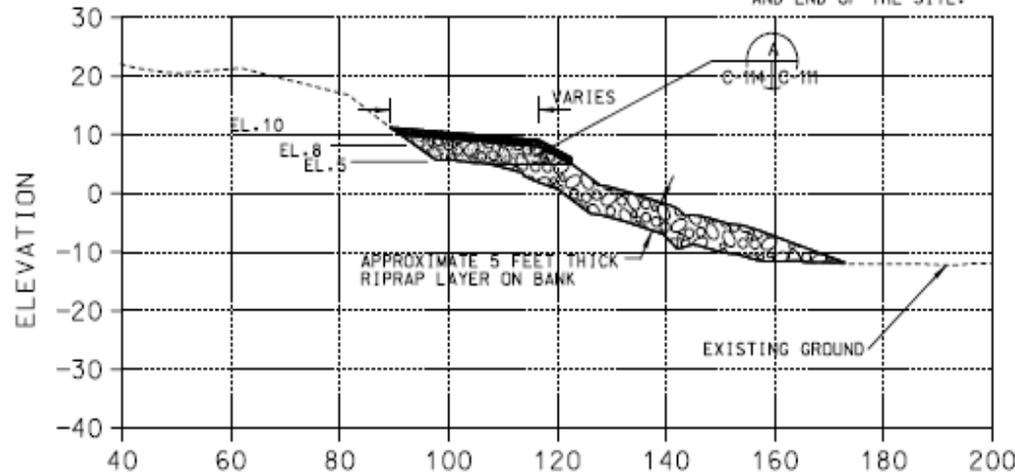
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 U.S. Army Corps of Engineers Sacramento District
SHEET NO. 11 OF 24 PROJECT NO. 49.9L R-1 DRAWING TITLE TYPICAL CROSS SECTION
DATE DRAWN BY CHECKED BY APPROVED BY SACRAMENTO DISTRICT 1200 J STREET SACRAMENTO, CA 95834-0002
CALIFORNIA STATE ENGINEERING REGULATORY BOARD SACRAMENTO RIVER REGION CONTROL PLAN PROJECT NO. 49.9L R-1 SHEET NO. 11 OF 24 TYPICAL CROSS SECTION
Sheet reference number C-112 Sheet 11 of 24

Plate 3. RM 49.6 Typical Cross Section

CONSTRUCTION NOTES:

1. WATER LEVEL AT TIME OF CONSTRUCTION IS EXPECTED TO VARY FROM EL. 3.0 TO EL. 6.0 . RIPRAP BERM BACKFILL SHALL BE PLACED WHEN WATER LEVEL IS AT EL. 5.0 OR LOWER ONLY.
2. PLACE RIPRAP BERM BACKFILL IN RIPRAP VOIDS DOWN TO EL. 5.0 .
3. PLACE "RIPRAP BERM BACKFILL" IN RIPRAP FROM EL. 5.0 TO 1 FOOT ABOVE RIPRAP SURFACE.
4. PROTECT STANDING TREES IN PLACE.
5. FALLEN TREES AND LOGS TO REMAIN IN PLACE. MAINTAIN RIPRAP COVER OVER FALLEN TREES BY INCREASING RIPRAP HEIGHT EQUAL THEIR DIAMETER (HUMP UP THE RIPRAP).
6. SLOPE VARIES ON SECTIONS, MAINTAIN 5-FOOT RIPRAP THICKNESS.
7. FOR PLANTING SEE LANDSCAPE REVEGETATION SITE PLAN AND DETAILS #1 AND #2.
8. LENGTH OF TRANSITION IS 20 FEET AT THE START AND END OF THE SITE.



SITE 50.2L, TYPICAL CROSS SECTION
 SCALE 1"=10'
 C-104, C-105 | C-114



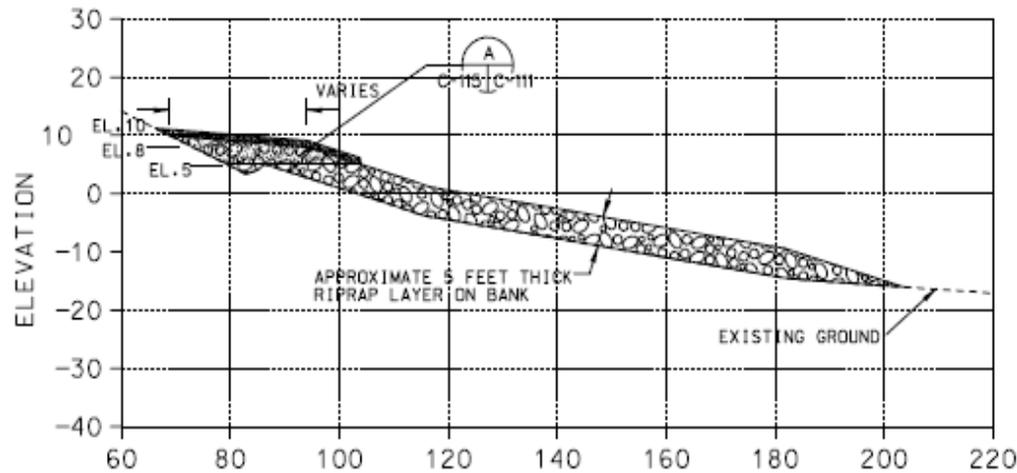
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NO. 9	DATE
NO. 10	DATE
DEPARTMENT OF THE ARMY CORPS OF ENGINEERS SACRAMENTO DISTRICT SACRAMENTO, CALIFORNIA 1500 J STREET SACRAMENTO, CA 95833-0001	
SACRAMENTO COUNTY CALIFORNIA BANK PROTECTION PROJECT PHASE II SACRAMENTO RIVER AND SAN JOAQUIN RIVERS PROJECT NO. 15-001-001-001 AND 15-011 SITE 50.2L TYPICAL CROSS SECTION	
Sheet Reference	C-114
Sheet 19 of 24	

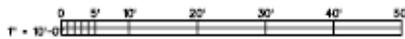
Plate 5. RM 50.2 Typical Cross Section

CONSTRUCTION NOTES:

1. WATER LEVEL AT TIME OF CONSTRUCTION IS EXPECTED TO VARY FROM EL. 3.0 TO EL. 6.0 . RIPRAP BERM BACKFILL SHALL BE PLACED WHEN WATER LEVEL IS AT EL. 5.0 OR LOWER ONLY.
2. PLACE RIPRAP BERM BACKFILL IN RIPRAP VOIDS DOWN TO EL. 5.0 .
3. PLACE "RIPRAP BERM BACKFILL" IN RIPRAP FROM EL. 5.0 TO 1 FOOT ABOVE RIPRAP SURFACE.
4. PROTECT STANDING TREES IN PLACE.
5. FALLEN TREES AND LOGS TO REMAIN IN PLACE. MAINTAIN RIPRAP COVER OVER FALLEN TREES BY INCREASING RIPRAP HEIGHT EQUAL THEIR DIAMETER (HUMP UP THE RIPRAP).
6. SLOPE VARIES ON SECTIONS, MAINTAIN 5-FOOT RIPRAP THICKNESS.
7. FOR PLANTING SEE LANDSCAPE REVEGETATION SITE PLAN AND DETAILS #1 AND #2.
8. LENGTH OF TRANSITION IS 20 FEET AT THE START AND END OF THE SITE.



SITE 50.4L, TYPICAL CROSS SECTION FOR REACH 1 AND REACH 2



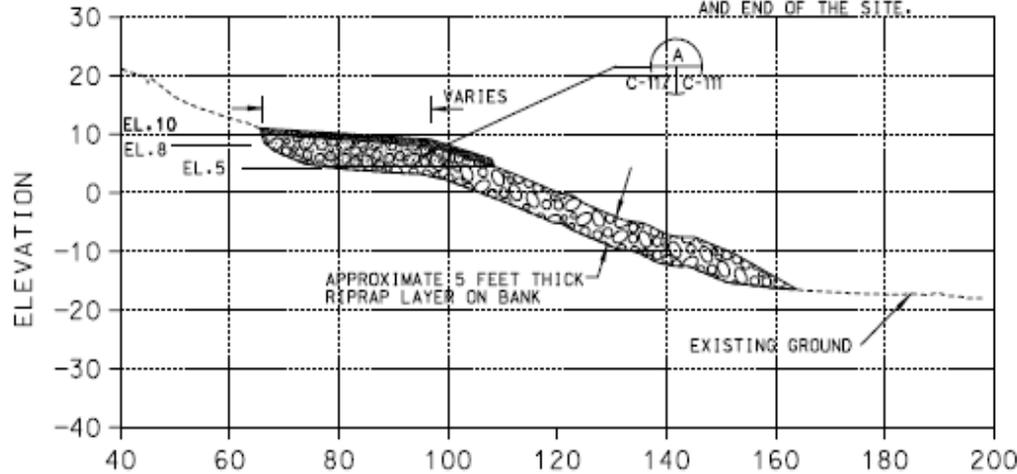
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NAME: _____ TITLE: _____ ORGANIZATION: _____	PROJECT: SACRAMENTO RIVER AND REACH 1 AND REACH 2 SITE: 50-4L REACH 1 AND REACH 2 TYPICAL CROSS SECTION
SHEET NUMBER: C-115 TOTAL SHEETS: 11	

Plate 6. RM 50.4 Typical Cross Section

CONSTRUCTION NOTES:

1. WATER LEVEL AT TIME OF CONSTRUCTION IS EXPECTED TO VARY FROM EL. 3.0 TO EL. 6.0 . RIPRAP BERM BACKFILL SHALL BE PLACED WHEN WATER LEVEL IS AT EL. 5.0 OR LOWER ONLY.
2. PLACE RIPRAP BERM BACKFILL IN RIPRAP VOIDS DOWN TO EL. 5.0 .
3. PLACE "RIPRAP BERM BACKFILL" IN RIPRAP FROM EL. 5.0 TO 1 FOOT ABOVE RIPRAP SURFACE.
4. PROTECT STANDING TREES IN PLACE.
5. FALLEN TREES AND LOGS TO REMAIN IN PLACE. MAINTAIN RIPRAP COVER OVER FALLEN TREES BY INCREASING RIPRAP HEIGHT EQUAL THEIR DIAMETER (HUMP UP THE RIPRAP).
6. SLOPE VARIES ON SECTIONS, MAINTAIN 5-FOOT RIPRAP THICKNESS.
7. FOR PLANTING SEE LANDSCAPE REVEGETATION SITE PLAN AND DETAILS #1 AND #2.
8. LENGTH OF TRANSITION IS 20 FEET AT THE START AND END OF THE SITE.



SITE 51.5L, TYPICAL CROSS SECTION 1
C-108 | C-117
SCALE 1"=10'



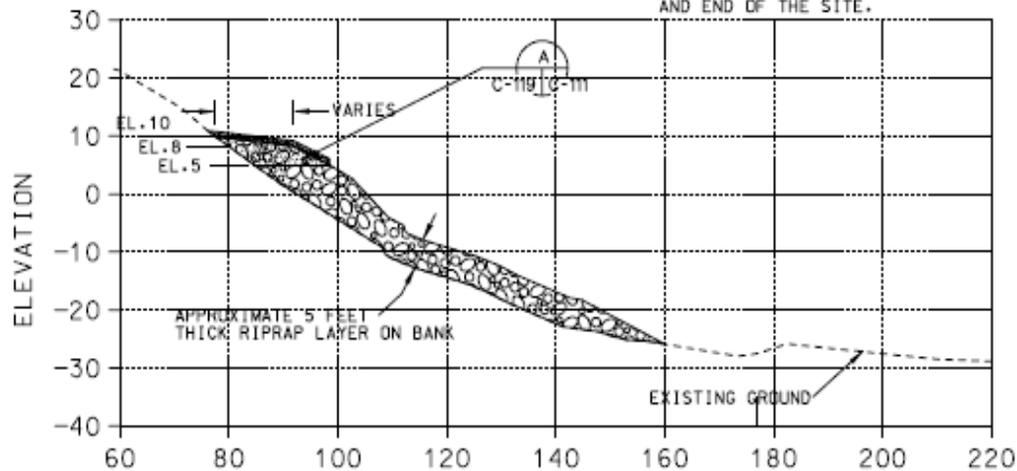
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CALIFORNIA REGISTERED PROFESSIONAL ENGINEER STATE BOARD OF PROFESSIONAL ENGINEERS AND SURVEYORS LICENSE NO. _____ EXPIRES _____ TITLE: _____ FIRM: _____ ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____	
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SHEET 22 OF 24 C-117	

Plate 8. RM 51.5 Typical Cross Section

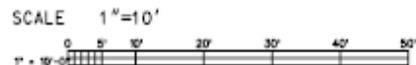
CONSTRUCTION NOTES:

1. WATER LEVEL AT TIME OF CONSTRUCTION IS EXPECTED TO VARY FROM EL. 3.0 TO EL. 6.0 . RIPRAP BERM BACKFILL SHALL BE PLACED WHEN WATER LEVEL IS AT EL. 5.0 OR LOWER ONLY.
2. PLACE RIPRAP BERM BACKFILL IN RIPRAP VOIDS DOWN TO EL. 5.0 .
3. PLACE "RIPRAP BERM BACKFILL" IN RIPRAP FROM EL. 5.0 TO 1 FOOT ABOVE RIPRAP SURFACE.
4. PROTECT STANDING TREES IN PLACE.
5. FALLEN TREES AND LOGS TO REMAIN IN PLACE. MAINTAIN RIPRAP COVER OVER FALLEN TREES BY INCREASING RIPRAP HEIGHT EQUAL THEIR DIAMETER (HUMP UP THE RIPRAP).
6. SLOPE VARIES ON SECTIONS. MAINTAIN 5-FOOT RIPRAP THICKNESS.
7. FOR PLANTING SEE LANDSCAPE REVEGETATION SITE PLAN AND DETAILS #1 AND #2.
8. LENGHT OF TRANSITION IS 20 FEET AT THE START AND END OF THE SITE.



NOTE: WATER LEVEL AT TIME OF CONSTRUCTION IS EXPECTED TO VARY FROM EL 3 FEET TO 6 FEET

SITE 53.1L, TYPICAL CROSS SECTION C-110 | C-119



PROJECT NO.: DRAWING NO.: SHEET NO.: DATE:	DESIGNER: CHECKER: APPROVER:
DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT SACRAMENTO, CALIFORNIA PROJECT: SITE 53.1L SHEET: TYPICAL CROSS SECTION	
SHEET REFERENCE NUMBER C-119 SHEET 24 OF 26	

100% DESIGN

Plate 10. RM 53.1 Typical Cross Section

Appendix A. USFWS Species List

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 060201100847

Database Last Updated: December 23, 2005

CRITICAL HABITAT:

On August 11, 2005, the Service published a revised [critical habitat designation](#) for vernal pool species. It did not specify critical habitat locations on a species by species basis. If there are species on the list(s) below that were covered under the rule, they are shown because we believe that they are present in the area or may be affected by projects in the area, not because it has specifically been designated as critical habitat for them.

Quad List: SACRAMENTO WEST (513D)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)

Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - Critical habitat, delta smelt (X)

Hypomesus transpacificus - delta smelt (T)

Oncorhynchus mykiss - Central Valley steelhead (T)

Oncorhynchus mykiss - Critical habitat, Central Valley steelhead (X)

Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)

Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (X)

Oncorhynchus tshawytscha - Critical habitat, winter-run chinook salmon (X)

Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander, central population (T)

Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Proposed Species

Fish

Acipenser medirostris - green sturgeon (P)

Candidate Species

Fish

Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)

Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Species of Concern

Invertebrates

Anthicus antiochensis - Antioch Dunes anthicid beetle (SC)

Anthicus sacramento - Sacramento anthicid beetle (SC)

Branchinecta mesovallensis - Midvalley fairy shrimp (SC)

Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Lampetra ayresi - river lamprey (SC)

Lampetra tridentata - Pacific lamprey (SC)

Pogonichthys macrolepidotus - Sacramento splittail (SC)

Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)

Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)

Athene cunicularia hypugaea - western burrowing owl (SC)

Baeolophus inornatus - oak titmouse (SLC)

Branta canadensis leucopareia - Aleutian Canada goose (D)

Buteo regalis - ferruginous hawk (SC)

Buteo Swainsoni - Swainson's hawk (CA)

Carduelis lawrencei - Lawrence's goldfinch (SC)

Chaetura vauxi - Vaux's swift (SC)

Charadrius montanus - mountain plover (SC)

Elanus leucurus - white-tailed (=black shouldered) kite (SC)

Empidonax traillii brewsteri - little willow flycatcher (CA)

Falco peregrinus anatum - American peregrine falcon (D)

Grus canadensis tabida - greater sandhill crane (CA)

Lanius ludovicianus - loggerhead shrike (SC)

Melanerpes lewis - Lewis' woodpecker (SC)

Numenius americanus - long-billed curlew (SC)

Picoides nuttallii - Nuttall's woodpecker (SLC)

Plegadis chihi - white-faced ibis (SC)

Riparia riparia - bank swallow (CA)

Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)

Myotis ciliolabrum - small-footed myotis bat (SC)

Myotis volans - long-legged myotis bat (SC)

Myotis yumanensis - Yuma myotis bat (SC)

Perognathus inornatus - San Joaquin pocket mouse (SC)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed (in the Federal Register) as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed (in the Federal Register) for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the [National Marine Fisheries Service](#). Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.

- (CA) Listed by the State of California but not by the Fish & Wildlife Service.
- (D) Delisted - Species will be monitored for 5 years.
- (SC) Species of Concern/(SLC) Species of Local Concern - Other species of concern to the Sacramento Fish & Wildlife Office.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey [7½ minute quads](#). The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regard-less of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the quad or quads covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the nine surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

State-Listed Species

If a species has been listed as threatened or endangered by the State of California, but not by us nor by the National Marine Fisheries Service, it will appear on your list as a Species of Concern. However you should contact the California Department of Fish and Game [Wildlife and Habitat Data Analysis Branch](#) for official information about these species.

Your Responsibilities Under the Endangered Species Act

All plants and animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.

During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

[Critical Habitat](#)

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our [critical habitat page](#) for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

Your list may contain a section called Species of Concern. This is an informal term that refers to those species that the Sacramento Fish and Wildlife Office believes might be in need of concentrated conservation actions. Such conservation actions vary depending on the health of the populations and degree and types of threats. At one extreme, there may only need to be periodic monitoring of populations and threats to the species and its habitat. At the other extreme, a species may need to be listed as a Federal threatened or endangered species. Species of concern receive no legal protection and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed, candidate and special concern species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be May 02, 2006.

Appendix B. Table of Special Status Plant and Animal Species Potential to Occur in the Project Area

Plants and Trees	Status			Range	Habitat	Potential Onsite Presence
	Federal	State	Other			
Northern California black walnut (native stands) <i>Juglans californica</i> var. <i>hindsii</i>	SC	–	1B, CSC	Native stands in Contra Costa, Napa, Sacramento*, Solano*, and Yolo* Counties	Riparian scrub and woodland: 150–2,700 feet	Scattered trees occur at the project site but not as entire stands.
Rose Mallow <i>Hibiscus lasiocarpus</i>	–	–	2	Southern Sacramento Valley, Sacramento–San Joaquin Delta, northeast San Francisco Bay area, and Alameda, Contra Costa, Marin*, Napa, Sacramento, San Joaquin, and Solano Counties	Freshwater marshes, swamps on low peat islands next to sloughs, streambanks in riparian zones: generally sea level–500 feet	No suitable habitat in the project area.

Notes:

CNDDDB= California Natural Diversity Database.

Species included in this table are based on search results of the CNDDDB (2004), lists provided by the U.S. Fish and Wildlife Service (USFWS) (2005), and field surveys conducted in the project area during 2004 and 2005. Only species from these sources with suitable habitat in the study area are included in this table.

a Status

– = not listed.

Federal

SC = USFWS Species of Special Concern.

State

CE = Listed as endangered under the California Endangered Species Act.

R = Listed as rare under California Native Plant Protection Act.

Other

California Native Plant Society (CNPS)

1B = CNPS List 1B—rare or endangered in California and elsewhere

2 = CNPS List 2—rare or endangered in California, more common elsewhere

	Status ¹	Range	Habitat	Potential Onsite Presence
	Federal/State			
Mammals				
Long-legged myotis <i>Myotis volans</i>	SC/-	Mountains throughout California, including ranges in the Mojave desert.	Most common in woodlands and forests above 4,000 feet, but occurs from sea level to 11,000 feet.	No suitable habitat in the project area.
Pacific west big-eared bat <i>Plecotus pallescens townsendii</i>	SC/CSC	Coastal regions from Del Norte County south to Santa Barbara County.	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings. Very sensitive to disturbances and may abandon a roost after one onsite visit.	Outside the species known range.
San Joaquin Valley woodrat <i>Neotoma fuscipes riparia</i>	E/CSC	Historical distribution along the San Joaquin, Stanislaus, and Tuolumne Rivers, and Caswell State Park in San Joaquin, Stanislaus, and Merced Counties; presently limited to San Joaquin County at Caswell State Park and a possible second population near Vernalis.	Riparian habitats with dense shrub cover, willow thickets, and an oak overstory.	Outside the species known range.
San Joaquin pocket mouse <i>Perognathus inornatus</i>	SC/-	Occurs throughout the San Joaquin Valley and in the Salinas Valley.	Favors grasslands and scrub habitats with fine textured soils.	Outside the species known range.
Small-footed myotis <i>Myotis ciliolabrum</i>	SC/-	Occurs in the Sierra Nevada, south Coast, Transverse, and Peninsular Ranges, and in the Great Basin.	Open stands in forests and woodlands, as well as shrub lands and desert scrub. Uses caves, crevices, trees, and abandoned buildings.	No suitable habitat in the project area.
Yuma myotis <i>Myotis yumanensis</i>	SC/-	Common and widespread throughout most of California except the Colorado and Mojave deserts near water bodies.	Found in a wide variety of habitats from sea level to 11,000 feet, but uncommon above 8,000 feet. Optimal habitat is open forests and woodlands.	No suitable habitat in the project area.
Riparian Brush Rabbit <i>Sylvilagus bachmani riparius</i>	E/E	Historical distribution along the San Joaquin, Stanislaus, and Tuolumne Rivers, and Caswell State Park in San Joaquin, Stanislaus, and Merced Counties; presently limited to San Joaquin County at Caswell State Park and a possible second population near Vernalis.	Riparian habitats with dense scrub/shrub cover, willow thickets, and an oak overstory. Brush rabbits have small home ranges that usually conform to the size of available brushy habitat. Avoiding large openings in shrub cover, they frequent small clearings.	No suitable habitat in the project area.
Birds				

Aleutian Canada goose <i>Branta canadensis leucopareia</i>	SC/D	The entire population winters in Butte Sink, then moves to Los Banos, Modesto, the Delta, and East Bay reservoirs; stages near Crescent City during spring before migrating to breeding grounds.	Roosts in large marshes, flooded fields, stock ponds, and reservoirs; forages in pastures, meadows, and harvested grainfields; corn is especially preferred.	No suitable habitat in the project area.
American peregrine falcon <i>Falco peregrinus anatum</i>	D/CE, FP	Permanent resident along the north and south Coast Ranges. May summer in the Cascade and Klamath Ranges and through the Sierra Nevada to Madera County. Winters in the Central Valley south through the Transverse and Peninsular Ranges and the plains east of the Cascade Range.	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large prey populations.	May occur in the project area during migration or winter.
Bald eagle <i>Haliaeetus leucocephalus</i>	T, PR/CE, FP	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe Basin. Reintroduced into central coast. Winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, and east of the Sierra Nevada south of Mono County.	In western North America, nests and roosts in coniferous forests within 1 mile of a lake, reservoir, stream, or the ocean.	May occur in the project area during migration or winter.
Bank swallow <i>Riparia riparia</i>	SC/CT	Occurs along the Sacramento River from Tahama to Sacramento Counties, along the Feather and lower American Rivers, in the Owens Valley; and in the plains east of the Cascade Range in Modoc, Lassen, and northern Siskiyou. Small populations near the coast from San Francisco to Monterey.	Nests in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam.	No suitable habitat in the project area.
Cooper's hawk <i>Accipiter cooperii</i>	SC/-	Throughout California except high altitudes in the Sierra Nevada. Winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range.	Nests in a wide variety of habitat types, from riparian woodlands and digger pine-oak woodlands through mixed conifer forests.	Suitable habitat present in the project area.
Ferruginous hawk <i>Buteo regalis</i>	SC/CSC	Does not nest in California; winter visitor along the coast from Sonoma County to San Diego County, east-	Open terrain in plains and foothills where ground squirrels and other prey are available.	No suitable habitat in the project area.

		ward to the Sierra Nevada foothills and south-eastern deserts, the Inyo-White Mountains, the plains east of the Cascade Range, and Siskiyou County.		
Greater sandhill crane <i>Grus canadensis tabida</i>	SC/CT, FP	Breeds in Siskiyou, Modoc, Lassen, Plumas, and Sierra Counties. Winters in the Central Valley, southern Imperial County, Lake Havasu National Wildlife Refuge, and the Colorado River Indian Reserve.	Summers in open terrain near shallow lakes or freshwater marshes. Winters in plains and valleys near bodies of fresh water.	No suitable habitat in the project area.
Lawrence's goldfinch <i>Carduelis lawrencei</i>	SC/CSC	Erratic and localized in occurrence in foothills surrounding the Central Valley, Santa Clara County, coastal slope south of Monterey County, and along the western edge of the southern California deserts.	Occurs in open oak and other arid woodland and chaparral habitats near water.	May occur in the project area during migration.
Lewis' woodpecker <i>Melanerpes lewis</i>	SC/CSC	Breeds locally on eastern slopes of the Coast Ranges and in the Sierra Nevada, Cascade Range, and Klamath and Warner Mountains. Uncommon winter resident in the Central Valley.	Occurs in open oak savanna, deciduous, and coniferous habitats.	May occur in the project area during migration.
Little willow flycatcher <i>Empidonax traillii brewsteri</i>	SC/CE	Summers along the western Sierra Nevada from El Dorado to Madera County, in the Cascade and northern Sierra Nevada in Trinity, Shasta, Tahama, Butte, and Plumas Counties, and along the eastern Sierra Nevada from Lassen to Inyo County.	Riparian areas and large wet meadows with abundant willows. Usually found in riparian habitats during migration.	No suitable breeding habitat in the project area. May occur in the project area during migration.
Loggerhead shrike <i>Lanius ludovicianus</i>	SC/CSC	Resident and winter visitor in lowlands and foothills throughout California. Rare on coastal slope north of Mendocino County, occurring only in winter.	Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	Suitable habitat present in the project area
Long-billed curlew <i>Numenius americanus</i>	SC/CSC	Nests in northeastern California in Modoc, Siskiyou, and Lassen Counties. Winters along the coast and in interior valleys west of Sierra Nevada.	Nests in high-elevation grasslands adjacent to lakes or marshes. During migration and in winter; frequents coastal beaches and mudflats and interior grasslands and agricultural fields.	No suitable habitat in the project area.
Mountain plover	SC/CSC	Does not breed in California; in winter,	Occupies open plains or rolling hills	No suitable habitat

<i>Charadrius montanu</i>		found in the Central Valley south of Yuba County, along the coast in parts of San Luis Obispo, Santa Barbara, Ventura, and San Diego Counties; parts of Imperial, Riverside, Kern, and Los Angeles Counties	with short grasses or very sparse vegetation; nearby bodies of water are not needed; may use newly plowed or sprouting grainfields.	in the project area.
Nuttall's woodpecker <i>Picoides nuttallii</i>	SLC/CSC	Occurs throughout the Central Valley, the Coast, Transverse, and Peninsular Ranges, and in lower elevations in the Cascade and Sierra Nevada Ranges.	Occurs primarily in oak and riparian habitats and urban areas with suitable foraging and nesting habitat.	Suitable habitat present in the project area.
Oak titmouse <i>Baeolophus inornatus</i>	SLC/CSC	Occurs in Cismontane California from the Mexican border to Humboldt County.	Occurs in riparian, montane hardwood, valley foothill hardwood/conifer habitats.	Suitable habitat present in the project area.
Prairie falcon <i>Falco mexicanus</i>	-/CSC	Permanent resident in the south Coast, Transverse, Peninsular, and northern Cascade Ranges, the southeastern deserts, Inyo-White Mountains, foothills surrounding the Central Valley, and in the Sierra Nevada in Modoc, Lassen, and Plumas Counties. Winters in the Central Valley, along the coast from Santa Barbara County to San Diego County, and in Marin, Sonoma, Humboldt, Del Norte, and Inyo Counties		No suitable habitat in the project area.
Rufous hummingbird <i>Selasphorus rufus</i>	SC/CSC	Uncommon summer resident in California and a common summer resident in Oregon and Washington. In California this species breeds in the Trinity Mountains of Trinity and Humboldt Counties.	Occurs in a variety of habitats including valley foothill hardwood, riparian, mixed hardwood/pine, chaparral and mountain meadows.	May occur in the project area during migration.
Swainson's hawk <i>Buteo swainsoni</i>	SC/CT	Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley. Highest nesting densities occur near Davis and Woodland, Yolo County.	Nests in oaks or cottonwoods in or near riparian habitats. Forages in grasslands, irrigated pastures, and grain fields.	Suitable habitat present in the project area.
Tricolored blackbird <i>Agelaius tricolor</i>	SC/CSC	Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and	No suitable habitat in the project area.

		San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties. Rare nester in Siskiyou, Modoc, and Lassen Counties.	grainfields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony.	
Vaux's swift <i>Chaetura vauxi</i>	SC/CSC	Coastal belt from Del Norte County south to Santa Cruz County and in mid elevation forests of the Sierra Nevada and Cascade Range.	Nests in hollow, burned-out tree trunks in large conifers.	May occur in the project area during migration.
Western burrowing owl <i>Athene cunicularia hypugea</i>	SC/CSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along south coast.	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows.	No suitable habitat in the project area.
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	C/CE	Nests along the upper Sacramento, lower Feather, south fork of the Kern, Amargosa, Santa Ana, and Colorado Rivers.	Wide, dense riparian forests with a thick understory of willows for nesting; sites with a dominant cottonwood overstory are preferred for foraging; may avoid valley-oak riparian habitats where scrub jays are abundant.	No suitable habitat in the project area.
White-faced ibis <i>Plegadis chihi</i>	SC/CSC	Both resident and winter populations on the Salton Sea and in isolated areas in Imperial, San Diego, Ventura, and Fresno Counties; breeds at Honey Lake, Lassen County, at Mendota Wildlife Management Area, Fresno County, and near Woodland, Yolo County.	Prefers freshwater marshes with tules, cattails, and rushes, but may nest in trees and forage in flooded agricultural fields, especially flooded rice fields.	No suitable habitat in the project area.
White-tailed kite <i>Elanus leucurus</i>	SC/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border.	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging.	Species known to occur in the project area.
Reptiles				
California horned lizard <i>Phrynosoma coronatum frontale</i>	SC/CSC	Found throughout much of the state, less common in mountainous areas of the north coast and in coniferous or chaparral habitats.	Common to abundant resident in a variety of open habitats, usually where large trees and shrubs are absent. Grasslands and deserts to dwarf shrub habitats above tree line.	No suitable habitat in the project area.
Giant garter snake	T/CT	Central Valley from the vicinity of	Sloughs, canals, low gradient	No suitable habitat

<i>Thamnophis gigas</i>		Burrel in Fresno County north to near Chico in Butte County; has been extirpated from areas south of Fresno.	streams and freshwater marsh habitats where there is a prey base of small fish and amphibians; also found in irrigation ditches and rice fields; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter.	in the project area.
Western pond turtle <i>Clemmys marmorata</i>	SC/CSC	Northwestern subspecies occurs from the Oregon border of Del Norte and Siskiyou Counties south along the coast to San Francisco Bay, inland through the Sacramento Valley, and on the western slope of Sierra Nevada. Southwestern subspecies occurs along the central coast of California east to the Sierra Nevada and along the southern California coast inland to the Mojave and Sonora Deserts; range overlaps with that of the northwestern pond turtle throughout the Delta and in the Central Valley.	Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests. Woodlands, grasslands, and open forests; aquatic habitats, such as ponds, marshes, or streams, with rocky or muddy bottoms and vegetation for cover and food.	No suitable habitat in the project area.
Amphibians				
California red-legged frog <i>Rana aurora draytonii</i>	T/CSC	Found along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County.	Permanent and semipermanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation. May aestivate in rodent burrows or cracks during dry periods.	Outside the species known range. No suitable habitat in the project area.
California tiger salamander <i>Ambystoma californiense</i>	T/CSC	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to northeastern San Luis Obispo County.	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy.	No suitable habitat in the project area.
Western spadefoot <i>Scaphiopus hammondi</i>	SC/CSC	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California.	Shallow streams with riffles and seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands.	No suitable habitat in the project area.
Invertebrates				
Antioch Dunes anthicid	SC/-	Population in Antioch Dunes believed	Loose sand on sand bars and sand	Outside the species'

beetle <i>Anthicus anthiochensis</i>		extinct; Now known only from Grand Island and in and around Sandy Beach County Park, Sacramento County.	dunes.	known range. No suitable habitat in the project area.
California linderiella <i>Linderiella occidentalis</i>	SC/-			No suitable habitat in the project area.
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	E/-	Disjunct occurrences in Solano, Merced, Tehama, Ventura, Butte, and Glenn Counties.	Large, deep vernal pools in annual grasslands.	No suitable habitat in the project area.
Mid-valley fairy shrimp <i>Brachinecta</i> sp.	SC/-			No suitable habitat in the project area.
Sacramento anthicid beetle <i>Anthicus sacramento</i>	SC/-	Dune areas at mouth of Sacramento River; western tip of Grand Island, Sacramento County; upper Putah Creek and dunes near Rio Vista, Solano County; Ord Ferry Bridge, Butte County.	Found in sand slip-faces among willows; associated with riparian and other aquatic habitats.	No suitable habitat in the project area.
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T/-	Streamside habitats below 3,000 feet throughout the Central Valley.	Riparian and oak savanna habitats with elderberry shrubs; elderberries are the host plant.	Within the species known range. Suitable habitat may be present in the project area.
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T/-	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County.	Common in vernal pools; also found in sandstone rock outcrop pools.	No suitable habitat in the project area.
Vernal pool tadpole shrimp <i>Lepidurus packardi</i>	E/-	Shasta County south to Merced County.	Vernal pools and ephemeral stock ponds.	No suitable habitat in the project area.
Fish				
Sacramento River Winter-Run Chinook salmon <i>Oncorhynchus tshawytscha</i>	E/E	Sacramento River	Cool, clear water with spawning gravel; migrate to the ocean to feed and grow until sexually mature	Within the species known range. Rearing and migratory habitat present in the project area.
Central Valley spring-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	T/T	Sacramento, Feather, and Yuba Rivers, Deer, Mill, Butte, and Big Chico Creeks	Cold, clear water with clean gravel of appropriate size for spawning; most spawning occurs in headwater streams; migrate to the ocean to feed and grow until sexually	Within the species known range. Rearing and migratory habitat present in the

			mature.	project area.
Central Valley late fall/fall-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	C/CSC	Sacramento River and its tributaries, San Joaquin River and its tributaries	Cool, clear water with spawning gravel; migrate to the ocean to feed and grow until sexually mature	Within the species known range. Rearing and migratory habitat present in the project area.
Central Valley steelhead <i>Oncorhynchus mykiss</i>	T/CSC	Sacramento River and its tributaries, San Joaquin River and its tributaries	Cold, clear water with clean gravel of appropriate size for spawning; most spawning occurs in headwater streams; migrate to the ocean to feed and grow until sexually mature.	Within the species known range. Rearing and migratory habitat present in the project area.
Delta smelt <i>Hypomesus transpacificus</i>	T/T	Sacramento–San Joaquin Delta, and into the lower reaches of each river	Estuarine or brackish waters to 14 parts per thousand (ppt); spawn in shallow brackish water upstream of the mixing zone (zone of saltwater-freshwater interface) where salinity is around 2 ppt	At the upper end of the species range. Only occasionally present.
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	D/CSC	Sacramento–San Joaquin Delta, lower portions of the Sacramento and San Joaquin rivers	Primarily low salinity shallow water; shallow, flooded vegetated habitat for spawning and foraging	Within the species known range.
Green sturgeon <i>Acipenser medirostris</i>	C/CSC	Sacramento and Klamath Rivers	Cool water with cobble, clean sand or bedrock for spawning	Within the species known range. Suitable habitat present in the project area.

Notes:

Species listed in table are generated from the U.S. Fish and Wildlife Service (USFWS) project species list, California Department of Water Resources (DWR) field survey data, and California Natural Diversity Database (CNDDDB) records. Species shown in highlight are species covered under the CALFED Bay-Delta Program (CALFED) programmatic biological opinions and the Natural Community Conservation Plan (NCCP) determination.

¹Status:

Federal

- E = Listed as endangered under the federal Endangered Species Act (ESA).
- T = Listed as threatened under ESA.
- PE = Proposed for listing as endangered under ESA.
- PT = Proposed for listing as threatened under ESA.
- C = Candidate for listing under ESA.
- SC = Species of concern under ESA

SLC	=	Species of local concern under ESA.
D	=	Delisted. Status to be monitored for 5 years.
PR	=	Protected under the Bald and Golden Eagle Protection Act.
–	=	No federal status.
State		
CE	=	Listed as endangered under the California Endangered Species Act (CESA).
CT	=	Listed as threatened under CESA.
CCE	=	Candidate for listing as endangered under CESA.
CCT	=	Candidate for listing as threatened under CESA.
R	=	Listed as rare under California Native Plant Protection Act.
CSC	=	California species of special concern.
FP	=	Fully protected under California Fish and Game Code.
SB	=	Specified birds under California Fish and Game Code.
–	=	No state status.

Appendix C

401 Water Quality Certification Waiver



Linda Adams
Secretary

California Regional Water Quality Control Board Central Valley Region

Robert Schneider, Chair



Arnold
Schwarzenegger
Governor

Sacramento Main Office
11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
<http://www.waterboards.ca.gov/centralvalley>

31 May 2006

Mr. Don Lash
U.S. Army Corps of Engineers
1325 J Street
Sacramento, CA 95814

***ACTION ON REQUEST FOR CLEAN WATER ACT §401 WATER QUALITY CERTIFICATION
FOR DISCHARGE OF DREDGED AND/OR FILL MATERIALS FOR THE SACRAMENTO
RIVER BANK PROTECTION PROJECT, POCKET AREA EROSION SITES,
(WDID#5A34CR00284) SACRAMENTO COUNTY***

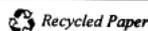
ACTION:

- Order for Standard Certification
- 2. Order for Technically-conditioned Certification
- 3. Order for Denial of Certification

WATER QUALITY CERTIFICATION STANDARD CONDITIONS:

- This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to §13330 of the California Water Code and §3867 of Title 23 of the California Code of Regulations (23 CCR).
2. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 CCR subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.
 3. The validity of any non-denial certification action shall be conditioned upon total payment of the full fee required under 23 CCR §3833, unless otherwise stated in writing by the certifying agency.
 4. Certification is valid for the duration of the described project. The U.S. Army Corps of Engineers shall notify the Water Board in writing within 7 days of project completion.

California Environmental Protection Agency



ADDITIONAL CONDITIONS (for Certification Action 2)

In addition to the four standard conditions, the applicant shall satisfy the following

The U.S. Army Corps of Engineers shall notify the Water Board in writing of the start of any in-water activities.

2. Except for activities permitted by the U.S. Army Corps under §404 of the Clean Water Act, soil, silt, or other organic materials shall not be placed where such materials could pass into surface water or surface water drainage courses.
3. The discharge of petroleum products or other excavated materials to surface waters is prohibited
4. Activities shall not cause turbidity increases in surface waters to exceed
 - (a) where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU;
 - (b) where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent;
 - (c) where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs;
 - (d) where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.

Except that these limits will be eased during in-water working periods to allow a turbidity increase of 15 NTU over background turbidity as measured in surface waters 300 feet downstream from the working area. In determining compliance with the above limits, appropriate averaging periods may be applied provided that beneficial uses will be fully protected.

5. Activities shall not cause settleable matter to exceed 0.1 ml/l in surface waters as measured in surface waters 300 feet downstream from the project.
6. Activities shall not cause visible oil, grease, or foam in the work area or downstream.
7. All areas disturbed by project activities shall be protected from washout or erosion.
8. In the event that project activities result in the deposition of soil materials or creation of a visible plume in surface waters, the following monitoring shall be conducted immediately upstream and 300 feet downstream of the work site and the results reported to this office within two weeks:

Parameter	Unit	Type of Sample	Frequency of Sample
Turbidity	NTU	Grab	Every 4 hours during in water work
Settleable Material	ml/l	Grab	Same as above.

9. The U.S. Army Corps of Engineers shall notify the Water Board immediately if the above criteria for turbidity, settleable matter, oil/grease, or foam are exceeded.
10. The U.S. Army Corps of Engineers shall notify the Water Board immediately of any spill of petroleum products or other organic or earthen materials.

11. The U.S. Army Corps of Engineers must obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction Activities issued by the State Water Resources Control Board.
12. The U.S. Army Corps of Engineers shall submit a final mitigation monitoring plan, approved by the U.S. Fish and Wildlife Service and NOAA Fisheries, to the Water Board by 31 December 2006.

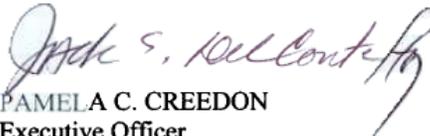
REGIONAL WATER QUALITY CONTROL BOARD CONTACT PERSON:

Robert J. Solecki, Environmental Scientist
11020 Sun Center Drive #200
Rancho Cordova, California 95670-6114
(916) 464-4684
rsolecki@waterboards.ca.gov

WATER QUALITY CERTIFICATION:

I hereby issue an order certifying that any discharge from the U.S. Army Corps of Engineers Project (WDID #5A34CR00284) will comply with the applicable provisions of §301 ("Effluent Limitations"), §302 ("Water Quality Related Effluent Limitations"), §303 ("Water Quality Standards and Implementation Plans"), §306 ("National Standards of Performance"), and §307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act. This discharge is also regulated under Regional Board Resolution No. R5-2003-0008 "*Waiver of Reports of Waste Discharge and Waste Discharge Requirements for Specific Types of Discharge: Type 12 Projects for which Water Quality Certification is issued by the Regional Board,*" which requires compliance with all conditions of this Water Quality Certification.

Except insofar as may be modified by any preceding conditions, all certification actions are contingent on (a) the discharge being limited and all proposed mitigation being completed in strict compliance with the applicant's project description and the attached Project Information Sheet, and (b) compliance with all applicable requirements of the Regional Water Quality Control Board's Water Quality Control Plan (Basin Plan).


PAMELA C. CREEDON
Executive Officer

Enclosure: Project Information

cc: U.S. Army Corps of Engineers, Sacramento
Timothy Vendlinski, Wetlands Section Chief (WTR-8), U.S. Environmental Protection Agency, Region 9, San Francisco
U.S. Fish & Wildlife Service, Sacramento
Oscar Balaguer, Certification Unit, State Water Resources Control Board, Sacramento

PROJECT INFORMATION

Application Date: 10 April 2006

Applicant: Mr. Don Lash
U.S. Army Corps of Engineers
1325 J Street
Sacramento, CA 95814

Applicant Representatives: None

Project Name: Sacramento River Bank Protection Project, Pocket Erosion Sites, Sacramento, California

Application Number: WDID#5A34CR00284

U.S. Army Corps Application Number: The U.S. Army Corps does not issue Section 404 permits for their own projects. In lieu of a 404 application, U.S. Army Corps has prepared a Section 404 (b) 1 evaluation for the project through preparation of the Final Environmental Assessment/ Initial Study (EA/IS) for the Sacramento River Bank Protection Project, Pocket Area Erosion Sites, Sacramento, California.

Type of Project: Levee/ stream bank enhancement to prevent stream bank erosion

Project Location: Section (not listed on topographic map), Township 8N, Range 4E, MDB&M, Latitude: 38.5008° and Longitude: 121.5571°

County: Sacramento County

Receiving Water(s) (hydrologic unit): Sacramento River, Sacramento Delta Hydrologic Unit #510.00

Water Body Type: Riparian, River, Streambed

Designated Beneficial Uses: The Basin Plan for the Central Valley Regional Board has designated beneficial uses for surface and ground waters within the region. Beneficial uses that could be impacted by the project include: Municipal and Domestic Water Supply (MUN); Agricultural Supply (AGR); Industrial Supply (IND), Hydropower Generation (POW); Groundwater Recharge, Water Contact Recreation (REC-1); Non-contact Water Recreation (REC-2); Warm Freshwater Habitat (WARM); Cold Freshwater Habitat (COLD); and Wildlife Habitat (WILD).

Project Description (purpose/goal): The Pocket Area Erosion Sites are part of the Governor's State of Emergency Declaration for the California Levee System from 24 February 2006 (7 March 2006 Executive Order S-01-06). The U.S. Army Corps of Engineers (the Corps) and the State of California Reclamation Board (Rec Board), with assistance from the Sacramento Area Flood Control Agency (SAFCA), propose to implement bank protection measures to prevent ongoing stream bank erosion and

achieve Federal Emergency Management Agency (FEMA) certification of the 100-year flood plain along the Sacramento River.

Bank protection measures will be implemented at eight erosion sites located near the pocket area (river miles [RM] 49.6 to 53.1 Left) in the city of Sacramento. The measures will include (1) protecting the toe of the bank with rock revetment both below and above water levels, (2) placing 1 foot of non-engineered fill on the revetment at elevations above water levels, (3) placing and preserving existing in-stream wood material clusters for aquatic habitat and bank stabilization, and (4) planting pole and container plantings to stabilize the bank and provide riparian habitat.

The project will disturb approximately 4,436 feet of channel bank and contiguous channel bottom during construction. This disturbance will result in discharge into 8.62 acres of waters of the United States, comprising 7.50 acres of permanent fill and 1.12 acres of temporary fill.

Preliminary Water Quality Concerns: The construction activities may impact surface waters with increased turbidity and settleable matter.

Proposed Mitigation to Address Concerns: The Corps will implement Best Management Practices (BMPs) to control sedimentation and erosion. All temporary affected areas will be restored to pre-construction contours and conditions upon completion of construction activities. The Corps will conduct turbidity and settleable matter testing during in water work, stopping work if Basin Plan criteria are exceeded or are observed.

The Corps will require the contractor to submit a Notice of Intent, and develop and implement a SWPPP. Specific BMPs that will be incorporated into the SWPPP will be determined during the final stages of project design. However, the SWPPP is likely to include commonly used measures and practices that are listed in the Final EA/IS for the project. The Corps will also require the contractor to develop and implement a hazardous materials management plan prior to initiation of construction.

Living and dead in-stream wood material (IWM) will be placed along the sites at approximately 50-to 75-foot intervals to provide bank protection and aquatic habitat during winter and spring flows. This IWM will be a minimum of 15 feet long and maintain a canopy minimum of 20 feet wide, and will retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs will be planted along the sites, and large potted plants and willow cuttings will be installed in larger rock voids. Standing and fallen trees at the sites will be protected, and all disturbed areas will be protected with erosion control measures such as hydroseeding and plug plantings.

Fill/Excavation Area: Approximately 72,800 cubic yards of rock revetment (D50 riprap revetment with an average thickness of 10 inches) would be placed along the embankment and would extend up to 75 feet out from the riverbank. About 199,395 square feet (5.0 acres) of this rock-covered area would be below the mean summer water line. Approximately 14,100 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water before vegetation has established. A total of 8.62 acres of waters of the United States will be filled for the project: 7.50 acres of permanent fill and 1.12 acres of temporary fill.

Dredge Volume: Not Applicable

U.S. Army Corps of Engineers Permit Number: The Corps does not issue Section 404 permits for their own projects.

Federal Public Notice: Not Available

Department of Fish & Game Streambed Alteration Agreement: Projects conducted by federal agencies are exempt from DFG Streambed Alteration Agreements.

Possible Listed Species: Valley elderberry longhorn beetle, Central Valley steelhead, Sacramento winter-run Chinook salmon, Central Valley spring-run Chinook salmon, delta smelt, green sturgeon, and late fall/fall-run Chinook salmon.

Status of CEQA Compliance: As the lead state sponsor for the project, the State Reclamation Board approved the project on 19 May 2006. The Notice of Determination for the Final EA/IS for the project was submitted to the State Clearinghouse (SCH# 2006042037) on 23 May 2006.

Compensatory Mitigation: In addition to on-site mitigation measures, off-site mitigation shall also be implemented in the form of a setback levee or other fluvial-function-restoring measure. Any such setback levee or other measure shall create a floodplain or erodible area (as applicable) that is no less than five (5) times as large in areal extent as the bank area that exists now between the existing edge of water at the mean summer water elevation (MSW) and the existing projected levee section at MSW (5:1 lateral migration conservation ratio). Implementation of the setback levee or other measure must incorporate avoidance, minimization, and conservation measures sufficient to offset the adverse effects on all listed species under U.S. Fish and Wildlife Service (the Service), NOAA Fisheries, and CDFG jurisdiction. These impacts can be addressed by the IWG or by Corps staff during informal consultation. Before implementation of the off-site mitigation, other more accurate or representative methods of quantifying the impacts on riverine habitat and its functions may be developed by the Interagency Working Group (IWG) for the Sacramento River Bank Protection Project (SRBPP). Alternative mitigation measures are acceptable if approved by the IWG.

The off-site mitigation described above, and/or other fluvial-functioning-restorative actions, are specific measures carried forward from the previous Biological Opinions for the SRBPP issued by the Service and NOAA Fisheries. These measures are designed to compensate for bank protection effects to four federally listed fish species (delta smelt, Central Valley steelhead, Sacramento River winter-run Chinook salmon, and Central Valley spring-run chinook salmon and their habitats, including critical habitat and essential fish habitat) which occupy the SRBPP action area as well as the Pocket Area Erosion Sites.

The Corps shall also submit a detailed, site-specific monitoring plan for the resource agencies to review within 12 months of the on-set of construction of the Pocket Area Erosion Sites. Once reviewed, this monitoring plan shall then be incorporated into the Operations & Maintenance manual (described in the Biological Opinion for the project) and implemented at the Pocket Area Erosion Sites. The Corps shall also develop with the assistance of the IWG, and with ultimate approval of the resource agencies, a broader fisheries and aquatic ecosystem monitoring plan for the SRBPP action area.

Application Fee Provided: A fee of \$22,680 was submitted on 26 May 2006 as required by 23 CCR §3833b(2)(A) and by 23 CCR § 2200(e).

Don Lash
U.S. Army Corps of Engineers

- 7 -

31 May 2006

DISTRIBUTION LISTS

U.S. Army Corp of Engineers
Sacramento District Office
1325 J Street
Sacramento, CA 95814-2922

Mr. Timothy Vendlinski
Wetlands Section Chief (W-3)
United States Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

United States Fish & Wildlife Service
Sacramento Fish & Wildlife Office
2800 Cottage Way
Sacramento, CA 95825

Mr. Oscar Balaguer
State Water Resources Control Board, Certification Unit
P.O. Box 944213
Sacramento, CA 94244-2130

Appendix D. Section 404(b) (1) Evaluation

Sacramento River Bank Protection Project, Pocket Area Erosion Sites, Sacramento California

I. Project Description

The U.S. Army Corps of Engineers (Corps) and the State of California Reclamation Board, propose to implement bank protection measures to prevent ongoing streambank erosion and achieve Federal Emergency Management Agency (FEMA) certification of the 100-year flood plain along the Sacramento River. These sites are part of the Governor's State of Emergency Declaration on February 24, 2006.

These bank protection measures would be implemented at eight erosion sites located adjacent to the Pocket area (river miles [RM] 49.6 to 53.1) in the city of Sacramento. The measures would include (1) protecting the toe of the bank with rock revetment both below and above water levels, (2) placing 1 foot of non-engineered fill in and on the revetment at elevations above water levels, (3) placing and preserving existing in-stream wood material (IWM) clusters for aquatic habitat and bank stabilization, and (4) planting pole and container plantings to stabilize the bank and provide riparian habitat.

A complete project description can be found in Chapter 2 of the final environmental assessment/initial study (EA/IS).

a. Location

The project area extends along the Sacramento River from RM 49.6 to 53.1 near the Pocket area in the city of Sacramento. The eight erosion sites are located between Riverside Avenue near the intersection with 43rd Avenue, and Garcia Bend Park. The RM locations and lengths of the eight sites are listed in Table 1.

b. General Description

The bank protection measures in the overall project would consist of (1) reinforcement of the bank toe with a total of 4,436 LF of rock revetment approximately 5 feet thick at elevations varying between minus 27 and 10 feet NGVD over a total area of 375,290 square feet (8.62 acres), (2) placement of a 1-foot-thick layer of non-engineered fill at elevations varying from 5 to 11 feet NGVD on top of the rock revetment over an area of 176,500 square feet (4.05 acres), (3) placement of 1177 LF of IWM at elevations varying from 5 to 10 feet NGVD for aquatic habitat, and (4) planting of vegetation at elevations varying from 5 to 10 feet NGVD to provide bank stabilization and riparian habitat.

Approximately 72,800 cubic yards of rock revetment would be placed along the embankment and would extend up to a maximum of 75 feet out from the riverbank. About 199,395 square feet (5.0 acres) of this rock-covered area would be below the mean summer water line. Approximately 14,100 cubic yards of fill (a mixture of sand and silt suitable for plant

growth) would be placed on top of the rock revetment and would be covered with a biodegradable coir fabric to prevent soil loss during the first high water before vegetation has established. Upon completion, the bank slopes at the sites would be 3H:1V (measured from the toe of the bank to an elevation of 10 feet NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area totals 240,280 square feet [5.52 acres]).

Existing live and dead IWM would be retained on site and supplemented with additional placement of IWM to enhance aquatic habitat during winter and spring flows. The placed IWM would be approximately 15 feet long and 10 feet wide, and would retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs would be planted along the sites starting at elevations varying from 5 to 10 feet NGVD. Large potted plants would be installed in larger rock voids. Standing and fallen trees at the sites would be protected in by carefully placed rock, and all areas disturbed during construction would be treated with erosion control measures such as hydroseeding and plug plantings.

The overall project would disturb approximately 4,400 feet of channel bank and contiguous channel bottom during construction, approximately 8.62 acres.

c. Background

The Pocket area is located between the east bank of the Sacramento River below the confluence of the Sacramento and American Rivers, and Interstate 5. The area, which was once agricultural, has almost completely developed into residential neighborhoods and commercial areas over the last 30 years. The Pocket area is one of several remaining portions of Sacramento that does not have FEMA 100-year certification.

The original levees along the Sacramento River in this area were set back so that there was a minimum 50-foot bench between the existing bank and the waterside levee toe. Over the years, continual erosion of the existing river bank has threatened the stability of the levee in the Pocket area. Most of the erosion appears to be due to wave runup from tidal and wind action, as well as recreational boat traffic during the summer months. Over the years revetment has been placed along this area of by the Corps, and as maintenance by adjacent landowners, historic reclamation districts and more recently by DWR's Maintenance Area 9.

The Corps, SAFCA, DWR, and their consultants have made several field assessments for the Pocket area over the last few years. Their final assessment has determined that erosion of the banks between elevations 2 feet NGVD and 8 feet NGVD at these eight sites has undermined the bank so that it weakens and caves in during higher flow events. This project would protect these areas from further erosion while maintaining existing vegetation and IWM as much as possible. Completion of the work would also achieve FEMA certification for the Pocket area of Sacramento.

d. Authority and Purpose

This project is a component of the Sacramento River Bank Protection Project (SRBPP), which was authorized by Congress under the Flood Control Act of 1960 (Public Law 86-645).

Congress authorized the SRBPP in accordance with the recommendations of the Chief of Engineers in Senate Document No. 103, 86th Congress, Second Session, entitled “Sacramento River Flood Control Project, California,” dated May 26, 1960. Authorization for incorporation of environmental features into the project was provided in the Water Resources Development Act of 1990.

The Environmental Assessment/Initial Study (EA/IS) (1) describes the existing environmental resources in the project area, (2) evaluates the environmental effects of the alternatives on those resources, and (3) if the effects are significant, determines the need for an Environmental Impact Statement/Environmental Impact Report (EIS/EIR). This EA/IS fulfills the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

e. General Description and Quantity of Dredged or Fill Material

(1) General Characteristics of Material

Construction of the bank protection and associated infrastructure have the potential to increase stormwater runoff, transport sediment and other construction materials, and fill portions of the Sacramento River at the project site. Riprap would be placed along approximately 4,436 linear feet of the bank to protect against toe scour. Approximately 72,800 cubic yards of rock riprap would be placed 75 feet out from the riverbank covering an area of about 5.0 acres below the mean summer water line. Approximately 4,000 linear feet of fill (a mixture of sand and silt suitable for plant growth) would be placed on top of the rock riprap and back towards the bank. Approximately 14,100 cubic yards of fill material covering about 4.05 acres from elevation 5 to 11 feet would be placed. The final configuration would result in a bank slope of 3H:1V from the current top of bank to elevation 10 feet. About 1,117 LF of IWM at elevations varying from 5 to 10 feet NGVD would be placed on top and secure to the riprap along the erosion sites for aquatic habitat and bank stabilization

(2) Source of Material

Fill materials would come from a permitted offsite commercial borrow site.

If a borrow site is selected that has not been evaluated in this document, the contractor would be responsible for providing all applicable NEPA, CEQA, and other appropriate environmental compliance.

f. Description of the Proposed Discharge Site(s)

(1) Location (map)

The location of the discharge site would be the Sacramento River at the project site.

(2) Size (acres)

The total size of the potential fill/impacted area would be almost 5.0 acres of open water.

(3) Type of Site (confined, unconfined, open water)

The fill needed for the bank protection construction would take place in open water areas.

(4) Type(s) of Habitat

Generally, the area is riparian forest and scrub/shrub, ruderal grassy and herbaceous vegetation along the levee and riverbank, and open water. Several trees have fallen into the river and provide IWM habitat for fish and other aquatic species. There is approximately 6.2 acres of riparian forest and scrub/shrub habitat, and 4.9 acres of ruderal vegetation in the affected construction zone. There are several elderberry shrubs on top of the bank and levee system in the Pocket area. However, only 1 elderberry shrub occurs within the construction area, RM 50.8. This shrub will not be removed nor will it be directly affected by project activities. Protective fencing will secure this shrub from any disturbance. Fill in the open water area would occur in a glide habitat of an "F" type stream.

(5) Timing and Duration of Discharge

The bank protection construction is anticipated to be completed in 120 days during July 1 to November 30, 2006. Fill occurring in the open water area would occur over a 120 day period during July 1 through November 30 in 2006. Should construction be delayed until 2007 this activity could occur from June through October.

h. Description of Disposal Method (hydraulic, drag line, etc.)

All of the fill work would be done from the Sacramento River by barges with crane (boom) systems mechanically dumping the rock along the shore and beneath the water line. Soil will also be distributed via crane barge. Preparation of the landscaping for plantings would most likely occur from landside along the bank using existing levee roads and staging areas adjacent to each erosion site.

II. Factual Determinations (Section 230.11)

a. Physical Substrate Determinations (consider items in Section 230.11(a# and 230.20 Substrate)

(1) Substrate Elevation and Slope

Elevation of site varies from minus 27 to 10 ft (NVGD). Existing slope varies from 5H:1V to 1H:1V

(2) Sediment Type

Soils of the site are river deposits which include silts, sands, and gravel

(3) Dredged/ Fill Material Movement

The fill material needed for the bank protection construction is not expected to move either during construction or after construction is completed. No fill material is needed for access to the construction site since construction personnel would use existing roads on the levee and the Pocket area.

(4) Physical Effects on Benthos (burial, changes in sediment type, etc.)

All of the fill associated with the construction takes place in areas of open water that are predominantly submerged (less than 5 feet NGVD). It is expected that the benthos of the river bottom areas would be completely eliminated by the fill activity.

(5) Other Effects

The installation of the fill material to complete bank protection activities would over the long-term reduce sediment input into the Sacramento River.

(6) Actions Taken to Minimize Impacts (Subpart H)

Fill material would only be placed where it is needed for bank protection. During construction, disturbance outside of the project area would be kept to a minimum. Additionally, the following best management practices from the EA/IS are included:

- The staging or storing of construction equipment or materials would be limited to the area designated by the Corps.
- The contractor would prepare an erosion and sediment control plan, incorporating a site drainage plan consistent with Regional Water Quality Control Board policies.
- Construction equipment would be maintained in proper operating condition to prevent leaks of oil or grease.
- A site-specific plan would be developed by the contractor addressing proper disposal of silt, debris, refuse, or other pollutants associated with construction.

b. Water Circulation, Fluctuation, and Salinity Determinations

(1) Water (refer to section 230.11(b), 230.22 Water, and 230.25 Salinity Gradients; test specified in subpart G may be required). Consider effects on:

(a) Salinity.

The fill occurring in the Sacramento River are areas of permanent water. When they receive water, it is from rain or flood events. All waters affected are freshwater and therefore, filling these areas would not adversely affect salinity.

(b) Water Chemistry (pH, etc.)

The fill areas are in areas of permanent water. Materials would be tested for pH prior to placement as not to affect water chemistry.

(c) Clarity

Fill would occur in areas of permanent waters. The Corps would adhere to turbidity and water chemistry requirements associated with the Corps 401 water quality permit (to be issued).

(d) Color

The proposed project is expected to affect color only during fill activities.

(e) Odor

The proposed project is not expected to affect odor.

(f) Taste

The proposed project is not expected to affect taste.

(g) Dissolved Gas Level

Fill would occur in areas of permanent waters. During filling the Corps would adhere to turbidity and water chemistry requirements associated with the Corps 401 water quality permit (to be issued).

(h) Nutrients

None of the proposed project components would adversely affect nutrients in the water.

(i) Eutrophication

Fill would occur in areas of permanent waters. During filling the Corps would adhere to turbidity and water chemistry requirements associated with the Corps 401 water quality permit.

(j) Others as Appropriate

The proposed project is not expected to affect other water characteristics.

(2) Current Patterns and Circulation (consider items in Section 230.11(b), and 230.23), Current Flow and Water Circulation

(a) Current Patterns and Flow

The proposed fill areas would not affect general current and flow patterns

(b) Velocity

The velocities of stormwater and the velocities during flood events are not expected to change with the project.

(c) Stratification

The proposed project is not expected to significantly affect stratification.

(d) Hydrologic Regime

The hydrologic regime of the stormwater runoff is not expected to change with the proposed project.

(3) Normal Water level Fluctuations (tides, river stage, etc.) (consider items in Sections 230.11(b) and 230.24)

Normal water fluctuations would not be affected. The project would not effect stage elevations.

(4) Salinity Gradients (consider items in section 230.11(b) and 230.25)

Since the fill areas receive freshwater stormwater runoff, salinity gradients would not be affected.

(5) Actions That Will Be Taken to Minimize Impacts (refer to Subpart H)

Effects to pattern or flow of stormwater runoff are not expected to be significant. Therefore, no additional minimization measures are needed that are not already defined in Subpart H.

e. Suspended Particulate/ Turbidity Determinations

(1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site (consider items in section 230.11(c) and 230.21)

Changes in particulates and turbidity would occur during construction. There would not be significant long-term changes in suspended particulates and turbidity. It is anticipated that NTU's would increase by 5 NTU's above ambient during construction activities. It is anticipated that an increase of 15 NTU's above ambient levels would be acceptable to the RWQCB based on previous bank protection projects in the area.

The Corps' contractor will conduct water quality tests specifically for increases in turbidity and sedimentation cause by construction activities:

- Sampling location – Water samples for determining background levels shall be collected in the Sacramento River within the general vicinity for each erosion construction site. Testing to establish background levels shall be performed at least once a day when construction activity is in progress. Water samples for determining down current

conditions shall be collected in the Sacramento River at a point 5 feet out from the shoreline and 300 feet down current of each erosion site:

- Turbidity – During working hours, the construction activity shall not cause the turbidity in the Sacramento River down current from the construction sites to exceed 25 NTU's above background levels.
- Settleable Solids – During working hours, the construction activity shall not cause the settleable solids in the Sacramento River down current from the construction sites to exceed 0.5 ml/L above background levels.

(2) Effects (degree and duration) on Chemical and Physical Properties of the water Column (consider environmental values in Section 230.21, as appropriate)

(a) Light Penetration

There would not be adverse effects to light penetration.

(b) Dissolved Oxygen

There would be no adverse effects to dissolved oxygen due to the project.

(c) Toxic Metals and Organics

Due to the inertness of the fill materials, there would be no exchange of constituents between the fill and aquatic systems. Measures described in the SWPPP, prepared to RWQCB guidelines, and final EA/IS, would minimize the potential for contaminants to be introduced into the fill areas.

(d) Pathogens

The proposed project would not introduce pathogens to the aquatic community.

(e) Esthetics

There would be esthetic effects during construction (construction equipment and general disturbance) but the effects would not be considered significant, the site would have more vegetation and IWM than the preconstruction condition.

(f) Others as Appropriate

There would be no other significant adverse effects to the chemical and physical properties of the water column.

(3) Effects on Biota (consider environmental values in Section 230.21, as appropriate)

(a) Primary Production, Photosynthesis

The project may temporarily affect primary production and photosynthesis in those areas filled. However, the effect would be temporary and less than significant.

(b) Suspension/ Filter Feeders

The project may temporarily affect suspension and filter feeders in those areas filled. However, the effect would be temporary and less than significant for the area.

(c) Sight Feeders

The project would temporarily affect sight feeders in those areas filled. However, the effect would be temporary and less than significant for the area.

(4) Actions Taken to Minimize Impacts (Subpart H)

Effects to the aquatic biota would be temporary and not significant in the area downstream of the stilling basin and swale. Therefore, no additional measures to minimize effects are needed for fill occurring there

d. Contaminant Determinations (consider items in Section 230.11(d))

The proposed project would not add contaminants to any nearby body of water. Best management practices to reduce the potential of accidental spills during construction are included in the EA/IS. The fill material for the sites would not be contaminated and would be tested for contaminants prior to placement.

e. Aquatic Ecosystem and Organism Determinations (use evaluation and testing Procedures in Subpart G, as appropriate)

(1) Effects on Plankton

Effects to plankton would be temporary and not significant, no additional measures to minimize effects are needed for fill occurring in the area.

(2) Effects on Benthos

Effects to the benthos would be temporary and not significant, no additional measures to minimize effects are needed for fill occurring in the area.

(3) Effects on Nekton

Effects to nekton would be temporary and not significant, no additional measures to minimize effects are needed for fill occurring in the area.

(4) Effects on aquatic Food Web (refer to Section 230.31)

There would be no adverse effects to the aquatic food web, or the plankton, benthic and nekton communities with the proposed project

(5) Effects on Special Aquatic Sites (discuss only those found in project area or disposal site)

(a) Sanctuaries and Refuges (refer to section 230.40)

There would be no adverse effects to sanctuaries or refuges with the proposed project.

(b) Wetlands (refer to section 230.41)

No wetlands would be filled.

(c) Mud Flats (refer to Section 230.42)

There would be no adverse effects to mud flats with the proposed project.

(d) Vegetated Shallows (refer to Section 230.43)

There would be no adverse effects to vegetated shallows with the proposed project.

(e) Coral Reefs (refer to Section 230.44)

There would be no adverse effects to coral reefs with the proposed project.

(f) Riffle and Pool Complexes (refer to section 230.45)

There would be no adverse effects to riffle and pool complexes.

(6) Threatened and Endangered Species (refer to Section 230.30)

The proposed action at the Pocket erosion control sites is likely to adversely affect the following listed species: Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, Delta smelt, valley elderberry longhorn beetle, and green sturgeon. Project effects also include alteration of the designated critical habitat of winter-run Chinook salmon, spring-run Chinook salmon, steelhead, and Delta smelt.

Construction effects may include localized disturbance or displacement of adult and juvenile salmon, steelhead, and sturgeon from noise, suspended sediment, and turbidity generated during in-water construction activities. The potential also exists for injury or mortality of juvenile salmonids and other fish species that may not be able to readily move away from channel or nearshore areas directly affected by construction activities. The potential for adverse effects will be minimized by restricting in-water activities to the period July 1-November 30 and

implementing the proposed minimization and avoidance measures for each species as stated in the EA/IS.

(7) Other Wildlife (refer to Section 230.32)

Wildlife effects associated with the construction are expected to be temporary. Generally, wildlife species that use the areas around project area are mobile species that would leave the area during construction and return when construction is completed. Therefore, the proposed project would not have any significant adverse effects to wildlife over what was described in the EA/IS.

(8) Actions to Minimize Impacts (refer to Subpart H)

There would be no additional significant adverse effects to wildlife due to the construction. Therefore, there would be no minimization measures needed.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determination (consider factors in section 230.11(f)(2))

Not applicable.

(2) Determination of Compliance with Applicable Water Quality Standards (present the standards and rationale for compliance or non-compliance with each standard)

No water quality or effluent standards would be violated either during or after construction of the dike or the road raising.

(3) Potential Effects on Human Use Characteristics

The proposed project would not have any significant adverse effects to municipal and private water supply, recreational and commercial fisheries, or water-related recreation. There would be no national and historic monuments, parks, seashores, wilderness areas, research sites or similar preserves affected by the proposed project.

g. Determination of Cumulative Effects on the Aquatic Ecosystem
(consider requirements in Section 230.11(g))

The proposed project would not have any significant cumulative effects on the aquatic ecosystem. The proposed project would result in the creation of approximately 3.0 acres of additional riparian habitat and the addition of 1,177 linear feet of IWM, an increase of the base line for listed salmonids a key indicator species of river health. Cumulative effects on the aquatic should be considered beneficial.

h. Determination of Secondary Effects on the Aquatic Ecosystem
(consider requirements in Section 230.11(h))

The proposed project would not have any secondary effects on the aquatic ecosystem. The proposed project would result in the creation of approximately 3.0 acres of additional riparian habitat and the addition of 1,177 linear feet of IWM, an increase of the base line for listed salmonids a key indicator species of river health. Any secondary effects on the aquatic should be considered beneficial.

III. Findings of Compliance or Non-Compliance with the Restrictions on Discharge

a. Adaptation of the Section 404(b)(1) Guidelines to this Evaluation

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

b. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Impact on the Aquatic Ecosystem There were no alternatives identified that would have significantly less adverse effects on the aquatic ecosystem than the proposed alternative.

Summary

c. Compliance with Applicable State Water Quality Standards and
d. Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 of the Clean Water Act

State water quality standards would not be violated. The proposed action would not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

e. Compliance with Endangered Species Act (ESA) of 1973

Consultation with USFWS and NOAA Fisheries was initiated on February 16, 2006.

f. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972

Not applicable.

g. Evaluation of Extent of Degradation of the Waters of the United States

(1) Significant Adverse Effects on Human Health and Welfare

The proposed project would not cause significant adverse effect on human health and welfare, including municipal and private water supplies, recreation and commercial fishing. Construction activities would affect benthic communities and plankton. There would be temporary adverse effects to fish, shellfish, wildlife or special aquatic sites. The proposed project would not significantly affect recreation or economic values. Temporary effects to esthetics would occur during construction.

h. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem

i. On the Basis of the Guidelines, the Proposed Disposal Site(s) for the discharge of fill material complies with the requirements of these guidelines.

Appropriate and practicable steps to minimize potential adverse effects of discharge and fill on the aquatic ecosystem include: placing fill material only where it is needed for the proposed project and confining it to the smallest practicable area. The areas disturbed by construction would be returned as close as possible to pre-project conditions where practicable.

On the basis of the guidelines, the proposed project is specified as complying with the inclusion of appropriate and practical conditions to minimize pollution or adverse effect on the aquatic ecosystem.

Appendix E. Air Quality Emissions Data

Road Construction Emissions Model, Version 5.1											
Emission Estimates for ->		Sacramento River Bank Projection Project				Exhaust	Fugitive Dust				
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)					
Grubbing/Land Clearing	0	3	0	0	0	0					
Grading/Excavation	40	292	244	19	14	5					
Drainage/Utilities/Sub-Grade	0	5	0	0	0	0					
Paving	0	4	0	0	0	0					
Maximum (pounds/day)	40	292	244	19	14	5					
Total (tons/construction project)	1	6	6	0	0	0				<-tons	
Notes:	Project Start Year ->	2005									
	Project Length (months) ->	4									
	Total Project Area (acres) ->	10									
	Maximum Area Disturbed/Day (acres) ->	1									
	Total Soil Imported/Exported (yd ³ /day)->	725									
PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.											
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.											
Emission Estimates for ->		Sacramento River Bank Projection Project				Exhaust	Fugitive Dust				
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)					
Grubbing/Land Clearing	0	2	0	0	0	0					
Grading/Excavation	18	133	111	8	6	2					
Drainage/Utilities/Sub-Grade	0	2	0	0	0	0					
Paving	0	2	0	0	0	0					
Maximum (kilograms/day)	18	133	111	8	6	2					
Total (megagrams/construction project)	1	6	5	0	0	0				<-megagrams	
Notes:	Project Start Year ->	2005									
	Project Length (months) ->	2									
	Total Project Area (hectares) ->	4									
	Maximum Area Disturbed/Day (hectares) ->	0									
	Total Soil Imported/Exported (meters ³ /day)->	554									
PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.											
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.											

APPENDIX F

Environmental Checklist Form

1. Project title: **_SACRAMENTO RIVER BANK PROTECTION PROJECT (SRBPP)
POCKET AREA EROSION SITES, SACRAMENTO CALIFORNIA**

2. Lead agency name and address:

The Reclamation Board

3310 El Camino Avenue
Room LL40
Sacramento, CA

Mailing Address:
P. O. Box 942836
Sacramento, CA 94236

3. Contact person and phone number:
Deborah Condon, Staff Environmental Scientist
Department of Water Resources DFM
(916) 574-0371, Dcondon@water.ca.gov

4. Project location:
Eight erosion sites along the left bank of the Sacramento River on the waterside of the Sacramento River Flood Control System levee at River Mile (RM) 49.6L, 49.9L, 50.2L, 50.4L, 50.8L, 51.5L, 52.4L and RM 53.1L within a 3.5 mile river reach bounded by Sutterville Road on the North and Freeport Boulevard on the south. The project area is located in Sacramento County in the southern portion of the City of Sacramento and adjacent to the Pocket Area neighborhood.

5. Project sponsor's name and address:
The project is jointly sponsored through the partnership under the Sacramento River Bank Protection Project by The State Reclamation Board and the U.S. Army Corps of Engineers.

The Reclamation Board

3310 El Camino Avenue, Room LL40
Sacramento, CA

Mailing Address:
Project
P. O. Box 942836

U.S. Army Corps of Engineers

1325 J Street
Sacramento, CA 95814

Attn: Sacramento River Bank Protection

6. General plan designation: Open Space, Park 7. Zoning: (F) Flood Zone
8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

Bank protection measures to be implemented at the eight erosion sites would include (1) protecting the toe of the bank with rock revetment both below and above the mean summer water level (MSWL) (2) placing one foot of soil fill on the revetment at elevations above the MSWL, (3) placing additional and preserving in-place existing in-stream wood material (IWM) clusters for fish habitat, and (4) planting pole and container plants to stabilize the bank and to provide riparian habitat and potential shade.

9. Surrounding land uses and setting: Briefly describe the project's surroundings:

The bank protection sites are bounded by the Sacramento River to the west, the levees of the Sacramento River Flood Control System to the east. The residential community of the Pocket Area of Sacramento is located on the landside of the levee. On the landside, Garcia Bend Park is just downstream of the southern limit of the project and Seymore Park near the up stream limits of the project.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)
US Army Corps of Engineers (partner under the Sacramento River Bank Protection Project) , State Lands Commission, U.S Fish and Wildlife Service, NOAA Fisheries, Regional Water Quality Control Board, Air Resources Board, State Office of Historic Preservation, CalTrans,

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|----------------------------------------------------------|---------------------------------------------------------------|------------------------------------------------------------|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology /Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input checked="" type="checkbox"/> Hydrology / Water Quality | <input type="checkbox"/> Land Use / Planning |
| <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population / Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input checked="" type="checkbox"/> Transportation/Traffic |
| Utilities / Service Systems | Mandatory Findings of Significance | |

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

Signature

Date

EVALUATION OF ENVIRONMENTAL IMPACTS: **SEE ATTACHED MND DOCUMENT**

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<p>III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:</p>				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>IV. BIOLOGICAL RESOURCES -- Would the project:</p>				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
the California Department of Fish and Game or US Fish and Wildlife Service?				
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
V. CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in '15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
cemeteries?				
VI. GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
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VII. HAZARDS AND HAZARDOUS MATERIALS B Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VIII. HYDROLOGY AND WATER QUALITY -- Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
sources of polluted runoff?				
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IX. LAND USE AND PLANNING -				
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
X. MINERAL RESOURCES --				
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
value to the region and the residents of the state?				<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XI. NOISE B Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XII. POPULATION AND HOUSING --

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XIII. PUBLIC SERVICES

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XIV. RECREATION --

a) Would the project increase the use of existing neighborhood and regional parks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XV. TRANSPORTATION/TRAFFIC --				
Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XVI. UTILITIES AND SERVICE SYSTEMS B Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project=s projected demand in addition to the provider=s existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project=s solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XVII. MANDATORY FINDINGS OF SIGNIFICANCE --				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?				<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Appendix G
California SHPO Section 106 Compliance



OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824

April 19, 2006

E. Scott Clark
Department of the Army
Corps of Engineers
1325 J Street
Sacramento, CA 95814-2922

Dear Mr. Clark

RE: Sacramento River Bank Protection Project, Pocket Area Erosion Sites

Thank you for requesting my comments on the above cited undertaking. The proposed undertaking includes 10 highly eroded levee locations on the Sacramento River in the city of Sacramento, Sacramento County. These 10 locations are located within river miles (RM) 49.6 to RM 53.1 of the east bank of the Sacramento River. My staff has reviewed the documentation you provided and I would like to offer the following comments.

You have defined the area of potential effect to be the section of river identified above and all staging areas necessary to implement the undertaking. I do not object to how you have defined the undertaking's area of potential effect.

Your staff conducted a record search and field survey of the entire area of potential effect. For the purposes of this undertaking the levee will be considered eligible for inclusion in the National Register of Historic Places. No other historic properties were identified within the undertakings area of potential effect. Repairs to the levee will include adding riprap, berm backfill, and landscaping that will restore the original prism shape of the levee and will maintain the original configuration of the levee. I concur with your determination that the proposed undertaking will not adversely affect historic properties.

If my staff can be of any further assistance, please contact Dwight Dutschke at 916-653-9134.

Sincerely,

A handwritten signature in cursive script that reads "Stephen D. Donaldson for".

Milford Wayne Donaldson, F.A.I.A.
State Historic Preservation Officer

Appendix H Response to Comments of Draft EA/IS

Sacramento River Front Association, April 30, 2006

Comment 1: Why are we putting rock under water instead of on the bank itself? Is the typical rock protection placed per Federal and State standards in the past 40 years under the original 1960 Congressional Authorization bill for the Sacramento Riverbank project somehow no longer working?

Response: Historically, the Sacramento River has been overloaded with sediment from historic hydraulic mining debris. While the river is still transporting significant quantities of sediment, there seems to be a trend showing significant scour at the toe during large flood events when most of the water flowing past Sacramento is coming from the American and Feather Rivers. The bank protection standards used 30 years ago are no longer addressing the current erosive forces along the river. The protection used in the past did not account for the estimated scour used to design current projects along the Pocket area. Scour estimates are typically 15 or more feet during a large flood event, with subsequent deposition following between events. Also, boat waves are contributing significant erosion along the summer water levels. In this area along the Pocket area, erosive forces are greater near the water line than higher up on the bank. Current studies indicate that existing vegetation is sufficient to control potential erosion in these higher areas; thus bank protection is not necessary. No change in EA/IS is needed.

Comment 2: There is a net loss of State Lands Commissions TIDAL land. Putting 7.5 acres of rock below the low water mark and raising the river bottom by 5 feet to bring it ABOVE the low water mark such that 3.0 acres of river bottom now stays high and dry most of the year is by definition no longer a bank protection project but a RIVER BANK WIDENING PROJECT. Were FILL permits obtained to add 3 additional acres of overflow land by filling in 7.5 acres of Sacramento River bottom with 6 feet of rock and soil?

Response: The Corps of Engineers does not permit itself for Civil Works projects. The Corps prepared a Section 404 b(1) analysis (Appendix D of the EA/IS) that complies with the Clean Water Act. The Corps is obtaining permits from the Regional Water Quality Control Board for water quality certification. No change in EA/IS is needed.

Comment 3: There is a net loss of State Lands Commissions TIDAL land. The covering of 7.5 acres of land below the tidal mark will require a State Land's Commission(SLC) lease. Was a hearing scheduled for a SLC's Public meeting on such lease(s)?

Response: The Reclamation Board has filed an Application for an Amendment to the Master Lease for Sacramento River Bank Protection Project, PRC 7203.9. A meeting will be held on June 27 before the State Lands Commission. No change in EA/IS is needed.

Comment 4: The State Lands Commissions TIDAL land BOUNDARY is being moved towards the river----- not away from it. Historically, the biggest opposition to such revetment projects

by SLC's staff, its legal department and the PUBLIC members on SLC's current MAILING LIST'S occur when the beach is reduced. About 3 acres of sandy beaches will be lost in this project. Why is the EMS report not linked to the State Land's Commission (SLC) site? Please link it immediately and request the SLC schedule a public hearing on this. An unusual project like this requires discussion by the SLC, where-as a typical rock-slope protection project like those done over the past 40 years would not.

Response: The Reclamation Board has filed an application for an Amendment to the Master Lease for Sacramento River Bank Protection Project, PRC 7203.9. The application will be heard by the State Lands Commission at its June 27 meeting. The Corps is not familiar with the "EMS report" noted in the comment. No change in EA/IS is needed.

Comment 5: How can there be Federal or State funds for rock slope protection that does NOT meet any of the CURRENT standard design guidelines? What published standards or guidelines were used to design this work?

Response: Current designs are using the same scientific and engineering knowledge used in the past. In addition to past criteria, we now have much better analytical tools that reduce the need for very conservative designs. We also have a better understanding of the hydrology, hydraulics, and sediment transport of the Sacramento River system. A major shift in the designs has been required to address environmental effects caused by past and current projects. To address these issues, the design follows approaches outlined in guidance developed over the last decade. The following web sites provide some of that guidance. No change in EA/IS is needed.

http://www.nrcs.usda.gov/technical/stream_restoration/

<http://el.erdc.usace.army.mil/publications.cfm?Topic=technote&Code=emrrp> (see stream restoration section)

Comment 6: US ARMY engineers working on this project, have stated that rock placed underwater will eventually fill with silt, meaning there is an expectation that there will be accumulation not erosion of the river bottom there. If so why is there even a need to place so much rock underwater on the INSIDE bend of a river--- the accumulation zone?

Response: The locations selected for bank protection show active and significant erosion at the site. This is expected to continue as there is very little sign of deposition along the lower Sacramento River System. The levees are too close to the river to allow river migration, resulting in erosion along one side and deposition on the other. The deposition expected is not on the surface of sloping banks; it is within the voids inside the rock layer where the flow velocities are low enough for the sediment to settle out and on the relatively flat surface of the rock berm. No change in EA/IS is needed.

Comment 7: Why is the CUBIC Volume or Quantity of Rock / Linear Foot (16.4 CY/LF) placed along the riverbank almost 5 Times more than has been placed in past Sacramento Riverbank Protection projects (3.5CY/LF)? And after so much rock is placed how do we end up with just the low water erosion zone being protected?

Response: The thicker rock layer provides several benefits along the bank. It allows the riprap layer to be more flexible and self healing than a thin layer. Many of the thin layers placed recently are showing stress and failing. The thicker layer also allows more scour of the river bed where the thicker stone layer can launch onto the bank down into the scour while still providing support for the stone left on the upper bank. It also allows for more vegetation to grow through the rock layer and still protect the bank from erosion. No change in EA/IS is needed.

Comment 8: Did the original 1960 Congressional Bill that authorized the Sacramento Riverbank Protection Project even allow for a waiver of the Federal and State published design guidelines, particularly now that this work will raise the river's bottom and underwater sand bars above the Mean low flow mark?

Response: The long-term gradual loss of bank along the Pocket area has eroded well into the toe of the levee, and much of the historic berm has been lost. These designs are attempting to restore the bank and improve the stability of the levee. Looking at the overall cross section of the river, the bank protection rock fill is very small. Velocities and the duration of the flow along the upper bank of the river on most sites can be protected by sod. These designs are following more recent guidelines, and accounting for changes in river mechanics and wildlife habitat considerations than those from the 1960's. No waiver is necessary. No change in EA/IS is needed.

Comment 9: Why is it that so much river bottom is being raised up that historical marina's like the Garcia bend marina can no longer be used?

Response: Effects on existing boat facilities have been considered and minimized, considering levee protection as the priority. No change in EA/IS is needed.

Comment 10: Why is the IWM, in-stream woody material, NOT actually in-stream? The new IIVM is being proposed at Elevation 11 feet and higher, where-as like at Miller Park it will be out of water most of the year and a visible eyesore and public nuisance tagged with graffiti. Why can't the IWM actually be placed in-stream like the Lighthouse marina Bank protection project? Lighthouse IWM is placed at Elevation 1.5 feet NOT at 11 feet.

Response: The IWM is being placed from elevation 5 to 11 feet NGVD as described in Section 2.5 of the EA/IS. The IWM will be inundated during summer/fall flows at the 5 feet NGVD, and the IWM above 5 feet NGVD will be inundated during winter and spring flows. Thus, it is considered IWM. The IWM is not being placed below 5 feet NGVD for ease of constructability. The IWM is being preserved/covered along the site, including that below 1 foot NGVD. The project will be revegetated, reducing the project effects to less than significant. No change in EA/IS is needed.

Comment 11: If the rock does indeed go out up 140 feet to out into the river, how can boaters anchor their boats there without getting their anchors snagged?

Response: There is always a chance of snagging an anchor in the river bottom affected by rock along the bank. No change in EA/IS is needed.

Comment 12: This rock will make it impossible to drive piles for future docks, a very important river access issue for landowners and boaters. How will this significant loss of private boat access be mitigated for riverfront property owners?

Response: Future piles would need to penetrate the rock layer; this is not considered impossible. No change in EA/IS is needed.

Comment 13: This rock eliminates the ability of future barges needed for FLOOD FIGHT or EMERGENCY levy repairs to anchor---They will be unable to drop down their own temporary piles (leads) to anchor with. How will future barges needed for emergency repair work anchor to the river bottom if it's covered with rock?

Response: Future flood fights would be at high water; as a result, this rock would not impede access by barge. We believe our action would not preclude the use of barges to conduct flood fighting. Piles would be able to anchor in the placed rock. No change in EA/IS is needed.

Comment 14: Areas along Surfside Way -RM 53.0--- have rock (installed in the 1970's) down to, but not over the underwater sandbar--- this allows boaters to still beach their boats on the river bank at low tide. The proposed rock work would eliminate this access. Can the rock bench be "SCARFED" so that natural sand benches or beaches form at various summer water elevations (3' to 6' sea level)? If not how will boat beach access be provided or mitigated for?

Response: Most of the sites are short enough that shore access is still available within a short distance. Because boat waves are one of the major sources of erosion, it is expected that the shore at longer sites will be protected by a bare rock surface. Soil or sand placed against the rock would most likely be washed off by waves. A dock may be needed to provide a tie-up location within the longer sites. No change in EA/IS is needed.

Comment 15: Somehow does less environmental damage occur by not placing 8.6 acres of rock up on the riverbank, but placing 8.6 acres of rock, instead, on the river bottom? That is, has it been determined that riparian land underneath the river is less environmentally sensitive than riparian land above the river, or is it a case of if it can't be seen it's not a problem?

Response: The construction design minimizes environmental damages while accomplishing the goal of erosion protection. Rock placed on the bank would have additional damages to the environment, while it would still be necessary to rock the river channel. No change in EA/IS is needed.

Comment 16: According to page 2 of the EA/IS report, the erosion is mainly taking place between elevations 2' to 8' NGVD. If so why is 75% of the rock being placed below elevation 2' NGVD? Should not the majority of rock be placed between 2' to 8' NGVD?

Response: The erosion from 2 to 8 feet is from wave wash, while the rock below that elevation is to protect from toe scour during rare but large flood events. No change in EA/IS is needed.

Comment 17: Can more rock be taken out of the river, and instead placed on the riverbank?

This would accomplish three things.

1. Most importantly it would reduce the amount of mitigation required.
2. It would reduce the placement of rock on the river bottom that will generate significant plumes of sediment, thus making it much easier to qualify for a waiver from the RWQCB.
3. It would also protect the bank during winter and flood flows rather than from just Summer recreational wake erosion.

Response: As stated previously, toe scour and wave action are the major causes of the bank erosion along this reach of the river. The scour is undermining the riprap at the summer water level, allowing it to slide down the slope and exposing the low-water bank line to wave erosion. The upper bank in general is not showing signs of erosion; more mitigation would be needed if rock was placed higher up the bank. A water quality application was submitted on April 6, 2006, to the CVRWQB. No change in EA/IS is needed.

Comment 18: Do the other Critical erosion sites (shown below) and elsewhere throughout California not follow the design standards of HEC 11, EM 11 10-2-1601, California Bank and Shore Protection manual and other standard BMP's Best Management Practices and design guidelines? Are these erosion sites employing the same design as the Pocket erosion sites? If not, why not?

Response: See response to comment 1 above. No change in EA/IS is needed.

Comment 19: Has a full scale hydraulic analysis of the entire river section been done for both before and after effects of the river's thalweg at low or summer flow? The placement 8.6 acres of a 5 foot thick rock layer on the inner bend (East BANK) of the river, will no doubt move the river's thalweg closer towards the Outer bend (West bank). Could movement of the river's thalweg towards the outer bend---West Sacramento side, threaten the RD 900 Levee there? Has RD 900 been informed of the EMS for the Pocket erosion work and give time to comment on this?

Response: The draft EA/IS was posted on the Sacramento District's website and Reclamation Board's website, and distributed to involved agencies. A notification letter was sent to landowners and residents within 500 feet of the project area, and a public notice was run in the Sacramento Bee on April 8, 2006. The public and affected parties had the opportunity to comment through May 7, 2006. As a result, RD 900 has had the time to comment on the proposed project; no comments from RD 900 have been received. The layer of rock is small as compared to the river cross-sectional effects on the opposite bank are insignificant. There is also ongoing bank protection on the West Sacramento side of the river to protect the RD 900 levee. The Corps is not familiar with the "EMS report" noted in the comment. No change in EA/IS is needed.

Comment 20: The IWM placed at elevation 11 feet proposes a higher risk of drowning to fishermen. The IWM will only allow winter migratory fish to seek shelter closer to the river's surface than normal, causing fishermen to use shorter lead lines. Ultimately bank fishermen's fishing lines will get tangled in the IWM and likely try wading or swimming in shallow water to unfree it. Typical or natural occurring IWM is usually below elevation 3', so much deeper that one wouldn't even think of trying to dive down that deep to untangle their fishing lines. Just this week a fisherman drowned off the Pocket Riverbank, specifically trying to untangle his fishing pole. Can the IWM be placed lower, at a more typical or natural elevation?

Response: The IWM occurs at various elevations along the river, especially if a tree has fallen onto the bank or into the river. The IWM is not necessarily inundated 100 percent of the time; standing riparian trees act as IWM during higher flows when inundated. We have no information stating that IWM is usually below or at elevation 3 feet NGVD, and IWM will be placed from 5 to 11 feet NGVD, while naturally occurring IWM will be preserved below 5 feet NGVD. The Corps does not endorse wading or attempting to untangle lines near placed or naturally occurring IWM. River users should always exercise caution when near river systems, especially when water temperatures are low and river flows are high. No change in EA/IS is needed.

Comment 21: 1) Will fencing be used to restrict access for several years to insure th habitat restoration is in fact successful?

2) Will concrete ramps or stairs be constructed over previously place rip rap areas with already established vegetation to encourage humans, dogs and others to congregate along the river's water.

3) Will there be some sort of guarantee that habitat restoration efforts actually be successful, unlike those the Army Corps promised to do at the DaRosa Site but never materialized?

Response to 1) above: Fencing will be used to restrict access to the revegetation area by beavers. Fencing higher than 4 feet to preclude human disturbance will not be installed; signs will be posted to alert the public that a revegetation project is in progress.

Response to 2) above: No concrete ramps or stairs will be constructed over previously placed riprap to encourage human use of the sites.

Response to 3) above: Each site will be maintained by a revegetation contractor for 3 years following construction. Additionally, each site will be monitored for 5 years following construction. If the revegetation efforts do not meet expected revegetation targets by year 5, the Corps could be required to implement revegetation efforts at the sites for a longer period of time or implement additional effort offsite to make up for any shortfalls. No change in EA/IS is needed.

Comment 22: Why did the City of West Sacramento Light House Marina Bank Stabilization project have to do a full Environmental Impact Report for their Riverbank work? Why is the Pocket work now exempt from this requirement?

Response: The City of West Sacramento would have prepared an Environmental Impact Report for their riverbank work if they had determined that their project had significant effects to the human environment according to the California Environmental Policy Act. The Corps and Reclamation Board prepared the Supplement Environmental Impact Statement/Environmental Impact Report IV for the Sacramento River Bank Protection Project in 1987, which disclosed the project's significant effects. The SEIS/EIR IV for the SRBPP required that an EA/IS be prepared for each site or suite of sites to be constructed under the SRBPP. This EA/IS serves as that document and is compliant with NEPA and CEQA.

The Initial Study and Mitigated Negative Declaration is tiered off the Joint Programmatic Sacramento River Bank Protection Project, Environmental Impact Statement/Environmental Impact Report, 1988. Since 1988, all SRBPP work performed by the Corps and the Reclamation Board has been conducted with Environmental Assessments/Initial Studies and Findings of No Significant Impact and Mitigated Negative Declarations tiered to the Programmatic EIS/EIR. No change in EA/IS is needed.

Comment 23: The placement of 8.6 acres of rock along the channel bottom will eliminate muddy bottom feeding habitat for Sturgeon, and other threatened marine species and instead add 3 additional acres of overflow land into the Sacramento River Channel. The gain of 3.0 acres of over-flow land, leads to a loss of 3.0 acres of river bottom. How is this loss of underwater feeding ground for fish and other aquatic animal life to be mitigated?

Response: The EA/IS has analyzed the effects of the project on listed salmonids and delta smelt. The analysis shows an increase in habitat values for salmonids and a slight decrease in values for delta smelt. The Sacramento River system in this area is constrained by the levee system with limited flood plains and an abundance of channel bottom when compared to flood plain. No mitigation is necessary since an abundance of river channel exists and species would move to forage in other areas of the channel bottom. No significant effects to green sturgeon and other threatened maritime species are anticipated. No change in EA/IS is needed.

Randy Ross, resident of the Pocket Area, April 26, 2006.

Comment:

I am excited that repairs to the levee are finally scheduled to be made. I have watched how year after year, survey after survey, and report after report the levee continues to erode and little gets done. I just hope that this is the year that the repairs are finally made.

After reviewing your draft report, it seems to me that the revetment is being placed too far out into the river and not enough is being placed on the bank to protect the integrity of the levee. Although protecting the environment is a major priority, our main concern should be repairing the levee and doing preventative maintenance so that we do not have these critical erosion sites every year. If the levee was to fail, the resultant damage to the environment and the impact on the fish population would be much worse

than any damage done while making repairs to the levee. Instead of trying a new design of placing revetment 100 feet out into the river and five feet thick, I think standard procedures and design guidelines that have been tried before and have proven successful should be used. Bank stabilization that includes digging a trench at the base of the slope, making a footing of rock and then placing rock up the slope would seem more beneficial and effective. This would take much less rock per linear foot than "Alternative 1" and this also would not affect the flow of the river as much as "Alternative 1" (adding 100 ft of rock five feet thick to the east bank of the river would seem to increase the flow and pressure on the west bank of the river). During the last five months, the river has been higher, for a longer period of time than I can remember. I suspect that there is a new emphasis to have increased storage capacity in the reservoirs and that the river levels will now be consistently higher than they have been in the past. If this is true, then the old mean summer water levels are no longer valid and the wave wash erosion is going to be at a higher elevation than in the past. The river has been over 20' for most of the winter and I suspect it will be between 15 and 20 feet for a few more months. Placing the revetment up to 10 feet is not going to protect the toe of the levee as most of the erosion does not occur below the water level, most will occur at or above the water level. The revetment needs to be up to the 20' elevation level.

I have taken several pictures of the erosion site at 51.5 over the last several years and the erosion has been between 10 and 20 feet with most of erosion at the elbow of the berm as indicated in the following pictures.

Although the current draft report is for repairing eight critical sites, I think the money and effort should be used to repair and upgrade a larger section of levee. Use the same amount of rock on a much longer section of the levee. Don't put the rock as far out onto the river bottom nor as thick as 5 feet. This would help protect a larger section of our levee and lower the amount of maintenance that District 9 would have to do each year and would decrease the number of new critical sites that would appear in the future. This would seem to accomplish the goal "to implement bank protection measures to prevent ongoing streambank erosion and achieve FEMA certification of the 100-year flood plain along the Sacramento River."

Response: These bank protection repairs are addressing two erosive forces that are now becoming much more significant than in recent history. One is boat waves, and the other is channel scour during rare, but large, flood events expected to average about 15 feet. Most bank protection failures are from toe scour. It is expected that after a few large events, much of the rock will have launched onto a channel bank below the current river bed. Between storm events, the river bed will again fill in with sand deposits along the shore. It is true the river has been at a high stage for a long period this year. We may find more erosion when the water level goes down this summer. We are not aware of any proposed changes to the system operation that would have a significant effect on the summer water levels through this reach of the river. One of the features added to this work is approval to maintain and replenish the bank protection, including the upper banks along the sites, without the need for new permits. No change in EA/IS is needed.

Richard Hartzell, PE and resident of the Pocket area, May 3, 2006

Comment:

After waiting for years I'm glad to hear that the erosion protection work is FINALLY actually going to get done behind my house. In the past I had worked with AI Romero of Maintenance Area 9 in trying to get any rip-rap work, no matter how small, placed on the eroding berm supporting the levee. AI is now retired and expressed frustration that dog owners and hikers in the area had blocked his attempts to rip-rap the area by forcing DWR to do a full Biological assessment before doing any such work.

After waiting for nearly a decade, I was very disappointed to find out that the proposed rip-rap work still won't stop the berm erosion. Instead the proposed project is completely unlike anything done before, placing a 5 foot thick rock layer versus the standard 18 Inch thick rock layer--- on the river's bottom down to 20' feet BELOW sea level. For the past 40 years bank slope protection everywhere else in the State has put such Rock up to the HIGH Water or Design Flood elevation. Apparently out of sight and out of mind" is now the motto for such rock.

Ultimately is placing 8.62 acres of rock below the SUMMER water elevation somehow less damaging than 8.62 acres of rock instead placed above this, or Is It really just less visible?

The focus for this Emergency work has been so much on the -Environmental, Biological or Political issues that it "missed the boat- so to speak. It does NOT actually solve the main issue - that is EROSION of the Levee and Riverbank above the summer water level. Rock placed below the summer or low water mark may address the other issues, but it does NOT address the actual erosion taking place on the INSIDE BEND of the river during Winter water flows.

To proceed with an unusual or unique project to meet biological OPINIONS without a full EIR study is dangerous. The reason is such OPINIONS change with time, however the LAWS of NATURE and the processes causing the EROSION do NOT change, and they are constant with time. Staff of the various governmental agencies involved is constantly changing, and as such the political opinions governing this work are in constant flux. Ignoring standard design methods for rock slope protection may first appear to solve issues long outstanding but ultimately will only raise issues of even greater significance and detrimental impact.

The Emergency work should focus on using the same standard procedures and design guidelines used to place rock over the last 40 years under the 1960 Congressional bill that authorized the Sacramento Riverbank Protection Project in the first place. That is not to say that appropriate mitigation measures need to no longer be taken, for they should still be done ---including even going back to mitigate for previous rock already placed.

If such standards can no longer be done due to "biological" or "environmental" concerns then at least an alternative would be to use a project like the LIGHTHOUSE MARINA Bank stabilization project that already had a FULL Environmental Impact Report done and received a permit (# 16137) from the Reclamation Board In 1997.

Response: See responses to comments 1 and 22 above.

May 5, 2006

Mr. Donald Lash
Environmental Manager
U.S. Army Corps of Engineers
1325 J Street
Sacramento, CA 95814

**Subject: Draft Environmental Assessment/Initial Study/Finding of No Significant Impact for the Sacramento River Bank Protection Project, Pocket Erosion Sites, Sacramento, California
AQMD No: SAC200600973**

Dear Mr. Lash:

Thank you for submitting the Draft Negative Declaration/FONSI (Draft) for the Sacramento River Bank Protection Project (Pocket Erosion Sites) to the Sacramento Metropolitan Air Quality Management District (District) for review. District staff comments follow.

The Draft states that the CEQA threshold for PM10 is 275 pounds per day. In 2002, the District revised its CEQA thresholds from a pound-per-day threshold to a concentration based threshold. The current threshold for PM10 is set at 50 $\mu\text{g}/\text{m}^3$ averaged over a 24 hour period.

The Draft identifies several mitigation measures to be applied to the project. Those standard measures have been revised by the District as well. District staff recommends that the mitigation measures in the attached document be applied to the project in place of those listed in the Draft. The first measure requires that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project achieve a project wide fleet-average 20 percent NOx reduction and 45 percent PM10 reduction. The second measure requires that off road equipment emissions do not exceed 40 percent opacity for three minutes in any one hour.

This project is subject to the District's rules and regulations in effect at the time of construction. I have attached a partial list of rules and regulations that may apply to this project. For a complete list, please call 916.874.4800 or visit www.airquality.org.

Please do not hesitate to contact me at 916.874.4876 or rdubose@airquality.org if you have any questions regarding this letter.

Sincerely,

Rachel DuBose
Assistant Air Quality Planner Analyst

C: Larry Robinson, Sacramento Metropolitan Air Quality Management District

Response: The comments have been incorporated into Section 4.5 of the Final EA/IS and construction contract, and will be implemented to the extent feasible during construction.

SMAQMD Recommended Mitigation for Reducing Emissions from Heavy-Duty Construction Vehicles

Only For Projects With Construction Emissions Above the CEQA Threshold of Significance

Revised December 9, 2005

Category 1: Reducing NOx emissions from off-road diesel powered equipment

The project shall provide a plan, for approval by the lead agency and SMAQMD, demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction¹ compared to the most recent CARB fleet average at time of construction; and

The project representative shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative shall provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.

and:

Category 2: Controlling visible emissions from off-road diesel powered equipment

The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supercede other SMAQMD or state rules or regulations.

¹Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

SMAQMD Rules & Regulations Statement

*The following statement is recommended as standard condition of approval or construction document language for **all** construction projects within the Sacramento Metropolitan Air Quality Management District (SMAQMD):*

All projects are subject to SMAQMD rules and regulations in effect at the time of construction. A complete listing of current rules is available at www.airquality.org or by calling 916.874.4800. Specific rules that may relate to construction activities may include, but are not limited to:

Rule 201: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD prior to equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact the District early to determine if a permit is required, and to begin the permit application process. Portable construction equipment (e.g. generators, compressors, pile drivers, lighting equipment, etc) with an internal combustion engine over 50 horsepower are required to have a SMAQMD permit or a California Air Resources Board portable equipment registration.

Rule 403: Fugitive Dust. The developer or contractor is required to control dust emissions from earth moving activities or any other construction activity to prevent airborne dust from leaving the project site.

Rule 442: Architectural Coatings. The developer or contractor is required to use coatings that comply with the volatile organic compound content limits specified in the rule.

Rule 902: Asbestos. The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of asbestos containing material.

Other general types of uses that require a permit include dry cleaners, gasoline stations, spray booths, and operations that generate airborne particulate emissions.

Response: The comments have been incorporated into Section 4.5 of the Final EA/IS and construction contract, and will be implemented to the extent feasible during construction.

Bill Howard

6622 Benham Way
Sacramento, CA 95831
(916) 422-4433

5 May 2006

Comment: Board of Reclamation Members:

My family and I live at 6622 Benham Way and own property adjacent to your proposed work for flood control. We also own a dock in and above the area of the project. I have several questions with respect to the anticipated remedies submitted by

1) How does putting rock under water help control levee erosion on the bank itself during high water?

Response: Historically, the Sacramento River has been overloaded with sediment from historic hydraulic mining debris. While the river is still transporting significant quantities of sediment, there seems to be a trend showing significant scour at the toe during large flood events when most of the water flowing past Sacramento is coming from the American and Feather Rivers. The bank protection standards used 30 years ago are no longer addressing the current erosive forces along the river. The protection in the past did not account for the estimated scour used to design current projects along the Pocket area. Scour estimates are typically 15 or more feet during a large flood event, with subsequent deposition following between events. Also, boat waves are contributing significant erosion along the summer water levels. Trees would not be removed during construction and placement of rock along the bank. Removal of trees and their root masses would cause more disturbances and could affect the integrity of the levee. More fill would be needed, and changes in the design to address large root mass cavities would be costly.

2) Who is responsible for our existing dock after completion of the work as it will thereafter be unusable during the summer and fall months?

Response: The dock is outside the designated work/construction area and would not be affected by activities associated with the project. The contractor would avoid this dock during construction activities adjacent to the structure. No change in EA/IS is needed.

Sincerely
BILL HOWARD



DELTA PROTECTION COMMISSION
14125 River Road
PO Box 530
Walnut Grove, CA 95690

May 5, 2006

Mr. Scott Morgan
State Clearinghouse
PO Box 3044
Sacramento, California 95812-3044

SUBJECT: Initial Study Mitigated Negative Declaration for Sacramento River Bank Protection project, Pocket Area. Sacramento County (SCH #2006042037)

Dear Mr. Morgan:

The staff of the Delta Protection Commission (Commission) has reviewed the subject document dated April 7, 2006. From the information provided staff has determined that the proposed project is located within the Secondary Zone of the Legal Delta. Actions for approval or denial of projects in the Secondary Zone are not subject to appeal to the Commission. However, the environmental analysis for the proposed project should address any potential impacts to the resources of the Primary Zone resulting from activities in the Secondary Zone.

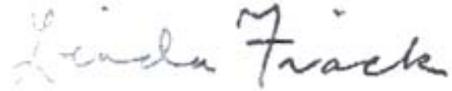
The Delta Protection Act (Act) was enacted in 1992 in recognition of the increasing threats to the resources of the Primary Zone of the Delta from urban and suburban encroachment having the potential to impact agriculture, wildlife habitat, and recreation uses. Pursuant to the Act, a Land Use and Resource Management Plan for the Primary Zone (Management Plan) was completed and adopted by the Commission in 1995.

The Management Plan sets out findings, policies, and recommendations resulting from background studies in the areas of environment, utilities and infrastructure, land use, agriculture, water, recreation and access, levees, and marine patrol boater education/safety programs. As mandated by the Act, the policies of the Management Plan are incorporated in the General Plans of local entities having jurisdiction within the Primary Zone, including Sacramento County.

The potential for short-term construction-related impacts relative to the proposed project to impact the resources of the Primary Zone, particularly with respect to the policies and recommendations in the Water and Levees sections of the Management Plan should be analyzed for consistency with the Act and the Management Plan. Both documents are available for your reference at the Commission's website, www.delta.ca.gov.

Thank you for the opportunity to provide input on this project. You may contact me at (916) 776-2292 or lindadpc@citlink.net if you have any questions about the Commission or the comments provided herein.

Sincerely,

A handwritten signature in cursive script that reads "Linda Fiack". The signature is written in dark ink on a white background.

Linda Fiack
Executive Director

Cc: Deborah Condon State Reclamation Board
Chair, Sacramento County Board of Supervisors

BACKGROUND FOR REPLY TO CEQA/NEPA REVIEW FOR POCKET AREA

DELTA PROTECTION COMMISSION WATER AND LEVEE SECTIONS EXTRACTED FROM THE MANAGEMENT PLAN

LEVEES

Constructed levees are the key physical element which create and maintain the Delta as we know it today, allowing draining of the low-lying lands for agriculture. The levees protect human life and existing structures from flooding, define channels used for commercial navigation, create the Yolo Bypass, part of a regional flood control project, protect the upland habitat areas on the islands, and protect Delta water quality.

Largely due to subsidence, the failure of levees would result in flooded areas of substantial depths. Flood levels of fifteen (15) to twenty (20) feet can be expected at some locations. Due to wind and boat wave action, even the levee remnants and the habitat thereon will be eroded away as a result of a levee failure. Inundated areas will be similar to the areas known as Franks Tract and Mildred Island but with greater water depths. When levees in the Delta fail, there is a tremendous loss of wildlife habitat within the particular area flooded and the habitat remaining on the levee remnants is gradually eroded away. In addition to habitat losses, there is generally a significant loss of crops and destruction of farm equipment and farm buildings.

There are also other impacts associated with levee failures in the Delta including, but not limited to, severe alteration of the aquatic habitat that should also be recognized and noted. The levees surrounding the eight western islands have been determined to be of significance in maintaining the efficiency of salinity repulsion. Without such levee systems in place, greater amounts of freshwater will be required to provide comparable levels of salinity repulsion. When an island floods, due to the higher evaporation rate of flooded areas, more freshwater is lost to the atmosphere than would be used had the island been farmed. The result is an additional loss of about two acre feet per acre per year. This freshwater loss could be very significant if broad areas of the Delta were permanently flooded.

The levees were originally built by individual landowners to provide flood control. Later, reclamation districts were created which allowed the landowners in an area to assess themselves to build levees which benefited the group as a whole. These levees were not built to a common standard and are called "non-project levees" or "local levees". "Project levees" or "federal levees" were designed and built by a federal agency as part of a flood control or shipping channel project and are maintained by the State or a local agency. Some locally constructed levees were subsequently adopted as federal levees.

Different standards have been adopted in the past regarding the growth and removal of vegetation on the levees. The construction-oriented agencies support vegetation control to allow maximum surveillance of the levees. Wildlife agencies promote growth of riparian vegetation to provide wildlife habitat. Agencies have recently adopted a new common standard.

While early levees were built to different heights and cross-sections, programs now require that non-project (local) levees at least meet the State's Flood Hazard Mitigation Plan standards to be eligible for federal financial assistance in case of a flood. The standard requires a levee crown elevation one foot above the 100 year flood elevation. In addition, to be eligible for Corps assistance in a Presidential-declared Delta emergency, levees must meet or be able to show attempts to meet the PL-99 standard. The PL-99 Standard requires a levee crown elevation 1.5 feet above the 100 year flood elevation.

Most levees were constructed from materials dredged from low-lying edges of islands, or adjacent channels. Emergency levee repairs have required importation of large amounts of riprap and other materials. Due to current concerns about the impacts of clamshell dredging on endangered fish species and water quality, dredging for levee maintenance has slowed. Other sources of material for levee maintenance are borrowed from island deposits or imported into the Delta.

Until the late 1970's, a significant portion of levee construction and maintenance costs were borne by the landowners. Under conditions, special funds from both State and federal programs provided assistance in emergencies. The State currently provides some funds for levee maintenance of non-project (local) levees. The State's current program, SB 34, is slated to sunset in 1999 and the monies in the program have varied from year to year. To continue high levels of levee maintenance, funds from multiple sources should be earmarked for a new or continued, permanent levee maintenance program. In addition, funds should be earmarked and set aside for emergency levee repairs and reclamation of flooded islands, perhaps in an infrastructure bank.

Levee maintenance work is regulated by multiple State and federal agencies. The regulatory authority and mission of the agencies is overlapping and in some situations contradictory. The length of time required and the amount of specialized information needed to obtain permits adds a considerable amount to the per mile cost of levee maintenance. The levee maintenance work is critical to maintain water quality in the Delta, to protect life and property, and to protect upland wildlife habitat. Emergency floodfight is coordinated by Department of Water Resources (DWR) and the reclamation districts. In an emergency, DWR can help provide labor and other resources. After a levee break, the reclamation district must coordinate with federal agencies to receive assistance for levee repair and dewatering.

Goal: Support the improvement and long-term maintenance of Delta levees by coordinating permit reviews and guidelines for levee maintenance. Develop a long-term funding program for levee maintenance. Protect levees in emergency situations. Give levee rehabilitation and maintenance the priority over other uses of levee areas.

Levees Findings:

F-1. Many Delta levees were originally built atop low natural levees along the waterways. The construction of higher levees was possible after the invention of the clamshell dredge. The levees were built of available material, without engineered designs.

F-2. The cost of constructing and maintaining the levees was born by the landowners and later by groups of landowners within reclamation districts. The reclamation districts are special districts created by the State that can assess landowners for the purpose of levee maintenance and drainage.

F-3. Large scale federal flood protection and navigation projects include about 25% of the Delta levees. These "project" levees were designed and constructed to standards set by the federal government on a case-by-case basis and are largely maintained by the State or other local agencies.

F-4. Local governments have responsibility to manage flood plains by controlling land uses and specific construction projects within the flood plains.

F-5. Guidelines for management of vegetation on levees promote grasses and limited tree growth allowing easy visual inspection and protection of the integrity of levees.

F-6. Where levees which are not routinely stripped of vegetation and become heavily vegetated, levee maintenance work will require removal of that vegetation; that loss of vegetation will likely require mitigation under the California Environmental Quality Act. Mitigation means replacement of the habitat which is removed, on site or nearby. The replacement ratio may be larger than the acreage removed.

F-7. For non-project levees to be eligible for FEMA assistance in a Presidential declared disaster, reclamation districts must bring levees to the Flood Hazard Mitigation Plan standards. Those standards currently are: one foot of freeboard above the 100-year flood frequency water-surface elevation; 16 foot crown width; water side levee slopes of 1.5 to 1; and land side levee slopes of 2 to 1 or flatter. For non-project levees to be eligible for Corps' assistance in a Presidential declared Delta disaster levees must meet PL-99 standards. Those standards are: 1.5 feet above 100 year flood frequency water surface elevation; 16 foot crown width; water side levee slopes of 2 to 1; and land side levee slopes of 3 to 1 to 5 to 1, depending on height of levee and depth of peat.

F-8. Materials for levee construction and repair have routinely been dredged from adjacent waterways. Environmental regulations to protect endangered fish and other restrictions have limited access to this traditional source of material. Historically lower costs of using dredged material have been offset by increased regulatory costs. Other sources of levee maintenance material include: on-island deposits; quarries; construction projects, including habitat enhancement projects; and spoils from authorized maintenance dredging projects by ports or flood control districts.

F-9. Historically, all costs of levee maintenance fell on the landowners, even though multiple beneficiaries of the levees have been identified. Currently, assistance from the State is available to reclamation districts for maintenance of non-project levees under the Delta Levee Maintenance Subventions Program, due to expire January 1, 1999. No federal funds are provided for the State's levee maintenance program. Federal property owners are not subject to

reclamation district assessments. No federal or State funds are available to share routine maintenance costs of most Project levees with the local agency responsible for that maintenance.

F-10. To participate in the State-funded levee maintenance program, the reclamation districts are required to prepare additional environmental analysis, prepare more detailed engineering plans, obtain state and federal permits, and provide mitigation to offset unavoidable losses of habitat. These conditions have resulted in higher per mile costs of levee maintenance.

F-11. Due to the many State and federal regulatory agencies with authority in the Delta, lack of coordination between those agencies, and continually evolving issues, the length of time to obtain approvals for levee maintenance ranges from approximately six months to several years.

F-12. No special funds have been reserved exclusively for emergency levee repair work carried out by the State or reclamation districts. The State has several means to accomplish emergency work including Water Code Section 128, the California Emergency Services Act, interagency agreements, and funding from SB 34. Banks have recently indicated reluctance to accept warrants from reclamation districts limiting options for funding emergency work.

F-13. Loss of Delta levees could result in loss of life; lowered water quality for water diverted by local water systems and for export through the State and federal water systems; loss of freshwater due to increased evaporation; loss of property, including crops and structures; and loss of habitat. Rodent dens and tunnels, particularly those created by beaver and muskrat, can adversely affect levee stability and are thought to have been the cause of numerous levee failures.

F-14. Although no "active" faults have been identified in the Delta planning area, many Delta levees are built upon materials that would be inherently unstable in the case of a seismic event. A zone of buried thrust faults has been identified north-south along the western Delta; this type of fault was the source of the recent Northridge earthquake. Although no Delta island has flooded as the result of seismic activity, Delta levees could suffer major damage in the event of a large earthquake.

F-15. Delta levees are subject to a number of factors which adversely affect the stability of the levees. Many of the levee foundations are unstable materials. The subsidence of the peat soils on many of the islands has resulted in increased pressure on the levees from water in the adjacent channels. The levees are constantly subjected to erosion from natural and created causes including: flood flow, tides, wind waves, vessel wakes, and waters drawn into the State and federal water projects.

Levee failures can be identified principally by the major mechanisms of failure (stability, overtopping, or subsurface seepage erosion), then more specifically by contributing factors (subsidence, cracks, and fractures, encroachments, waterside erosion, deformation, seepage, sinkholes, rodent burrows, and poor foundation conditions).

Levees Policies:

P-1. Local governments shall ensure that Delta levees are maintained to protect human life, to provide flood protection, to protect private and public property, to protect historic structures and communities, to protect riparian and upland habitat, to promote interstate and intrastate commerce, to protect water quality in the State and federal water projects, and to protect recreational use of the Delta area. Delta levee maintenance and rehabilitation shall be given priority over other uses of the levee areas. To the extent levee integrity is not jeopardized, other uses, including support of vegetation for wildlife habitat, shall be allowed.

P-2. If levee guidelines are needed, local governments shall adhere to guidelines for federal and local levee maintenance and construction at a minimum as stipulated in the Flood Hazard Mitigation Plan guidelines developed by California Office of Emergency Services and the Federal Emergency Management Agency in the 1987 agreement, and set longer term goals of meeting Public Law 84-99 (Emergency Rehabilitation of Flood Control Works or Federally Authorized Coastal Protection Works), standards administered by the Corps of Engineers. If vegetation standards are needed, local governments shall adopt the adopted vegetation guidelines, which promote native grasses and limited vegetation on specific areas of the levee.

P-3. Through flood ordinances based on Flood Emergency Management Act model ordinances, developed by the International Conference of Building Officials and included in the Uniform Building Code, local governments shall carefully and prudently carry out their responsibilities to regulate new construction within flood hazard areas to protect public health, safety, and welfare. Increased flood protection shall not result in densities beyond those allowed under zoning and general plan designations in place on January 1, 1992, for lands in the Primary Zone.

P-4. Local governments shall ensure that existing programs for emergency levee repair should be strengthened and better coordinated between local, State, and federal governments and shall include: interagency agreements and coordination; definition of an emergency; designation of emergency funds; emergency contracting procedures; emergency permitting procedures; and other necessary elements.

P-5. Local governments shall use their authority to control levee encroachments that are detrimental to levee maintenance.

Levees Recommendations:

R-1. Levee maintenance, rehabilitation, and upgrading should be established as the first and highest priority of use of the levee. No other use whether for habitat, trails, recreational facilities, or roads should be allowed to unreasonably adversely impact levee integrity or maintenance.

R-2. Landowners, through reclamation districts, should pay a portion of levee maintenance costs. The overall citizenry of California and the United States that benefits from the state and federal water projects, commerce and navigation, travel, production of crops, recreation, and protection of fish and wildlife habitat should also pay a substantial portion of the cost of maintaining the

Delta levees. New programs of determining assessments on mineral leases and other beneficiaries should be evaluated by reclamation districts.

R-3. Due to the difficulty in identifying all the beneficiaries of both State and federal levees and the entities that cause adverse impacts to the levees, the simplest way to collect the funds needed to maintain the levees would be through non-fungable allocations from both the State and federal government to fund regular, on-going levee maintenance.

R-4. Where efficiencies of scale would result in cost savings and levee systems of two or more reclamation districts provide protection to the same area, the State and other regulatory agencies should consider approval of requests made by reclamation districts for such consolidation.

R-5. If funding is made available to the reclamation districts for levee maintenance, mitigation for removal of vegetation required to maintain existing levees should be coordinated through a memorandum of understanding between reclamation districts, State, and federal agencies, which results in minimal fiscal impacts to reclamation districts and which will result in "no net long term loss" of habitat in the legal Delta.

R-6. A "clearinghouse" for material suitable for levee maintenance should be created to assist in distributing appropriate materials to sites slated for maintenance work. Materials which have value for levee maintenance work, such as materials routinely dredged from Delta channels or materials otherwise excavated from within the Delta area, should be reserved first for levee maintenance work. Other uses should be considered only if the material is not needed or is unsuitable for levee maintenance work. Regulations should establish priorities for in-Delta use of soil excavated from within the Delta.

R-7. Study appropriateness of materials from other sources for levee maintenance and repair, similar to the Long Term Management Strategy prepared for the San Francisco Bay region.

R-8. To lower levee maintenance costs, streamlined permitting systems for authorization of dredging for levee maintenance and rehabilitation work, including the improvement of wildlife habitat and habitat mitigation sites, and for levee upgrading to mandated standards to protect public health and safety, should be instituted, with one state agency designated as lead agency and one federal agency designated as lead agency. Federal agency concurrence in such designations should be obtained.

R-9. The program for emergency levee repair should be strengthened. The program should include: definition of an emergency; designation of emergency funds; emergency contracting procedures; emergency permitting procedures and the designation of a State agency to provide immediate response to floodfight, close levee breaks, and dewater flooded areas where local agencies are unable to respond. An emergency program should develop a funding program to assist reclamation districts that are unable to pay such costs.

R-10. Maintain an inventory of the current status of Delta levees meeting various standards (HMP; PL-99; etc.).

R-11. Maintain an inventory of channel areas where toxic materials have been identified.

R-12. Levee maintaining agencies and fish and wildlife agencies should continue to cooperate to establish appropriate vegetation guidelines. Continuation of the SB 34 Program with its incentive funding for mitigation should be supported as the best way to accomplish the goals of levee maintenance with no net long term loss of habitat.

R-13. As much as feasible, levees should be designed and maintained to protect against damage from seismic activity. Those standards should not promote increased intensity or density of use beyond those designated as of January 1, 1992.

R-14. Support on-going U.S. Army Corps of Engineers studies and programs that could provide funding, flood protection, and environmental restoration on Delta islands, and support further involvement to improve regulatory streamlining and study beneficial reuse of dredged material.

WATER

In California, rainfall runoff and snowmelt are captured in reservoirs to redistribute to urban and agricultural customers and for environmental uses. About 75% of the State's water originates north of Sacramento; and about 75% of the State's water needs occur south of Sacramento.

Water bound for distribution through both the State Water Project and the federal Central Valley Project is taken from the south Delta. In addition, water to serve some Bay Area urban users is taken from the Delta. The State project has contracts to export up to 4.2 million acre feet per year from the Delta and the federal project another 3.3 million acre feet per year. Of the water in the two developed water systems, about 83% is used for agriculture and about 17% is for "urban" uses. About two-thirds of the State's population gets at least a portion of its drinking water from the Delta. In addition, Delta farmers also have rights to irrigate with water taken directly from Delta sloughs and channels.

Water quality in the Delta is regulated by the Regional Water Quality Control Boards through permit review of "point" discharges, such as discharges of treated water from sewage treatment plants and discharges to land. Water quality concerns related to drinking water include salinity intrusion, wastewater discharges, agricultural drainage water, trihalomethane precursor formation, and untreated stormdrain water.

The State Water Resources Control Board and the Regional Boards also designate beneficial uses of the State's waters. In the Delta, beneficial uses include: municipal and domestic supply; agriculture; industry; groundwater recharge; navigation; recreation; wildlife habitat; fish migration and spawning; and preservation of rare and endangered species.

During low flow and drought conditions, increased salinity of water of the western Delta can have a detrimental effect on agriculture in the area as well as the quality of drinking water supplies.

Water is being applied to some Delta lands to restore wetland habitats. This includes some areas proposed for permanent wetland status and thousands of acres of seasonally-flooded agricultural lands. Application of water can also result in enhanced habitat for mosquitoes, a recognized pest and health hazard.

Goal: Protect long-term water quality in the Delta for agriculture, municipal, industrial, water-contact recreation, and fish and wildlife habitat uses, as well as all other designated beneficial uses.

Water Findings:

F-1. Water flows from the Central Valley watershed into the Delta. The Delta's natural and constructed waterways transport water towards lower elevation areas and San Francisco Bay, and to the State and federal project pumps.

F-2. About 83% of the State's developed water is used for agricultural irrigation. Developed water means water stored and managed for urban, agricultural, or environmental uses.

F-3. Most Delta farms use water taken directly from Delta sloughs and rivers under riparian water rights through unscreened diversions.

F-4. Urban water users use about 17% of the State's developed water; residential water use is about half that amount.

F-5. Other water uses which use approximately 132 million acre feet per year include: wildlife habitat, salinity control, wild and scenic rivers, and other natural uses.

F-6. The Central Valley Regional Water Quality Control Board has designated the following beneficial uses in the Delta:

- Municipal and Domestic Supply
- Agricultural Supply: Irrigation and Stock Watering
- Industrial Process and Service Supply
- Groundwater Recharge
- Freshwater Replenishment
- Navigation
- Hydroelectric Power Generation
- Water-Contact and Nonwater-Contact Recreation
- Freshwater Habitat
- Preservation of Rare and Endangered Species
- Fish Migration/Fish Spawning

F-7. Water quality is regulated by the State Water Resources Control Board and both the Central Valley Regional Water Quality Control Board (Central and Eastern Delta) and the San Francisco Regional Water Quality Control Board (Western Delta) under both State and federal laws.

F-8. Use of water is regulated by the State Water Resources Control Board and by the federal government as it affects critical environmental issues.

F-9. Water in the Delta generally meets current standards for beneficial uses, including drinking water standards once the water is treated.

F-10. Water quality issues include: ocean salinity intrusion; materials carried in agricultural return waters; runoff from urban areas in the Delta watershed including discharge of treated municipal wastewater; formation of trihalomethane precursors and other disinfection by-products in drinking water resulting from chemicals added during water treatment processes; possible local problems associated with on-site sewage disposal; and on-land disposal of biosolids (sludge) and treated wastewater.

F-11. Salinity is a key Delta water quality issue which affects land use, and which is under regulation of State and federal agencies.

F-12. The impacts of non-point source discharges including agricultural discharges, both within and upstream of the Delta, are currently being studied and subjected to increasing regulation.

F-13. Water is needed to enhance seasonal and year-round wildlife habitat in the Delta such as flooding agricultural fields in fall and winter. Seasonal flooding is of particular value to migratory waterfowl.

F-14. Flooding in the Delta, if not properly managed can create habitat for mosquitoes, a concern where wetlands and population centers are near to each other.

F-15. Water-contact recreation is popular in the Delta and requires appropriate water quality.

F-16. Water regulators, water producers, and water consumers all hold interests and responsibilities for various aspects of the State's waters. The responsibilities of various agencies are set out in State and federal laws and regulations.

F-17. Transport of State and federal project water through the Delta does result in levee erosion and reverse flows and may detrimentally affect some fish species.

F-18. Recreational boating activities may degrade water quality by increasing turbidity, release of oily wastes, particularly from outboard motors, anti-fouling paints, and release of untreated sewage and other wastes.

F-19. Commercial shipping vessel activities may degrade water quality by increasing turbidity, releasing bilge water, and discharging other solid and liquid wastes.

F-20. The State has contracts, which are enforceable in court, with a number of entities in the Delta, including the North and South Delta Water Agencies and the East Contra Costa Irrigation District, that deal with specified needs in the Agencies' boundaries for water for agricultural use.

F-21. In 1992, Governor Pete Wilson established a comprehensive state water policy. In 1994, the Governor and the Secretary of the Interior, and others, signed the CALFED accord setting water policy for the next three years and outlining a new process for a long-term resolution of California's water issues.

Water Policies:

P-1. Local governments shall ensure that salinity in Delta waters allows full agricultural use of Delta agricultural lands, provide habitat for aquatic life, and meet requirements for drinking water and industrial uses.

P-2. Local governments shall ensure that design, construction, and management of any flooding program to provide seasonal wildlife habitat on agricultural lands shall incorporate "best management practices" to minimize mosquito breeding opportunities and shall be coordinated with the local vector control districts. (Each of the four vector control districts in the Delta provides specific wetland/mosquito management criteria to landowners within their district.)

P-3. Water agencies at local, State, and federal levels shall work together to ensure that adequate Delta water quality standards are set and met and that beneficial uses of State waters are protected consistent with the CALFED (see Water Code Section 12310 (f) Record of Decision dated August 8, 2000.

Water Recommendations:

R-1. The Delta waterways should continue to serve as a primary transportation system moving water to the State's natural and developed water systems.

R-2. Delta water rights should be respected and protected.

R-3. Programs to enhance the natural values of the State's aquatic habitats and water quality will benefit the Delta and should be supported.

R-4. Programs to regulate agricultural drainage in the Delta should be accompanied with education programs, be implemented over time, and should, where needed, provide financial assistance such as grants and interest-free loans to ensure compliance. Any regulation of Delta agricultural discharges must recognize that a) dischargers must be permitted to discharge back to the channels any dissolved solid loads that were derived from the channels in irrigation diversions and seepage inflows, and b) any net addition of dissolved carbon compounds must be compared to the addition of such compounds that would occur with any other land use option that would provide equal protection of the land and channel configuration and would consume no more water.

R-5. Water for flooding to provide seasonal and year-round wildlife habitat should be provided as part of State and federal programs to provide water for wildlife habitat.

R-6. Water quality monitoring programs should measure Delta waters to ensure they meet water-contact recreation and other water quality standards.

R-7. State and federal water projects are beneficiaries of the Delta waterways and levees; the projects should fund that portion of levee erosion caused by water transport and should continue programs that fund protection of Delta levees.

R-8. Water quality at Delta drinking water intakes should be maintained or enhanced.

Response: The Delta Protection Commission has determined the Sacramento River Bank Protection Pocket Erosion Sites Project is located in the Secondary Zone of the Legal Delta. Actions for approval or denial of projects in the Secondary Zone are not subject to appeal to the Commission. The Corps has reviewed the Land Use and Resource Management Plan for the Primary Zone and determined that affects to the Primary Zone are less than significant. The recommendations and policies addressed in this Management plan and are consistent with the Corps' determination and compliance with the Delta Protection Act of 1992.