D2 USACE Jurisdictional Determinations
Regulatory Division SPK-2009-00238

Lizette Crosbie
Sacramento Area Flood Control Agency
1007 7th Street, 7th Floor
Sacramento, California 95814

Dear Ms. Crosbie:

We are responding to your request for a preliminary jurisdictional determination (JD), in accordance with our Regulatory Guidance Letter (RGL) 08-02, for the Robla Creek site. The approximately 711.01-acre site is located near Dry Creek, east of the Natomas Basin, in Sections 5, 6, 7 and 9 of Township 9 & 10 North, Range 5 East, Latitude 38.66722° North, Longitude -121.46115° West, Sacramento County, California.

Based on available information, we concur with the estimate of potential waters of the United States, as depicted on EDAW’s November 5, 2009 drawings Robla Creek Wetland Delineation – Map 1 & 2 (copies enclosed). The approximately 144.21-acres of wetlands and other water bodies present within the survey area (as depicted on the map and summarized on the table provided on both Map 1 and 2) may be jurisdictional waters of the United States. These waters may be regulated under Section 404 of the Clean Water Act.

A copy of our RGL 08-02 Preliminary Jurisdictional Determination Form for this site is enclosed. Please sign and return a copy of the completed form to this office. Once we receive a copy of the form with your signature we can accept and process a Pre-Construction Notification or permit application for your proposed project.

You should not start any work in any potentially jurisdictional waters of the United States unless you have Department of the Army permit authorization, or if you intend to request an approved JD for this site. In certain circumstances, as described in RGL 08-02, an approved JD may later be necessary.

This preliminary determination has been conducted to identify the potential limits of wetlands and other water bodies which may be subject to Corps of Engineers' jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.
We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under Customer Service Survey.

Please refer to identification number SPK-2009-00238 in any correspondence concerning this project. If you have any questions, please contact Mary Pakenham-Walsh at U.S. Army Corps of Engineers Regulatory Division, California Delta Branch, 1325 J Street, Room 1480, Sacramento, CA 95814-2922, email Mary.R.Pakenham-Walsh@usace.army.mil, or telephone 916-557-7718. For more information regarding our program, please visit our website at www.spk.usace.army.mil/regulatory.html.

Sincerely,

ORIGINAL SIGNED

Kathleen A. Dadey, Ph.D.
Chief, California Delta Branch
Sacramento District

Enclosures

Copy Furnished without enclosures

Mr. Robert Solecki, California Regional Water Quality Control Board, Central Valley Region, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Mr. Paul Jones, U.S. Environmental Protection Agency, 75 Hawthorne St. (WTR-8), San Francisco, California 94105
California Department of Fish and Game, 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670
Ms. Sarah Bennett, EDAW, Inc., 2022 J Street, Sacramento, California 95811
July 24, 2008

Regulatory Division (SPK-2007-00211)

Sarah Bennett
EDAW, Inc.
2022 J Street
Sacramento, California 95811

Dear Ms. Bennett:

We are responding to your request, on behalf of the Sacramento Area Flood Control Agency, for an approved jurisdictional determination for a portion of the Natomas Levee Improvement Program Landslide Improvements Project (NLIP) site. This approximately 5,283-acre site is located in the Natomas Basin in Northern Sacramento and Southern Sutter Counties, California.

Based on available information, we concur with the estimate of waters of the United States, as depicted on your June 4, 2008, revised Maps 1-19. Approximately 212.3 acres of waters of the United States, including wetlands, are present within the survey area. These waters are regulated under Section 404 of the Clean Water Act, since they are tributary and adjacent to navigable waters of the United States, in particular the Sacramento River.

The 7.04 acres of features identified as Field Ditches on the above drawings appear to have been constructed wholly in and drain only uplands. As such, we do not consider these to be waters of the United States. This disclaimer of jurisdiction is only for Section 404 of the Federal Clean Water Act. Other Federal, State, and local laws may apply to activities in these features. In particular, authorization from the California State Water Resources Control Board and/or the U.S. Fish and Wildlife Service may be necessary.

This verification is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331.

A Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form is enclosed. If you request to appeal this determination you must submit a completed RFA form to the South Pacific Division Office at the following address: Administrative Appeal Review Officer, Army Corps of Engineers, South Pacific Division, CESP-D-PDS-O, 1455 Market Street, San Francisco, California 94103-1399, Telephone: 415-503-6574, FAX: 415-503-6646.

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been
received by the Division Office within 60 days of the NAP. Should you decide to submit an RFA form, it must be received at the above address by 60 days from the date of this letter. It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This determination has been conducted to identify the limits of Corps of Engineers' Clean Water Act jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

The extent of waters on other portions of the approximately 9,661-acre project site was separately verified under our identification numbers 200300776, 200600332, and 200600795. Based on available information, there are a total of approximately 610 acres of waters of the United States, in the overall NLIP area. This total does not include the Sacramento River itself which is outside of this project site.

We appreciate your feedback. At your earliest convenience, please complete our customer survey at http://www.spk.usace.army.mil/customer_survey.html. Your passcode is "conigliaro".

Please refer to identification number SPK-2007-00211 in any correspondence concerning this project. If you have any questions, please contact Mike Finan at our California North Branch, 1325 J Street, Room 1480, Sacramento California 95814-2922, email michael.c.finan@usace.army.mil, or telephone (916) 557-5324. You may also use our website: www.spk.usace.army.mil/regulatory.html.

Sincerely,

[Signature]

Mike Finan
Project Manager, Wetland Specialist

Enclosure(s)

Copy furnished without enclosure(s):

John Bassett, Sacramento Area Flood Control Agency, 1007 7th Street, 7th Floor, Sacramento, California 95814
William Marshall, Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive, #200, Rancho Cordova, California 95670-6114
Ken Sanchez, U.S. Fish and Wildlife Service, Endangered Species Division, 2800 Cottage Way, W-2605, Sacramento, California 95825
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

DEPARTMENT OF THE ARMY PERMIT

Permittee: Grant Joint Union High School District
Permit Number: SPK-2005-01087
Issuing Office: U.S. Army Engineer District, Sacramento
Corps of Engineers
1325 "J" Street
Sacramento, California 95814-2922

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below. A notice of appeal options is enclosed.

Project Description:

To place fill material into 1.8734 acres of waters of the United States, including 0.9 acre of stock pond, 0.22 acre of vernal pools, 0.72 acre of seasonal wetland swales and 0.03 acre of jurisdictional drainage ditch for the construction of a joint middle/high school, and associated infrastructure.

All work is to be completed in accordance with the attached plan(s).

Project Location:

South of Elkhorn Boulevard and north of Del Paso Road in Section 36, Township 10 North, Range 4 East, in Sacramento County, California, USGS Topographic Quadrangle Rio Linda; Latitude 38.6770° North, Longitude 121.4903° West.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on May 23, 2013. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal
and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in
the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space
provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions
specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is
attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to
ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

1. To mitigate for the loss of 1.8734 acres of waters of the United States, including 0.9 acre of stock pond, 0.22 acre
of vernal pools, 0.72 acre of seasonal wetland swales and 0.03 acre of jurisdictional drainage ditch, you shall purchase
3.9 acre vernal pool creation and 0.2 seasonal wetland creation credits at a Corps approved wetland mitigation bank.
Evidence of this purchase shall be provided to this office prior to proceeding with any activity otherwise authorized by
this permit. A list of approved mitigation banks has been included for your reference.

2. This Corps permit does not authorize you to take an endangered species, in particular the vernal pool fairy shrimp
(Branchiacta bryantii), vernal pool tadpole shrimp (Lepidurus packardi), or designated critical habitat. In order to legally
take a listed species, you must have separate authorization under the Endangered Species Act (e.g., an Endangered
Species Act Section 10 permit, or a Biological Opinion under Endangered Species Act Section 7, with “incidental take”
provisions with which you must comply). The enclosed Fish and Wildlife Service Biological Opinion, (Number 1-1-07-
F-0294), dated July 25, 2007, and (Number 1-1-07-F-0140, dated April 5, 2007, and the December 18, 2007 revision,
contains mandatory terms and conditions to implement and reasonable and prudent measures that are associated with
“incidental take” that is also specified in the Biological Opinion. Your authorization under this Corps permit is
conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the
attached Biological Opinion, which terms and conditions are incorporated by reference in this permit. Failure to comply
with the terms and conditions associated with the incidental take statement in the Biological Opinion, where a take of the
listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your
Corps permit. The Fish and Wildlife Service is the appropriate authority to determine compliance with the terms and
conditions of this Biological Opinion, and with the Endangered Species Act. You must comply with all conditions of this
Biological Opinion.

3. To document pre and post-project construction conditions, you shall submit pre-construction photos of the project
site prior to project implementation and post-construction photos of the project site within 30 days after completion of
authorized activities.

4. You must allow representatives from the Corps of Engineers to inspect the authorized activity and any mitigation,
preservation, or avoidance areas at any time deemed necessary to ensure that it is being or has been accomplished in
accordance with the terms and conditions of your permit.

5. You shall employ construction best management practices (BMPs) onsite to prevent degradation to on-site and
off-site waters of the U.S. You shall submit photodocumentation of your BMPs to our office within 30 days of
commencement of construction. Photos may be submitted electronically to regulatory-info@usace.army.mil.

6. You shall stabilize and protect against erosion any unstable fills in or adjacent to wetlands and other waters of the
U.S. by using appropriate erosion controls such as the use of matting, seeding, or other effective methods. The erosion
controls shall remain in place until all exposed areas are permanently stabilized.
7. You shall clearly identify the project limits in the field by using survey markers and/or construction fencing, prior to beginning any construction activities to ensure waters of the United States outside of the project footprint are not impacted. Identification of these areas shall be maintained until construction is complete. No heavy equipment or work is permitted in waters of the United States beyond those authorized through this permit.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

   ( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
   (X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

2. Limits of this authorization.
   a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.
   b. This permit does not grant any property rights or exclusive privileges.
   c. This permit does not authorize any injury to the property or rights of others.
   d. This permit does not authorize interference with any existing or proposed Federal projects.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:
   a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
   b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
   c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
   d. Design or construction deficiencies associated with the permitted work.
   e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant.

   Circumstances that could require a reevaluation include, but are not limited to, the following:
a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.
Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

[Signature]
Permittee

[Signature]
May 23, 2008
Date

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

[Signature]
Kathleen A. Dadey, PhD, Chief,
Sacramento Office
(For the District Engineer)

May 23, 2008
Date

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

Transferee

[Signature]
Date
June 29, 2005

Regulatory Branch (200300776)

Greg Rowe
Sacramento County Airport System
6900 Airport Boulevard
Sacramento, California 95837-1109

Dear Mr. Rowe:

We are responding to your consultant's request for an approved jurisdictional determination for the Sacramento Airport Land Management area. This approximately 2,838-acre site is located on or near the Sacramento River, in Sections 19, 30 & 31, Township 10 North, Range 4 East, and Sections 24, 25 & 36, Township 10 North, Range 3 East, M.D.B.&M., approximate Latitude 38° 41’ 19.7" & Longitude 121° 35’ 56.7", Sacramento County, California.

Based on available information and with the exception of the jurisdictional determinations on the map, we concur with the estimate of waters of the United States, as depicted on the May 5, 2005, SMF LMP Wetland Delineation Maps 1-4 drawings prepared by EDAW, Inc. Approximately 27.86 acres of waters of the United States, including wetlands, are present within the survey area. These waters are regulated under Section 404 of the Clean Water Act since they are tributary, or adjacent to a tributary, to the Sacramento River.

You have determined that hydrology for wetlands FM4 and FM5 are solely supported by a "leaky-pipe" and based on Regulatory Branch Memorandum (RBM) 2004-03 the wetlands are not jurisdictional. Although RBM 2004-03 only addressed "leaky-ditch" wetlands, for this case we believe RBM 2004-03 and RBM 2003-04 ("Irrigated" Wetlands) are applicable to this situation. Based on the available information, including topography, we believe there is uncertainty regarding the source of hydrology for these wetlands. In accordance with the above RBMs, we will assume that these wetlands are supported, at least partially, by natural hydrology, unless clearly demonstrated otherwise. Therefore, at this time, we consider these wetlands jurisdictional. If practical, we recommend you consider closing the valve to this pipe and monitoring the hydrology to clearly demonstrate the source of hydrology. Detailed topography and the exact location of the pipe relative to wetlands may also be helpful in determining the source of hydrology.
The wetlands identified as Swales 4, 5 and 9, acreages 0.04, 0.04 and 0.01 respectively, on the above drawings are intrastate isolated waters with no apparent interstate or foreign commerce connection. As such, these waters are not currently regulated by the Corps of Engineers. This disclaimer of jurisdiction is only for Section 404 of the Federal Clean Water Act. Other Federal, State, and local laws may apply to your activities. In particular, you may need authorization from the California State Water Resources Control Board and/or the U.S. Fish and Wildlife Service.

This verification is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. A Notification of Administrative Appeal Options and Process and Request for Appeal form is enclosed. If you wish to appeal this approved jurisdictional determination, please follow the procedures on the form. You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This determination has been conducted to identify the limits of Corps of Engineers' Clean Water Act jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

Please refer to identification number 200300776 in any correspondence concerning this project. If you have any questions, please contact Justin Cutler at our Sacramento Office, 1325 J Street, Room 1480, Sacramento, California 95814-2922, email Justin.Cutler@usace.army.mil, or telephone 916-557-5258. You may also use our website: www.spk.usace.army.mil/regulatory.html.

Sincerely,

[Signature]

Thomas J. Cavanaugh
Acting Chief, Central California/Nevada Section

Enclosure(s)
Copies furnished without enclosure(s):

Anne King, EDAW, Incorporated, 2002 J Street, Sacramento, California 95814
Camille Garibaldi, Federal Aviation Administration, 831 Mitten Road, Suite 210, Burlingame, California 94010
George Day, Storm Water and Water Quality Certification Unit, Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Oscar Balaguer, Chief, Water Quality Certification Unit, California State Water Resources Control Board, 1001 I Street, Sacramento, California 95814
U.S. Fish and Wildlife Service, Endangered Species Division, 2800 Cottage Way, Suite W2605, Sacramento, California 95825-3901
Richard Radmacher, Assistant Planner, Planning and Community Development Department, County of Sacramento, 827 7th Street, Room 230, Sacramento, California 95814-2406
Regulatory Branch (200300776)

Tim Hawkins
Associate Environmental Analyst
Department of Environmental Review and Assessment
827 7th Street, Suite 220
Sacramento, California 95814

Dear Mr. Hawkins:

We are responding to your request for an approved jurisdictional determination for the Sacramento International Airport Parcel South of I-5 site. This approximately 300-acre site is located on or near Section 19, 24, 25, 30, 31, 36, Township 10 North, Range 3, 4 East, MDB&M, Latitude 38° 41’ 19.7”, Longitude 121° 35’ 56.7”, Sacramento County, California.

Based on available information, we concur with the estimate of waters of the United States, as depicted on the map included in your February 8, 2006 submittal to Kathleen Daday of our office. Approximately 3.72 acres of waters of the United States, including wetlands, are present within the survey area. These waters are regulated under Section 404 of the Clean Water Act since they are tributary to the Sacramento River, or adjacent to a tributary of the River.

The water identified as an agricultural ditch in the February 8, 2006 report (shown as a yellow line in the north central portion of the aforementioned map) is an intrastate isolated water with no apparent interstate or foreign commerce connection. As such, this water is not currently regulated by the Corps of Engineers. This disclaimer of jurisdiction is only for Section 404 of the Federal Clean Water Act. Other Federal, State, and local laws may apply to your activities. In particular, you may need authorization from the California State Water Resources Control Board and/or the U.S. Fish and Wildlife Service.

This verification is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. This letter contains an approved jurisdictional determination for the airport’s potential expansion (parking lot). If you object to this verification, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this verification, you must submit a completed RFA form to the South Pacific Division Office at the following address:
Doug Pomeroy, Administrative Appeal Review Officer
Army Corps of Engineers, South Pacific Division
CESPD-PDS-O
333 Market Street, Room 923
San Francisco, California 94105-2195
Telephone: 415-977-8035
FAX: 415-977-8129

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the NAP. Should you decide to submit an RFA form, it must be received at the above address by May 20, 2006. It is not necessary to submit an RFA form to the Division Office if you do not object to the verification in this letter.

You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This determination has been conducted to identify the limits of Corps of Engineers’ Clean Water Act jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

Please refer to identification number 200300776 in any correspondence concerning this project. If you have any questions, please contact Ms. Kathleen Dadey at our Sacramento Office, 1325 J Street, Room 1460, Sacramento, California 95814-2922, email kathleen.a.dadey@usace.army.mil, or telephone 916-557-7253. You may also use our website: www.spk.usace.army.mil/regulatory.html.

Sincerely,

Thomas J. Cavanaugh
Acting Chief
Central California/Nevada Section

Enclosure(s)
Copy furnished without enclosure

/Greg Rowe, Sacramento County Airport System, 6900 Airport Boulevard, Sacramento, California 95837-1109
Camille Garibaldi, Federal Aviation Administration, 831 Mitten Road, Suite 210, Burlingame, California 94010
William Marshall, Storm Water and Water Quality Certification Unit, Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Oscar Balaguer, Chief, Water Quality Certification Unit, California State Water Resources Control Board, 1001 I Street, Sacramento, California 95814
U.S. Fish and Wildlife Service, Endangered Species Division, 2800 Cottage Way, Suite W2605, Sacramento, California 95825-3901
Richard Radmacher, Assistant Planner, Planning and Community Development Department, County of Sacramento, 827 7th Street, Room 230, Sacramento, California 95814-2406
Regulatory Branch (200600332)

Greg Rowe
Sacramento County Airport System
6900 Airport Boulevard
Sacramento, California  95837

Dear Mr. Rowe:

We are responding to your consultant's request for an approved jurisdictional determination for the Sacramento Intl Airport North site. This approximately 900-acre site is located adjacent to the Sacramento River, north of the Sacramento International Airport, in Township 10N, Range 3E, MDB&M, Latitude 38.722, Longitude 121.594, Sacramento County, California.

Based on available information, we concur with the estimate of waters of the United States, as depicted on Exhibit 3, Elverta North Wetland Delineation, dated August 23, 2006 prepared by EDAW, Inc.. Approximately 94.57 acres of waters of the United States, including wetlands, are present within the survey area. These waters are regulated under Section 404 of the Clean Water Act since they are adjacent and/or tributary to the Sacramento River or are adjacent to one of a number of ditches which are tributary to the Sacramento River. The Sacramento River is a navigable water of the United States.

This verification is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the South Pacific Division Office at the following address: Doug Pomeroy, Administrative Appeal Review Officer, Army Corps of Engineers, South Pacific Division, CESPD-PDS-O, 333 Market Street, Room 923, San Francisco, California  94105-2195, Telephone: 415-977-8035  FAX: 415-977-8129.

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the NAP. Should you decide to submit an RFA form, it must be received at the above address by November 28, 2006. It
is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This determination has been conducted to identify the limits of Corps of Engineers’ Clean Water Act jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

Please refer to identification number 200600332 in any correspondence concerning this project. If you have any questions, please contact at our Sacramento Valley Office, 1325 J Street, Room 1480, Sacramento, California 95814-2922, email kathleen.a.dadey@usace.army.mil, or telephone 916-557-7253. You may find additional information on our website: www.spk.usace.army.mil/regulatory.html.

Sincerely,

Kevin J. Roukey
Chief, Central California/Nevada Section

Enclosure(s)

Copy furnished without enclosure(s):

✓ Matt Wacker, EDAW, Inc. 2022 J Street, Sacramento, California 95814
Regulatory Branch (200600795)

John Bassett  
Sacramento Area Flood Control Agency  
1007 7th Street 7th Floor  
Sacramento, California 95814

Dear Mr.:

We are responding to your consultant’s request for an approved jurisdictional determination for the Natomas Cross Canal site. This approximately 340.0-acre site is located on or near Sacramento River in Section 56, Township 11 North, Range 4 East, MDB&M, Latitude 38° 48’ 25.4", Longitude 121° 33’ 59.4", Sutter County, California.

Based on available information, we concur with the estimate of waters of the United States, as depicted on the October 18, 2006, Natomas Cross Canal drawing prepared by EDAW. Approximately 271.22 acres of waters of the United States, including wetlands, are present within the survey area. These waters are regulated under Section 404 of the Clean Water Act, since they are a broad continuum of wetland features adjacent to the Natomas Cross Canal, which is a tributary to the Sacramento River.

This verification is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination, you must submit a completed RFA form to the South Pacific Division Office at the following address: Doug Pomeroy, Administrative Appeal Review Officer, Army Corps of Engineers, South Pacific Division, CESPD-PDS-O, 333 Market Street, Room 923, San Francisco, California 94105-2195, Telephone: 415-977-8035 FAX: 415-977-8129.

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the NAP. Should you decide to submit an RFA form, it must be received at the above address by January 7, 2007. It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.
You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This determination has been conducted to identify the limits of Corps of Engineers' Clean Water Act jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

Please refer to identification number 200600795 in any correspondence concerning this project. If you have any questions, please contact Tom Cavanaugh at our Sacramento Valley Office, 1325 J Street, Room 1480, Sacramento, California 95814-2922, email Brian.E.Vierra@usace.army.mil, or telephone 916-557-7728. You may also use our website: www.spk.usace.army.mil/regulatory.html.

Sincerely,

ORIGINAL SIGNED
Thomas J. Cavanaugh
Chief, Sacramento Valley Office

Enclosure(s)

Copy furnished without enclosure(s):

Ann King, Edaw, 2022 J Street, Sacramento, California 95814
April 15, 2010

Regulatory Division SPK-2008-01039

John Bassett
Sacramento Area Flood Control Agency
1007 7th Street, 7th Floor
Sacramento, California 95814

Dear Mr. Bassett:

We are responding to your consultant’s January 13, 2010, request, on your behalf, for a preliminary jurisdictional determination (JD), in accordance with our Regulatory Guidance Letter (RGL) 08-02, for the Natomas Levee Improvement Program Phase 3 Landside Improvements Project, Supplement to the Phase 3 Landside Improvement Project and Phase 4 Landside Improvements Project. These sites total approximately 2695.4-acres and are located in the Natomas Basin in various Sections in Townships 9, 10 and 11 North and Ranges 4 and 5 East in Sacramento County, California.

Based on available information, we concur with the estimate of potential waters of the United States, as depicted on the September 2008, March 29, 2009 (revised June 15, 2009) and August 12, 2009, respectively, drawings prepared by EDAW. The approximately 290.58 acres of wetlands and 111.92 acres of other water bodies present within the surveyed areas may be jurisdictional waters of the United States. These waters may be regulated under Section 404 of the Clean Water Act.

A copy of our RGL 08-02 Preliminary Jurisdictional Determination Form for this site is enclosed. Please sign and return a copy of the completed form to this office. Once we receive a copy of the form with your signature we can accept and process a Pre-Construction Notification or permit application for your proposed project.

You should not start any work in potentially jurisdictional waters of the United States unless you have Department of the Army permit authorization. You may request an approved JD for these sites at any time prior to starting work within waters. In certain circumstances, as described in RGL 08-02, an approved JD may later be necessary.

A copy of our Notice of Appeal Options form is also enclosed. You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.
This preliminary determination has been conducted to identify the potential limits of wetlands and other water bodies which may be subject to Corps of Engineers' jurisdiction for the particular site identified in this request. A Notification of Appeal Process and Request for Appeal (RFA) form is enclosed to notify you of your options with this determination. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under Customer Service Survey.

Please refer to identification number SPK-2008-01039 in any correspondence concerning this preliminary jurisdictional determination. If you have any questions concerning this preliminary jurisdictional determination, please contact Michael Finan at Sacramento District Regulatory Division, email Michael.C.Finan@usace.army.mil, or telephone 916 557-5324. Otherwise, you may contact me directly. For more information regarding our program, please visit our website at www.spk.usace.army.mil/regulatory.html.

Sincerely,

Kathleen A. Dadey, Ph.D.
Chief, California Delta Branch

Enclosures

Copy Furnished without enclosures

William Marshall, Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive, #200, Rancho Cordova, California 95670-6114
Jason Brush, U.S. Environmental Protection Agency, Region IX, Wetlands Regulatory Office,(WTR-8), 75 Hawthorne Street, San Francisco, California 94105
Ken Sanchez, U.S. Fish and Wildlife Service, Endangered Species Division, 2800 Cottage Way, W-2605, Sacramento, California 95825
Sarah Bennett, EDAW Inc. 2022 J Street, Sacramento, California 95811
Mr. Francis C. Piccola  
Chief, Planning Division  
U.S. Army Corps of Engineers  
1325 J Street  
Sacramento, California 95814

Dear Mr. Piccola:

This is in response to your April 2, 2009, letter requesting the initiation of formal section 7 consultation with NOAA’s National Marine Fisheries Service (NMFS) pursuant to the Endangered Species Act (ESA) for the proposed Natomas Levee Improvement project, Phases 3 and 4a. Specifically, the U.S. Army Corps of Engineers (Corps) has determined that the implementation of project related activities may have an adverse affect to federally listed endangered Sacramento River winter-run Chinook salmon (Oncorhynchus tshawytscha), threatened Central Valley spring-run Chinook salmon (O. tshawytscha), threatened Central Valley steelhead (O. mykiss), the threatened Southern Distinct Population Segment (DPS) of North American green sturgeon (Acipenser medirostris), or their respective designated critical habitat. In addition, the Corps has requested consultation on the impacts of the proposed project to the Essential Fish Habitat (EFH) for Pacific salmon pursuant to provisions of the Magnuson-Stevens Fishery Conservation and Management Act (MSA). This letter also serves as consultation under the authority of and in accordance with the provisions of the Fish and Wildlife Coordination Act (FWCA) of 1934, as amended.

On April 2, 2009, NMFS received a biological assessment from the Corps consultant, EDAW/AECOM, as well as several supporting memorandums on September 14, 30, and October 1, 2009, respectively. The memorandums addressed the revegetation plan and the Corps Engineering Technical Letter 1110-2-271 (ETL). The Corps, in cooperation with Sacramento Area Flood Control Agency (SAFCA), modified their design plans to meet the Corps ETL. The Corps and SAFCA plan to replace the loss of vegetation on-site at a 1:1 ratio where feasible. Where on-site replacement of vegetation is not feasible, vegetation would be planted at a 3:1 ratio off-site. If it is determined that the area is not large enough to accommodate all of the replacement vegetation necessary for the loss of Shaded Riverine Aquatic (SRA) habitat, SAFCA shall purchase SRA credits at a NMFS approved conservation bank.
Action

The Corps and SACFCA plan to improve the Natomas levee system located in northern Sacramento and southern Sutter Counties. The project area is bordered by the Natomas Cross Canal on the north, the Sacramento River on the west, the American River on the south, and the Pleasant Grove Creek Canal and Natomas East Main Drainage/Steelhead Creek on the east. The general plan for Phase 3 and 4a includes raising the levee from the levee crown with some removal of vegetation on the waterside of the levee slope from the toe to the crown of the levee, constructing a slurry wall, re-contouring the levee slopes from the landside, and improving the drainage structures on the landside of the levee for wildlife habitat. The activities will result in the loss of 1.986 acres of SRA habitat above the Ordinary High Water Mark (OHWM) and 0.244 acres below the OHWM. Other activities include the installation of a coffer dam with a vibratory hammer in order to rebuild the intake pumps. In-water construction activities for Phases 3 and 4a will occur between July 1 and October 1. The Corps and SAFCA expect the activities behind the coffer dam, as well as its removal, to be completed before October 1. Disturbed areas on the waterside will be restored using biotechnical remediation techniques. Removal of Instream Woody Material (IWM) will be avoided where possible. If the removal of IWM is necessary, the IWM will be replaced. Although some levee grading and minor tree removal will occur below the OHWM, revegetation with native species will be designed to compensate for the temporal loss of riparian vegetation on the water side of the slope. Permanent impacts to riparian vegetation will be replaced at a 1:1 ratio, on-site where feasible. Where on-site replacement is not feasible, vegetation will be planted at a 3:1 ratio off-site. If it is determined that the area is not large enough to accommodate all of the replacement vegetation necessary for the loss of SRA habitat, SAFCA shall purchase SRA credits at a NMFS approved conservation bank. During all phases of construction, Best Management Practices (BMP) and conservations measures for erosion control and water quality will be implemented.

ESA Consultation

Based on our review of the information provided in your April 2, 2009, biological assessment and letter requesting the initiation of ESA section 7 consultation, and the September 14, 30, and October 1, 2009 memorandums, NMFS finds that the proposed activities do not require formal section 7 consultation. We have determined that the proposed project is not likely to adversely affect federally listed Central Valley steelhead, endangered Sacramento River winter-run Chinook salmon, threatened Central Valley spring-run Chinook salmon, threatened Southern DPS of North American green sturgeon, or their respective designated critical habitats. This determination is based largely on the fact that in-water construction will be minimal and will occur during a time of the year when sensitive life history stages (rearing or smolting juveniles) of listed fish will not be present in the action area; the project proposal includes using biotechnical remediation designs and techniques for work conducted on the waterside of the levee in order to minimize the loss of riparian vegetation and replace any lost vegetation with native riparian species; the action includes a fish relocation plan for fish that may become trapped behind the coffer dam, as well as a slurry spill contingency plan to minimize the risk of bentonite slurry entering the aquatic environment; the utilization of a vibratory hammer for the placement of the coffer dam to minimize any potential acoustic effects to listed species; and the implementation of BMPs for water quality and erosion control. Based on the incorporation of
these conservation measures into the project description, NMFS has concluded that potential adverse effects of the proposed project to listed species have been minimized to the point of being discountable or insignificant.

This concludes ESA section 7 consultation for the proposed project. This concurrence does not provide incidental take authorization pursuant to section 7(b)(4) and section 7(o)(2) of the ESA. Reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered; or (3) a new species is listed or critical habitat designated that may be affected by the action.

EFH

With regards to EFH consultation, the action area has been identified as EFH for all races of Central Valley Chinook salmon (O. tshawytscha), including the fall-/late-fall-run in Amendment 14 of the Pacific Salmon Fishery Management Plan pursuant to the MSA. Federal action agencies are mandated by the MSA [section 305(b)(2)] to consult with NMFS on all actions that may adversely affect EFH, and NMFS must provide EFH conservation recommendations to those agencies [section 305(b)(4)(A)]. Because the proposed project would implement conservation measures which are expected to avoid adverse impacts to Chinook salmon habitat, additional EFH Conservation Recommendations are not being provided at this time, however, if there is substantial revision to the action, the lead Federal agency will need to re-initiate EFH consultation.

FWCA

The purpose of the FWCA is to ensure that wildlife conservation receives equal consideration and is coordinated with other aspects of water resources development [16 U.S.C. 661]. The FWCA establishes a consultation requirement for Federal departments and agencies that undertake any action that proposes to modify any stream or other body of water for any purpose, including navigation and drainage [16 U.S.C 662(a)]. Consistent with this consultation requirement, NMFS provides recommendations and comments to Federal action agencies for the purpose of conserving fish and wildlife resources. The FWCA provides the opportunity to offer recommendations for the conservation of species and habitats beyond those currently managed under the ESA and MSA. Because the proposed project is designed to avoid and minimize environmental impacts to aquatic habitat within the action area, NMFS has no additional FWCA comments to provide.
Please contact Madelyn Martinez at (916) 930-3605, or via e-mail at Madelyn.Martinez@noaa.gov if you have any questions regarding this letter.

Sincerely,

Rodney R. McInnis
Regional Administrator

cc:  Copy to file – ARN 151422SWR2004SA00179
     NMFS-PRD, Long Beach, California
     Bryant Chesney, Long Beach, California
     Corps: Elizabeth.Holland@usace.army.mil
     UFWS: Douglas_Weinrich@fws.gov, and Jennifer_Hobbs@fws.gov
     DFG: ghobgood@dfg.ca.gov
     SAFCA: buckp@saccounty.net
D3 Clean Water Act Section 404(b)(1) Evaluation
I. PROJECT DESCRIPTION, PROJECT PURPOSE, AND NEED

The U.S. Army Corps of Engineers (USACE), Sacramento District and the Sacramento Area Flood Control Agency (SAFCA), the local sponsor, propose to construct the Natomas Levee Improvement Program (NLIP), Phase 4b Landside Improvements Project (Phase 4b Project or the project), which consists of levee improvements to the remaining portions of the Natomas Basin’s perimeter levee system in the City of Sacramento and in Sutter and Sacramento Counties, California. The overall purpose of the multi-phase NLIP is to bring the entire 42-mile Natomas Basin perimeter levee system into compliance with applicable Federal and state standards for levees protecting urban areas through a program of proposed levee improvements to address levee height deficiencies, levee seepage potential, and streambank erosion conditions along the Natomas Basin perimeter levee system. The Landside Improvements Project, which is a component of the NLIP, consists of four phases (1, 2, 3, and 4a and 4b). For a complete summary of the NLIP phasing, see Chapter 2, “Alternatives,” in the Environment Impact Statement/Environmental Impact Report (EIS/EIR). Also, see Section 4.18, “Summary of Environmental Impacts and Mitigation Measures from Previous Natomas Levee Improvement Program Landside Improvements Project Phases 1–4a,” in the EIS/EIR for a summary of impacts and mitigation measures associated with the Phase 1–4a Projects.

The Phase 4b Project builds upon a program of improvements analyzed in previous environmental documents for achieving flood risk damage reduction for the 53,000-acre Natomas Basin. The project is the final phase of the Landside Improvements Project and the subject of the EIS/EIR. The proposed improvements consist of levee improvements, associated landscape and irrigation/drainage infrastructure modifications, and habitat creation and management.

A description of all of the alternatives to the Phase 4b Project can be found in Chapter 2, “Alternatives,” of the EIS/EIR. The EIS/EIR includes a screening of all of the alternatives considered for analysis, including criteria and rationale for those alternatives carried forward and those alternatives not carried forward in EIS/EIR (see Sections 2.1.5, “Alternatives Considered, But Eliminated from Further Consideration,” and 2.1.6, “Alternatives Carried Forward for Evaluation in this EIS/EIR”). This 404(b)(1) analysis focuses on the alternatives carried forward for analysis in the EIS/EIR: the No-Action Alternative, the Adjacent Levee Alternative (Proposed Action), and the Fix-in-Place Alternative.

► No-Action Alternative—The expected future without-project conditions.

► Adjacent Levee Alternative (Proposed Action)—An adjacent levee would be constructed along the Sacramento River east levee Reach A:16–20; and, where required for this levee, cutoff walls, seepage berms, and relief wells would be installed for seepage remediation. A cutoff wall would be installed in the American River north levee east of Gateway Oaks Drive to Northgate Boulevard, and the landside slope would be flattened. The Natomas East Main Drain Canal (NEMDC) west levee would be raised in place or widened from just south of Elkhorn Boulevard to Sankey Road, and the landside slope would be flattened and seepage remediation would be constructed as necessary. Waterside erosion protection would be constructed in locations along the Pleasant Grove Creek Canal (PGCC) and NEMDC (south of Elkhorn Boulevard). Culverts located beneath the PGCC would be upgraded or removed, and replacement flood storage would be provided as needed. At the State Route (SR) 99 crossing of the Natomas Cross Canal (NCC), seepage remediation would be installed and a moveable barrier system would be constructed to prevent overflow from reaching the landside of the NCC south levee. The western portion of the West Drainage Canal would be realigned to the south, and the remaining portion of the existing canal would be improved to reduce bank erosion and sloughing, decrease aquatic weed infiltration,
improve Reclamation District 1000 (RD 1000) maintenance access, and enhance giant garter snake habitat connectivity. Irrigation canals and ditches would be relocated either to make room for expanded levee sections or to reduce underseepage potential. Discharge pipes for RD 1000 pumping plants and City of Sacramento sump pumps would be raised to cross the levee above design flood water surface elevation. Parcels in the South Fisherman’s Lake and Triangle Properties Borrow Areas and at the West Lakeside School Site would be excavated and reclaimed as agricultural land. Woodland groves would be established to compensate for impacts along the Sacramento River east levee Reach A:16–20, American River north levee Reach I:1-4, and NEMDC.

**Fix-in-Place Alternative**—The Sacramento River east levee would be improved in place in Reach A:16–20 and seepage remediation would be implemented. The Fix-in-Place Alternative would be the same as described for the Adjacent Levee Alternative (Proposed Action) except that the crown of the Sacramento River east levee would not be widened. This type of levee improvement would narrow the overall landside footprint by 15 feet but would require a greater extent of levee degrade to construct cutoff walls and a greater extent of encroachment removal along the Sacramento River east levee compared to the Adjacent Levee Alternative (Proposed Action).

The above three alternatives are described in detail in Chapter 2, “Alternatives,” of the EIS/EIR. The Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative were developed for consideration with a focus on improvements to the Sacramento River east levee Reach A:16–20. Phase 4b Project improvements to the American River north levee Reach I:1-4, NEMDC west levee, PGCC west levee, NCC south levee, West Drainage Canal, and modifications to the landscape and irrigation/drainage system would be similar under the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative.

As noted above, the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative would use differing methods to achieve flood damage reduction objectives for the Sacramento River east levee Reach A:16–20. Therefore, the differences between the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative, including effects on habitats, are the result of these differences in design of the Sacramento River east levee.

a. **Location**

The 53,000-acre Natomas Basin in northern Sacramento and southern Sutter Counties, California, including a portion of the city of Sacramento (Plate 1-1 in the EIS/EIR), is bounded by a levee system. Originally constructed in the early part of the 20th century, this levee system is bordered by the NCC to the north, the Sacramento River to the west, the American River to the south, and the PGCC and NEMDC/Steelhead Creek to the east.

b. **General Description**

The American River Watershed Common Features/Natomas Post-authorization Change Report (Common Features/Natomas PACR) includes all four project phases (1, 2, 3, and 4a and 4b) of the NLIP Landside Improvements Project. These project phases are summarized in Chapter 1, “Purpose and Need,” of the EIS/EIR. This information will become part of the overall request for congressional review and approval of the Common Features/Natomas PACR.

USACE’s overall purpose of the project is to develop and select an alternative that would reduce the risk of flood damage in the Natomas Basin. Some residual risk will always remain, however, in any flood damage reduction system. Ultimately, Congress must authorize the Common Features/Natomas PACR, which includes the Phase 4b Project. If not authorized by Congress, USACE must make decisions on whether or not to grant permission to SAFCA to alter the Natomas Basin levee system (Federal project levees) under Section 408 of the Rivers and Harbors Act (RHA), and issue permits.
under Sections 404 of Clean Water Act (CWA) and 10 of RHA, for SAFCA to implement the Phase 4b Project without Federal participation.

The Natomas Basin floodplain is occupied by over 83,000 residents and $8.2 billion in damageable property. Although improvements to the Natomas Basin perimeter levee system, completed as part of the Sacramento Urban Levee Reconstruction Project and the North Area Local Project, have significantly reduced flood risk for the area, the Natomas Basin remains vulnerable to flooding in a less than 100-year (0.01 annual exceedance probability [AEP]) flood event. Uncontrolled flooding in the Natomas Basin floodplain in a flood exceeding a 100-year (0.01 AEP) event could result in $7.4 billion in damage (this excludes Sacramento International Airport [Airport] facilities) (SAFCA 2007). Flooding could also release toxic and hazardous materials, contaminate groundwater, and damage the metropolitan power and transportation grids. The disruption in transportation that could result from a major flood could affect the Airport and interstate and state highways. In addition, displacement of residents, businesses, agriculture, and recreational areas could occur. Resulting damage could hinder community growth, stability, and cohesion.

The NLIP was initially outlined in the *Natomas Levee Evaluation Study Final Report Prepared for SAFCA in Support of the Natomas Basin Components of the American River Common Features* (SAFCA 2006). This evaluation was based on the engineering studies and reports that were included as appendices to the above-referenced report, which are available for review at SAFCA’s office at 1007 7th Street, 7th Floor, Sacramento, California. These studies and reports indicate that segments of the Natomas perimeter levee system reflect the following problems for both the Federal Emergency Management Agency (FEMA) 100-year (0.01 AEP) and the 200-year (0.005 AEP) design water surface elevations:

- inadequate levee height,
- through-levee seepage and foundation underseepage with excessive hydraulic gradients,
- embankment instability, and
- susceptibility to riverbank erosion and scour.

Although not highlighted in the levee evaluation report, portions of the perimeter levee system, particularly along the east levee of the Sacramento River, are also subject to vegetative and structural encroachments into the levee prism.

In January 2008, FEMA remapped the Natomas Basin as an AE zone, and the flood zone designation took effect in December 2008. FEMA defines AE zones as areas with a 0.01 AEP of flooding. The designation requires mandatory flood insurance purchases by homeowners and requires that the bottom floor of all new buildings be constructed at or above base flood elevation—as little as 3 feet above ground level in some of the Natomas Basin but up to 20 feet above ground level in much of the Basin. This designation and the associated constraints effectively stopped all projects that were not issued building permits before the new maps took effect.

Additional concerns include levee height deficiency, seepage, riverbank erosion, levee encroachments, aviation safety, habitat conservation, agricultural irrigation, and drainage infrastructure.

c. Authority and Purpose

The Common Features/Natomas PACR is being prepared by USACE to consider the level of Federal participation in flood risk management for the Natomas Basin.
USACE plans to implement the project; however, in the event the Common Features/Natomas PACR is not approved by Congress, the EIS/EIR will support SAFCA’s implementation of the Phase 4b Project, should SAFCA choose to proceed without additional Federal participation.

The need for flood risk management is discussed in more detail in Chapter 1, “Introduction and Statement of Purpose and Need,” of the EIS/EIR.

d. General Description and Quantity of Dredged or Fill Material

(1) General Characteristics of Material

No-Action Alternative. Without project improvements to the Natomas Basin perimeter levee system, the risk of levee failure would still remain high because to achieve the full benefits of flood damage reduction in the Natomas Basin, all phases of NLIP must be implemented. A levee failure in the Natomas Basin could result in flooding that could adversely or beneficially affect waters of the United States that occupy approximately 930 acres, or 1.7%, of the Basin (The Natomas Basin Conservancy [TNBC] 2007). Because the exact level of impact would be dependent on the flooding duration, depth, rate, timing, and location, acreages are not displayed below in Table 1 because estimating such acreages would be too speculative for meaningful consideration.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Construction of the levee improvements, borrow activities, and improvements and relocations of irrigation and drainage infrastructure would require the permanent placement of fill material in jurisdictional waters of the United States. A delineation of jurisdictional waters of the majority of the Phase 4b Project area was completed by AECOM and verified by USACE in 2007 through 2009 (USACE Reference IDs #20081039, #200700211, #200600795, #200900238).

Table 1 displays the potential direct and indirect impacts of the Project Alternatives to jurisdictional Waters of the United States and wetlands.

Three primary borrow sources have been identified for the project: West Lakeside School Site, the South Fisherman’s Lake Borrow Area, and the Triangle Properties Borrow Area. The project could also use borrow material from sources analyzed as part of the Phase 4a Project—the Twin River Unified School District Stockpile Site, the Krumenacher Borrow Site, and the Fisherman’s Lake Borrow Area. Under both the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative, use of new project borrow sites would require the permanent fill of waters of the United States including drainage ditches, irrigation canals, and irrigated wetlands. Because design has not yet been completed, the final total acreage of fill is not known at this time. Impacts associated with haul road construction across various drainage canals would be temporary, and these resources would be restored to pre-project conditions after project completion.

A wetland delineation has not been completed for the Triangle Properties Borrow Area; however, it is expected that the rice fields in the Triangle Properties Borrow Area could contain irrigated wetlands. For the purposes of this analysis, the impacts described above are considered permanent. Vernal pools are present within the Triangle Properties Borrow Area on approximately 85 acres; areas with vernal pool complex would not be used for borrow source material and this habitat would remain undisturbed. The total acreage for temporary impacts noted in Table 1 is the potential acreage of temporary impacts if all borrow sites are completely disturbed within their excavation footprints, which is up to 290 acres (worst-case) within the larger borrow area.

Construction of the adjacent levee along the Sacramento River east levee Reach A:16–20 under both the Adjacent Levee Alternative (Proposed Action) and the Fix-in-Place Alternative would result in potential impacts to waters of the United States, including wetlands (fill of irrigation and drainage ditches). Impacts to waters of the United States, including wetlands, would also occur from:
Table 1
Estimated Potential Direct and Indirect Impacts of the Phase 4b Project on Jurisdictional Waters of the United States

<table>
<thead>
<tr>
<th>Project Feature</th>
<th>Functional Value</th>
<th>Adjacent Levee Alternative (Proposed Action)</th>
<th>Fix-in-Place Alternative</th>
</tr>
</thead>
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<tr>
<td></td>
<td></td>
<td>Temporary Impact (acres)</td>
<td>Permanent Impact (acres)</td>
</tr>
<tr>
<td>Construction of Sacramento River east levee, American River north levee, NEMDC west levee, and PGCC west levee Improvements</td>
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<td></td>
<td></td>
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<td></td>
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<td>-</td>
<td>-</td>
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<td>14.50</td>
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<td>NEMDC waterside erosion control rip rap (fill)</td>
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<td>Erosion repair (dewatering of PGCC)</td>
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<td>Construction of Relocated West Drainage Canal</td>
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<td>Fill of irrigated wetland</td>
<td>Low</td>
<td>&lt;27</td>
<td>&lt;27</td>
</tr>
<tr>
<td>Replacement of RD 1000’s Pumping Plant Nos. 6 and 8 and City Sump Pumps 102 and 160</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intake channel modification (dewater)</td>
<td>High</td>
<td>-</td>
<td>0.50</td>
</tr>
<tr>
<td>Sacramento River waterside outfall construction (fill)&lt;sup&gt;5&lt;/sup&gt;</td>
<td>High</td>
<td>-</td>
<td>0.03</td>
</tr>
<tr>
<td>NEMDC waterside outfall construction (fill)</td>
<td>High</td>
<td>-</td>
<td>0.76</td>
</tr>
<tr>
<td>Borrow Site and Haul Road Construction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Fisherman’s Lake drainage ditches and canals (fill/dewater)</td>
<td>Low</td>
<td>-</td>
<td>1.38</td>
</tr>
<tr>
<td>West Lakeside School Site Borrow Area</td>
<td>Low</td>
<td>0.26</td>
<td>-</td>
</tr>
<tr>
<td>Irrigated wetlands in Triangle Properties Borrow Area (fill)&lt;sup&gt;6&lt;/sup&gt;</td>
<td>Low</td>
<td>&lt;290</td>
<td>&lt;147</td>
</tr>
<tr>
<td>Total (approximate)</td>
<td></td>
<td>324</td>
<td>199</td>
</tr>
</tbody>
</table>

Notes: NCC = Natomas Cross Canal; NEMDC = Natomas East Main Drainage Canal; PGCC = Pleasant Grove Creek Canal; RD = Reclamation District; SR = State Route

1 Functional value definitions: High = Natural structure and function of biotic community maintained, with minimal changes evident. Moderate = Moderate changes in structure and function of biotic community—i.e., moderate level of disturbance. Low = Severe changes in structure and/or function of biotic community evident—i.e., high level of disturbance. See Section 3.3.7 in Chapter 3, “Affected Environment,” of the EIS/EIR for additional information.

2 A portion of the project area along the PGCC west levee overlaps within the footprint previously analyzed in the Phase 3 EIS and EIR. Only impacts unique to the Phase 4b Project are reported in this table.

3 The entire West Drainage Canal would be dewatered for improvements; however, only a 3.99-acre/4,700-foot-long section would be relocated.

4 Chappell Ditch and Drain improvements would occur in areas that are currently in rice production; irrigated wetlands are generally a small component of actively farmed rice fields.

5 Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act authorizations are required for work on the waterside of the levee.

6 Approximately 290 acres of rice is present on the Triangle Properties Borrow Area; irrigated wetlands are generally a small component of actively farmed rice fields. Permanent impact assumes the worst-case scenario that 147 acres of shallow detention basins could not be returned to rice production.

Source: Data provided by Wood Rodgers in 2009 and Mead & Hunt in 2009; data compiled by AECOM in 2010
► raising and widening the west levee of NEMDC North;
► bank protection in the PGCC and NEMDC (including relocation of the low-flow channel in NEMDC South);
► relocating irrigation ditches along the NCC south levee and the west levees of PGCC and NEMDC North; and
► removing culverts under the PGCC.

Fill associated with levee modifications would occur in irrigated wetlands along the PGCC and NEMDC. Fill of seasonal wetlands and vernal pools would occur along NEMDC North as a result of levee raising and widening. Relocation and extension of the West Drainage Canal, Riego Road Canal, Vestal Drain, and Morrison Canal would result in permanent fill of drainage and irrigation ditches, and irrigated wetlands in rice fields.

Under the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative, the discharge pipes associated with RD 1000's Pumping Plant Nos. 1A and 1B along the Sacramento River east levee, Pumping Plant No. 6 along the NEMDC North, Pumping Plant No. 8 along the NEMDC South, City Sump 160 along the Sacramento River east levee, City Sump 102 along the NEMDC South, and City Sump 58 along the American River north levee would be replaced. Additionally, dewatering and new outfall construction would be required for all pumping plants except RD 1000 Pumping Plant Nos. 1A and 1B. Most of the outfalls would be placed above the OHWM and would not be expected to qualify as fill of waters of the United States under Section 404 of the CWA. Outfall installation, however, would result in temporary impacts due to dewatering within waters of the United States. The installation of these outfalls would result in the removal of some minor amounts of riparian vegetation.

Replacement of the discharge pipes would consist of raising the pumping plants' discharge pipes, extending the pipes to tie into existing discharge pipes within the waterside bench, and replacing or modifying pumps and motors. Seepage remediation in these locations may be required, including relocating the landside stations away from the levee to accommodate the raised discharge pipes. Modifications to the landside intake channel of RD 1000 Pumping Plant Nos. 6 and 8 may also be required. The waterside levee slope of RD 1000 Pumping Plant No. 8 would require partial regrading to accommodate the raised pump discharge pipes.

Lower Dry Creek, located east of the NEMDC, has been identified as a planting area to compensate for the Phase 4b Project's removal of landside and potentially waterside trees. Seasonal wetlands, vernal pools, freshwater marsh, and intermittent drainages are present within the planting area. Woodland mitigation plantings would not result in fill to waters of the United States; however, temporary impacts may occur from hauling woodland plantings and associated materials to planting sites.

(2) Source of Material

For levee improvements along the Sacramento River east levee Reach A:16–20 and the American River north levee Reach L:1–4, the proposed South Fisherman’s Lake Borrow Area (Plate 2-7a in the EIS/EIR) and the West Lakeside School Site (Plate 2-17 in the EIS/EIR) are anticipated to be the primary source of soil borrow material. A portion of the Fisherman’s Lake Borrow Area (identified on Plate 2-6 in the EIS/EIR), which was fully analyzed in the Phase 4a EIS/EIR, could provide additional borrow material for these improvements. The proposed Triangle Properties Borrow Area (Plate 2-13 in the EIS/EIR) would be the primary source of borrow material for levee improvements along the PGCC (Reach E) and NEMDC North (Reaches F–G). The Krumenacher borrow site and Twin Rivers Unified School District stockpile site (Plate 2-14 in the EIS/EIR), which were fully analyzed in previous environmental documents, would be the source of borrow material for improvements to NEMDC South
and back-up sources for NEMDC North (Reaches F–G). The South Fisherman's Lake Borrow Area, the West Lakeside School Site, and the Triangle Properties Borrow Area are fully analyzed in the EIS/EIR.

e. Description of the Proposed Discharge Site(s)

No-Action Alternative. There is no construction proposed as part of the No-Action Alternative, therefore there would be no discharge of fill materials.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. The locations of the discharge sites are in various locations around the perimeter and adjacent lands within the Natomas Basin where levee improvements are proposed. Primarily, the project activities would occur near the Sacramento River east levee, NCC south levee, NEMDC west levee, the American River north levee, and the PGCC west levee in the Natomas Basin. These are described in more detail in Chapter 2, “Alternatives,” Chapter 3, “Affected Environment,” and Chapter 4, “Environmental Consequences and Mitigation Measures,” of the EIS/EIR.

(2) Size (acres)

No-Action Alternative. There is no construction proposed as part of the No-Action Alternative, therefore there would be no discharge of fill materials.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Acres of impact are described above in Section D 1. Acres of impacts due to discharge of fill material for the Adjacent Levee Alternative (Proposed Action) and the Fix-in-Place Alternative would be similar.

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

The fill areas for the project would take place in confined, unconfined areas, and open water.

(4) Type(s) of Habitat

No-Action Alternative, Adjacent Levee Alternative (Proposed Action), and Fix-in-Place Alternative. Based on the methodology for previously verified wetland delineations, irrigation/drainage canals and ditches in the Phase 4b Project area are anticipated to be considered waters of the United States and subject to regulation under CWA Section 404, though not all of the Phase 4b Project area has been verified by USACE. Other permanently and/or seasonally wet habitats, such as freshwater marsh, seasonal wetland, and vernal pool, could qualify as jurisdictional waters of the United States subject to Section 404 regulation if they are adjacent or abutting other jurisdictional waters of the United States. In the Phase 4b Project area, vernal pools are known to occur along the NEMDC, the Triangle Properties Borrow Area, and along Lower Dry Creek.

Previous delineation reports verified by USACE that cover portions of the Phase 4b Project footprint include a wetland delineation completed in 2008 that covers the PGCC and the NEMDC South (USACE Reference ID #20081039), a 2007 delineation that covers areas on the landside of the Sacramento River east levee Reaches 1–20 (C:1–4B, B:5A–15, and A:16–20) (USACE Reference ID #200700211), a delineation completed in 2006 for the NCC within the NLIP footprint (USACE Reference ID #200600795), and a delineation for the proposed woodland planting area at Lower Dry Creek east of the NEMDC (USACE Reference ID #200900238). These delineations identified the following features that fall within the Phase 4b Project area as jurisdictional: irrigation/drainage ditches and canals along the landside toe of the levee, irrigated wetlands in rice fields, freshwater marsh habitat, seasonal wetlands, and vernal pools. A delineation of jurisdictional waters of the United States covering the South Fisherman’s Lake Borrow Area, the landside of the American River north levee, and the NEMDC North was submitted to USACE in September 2009 for review and verification and a preliminary jurisdictional determination is expected by summer 2010; a separate delineation for the West Lakeside
School Site has also been submitted to USACE and is currently under review. A delineation has not yet been completed for the West Drainage Canal east of Powerline Road, nor for the Triangle Properties Borrow Area (these will be completed by USACE). Jurisdictional features within these areas are expected to include primarily irrigation/drainage ditches and irrigated wetlands in rice fields; seasonal wetlands and vernal pools are known to occur in the Triangle Properties Borrow Area.

In addition, the installation of an outfall at City of Sacramento Sump Pump No. 160 in Reach A:19B along the Sacramento River east levee would be within USACE jurisdictional areas. Discharge pipes and outfalls conveying filtered stormwater drainage from the east levee to the east bank of the Sacramento River under the Adjacent Levee Alternative (Proposed Action) might extend to areas within the jurisdiction of CWA Section 404 and/or RHA Section 10.

The functional quality of an aquatic resource is considered by USACE as part of the CWA Section 404 regulatory process. Habitat quality may be generally categorized as low, moderate, or high, defined herein as follows:

- **Low**: High levels of disturbance (e.g., vegetation disking for fire clearance purposes, dominance of monotypic stands of nonnative vegetation, presence of human-made structures).
- **Moderate**: Moderate levels of disturbance (e.g., natural plant communities intact with some evidence of nonnative vegetation, low-intensity developments such as trails, selective vegetation management for flood damage reduction purposes).
- **High**: Natural structure and function of biotic community exists, with minimal changes in structure or function evident—i.e., zero to low levels of human disturbance (e.g., natural plant communities intact, no artificial structures present, sensitive plant and/or wildlife species utilization).

(5) Timing and Duration of Discharge

**No-Action Alternative.** As described above, there would be no construction proposed and therefore no discharge of fill materials under the No-Action Alternative.

**Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative.** The timing of the discharge for both the Adjacent Levee Alternative (Proposed Action) and the Fix-in-Place Alternative would be similar. Discharge of fill material (borrow materials or new structures) would occur during grading, placement of fill prior to and during levee construction, construction of replacement and/or new irrigation and drainage infrastructure (e.g., canals, ditches, pump plants), throughout the calendar year, but mainly during the work period between May 1 and September 30 of each year.

f. **Description of Disposal Method (hydraulic, drag line)**

All of the fill work would be done with dozers, dump trucks, motor graders, and rollers.

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**

   **No-Action Alternative, Adjacent Levee Alternative (Proposed Action), and Fix-in-Place Alternative.** The substrate elevation is roughly at sea level and the Natomas Basin is generally flat in slope. The topography of the Natomas Basin is flat, with dominant landscape features formed by the perimeter levees. The Phase 4b Project occurs in primarily agricultural and urban areas with little or no natural slopes. The substrate elevation and slope is the same for all alternatives. None of the proposed
modifications associated with the project would change the substrate characteristics of the landscape, because non-native substrates from outside the basin would not be introduced, nor would construction alter the underlying drainage or soil characteristics under the proposed features except to improve protection from levee under- and through-seepage.

(2) Sediment Type

**No-Action Alternative, Adjacent Levee Alternative (Proposed Action), and Fix-in-Place Alternative.** The soils in the project area are sediments adjacent to the Sacramento and American Rivers. These sediments are composed of Recent (Holocene) alluvial floodplain deposits (see Section 3.9.2.1 of the EIS/EIR). In general, these deposits consist primarily of unconsolidated sand and silt. Holocene alluvial deposits overlay an older alluvial fan system composed of Pleistocene-age sediments. Construction activities that would occur within alluvial floodplain or basin deposits would be located within Holocene sediments.

**Riverbank and Modesto Formations.** Piper et al. (1939) were the first to publish detailed geologic maps in the southern Sacramento and northern San Joaquin Valley areas, and they designated the older alluvial Pleistocene deposits as the Victor Formation. However, Davis and Hall (1959) proposed a subdivision of the Victor Formation into the Turlock Lake (oldest), Riverbank (middle), and Modesto (youngest) Formations. Marchand and Allwardt (1981) proposed that the Victor Formation be replaced by the Turlock Lake, Riverbank, and Modesto Formations as formal nomenclature for Quaternary deposits in the Sacramento and San Joaquin Valleys. Most researchers have followed this recommendation.

In the Sacramento Valley, the Modesto Formation consists of alluvial terraces, some alluvial fans, and some abandoned channel ridges of the Sacramento River. The Modesto Formation can be divided into upper and lower members. The upper member consists primarily of unconsolidated, unweathered, coarse sand and sandy silt. The age of this member has been placed at approximately 12,000–26,000 years Before Present (B.P.) (Atwater cited in Helley and Harwood 1985). The lower member of the Modesto Formation consists of consolidated, slightly weathered, well-sorted silt and fine sand, silty sand, and sandy silt. Age estimates for the lower member range from 29,000 to 42,000 years B.P. (Marchand and Allwardt 1981, cited in Helley and Harwood 1985).

Sediments in the Riverbank Formation consist of weathered reddish gravel, sand, and silt that form alluvial terraces and fans. In the Sacramento Valley, this formation tends toward soil-profile developments that are more easily distinguishable from the Modesto Formation (Helley and Harwood 1985). The Riverbank Formation is Pleistocene in age (Wagner et al. 1987), but it is considerably older than the Modesto Formation; estimates place the age of the Riverbank between 130,000 and 450,000 years B.P. (Helley and Harwood 1985). The Riverbank Formation forms alluvial fans and terraces of the Sacramento River. The Riverbank’s fans and terraces are higher in elevation and generally have a more striking topography than those formed by the Modesto Formation.

(3) Dredged/Fill Material Movement

**No-Action Alternative.** Under the No-Action Alternative, no construction activities would occur; therefore, no potential exists for this alternative to affect dredged/fill material movement. There would be no impact under this alternative.

**Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative.** The fill material needed for the levee construction, replacement of new irrigation and drainage infrastructure, and other construction, would be moved from the borrow sites and placed in the construction areas. Once there, the material would typically be graded and compacted according to the feature that is being constructed, and is not expected to move after construction is completed.
(4) Physical Effects on Benthos (burial, changes in sediment type, etc.)

No-Action Alternative. Under the No-Action Alternative, no construction activities would occur; therefore, no potential exists for this alternative to physically affect benthos. There would be no impact under this alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. The fill material needed for the levee construction, replacement of new irrigation and drainage infrastructure, and other construction, would be moved from the borrow sites and placed in the construction areas, often permanently affecting irrigation and drainage canals and ditches, and in some cases small seasonal wetlands. Adverse affects on benthos due to discharge of fill materials would be temporary in nature, until the filled features can be replaced or restored. Therefore, there would be no adverse effect on benthos.

(5) Other Effects

No-Action Alternative. No other effects would occur as a result of the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. The effects to the physical substrate of the drainages and fill areas would be permanent. Habitat quality would improve in most of the borrow areas because of the conversion from low to moderate quality natural habitats to higher quality managed habitat.

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

No-Action Alternative. Under the No-Action Alternative, no actions are proposed to minimize impacts.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. A number of measures would be taken to minimize impacts to the various environmental resources (e.g., agricultural land, sensitive aquatic habitats including USACE jurisdictional features, wildlife habitat, and cultural resources) that would be affected by the Phase 4b Project. These are described in detail in Chapter 4, “Environmental Consequences and Mitigation Measures,” of the EIS/EIR.

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.

No-Action Alternative. No fill would occur as part of the No-Action Alternative and therefore there would be no impact on salinity.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. The fill areas are not in or near saline water. The fill areas get water from rain events and do not connect with any saline waters. This water is fresh water and therefore, filling these areas would not adversely affect salinity.

(b) Water Chemistry (pH, etc.)

No-Action Alternative. No fill would occur as part of the No-Action Alternative and therefore there would be no impact on water chemistry.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Planned construction activities for both alternatives would coincide with part of the rainy season. These activities
have the potential to temporarily impair water chemistry if disturbed and eroded soil, petroleum products, or construction-related wastes (e.g., cement and solvents) are discharged into receiving waters or onto the ground where they can be carried into receiving waters. Soil and associated contaminants that enter receiving waters through stormwater runoff and erosion can increase turbidity, stimulate algae growth, increase sedimentation of aquatic habitat, and introduce compounds that are toxic to aquatic organisms. Accidental spills of construction-related substances such as oils and fuels can contaminate both surface water and groundwater. The extent of potential impacts on water quality would depend on the following factors: tendency for erosion of soil types encountered, types of construction practices, extent of the disturbed area, duration of construction activities, timing of particular construction activities relative to the rainy season, proximity to receiving water bodies, and sensitivity of those water bodies to construction-related contaminants.

Slurry that would be used for construction of new cutoff walls in the Sacramento River east levee, American River north levee, and the west levee of NEMDC North has a fluid consistency when being placed. Improper handling or storage could result in releases to nearby surface water, thereby degrading water quality.

Replacement of discharge pipes at the RD 1000 pumping plants and City of Sacramento sump pumps listed above would involve excavation and grading on the waterside of the Sacramento River east levee, American River north levee, and NEMDC west levee. These activities could result in discharge of sediment and construction-related substances such as oils and fuels into these waterways.

Excavated areas that fill with surface or groundwater during project construction (such as areas along the NEMDC west levee, the American River north levee, and the Sacramento River east levee) would require dewatering. Surface or groundwater extracted from dewatering operations typically contains high levels of suspended sediment and often high levels of petroleum products and other construction-related contaminants. This extracted water could be directly released to local receiving waters, thereby degrading water quality.

The potential for release of soil or construction-related materials into the NEMDC, the PGCC, the NCC, the West Drainage Canal, local drainages, and ultimately the American or Sacramento Rivers could adversely affect river water quality.

(c) Clarity

No-Action Alternative. There would be no construction and no discharge of fill material as part of the No-Action Alternative and therefore there would be no adverse effect on water clarity.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. In areas of permanent fill where no jurisdictional waters remain after the fill, there would be a permanent loss of clarity. These areas are described above in Table 1. However, for areas that are not permanently filled, there would be only a temporary effect on clarity, as turbidity would be temporarily affected during construction. With the implementation of the mitigation measures in Section 4.7, “Water Quality,” of the EIS/EIR and compliance with all applicable local, state, and Federal regulations, this would not be considered an adverse effect.

(d) Color

No-Action Alternative. There would be no construction and no discharge of fill material as part of the No-Action Alternative; therefore, there would be no effect on color.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. In areas of permanent fill where no jurisdictional waters remain after the discharge of fill material, there would be a permanent loss of color. These areas are described above in Table 1. However, for areas that are not
permanently filled, there would be only a temporary effect on color, as turbidity would temporarily affect color during construction. With the implementation of the mitigation measures in Section 4.7, “Water Quality,” of the EIS/EIR and compliance with all applicable local, state, and Federal regulations, this would not be considered an adverse effect.

(e) Odor

No-Action Alternative, Adjacent Levee Alternative (Proposed Action), and Fix-in-Place Alternative. The proposed alternatives are not expected to affect odor because fill materials are from local sources and would not introduce foreign or noxious odors into jurisdictional features. There would be no effect.

(f) Taste

No-Action Alternative, Adjacent Levee Alternative (Proposed Action), and Fix-in-Place Alternative. The proposed alternatives are not expected to affect taste because fill materials are from local sources and would not introduce foreign or noxious odors into jurisdictional features. There would be no effect.

(g) Dissolved Gas Level

No-Action Alternative. There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to dissolved gas levels would occur as a result of the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. The Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative would both cause temporary effects to dissolved gas levels during temporary dewatering of some irrigation and drainage ditches and canals, and during the construction of the replacement ditches and canals. The effects are not expected to be significant and they would be temporary in nature. A noticeable change with regard to dissolved gas levels would not occur, and in most cases conditions would be improved due to the improved nature of the replacement canals.

(h) Nutrients

No-Action Alternative. There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to nutrients would occur as a result of the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. In areas of permanent fill where no jurisdictional waters remain after the discharge of fill material, there would be a permanent loss of nutrients. These areas are described above in Table 1. However, for areas that are not permanently filled, there would be only a temporary effect on nutrients, as dewatering would temporarily affect nutrients suspension and inflow of drainage and irrigation water during construction. With the implementation of the mitigation measures in Section 4.7, “Water Quality,” of the EIS/EIR and compliance with all applicable local, state, and Federal regulations, this would not be considered an adverse effect.

(i) Eutrophication

No-Action Alternative. There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to eutrophication would occur as a result of the No-Action Alternative.
Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Eutrophication would not occur in the ditches and canals affected by the project because replacement canals and ditches would be constructed concurrently or ahead of discharge of fill material and conditions (i.e., anaerobic standing water) that would lead to eutrophication would not occur. None of the proposed alternatives’ components would permanently adversely affect eutrophication.

(j) Others as Appropriate

No-Action Alternative, Adjacent Levee Alternative (Proposed Action), and Fix-in-Place Alternative. As described in Sections 4.5, “Hydrology and Hydraulics,” and 4.6, “Water Quality,” with the implementation of mitigation measures described, the project is not expected to adversely 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

No-Action Alternative. There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to current patterns and flow would occur as a result of the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action). Interior drainage patterns would be altered due to the levee construction (east approach). Minor drainages would be installed on the waterside of the Sacramento River east levee to route storm drainage between the existing Garden Highway and the adjacent levee. In addition, existing irrigation and drainage canals and ditches would be replaced where filled. After construction, the irrigation and drainage functions would be restored. There would be no substantial drainages eliminated and no substantial changes in the amount of flow. These changes would not be considered adverse effects.

Fix-in-Place Alternative. Effects on drainage patterns due to the Fix-in-Place Alternative would be similar to those caused by the Adjacent Levee Alternative (Proposed Action) except that there would not be a substantial alteration to the drainage of the existing Sacramento River east levee. Other changes to drainage patterns within the Natomas Basin in the project area would be similar and would not be considered an adverse effect.

(b) Velocity

No-Action Alternative. There would be no levee construction associated with the No-Action Alternative and, thus, velocities would not be affected.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Improvements and replacements of irrigation and drainage canals and ditches as part of the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative would cause some temporary effects to drainage velocities in the interior of the Basin, but these would be restored once construction is complete. This effect would not be considered adverse. There would be no effect to velocities in the waterways adjacent to the Natomas Basin and, thus, no adverse effect.

(c) Stratification

No-Action Alternative. There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to stratification would occur as a result of the No-Action Alternative.
Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. The alternatives are not expected to significantly affect stratification in the interior of the Natomas Basin or adjacent waterways because discharge of fill materials is expected to occur in the Natomas Basin when aquatic areas are dewatered. Therefore, no effect on stratification would occur during construction. Fill materials are not likely to cause additional erosion or sedimentation in the water column; therefore, stratification after construction is not likely to occur. There would be no adverse effect.

(d) Hydrologic Regime

No-Action Alternative. There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to the existing hydrologic regime would occur as a result of the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. As described above, some irrigation and drainage canals and ditches would need to be replaced under the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative, but would be restored as part of the project. Therefore, the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative are not expected to significantly affect the hydrologic regime in the interior of the Natomas Basin or adjacent waterways.

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

No-Action Alternative. There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to normal water level fluctuations would occur as a result of the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. The Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative are not expected to affect normal water level fluctuations in the waterways adjacent to the Natomas Basin. As presented above in Table 1, fill material would be placed within the channel slopes of adjacent waterways for discharge of storm water, intake of irrigation water, and erosion control, but these features do not significantly the flow of the waterways and are not expected to adversely affect normal water level fluctuations.

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

No-Action Alternative. There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to salinity gradients would occur as a result of the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. The Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative would involve replacement of and improvements to the existing irrigation and drainage infrastructure in the Natomas Basin, all of which convey freshwater. These alternatives are not expected to adversely affect salinity gradients in the interior of the Natomas Basin or adjacent waterways.

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

No-Action Alternative. The No-Action Alternative does not include any actions to minimize impacts.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Potential adverse effects to water circulation, fluctuation, and salinity would not result due to the Adjacent Levee Alternative (Proposed Action) and the Fix-in-Place Alternative and, thus, no specific actions will be taken to minimize impacts.
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)

No-Action Alternative. There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to suspended particulates and turbidity would occur as a result of the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Existing conditions include irrigation and drainage canals and ditches, which have steep side slopes with inconsistent vegetative cover. As part of the alternatives, this infrastructure would be replaced with facilities that would be improved to have wider slopes and more consistent vegetative cover (i.e., native-grass-seeded slopes), resulting in less erosion and lower maintenance requirements. Maintenance activities often cause temporary and short-term impacts including increased suspended particulates and turbidity within those canals and ditches.

There would be no changes in suspended particulates and turbidity in the fill areas that are not in areas of permanent water. The drainages that would be disturbed during construction would likely experience temporary increases in suspended particulate and turbidity. Once the roadway and new access road are completed and the new culverts installed, there would likely be an increase in suspended particulates and turbidity during the first few rain events. However, there would not significant long-term changes in suspended particulates and turbidity.

(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

No-Action Alternative. There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to light penetration would occur as a result of the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. There would be no permanent effects to light penetration due to the Adjacent Levee Alternative (Proposed Action) and the Fix-in-Place Alternative. The project would not change the remaining jurisdictional waters in a way that would increase or decrease light penetration. The existing drainages that would not be directly affected (i.e., filled) or replaced would be restored to existing conditions after construction is completed.

(b) Dissolved Oxygen

No-Action Alternative. There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to dissolved oxygen would occur as a result of the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Temporary effects to dissolved oxygen in jurisdictional features in the Phase 4b Project vicinity may occur during construction of the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative due to situations where aquatic features such as canals and ditches would be partially dewatered to facilitate levee construction, canal or ditch improvement, or replacement. Once construction is complete, these canals and ditches would be improved, restored, or replaced. There would be no adverse effects to dissolved oxygen due to the Adjacent Levee Alternative (Proposed Action) or Fix-in-Place Alternative.
(c) Toxic Metals and Organics

**No-Action Alternative.** There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to toxic metals and organics would occur as a result of the No-Action Alternative.

**Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative.** There would be no contaminants introduced to the drainage areas or any other jurisdictional waters with the project area. Due to the inertness of the fill materials, there would be no exchange of constituents between the fill and aquatic systems.

(d) Pathogens

**No-Action Alternative.** There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to pathogens would occur as a result of the No-Action Alternative.

**Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative.** As described in the EIS/EIR, the proposed project would incorporate water quality features that would reduce the potential for pathogens to be introduced as a result of an increase in impervious surfaces (i.e., less heavy machinery traffic due to maintenance equipment traffic) and stormwater runoff. The Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative would comply with all applicable local, state, and Federal laws regarding water quality. Therefore, there would be no adverse effects due to these alternatives.

(e) Aesthetics

**No-Action Alternative.** Under the No-Action Alternative (No Project Construction), as described in Section 4.14, “Visual Resources,” of the EIS/EIR, to comply with USACE guidance regarding levee encroachments, trees and vegetation would be removed from the landside and waterside of Sacramento River east levee Reach A:16–20, the landside of American River north levee Reach I:1–4, a portion of NEMDC South to the Arden-Garden Connector, and the landside and waterside of NEMDC South between Arden-Garden Connector and the NEMDC Stormwater Pumping Station. Up to 6 acres of waterside vegetation could also be removed from the American River north levee in the event that a variance from USACE levee vegetation guidance is not granted, resulting in a total of (estimated) approximately 25.89 acres of waterside vegetation that would be removed under this alternative. The quality of the views of the waterside of the levees would be degraded for recreational users of the rivers, residents along the waterside of the Sacramento River east levee, Garden Highway users, and others in the Natomas Basin that may be near a site where any large trees are removed. That is because the crowns of many trees, such as large cottonwood and oak trees, and Heritage oaks on the waterside or landside of the levees, are clearly visible from most parts of the Natomas Basin. Under this alternative, no minimization measures are proposed to mitigate for these effects.

**Adjacent Levee Alternative (Proposed Action).** As described in Section 4.14, “Visual Resources,” of the EIS/EIR, effects to visual resources include those which would occur during construction (construction equipment and general disturbance) and include the movement of heavy machinery near residences and other recreational viewers in the Sacramento River. The effects from these activities would be temporary and short-term and would not be considered adverse. In addition, as described in Table 4.7-2 in Section 4.7, “Biological Resources,” the removal of (estimated) approximately 7.32 acres mature waterside vegetation combined with affects due to high viewer sensitivity of recreational users of the Sacramento River and residents on the waterside of the levee would be considered an adverse effect. Project effects would be offset by implementation of mitigation measures in the EIS/EIR, specifically Mitigation Measure 4.14-a, “Implement Mitigation Measures 4.7-a, “Minimize Effects on Woodland Habitat; Implement all Woodland Habitat Improvements and
Management Agreements; Compensate for Loss of Habitat; and Comply with Section 7 of the Federal Endangered Species Act, Section 1602 of the California Fish and Game Code, and Section 2081 of the California Endangered Species Act Permit Conditions,” and 4.13-b, “Compensate City of Sacramento Department of Parks and Recreation for Loss of Parkland and Park Amenities.”

**Fix-in-Place Alternative.** As described in Section 4.14, “Visual Resources,” of the EIS/EIR, temporary and short-term effects to visual resources as a result of the movement of heavy machinery near residences would be similar to the Adjacent Levee Alternative (Proposed Action). However, as described in Table 4.7-2 in Section 4.7, “Biological Resources,” the Fix-in-Place Alternative would result in the removal of (estimated) approximately 26.52 acres of waterside vegetation, which is a greater effect than the Adjacent Levee Alternative (Proposed Action). Similarly, the removal of waterside vegetation combined with the same high viewer sensitivity of recreational users of the Sacramento River and residents on the waterside of the levee would be considered an adverse effect. Similar to the Adjacent Levee Alternative (Proposed Action), effects would be offset by implementation of mitigation measures in the EIS/EIR, specifically Mitigation Measure 4.14-a, discussed above.

(f) Others as Appropriate

**No-Action Alternative, Adjacent Levee Alternative (Proposed Action), and Fix-in-Place Alternative.** There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to chemical and physical properties of the water column would occur as a result of the No-Action Alternative. There would be no other adverse effects due to the project alternatives.

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

(a) Primary Production, Photosynthesis

**No-Action Alternative.** As described in Section 2(e) above, an (estimated) approximately 25.89 acres of riparian woodland/shaded riverine aquatic (SRA) habitat would be removed as part of the No-Action Alternative, which would affect primary production (i.e., photosynthesis). This would be considered an adverse effect.

**Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative.** As described in Section 2(e) above, an (estimated) approximately 7.32 acres and 25.52 acres of riparian woodland/SRA habitat would be removed as part of the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative, respectively, which would affect primary production (i.e., photosynthesis).

(b) Suspension/Filter Feeders

**No-Action Alternative.** Suspension and/or filter feeders have been known to occur in the Sacramento River and the American River; however, the No-Action Alternative would not involve any construction that would adversely affect populations of suspension and/or filter feeders.

**Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative.** The majority of the construction work and fill materials in the Sacramento and American Rivers would be limited to the area of the Sacramento River east levee waterside slope above the ordinary high water mark, and would not adversely affect populations of suspension and/or filter feeders. Primarily, effects to the irrigation and drainage canals and ditches in the interior of the Natomas Basin would occur due to the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Significant populations of filter feeders are not known in the interior of the Natomas Basin; therefore, no adverse effect would occur.
No-Action Alternative. Sight feeders have been known to occur in the Sacramento and the American Rivers, however the No-Action Alternative does not have any construction that would directly adversely affect populations of sight feeders. However, as described in Section 4.7, “Biological Resources,” of the EIS/EIR, waterside woodlands on the Sacramento River provide SRA habitat function, which is important for sight feeders such as fish and other Sacramento River aquatic resources. Removal of an (estimated) approximately 25.89 acres of waterside riparian woodland habitat would adversely affect important SRA habitat, including moderation of water temperatures, recruitment of woody debris, and introduction of insects that provide food for aquatic species.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Sight feeders such as listed fish species occur in the Sacramento and the American Rivers; however, the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative do not have any construction that would directly adversely affect listed fish populations. The majority of the construction work and fill materials in the Sacramento and American Rivers would be limited to the area of the Sacramento River east levee waterside slope above the ordinary high water mark, and would not adversely affect fish populations because in water work is minimal. Primarily, effects to the irrigation and drainage canals and ditches in the interior of the Natomas would occur due to the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Listed fish populations are not known to occur in the interior of the Natomas Basin and so no adverse effect would occur.

As described in detail in Section 4.7, “Biological Resources,” of the EIS/EIR, removal of an (estimated) approximately 7.32 acres and 25.52 acres for the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative, respectively, of waterside riparian woodland habitat would adversely affect important SRA habitat, including moderation of water temperatures, recruitment of woody debris, and introduction of insects that provide food for aquatic species. This would be considered an adverse effect to SRA habitat.

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

No-Action Alternative. No construction is proposed as part of the No-Action Alternative; therefore, no actions would be taken to minimize impacts under the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Section 4.7, “Biological Resources,” of the EIS/EIR contains Mitigation Measure 4.7-a, “Minimize Effects on Woodland Habitat; Implement Woodland Habitat Improvements and Management Agreements; Compensate for Loss of Habitat; and Comply with Section 7 of the Federal Endangered Species Act, Section 2081 of the California Endangered Species Act, and Section 1602 of the California Fish and Game Code,” which requires the project proponent to consult with and seek approval from the resource agencies, determine the appropriate amount of habitat to be created, and create and maintain sufficient habitat as compensation for impacts due to the alternatives.

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

No-Action Alternative. There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects due to contaminants would occur as a result of the No-Action Alternative. There would be no other adverse effects.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. As described in detail in Section 4.6, “Water Quality,” of the EIS/EIR, implementation of the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative would include extensive ground-disturbing activities during construction, many of them near local drainages and waterways that could become contaminated by soil or construction substances. These waterways include the Sacramento River, the
American River, the NEMDC, the PGCC, the NCC, and the West Drainage Canal. The Sacramento River is a receiving water for much of the drainage from the Natomas Basin (including agricultural drainage). The potential for release of soil or construction-related contaminants/materials into the NEMDC, the PGCC, the NCC, the West Drainage Canal, local drainages, and ultimately the American or Sacramento Rivers could adversely affect water quality.

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

(1) Effects on Plankton

No-Action Alternative. There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to plankton would occur as a result of the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Plankton have the potential to occur in the water bodies surrounding the Natomas Basin and within the slower moving drainages and areas of standing water (i.e., rice fields and other agricultural bodies of water). Minor temporary effects to plankton would occur due to temporary and short-term impacts to water quality, fill of aquatic habitat, and dewatering. However, mitigation and replacement for aquatic habitats and features (i.e., managed marsh creation and relocation) and improvement of drainage and irrigation features would allow populations of plankton to reestablish once constructed. Populations of plankton would not be permanently affected and thus no adverse effect would occur.

(2) Effects on Benthos

No-Action Alternative, Adjacent Levee Alternative (Proposed Action), and Fix-in-Place Alternative. Because the project alternatives are not located in the sea or lake bottom, no adverse effects on the benthic community are expected.

(3) Effects on Nekton

No-Action Alternative. There would be no impact to nekton due to the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. As described in Chapter 3, “Affected Environment,” and Section 4.7, “Biological Resources,” nekton, specifically fish and crustaceans, occur in the project area and in the waterways surrounding the Natomas Basin. As described in Section 3 (c) above, populations of listed fish species would not be directly affected by the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative, though significant amounts of SRA habitat would be removed from the surrounding waterways as part of the Alternatives. The removal of substantial SRA habitat from the waterways surrounding the Natomas Basin would be considered an adverse effect.

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

No-Action Alternative. There would be no effect on the aquatic food web as part of the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. As described in Section 4.7, “Biological Resources,” of the EIS/EIR, the proposed project would temporarily impact aquatic habitats during construction through temporary dewatering, fill and replacement of irrigation and drainage canals and ditches and rice fields. The overall replacement aquatic habitat, including canals, ditches, and managed marsh (to compensate for impacts to rice fields) would improve the aquatic habitat conditions within the Natomas Basin. There would be no adverse effect to the aquatic food web as a result of the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative.
(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)

No-Action Alternative. There would be no levee construction as a result of the No-Action Alternative; therefore, there would be no adverse effects to sanctuaries or refuges with the proposed project.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. As described in Section 4.7, Biological Resources,” of the EIS/EIR, the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative would include habitat creation components that would expand, enhance, and improve the functionality, size and connectivity of the existing Natomas Basin Preserve lands, thus creating a beneficial impact to the existing Natomas Basin Habitat Conservation Plan.

(b) Wetlands (refer to section 230.41)

No-Action Alternative. There would be no construction and no discharge of fill material would occur due to the No-Action Alternative; therefore, no effects to wetlands would occur as a result of the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. As described in Chapter 3, “Affected Environment,” and Section 4.7, “Biological Resources,” of the EIS/EIR, wetlands in the project area primarily include irrigated wetlands found in rice fields in the Natomas Basin and seasonal wetlands. As described in Table 1, above, the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative would potentially result in the temporary impacts to irrigated wetlands found in the Triangle Properties borrow site. Because the borrow site would be impacted temporarily and would be restored to former productivity once construction is complete, potential adverse effects would be temporary in nature. Project effects would be permitted and if necessary, mitigated for through compliance with CWA Section 404, therefore no adverse effect would occur.

Permanent impacts to both irrigated and seasonal wetlands would occur as part of the levee, irrigation, and drainage infrastructure replacement; these totals are displayed in Table 1, above. As discussed in Section 4.7, “Biological Resources,” the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative would include creating waters of the United States that are expected to be more extensive than those filled by either alternative, and implementing the Phase 4b Project’s restoration plan, including coordination with and issuance of the permits by the aforementioned resource/regulatory agencies, would ensure no-net-loss of sensitive aquatic habitats occurs and that new jurisdictional waters would be managed in a manner that minimizes maintenance disturbance and provides the essential functions of the habitats that would be lost. Therefore, both the Adjacent Levee Alternative (Proposed Action) and the Fix-in-Place Alternative, with implementation of this mitigation measure, would result an increase in the overall acreage and enhance the function of waters of the United States in the Natomas Basin. There would be no adverse effect to wetlands.

(c) Mud Flats (refer to Section 230.42)

No-Action Alternative, Adjacent Levee Alternative (Proposed Action), and Fix-in-Place Alternative. Mud flats do not occur in the Phase 4b Project area in the Natomas Basin. There would be no adverse project effects to mud flats.
(d) Vegetated Shallows (refer to Section 230.43)

No-Action Alternative, Adjacent Levee Alternative (Proposed Action), and Fix-in-Place Alternative. Vegetated Shallows do not occur in the Phase 4b Project area in the Natomas Basin. There would be no adverse project effects to vegetated shallows.

(e) Coral Reefs (refer to Section 230.44)

No-Action Alternative, Adjacent Levee Alternative (Proposed Action), and Fix-in-Place Alternative. Mud flats do not occur in the Project area in the Natomas Basin. There would be no adverse project effects to coral reefs.

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

No-Action Alternative, Adjacent Levee Alternative (Proposed Action), and Fix-in-Place Alternative. There are no riffle and pool complexes in the vicinity of the Phase 4b Project, therefore, there would be no adverse project effects to riffle and pool complexes.

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

No-Action Alternative. No levee or infrastructure improvements would occur and thus there would be no adverse effect to threatened and endangered species due to the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. As described in Section 4.7, “Biological Resources,” habitat for threatened and endangered species would be adversely affected by levee construction, irrigation, and drainage improvements as part of both the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. As part of the habitat creation plan, both alternatives would include the enhancement of habitat under management of TNBC and expand, enhance, and improve the functionality of the Preserves for threatened and endangered species in the Basin. This would be considered a temporary adverse effect while the replacement habitats are being constructed, but a long-term beneficial effect once functions and values have been restored.

Direct impacts (i.e., “take” as defined by the Endangered Species Act and the California Endangered Species Act) would be minimized to the extent feasible by implementing the mitigation measures in the EIS/EIR and the conservation and minimization measures developed during consultation with the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Game (DFG) and the National Marine Fisheries Service (NMFS). With the implementation of the mitigation, conservation, and minimization measures, no adverse effect would occur.

(7) Other Wildlife (refer to Section 230.32)

No-Action Alternative. No levee or infrastructure improvements would occur and, thus, there would be no adverse effect to other wildlife species due to the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Similar to the effects described above for threatened and endangered species, effects to other wildlife species and habitat would be temporary. For habitats that would be affected, this would be considered a temporary adverse effect while the replacement habitats are being constructed, but a long-term beneficial impact once functions and values have been restored.

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

No-Action Alternative. No levee or infrastructure improvements would occur and, thus, there would be no actions to minimize effects due to the No-Action Alternative.
Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Mitigation measures to minimize effects are described in detail in Sections 4.6, “Water Quality,” and 4.7, “Biological Resources,” of the EIS/EIR. The habitat creation plan is described in detail in Chapter 2, “Alternatives,” and Section 4.7, “Biological Resources,” of the EIS/EIR. Other minimization and conservation measures would be developed with USFWS, DFG, and NMFS through the consultation and permitting process prior to project construction.

f. Proposed Disposal Site Determinations

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

No-Action Alternative. No levee or infrastructure improvements would occur and, thus, there would be no effects to the mixing zones in or adjacent to the project area due to the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. Mixing zones occur in the water column of the waterways adjacent to the Natomas Basin such as the Sacramento and American Rivers. The Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative do not involve placing fill materials within these zones. Additionally, as described in Section 4.6, “Water Quality,” of the EIS/EIR, while both alternatives involve the continued discharge of drainage water from the interior of the Natomas Basin to the adjacent waterways, all applicable regulations regarding flow, duration, and water quality would be followed and no adverse affect would result to the mixing zone.

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

No-Action Alternative. No levee or infrastructure improvements would occur and, thus, there would be no effects to compliance with applicable water quality standards due to the No-Action Alternative.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. As described in Section 4.6, “Water Quality,” of the EIS/EIR, while both alternatives involve the continued discharge of drainage water from the interior of the Natomas Basin to the adjacent waterways, all applicable regulations regarding flow, duration, and water quality would be followed and no adverse affect would occur due to non-compliance with water quality standards. All applicable water quality permits would be obtained and followed during project construction.

(3) Potential Effects on Human Use Characteristics

No-Action Alternative, Adjacent Levee Alternative (Proposed Action), and Fix-in-Place Alternative. The project alternatives 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 an the Aquatic Ecosystem (consider requirements in Section 230.11[g])

No-Action Alternative. No levee or infrastructure improvements would occur and, thus, there would be no cumulative effects to the aquatic ecosystem.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. There would be no significant cumulative effects on the aquatic ecosystem due to this project. As described above and in Sections 4.6, “Water Quality,” and 4.7, “Biological Resources,” of the EIS/EIR, the effects to aquatic
ecosystems are primarily temporary in nature and are not considered adverse effects to the aquatic ecosystem.

Permanent cumulative effects to the aquatic ecosystem, as described in detail in Chapter 5, “Cumulative and Growth Inducing Impacts and Other Statutory Requirements,” of the EIS/EIR, would be replaced and improved or enhanced resulting in no net loss of ecosystem function, thus creating a cumulatively beneficial impact to the overall aquatic ecosystem in the Natomas Basin.

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

**No-Action Alternative.** No additional secondary effects on the aquatic ecosystem would result from the No-Action Alternative.

**Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative.** As described in Sections 4.6, “Water Quality,” and 4.7, “Biological Resources,” in the EIS/EIR, secondary effects on the aquatic ecosystem as a result of the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative would consist of be beneficial in nature.

**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** (briefly discuss alternatives considered and that are available and practical and state why the one selected would result in the least amount of significant impacts. Reference should be made to other appropriate sections on alternatives in EIS or Main Reports when the 404 Evaluation is contained in these documents.)

A complete description of the Alternatives carried forward for analysis is contained in Chapter 2, “Alternatives,” of the EIS/EIR.

Based on this analysis contained in Chapter 2, “Alternatives,” of the EIS/EIR and the analysis above, conducted in adherence with the Clean Water Act Section 404(b)(1) Guidelines, the No-Action Alternative would not meet the overall project purpose of providing an adequate level of flood protection; therefore, it does not meet the 404(b)(1) Guidelines definition of practicability and does not meet the project’s purpose and need. In addition, associated flood risks render this alternative contrary to the public interest. The Adjacent Levee Alternative (Proposed Action) is considered to be practicable and have the least potential for adverse environmental effects. As described in the discussion under “Aesthetics” and “Sight Feeders” above, the Fix-in-Place Alternative is considered to be practicable, but would have substantially greater adverse effects on riparian woodland/SRA habitat than the Adjacent Levee Alternative (Proposed Action). In addition, the Fix-in-Place Alternative would require reconstruction of the existing Garden Highway increasing traffic effects, in accordance with currently applicable roadway standards.

Mitigation of SRA associated with both the Adjacent Levee Alternative (Proposed Action) and the Fix-in-Place Alternative may not be feasible due to the lack of availability of appropriate aquatic habitat mitigation areas, though the effect is substantially more adverse under the Fix-in-Place Alternative. In conclusion, considering the alternatives carried forward for analysis in the EIS/EIR and this document, there is no practicable alternative to the Adjacent Levee Alternative (Proposed Action)
that would have less adverse effect on the aquatic ecosystem without other adverse environmental or public interest consequences.

Under the Adjacent Levee Alternative (Proposed Action), impacts on the aquatic ecosystem have been avoided or minimized to the maximum extent possible. All appropriate and practicable measures to minimize potential harm to the aquatic ecosystem have been incorporated into the project design. Based on this analysis, it is concluded that the Adjacent Levee Alternative (Proposed Action) constitutes the least environmentally damaging practicable alternative.

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**

   **No-Action Alternative.** There would be no levee construction associated with the No-Action Alternative; therefore, no compliance would be required.

   **Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative.** As described in Section 4.6, “Water Quality,” of the EIS/EIR, the proposed project would adhere to all applicable state water quality standards and comply with applicable toxic effluent standards or prohibitions under Section 307 of the Clean Water Act. In addition, implementation of Mitigation Measure 4.6-a, “Implement Standard Best Management Practices, Prepare and Implement a Stormwater Pollution Prevention Plan, and Comply with National Pollutant Discharge Elimination System Permit Conditions,” and Mitigation Measure 4.6-b, “Implement Best Management Practices and Comply with NPDES Permit Conditions for a Point-Source Discharge,” would ensure compliance with state or Federal water quality standards.

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

   **No-Action Alternative.** There would be no levee construction as a result of the No-Action Alternative, so no compliance with ESA would be required.

   **Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative.** As described in Section 3.7, “Biological Resources,” and Section 4.7, “Biological Resources,” of the EIS/EIR, both the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative would have adverse effects (often through removal or fill) to habitat for Federally listed species and the potential for “take” of individuals. However, implementation of the NLIP programmatic conservation strategy in accordance with the Programmatic Biological Opinion (issued October 2009 by USFWS), and informal ESA Section 7 consultation through coordination with National Marine Fisheries Service, and implementation of Mitigation Measures 4.7-a through 4.7-l in the EIS/EIR, would ensure that adequate conservation, avoidance, and minimization measures are observed prior to, during, and after project construction to ensure compliance with the ESA.

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

   **No-Action Alternative, Adjacent Levee Alternative (Proposed Action), and Fix-in-Place Alternative.** There are no Designated Marine Sanctuaries in the vicinity of the Natomas Basin; therefore, there would be no adverse effect as a result of any of the alternatives.
g. Evaluation of Extent of Degradation of the Waters of the United States

(1) Significant Adverse Effects on Human Health and Welfare

No-Action Alternative. As described in Chapter 2, “Alternatives,” of the EIS/EIR, the No-Action Alternative would not provide an adequate levee of flood protection for the Natomas Basin and would have a significant adverse effect on human health and welfare should a flood event occur.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative. The proposed project would not cause significant adverse effect on human health and welfare, including municipal and private water supplies, recreation and commercial fishing. As described above, construction activities would not adversely affect benthic communities and plankton. There would be no adverse effects to fish, shellfish, wildlife or special aquatic sites. As described in Sections 4.6, “Water Quality,” and 4.7, “Biological Resources,” of the EIS/EIR, temporary impacts to water quality and aquatic diversity would be minimal at fill sites, during construction. Additionally, irrigation and drainage canals and ditches, managed marsh, woodland, upland row and field crop, native grassland, SRA, woodlands, and other wildlife associated habitat would be restored after project construction according to resource agency approved Mitigation and Monitoring Plans and in coordination with the resource agencies and TNBC. The proposed project would not significantly affect recreation or economic values as its inherent purpose is to provide flood protection for the residents of the Natomas Basin. Temporary effects to traffic, esthetics would occur during construction.

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

No-Action Alternative. No levee construction would occur under the No-Action Alternative, and therefore no discharge would occur. No steps would be needed to minimize potential adverse impacts of the discharge on the aquatic ecosystem because no adverse effect would occur.

Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative As described in Section 4.7, “Biological Resources,” of the EIS/EIR, both the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative would have temporary adverse effects to the aquatic ecosystem during construction. These impacts would occur during the improvements and replacements of irrigation and drainage canals and ditches. Once improvements and replacements are complete, the adverse effects to these features would be restored and/or improved. There would be no permanent adverse effect. In addition, during construction, implementation of Mitigation Measures in Sections 4.6, “Water Quality,” and 4.7, “Biological Resources,” would ensure that all appropriate and practicable steps would be taken to minimize the potential adverse effects due to 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.

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.
References


D4  Tree Survey Results for the Natomas Cross Canal and the Lower Natomas East Main Drainage Canal
Natomas Cross Canal South Levee Tree Survey  
Sta. 0+00 to 50+00

Trees located on the 1/3 waterside slope line:

<table>
<thead>
<tr>
<th>Species</th>
<th>Trunk Diameter (in)</th>
<th>Dripline (ft)</th>
<th>Northing(Y)</th>
<th>Easting(X)</th>
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<tbody>
<tr>
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<td>6676767.0</td>
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<td>6674687.9</td>
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<td>6675831.0</td>
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<tr>
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Approximate caropy area = 4530 sqft

Trees located between the 1/3 and 1/2 waterside slope line:

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Approximate caropy area = 9830 sqft
Trees located upslope of the 1/2 waterside slope line:

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<td>12</td>
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</table>

Approximate canopy area = 1250 sqft

NOTES:

The data shown above was collected during a field survey performed on 5/26/2010 at the request of AECCM.

The horizontal datum is NAD83 (1991.35 Epoch), being CCS83 Zone 2.

Coordinate values are grid, multiply by 1.00006027 to obtain ground values.
NEMDC Levee Tree Survey
Sta. 16+50 to 57+50

Trees located on the Vegetation Impact Line:

<table>
<thead>
<tr>
<th>Species</th>
<th>Trunk Diameter (in)</th>
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<th>Northing(Y)</th>
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<tbody>
<tr>
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Approximate Canopy Area: 300± Sq. Ft.

Trees located slightly east of the Vegetation Impact Line:

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Approximate Canopy Area: 440± Sq. Ft.

Trees located west of the 1/3 waterside slope line:

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<tr>
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<td>18</td>
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Approximate Canopy Area: 1190± Sq. Ft.

Trees located between the 1/3 waterside slope line and the Vegetation Impact Line:

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Deciduous 8 10 1983421.6 6713433.0
Deciduous 4 10 1983419.4 6713433.6
Deciduous 4 10 1983408.3 6713429.0
Deciduous 8 10 1983394.2 6713420.7
Deciduous 4 10 1983390.8 6713421.2
Oak 30 50 1983394.0 6713405.0
Oak 36 13 1986718.3 6713517.1
Eucalyptus 36 25 1986795.2 6713514.5
Oak 30 27 1985860.4 6713679.0
Oak 38 28 1985908.6 6713672.9
Oak 24 22 1985999.8 6713654.9
Cottonwood 48 30 1986190.9 6713616.1
Willow 52 22 1986440.5 6713571.2
Deciduous 6 10 1986443.8 6713573.5
Deciduous 6 10 1986440.9 6713565.8
Oak 36 14 1985746.8 6713681.5
Oak 12 12 1985758.5 6713680.4
Oak 28 18 1985771.3 6713680.1
Oak 10 10 1985766.8 6713696.0

Approximate Canopy Area: 19,600± Sq. Ft.
Total Approximate Canopy Area: 21,530± Sq. Ft.

NOTES:

The data shown above was collected during a field survey performed on 5/28/2010 at the request of AECOM.

The horizontal datum is NAD83 (1991.35 Epoch), being CCS83 Zone 2.

Coordinate values are grid, multiply by 1.00006027 to obtain ground values.
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</table>
D5  Fish and Wildlife Coordination Act Report
Ms. Alicia Kirchner  
Chief, Planning Division  
U.S. Army Corps of Engineers, Sacramento District  
1325 J Street  
Sacramento, California 95814

Dear Ms. Kirchner:

This letter constitutes the Fish and Wildlife Service’s (Service) Fish and Wildlife Coordination Act (FWCA) report, as provided for in section 2(b) of the FWCA (Public Law 85-624; 16 U.S.C. 661-667e) on the Natomas Levee Improvement Project, Phase 4b, Sacramento, California.

**Project History**

The entire project known as the Natomas Levee Improvement Program, Landslide Improvements Project is being phased by the U.S. Army Corps of Engineers (Corps) and the Sacramento Area Flood Control Agency (SAFCA).

In 2005 and early 2006, SAFCA conducted assessments of seepage potential along the east levee of the Sacramento River, the south levee of the Natomas Cross Canal (NCC), and the north levee of the American River in its Natomas Levee Evaluation Study. This study concluded that approximately 26 miles of these levees protecting the Natomas Basin are in need of improvements to correct underseepage potential. In addition, levee height and seepage remediation improvements at some locations on the Sacramento River east levee, the NCC south levee, the Pleasant Grove Creek Canal, and the Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek west levee are needed to provide adequate freeboard and subsequent protection from a 200-year flood. In 2006, the Corps recommended that the levees surrounding the Natomas Basin be decertified based on new geotechnical information and new standards. SAFCA is proposing to focus on segments that do not currently meet the 100-year design criteria adopted by the Federal Emergency Management Agency. The project has been broken up into four phases. Phase 1 included slurry wall work along a portion of the NCC, began in 2007, and completed in 2008. Phase 2 work began in 2009 and includes: levee raising and seepage remediation along the remainder of the NCC and Sacramento River east levee (Reaches 1-4B); relocation of the upper Elkhorn Canal; construction of the upper drainage
canal; habitat enhancement, creation and management; and right-of-way acquisition. Phase 3 work began in 2010 and includes: levee raising and seepage remediation along the Sacramento River levee (Reaches 5A-9B); relocation of the lower Elkhorn Canal; construction of the lower drainage canal; woodland corridor creation; levee raising, slope flattening and widening, and seepage remediation along the Pleasant Grove Creek Canal west levee; seepage remediation and slope stability remediation along the NEMDC west levee; infrastructure relocation and realignment; right-of-way acquisition; reconfiguration of Airport West Ditch; and landslide vegetation removal of the Sacramento River east levee Reaches 10-12A. Phase 4a will begin in 2011 and includes: levee raising and seepage remediation along the Sacramento River east levee (Reaches 10-15); levee raising and seepage remediation along the NCC at the Northern and Bennett pumping plant locations; relocation of the Riverside Canal; pump plant modifications (both landside and waterside) or replacements; creation of managed marsh along Fisherman’s Lake; creation of woodland corridor between Reaches 12A and 14; and right-of-way acquisition.

**Project Description**

The remaining portion of work is Phase 4b. Phase 4b work includes: the Sacramento River east levee south of the limits of the Phase 4a Project along Reach A:16–20 of the Sacramento River east levee, the American River north levee (Reach I:1–4), the PGCC (Reach E), the NEMDC west levee (Reaches F–H), improvements to the West Drainage Canal from I-5 to Fisherman’s Lake, relocation of the Riego Road Canal along the NEMDC west levee, and relocation of the Vestal Drain and Morrison Canal along the NCC. This FWCA report is only reviewing and commenting on Phase 4b of the overall project.

Three alternatives were evaluated for the Natomas Levee Improvement Project, Phase 4b: No Action Alternative; Adjacent Setback Levee; and Fix-In-Place. Descriptions of the alternatives can be found in the Corps’ *Natomas Levee Improvement Program, Phase 4b Landside Improvements Project Draft Environmental Impact Statement* (EIS), July 2010. The Corps and SAFCA have selected Alternative 1 as their preferred alternative.

**Service Involvement**

The Service has been working with the Corps and SAFCA on the Natomas Levee Improvement Project, Phase 4b for the last 6 months. The Corps initiated section 7 consultation under the Endangered Species Act in June 2010 and a biological opinion was signed on October 12, 2010.

**Recommendations/Conclusions**

Because the Corps and SAFCA have selected a preferred alternative and formal section 7 consultation has been initiated on this alternative, we are focusing our recommendations on the Adjacent Setback Levee. For a complete description of this alternative, refer to the EIS. The Corps and SAFCA have incorporated many project avoidance, minimization, and compensation measures within their project description. Given this, the Service is not recommending any additional compensation. The Service feels that effects to important habitats such as riparian woodland habitat will be mitigated for by creating 10 acres of woodland along the Sacramento River East Levee woodland corridor and creating 50 acres of riparian forest within the Lower Dry Creek area. Effects to aquatic habitat will be mitigated through the creation of enlarged canals throughout the project site and managed marsh at the Brookfield Borrow Site.
Based on our review of documentation available, the Service has the following recommendations in regards to the proposed project:

1) Minimize the impact on migratory birds by conducting pre-construction nesting surveys and avoiding construction at those sites where nests are found until the young have fledged the nest.

2) Replace the loss of any shaded riverine aquatic habitat that is lost as part of the Phase 4b project as proposed. In order to provide the same future function of this habitat, plantings should occur on the waterside of the levee and in the vicinity of the area of impact.

3) Include the Service when developing the planting plan for all habitat types created as a result of the project. Woodland areas should include a shrub component to create a complex woodland habitat structure.

4) Minimize impacts to northwestern pond turtles by having a qualified biologist conduct focused surveys for pond turtle nests, juveniles, and adults prior to and during construction activities in suitable upland nesting and aquatic habitat (upland areas within 1,640 feet of canals, ditches, emergent wetlands, and other permanent/semi-permanent aquatic habitat).

5) Complete the appropriate consultation with NOAA Fisheries, as required under section 7 of the Endangered Species Act, for potential impacts to listed anadromous fish and marine species under NOAA Fisheries jurisdiction.

6) Obtain a 2081 permit from the California Department of Fish and Game on State listed species.

7) Create an operations, maintenance, and monitoring plan for any habitat created as a result of the proposed project. This plan should be coordinated with the Service and the entity responsible for long-term maintenance of the site.

If you have any questions regarding this report or other aspects of the FWCA, please contact Jennifer Hobbs at (916) 414-6541.

Sincerely,

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