FLOOD
EMERGENCY RESPONSE

Initial Study/Proposed Mitigated Negative Declaration

Delta Flood Emergency Facilities Improvement Project

A Component of the Delta Flood Emergency Preparedness, Response, and Recovery Program

April 2013

FloodSAFE
CALIFORNIA DEPARTMENT OF WATER RESOURCES

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April 2013

Notice of Intent (NOI)

Notice of Intent to adopt an Initial Study/Mitigated Negative Declaration

For the Delta Flood Emergency Facilities Improvement Project, a Component of the Delta Flood Emergency Preparedness, Response, and Recovery Program

California Department of Water Resources
Division of Flood Management
3310 El Camino Ave.
Sacramento, CA 95821

Date: April 2013

To: Responsible and Trustee Agencies, Interested Parties, and Organizations

Subject: NOTICE OF INTENT TO ADOPT AN INITIAL STUDY/MITIGATED NEGATIVE DECLARATION FOR THE DELTA FLOOD EMERGENCY FACILITIES IMPROVEMENT PROJECT, A COMPONENT OF THE DELTA FLOOD EMERGENCY PREPAREDNESS, RESPONSE AND RECOVERY PROGRAM

The California Department of Water Resources (DWR) has prepared and intends to adopt a Mitigated Negative Declaration (MND) for the proposed project in compliance with the California Environmental Quality Act (CEQA) and State CEQA Guidelines.

Project Title: Delta Flood Emergency Facilities Improvement Project, a component of the Delta Flood Emergency Preparedness, Response and Recovery Program.

Lead Agency: Department of Water Resources, Division of Flood Management

Project Location: This Initial Study/Mitigation Negative Declaration addresses the potential development, improvement, and operation of three permanent rock stockpile and emergency transfer sites in the Sacramento-San Joaquin River Delta area. These sites are located at:

1) 1404, 1541, 1515, and 1325 West Weber Avenue, Stockton, CA (Stockton West Weber Avenue)
2) Central Valley Flood Protection Board Dredge Disposal Site, at Airport Road, Rio Vista, CA (Rio Vista)
3) Brannan Island State Recreation Area, CA (Brannan Island)

Project Description: The project purpose, locations, site-specific improvements, construction, and operation are summarized below.

Project Purpose: The purpose of the Delta Flood Emergency Facilities Improvement Project (FIP), a component of the Delta Flood Emergency Preparedness, Response, and Recovery Program (DFEPRRP) http://www.water.ca.gov/floodmgmt/hafoo/fob/dfeprrp/ is to ensure that the State has the appropriate infrastructure and supplies in the Delta to respond to and recover quickly and effectively from major flood or earthquake disasters in the Sacramento-San Joaquin River Delta.

Such disasters could cause multiple levee failures resulting in flooded Delta islands, a loss of lives and property, environmental impacts, impacts on regional and State-wide utilities and transportation corridors, and interruptions in water deliveries through the Delta. The pace of

response and recovery operations is only as fast as the slowest component, which is the rate at which barges can be loaded with repair materials. Accordingly, the FIP is focused on identifying, evaluating, selecting, acquiring, and improving barge loading sites, which can also serve as Incident Command Posts (ICPs) and storage locations for flood fight materials, at strategic locations in the Delta region.

Locations and Site-Specific Improvements: To accomplish its purpose, the proposed project will establish two new material storage and transfer facility sites, one at Stockton West Weber Avenue and another at Brannan Island State Park; modify an existing material storage facility at Rio Vista; establish new flood fight supply facilities at all three locations; and make site preparations to support Incident Command Posts at Stockton West Weber Avenue and Brannan Island State Recreation Area. In addition to the 223,000 tons of quarry rock stockpiled by DWR at Rio Vista and within the Port of Stockton, DWR would also stockpile up to 40,000 tons of quarry rock material of variable gradations less than 24-inch-minus at Stockton West Weber Avenue and at Brannan Island, and 20 tons of sand in Rio Vista for a total additional increment of 100,000 tons. DWR would also make site improvements at all three sites, briefly summarized below.

Site 1 - Stockton West Weber Avenue:

- Purchase up to three parcels totaling 22.6 acres from the current owner(s)
- Clean up the existing site including applicable environmental remediation measures for DWR's planned uses within the commercial/industrial zoned area of West Weber Avenue
- Improve security fencing and lighting, modify two existing buildings for use as Incident Command Post
- Properly surface and mark parking and helipad areas
- Place up to five steel storage containers with flood fight supplies
- Establish a quarry rock stockpile of up to 40,000 tons of various rock gradations below 24-inch-minus
- Install up to six pilings near the top of bank along the Stockton Deep Water Ship Channel for mooring up to three conveyor support barges and up to three transport barges, allowing a total of five barges to be loaded simultaneously at the improved site during emergencies following site improvements

Site 2 - Rio Vista, Airport Road:

- Raise and widen existing access roads to the existing quarry rock stockpile on property owned by the Sacramento San Joaquin Drainage District (SSJDD) and the Central Valley Flood Protection Board (CVFPB), and create an improved

roadway loop on CCVFPB property to the nearby Dutra Group barge loading facility on the Sacramento River,

- At the southwest corner of the CVFPB property near the intersection of Airport Road and S. Francis Way, improve the existing access ramp from Airport Road to the site, place up to five steel storage containers with flood fight supplies,

- Establish a 1.25-acre area for vehicle parking and a helipad, and stockpile up to 20,000 tons of well-drained sand, and

- Negotiate an agreement with the Dutra Group for access via a haul road through the Dutra Group property and for loading the quarry rock onto barges as needed in an emergency. This would allow simultaneously loading of two barges at the Dutra Group waterside facility utilizing materials stockpiled at the improved CVFPB Rio Vista site.

<u>Site 3 - Brannan Island State Recreation Area:</u>

- Execute an inter-agency Memorandum of Agreement or Understanding (MOA/MOU) with the California Department of Parks and Recreation (DPR) for use of portions of the Brannan Island State Recreation Area (BISRA) as described herein

- Collaborate with the DPR in developing a 2,500 to 5,000 square-foot joint use facility for use as a Multi-Agency Center (MAC)

- Make improvements in the BISRA main boat launch area parking lot and boat launching ramp to accommodate a helipad, and loading barges with flood fight materials

- Make improvements in the area between the BISRA boat launching facility and the BISRA Group Picnic Area west of Sevenmile Slough, including the placement of two pilings near the top of bank, to facilitate loading barges with flood fight materials

- Place up to five steel containers with flood fight supplies and move an existing steel warehouse structure of approximately 10,000 square feet from Twitchell Island to the north end of the BISRA or mutually agreed upon location with DPR. DWR will coordinate with DPR staff and architect to facilitate the design of the joint use facility and steel warehouse so as not to diminish the natural aesthetics of the BISRA

- At the south end of the BISRA establish a quarry rock stockpile of up to 40,000 tons of various rock gradations below 24-inch-minus, improve and construct short haul loop roads between existing gate access points to Highway 160, improve working areas and install four pilings near the top of bank for loading up to two barges with flood fight materials, allowing a total of five barges to be loaded simultaneously at the BISRA during emergencies following site improvements

The proposed actions supplement the 2007-2008 Delta Emergency Rock and Transfer Facilities Project under which DWR established a quarry rock stockpile of approximately 113,000 tons at Rio Vista; executed a short-term lease with the Port of Stockton; constructed, tested, and stored a rock conveyor system at the Port; stockpiled approximately 110,000 tons at the Port; and established temporary transfer facilities in the town of Hood (which has since been removed). The 2007-2008 Delta Emergency Rock and Transfer Facilities Project was developed to assist with the emergency placement of rock slope protection material at various erosion sites in the Delta and was envisioned as an early implementation component to stockpile rock and set up barge loading facilities at strategic locations around the Delta for use during emergency flood fighting operations in the Delta. The proposed Delta Flood Emergency Facilities Improvement Project (FIP) is a larger extension of the 2006-2007 Delta Emergency Rock and Transfer Facilities Project and the FIP is now is a formal component of the Delta Flood Emergency Preparedness, Response, and Recovery Program, http://www.water.ca.gov/floodmgmt/hafoo/fob/dfeprrp/, to ensure that the State has the appropriate infrastructure and supplies in the Delta to respond to and recover quickly and effectively from major flood or earthquake disasters in the Sacramento-San Joaquin River Delta. The Delta Flood Emergency Preparedness, Response and Recovery Program (DFEPRRP) consists of six major elements, with the FIP being the only element that contains DWR structural components. The other five elements of the DFEPRRP consist of: (1) DWR developing and implementing a comprehensive Delta Flood Emergency Action Plan; (2) DWR working with Local Maintaining Agencies (LMAs) local governments, State, and federal agencies to have a coordinated and effective multi-agency response during large scale Delta flood emergencies, inclusive of DWR establishing and coordinating quarterly Delta Working Group meetings with local entities, Cal EMA, and federal agencies; (3) DWR providing grant funding to local governments and LMAs for improving communications during Delta flood emergencies, and improving local preparedness and response activities of Delta agencies for Delta flood emergencies; (4) DWR improving Delta flood analyses and evaluation tools inclusive of advancing and improving the Emergency Repair and Recovery module (ERR) and the Water Analysis Module (WAM) used previously in connection with the Delta Risk Management Strategy (DRMS) into a real-time, event-specific Emergency Response/Recovery Tool (ERT) that estimates flood damaged levee repair costs, timing of various repairs and potential interruptions/recovery times to resume water deliveries through the Delta that could be interrupted due to salt water intrusions following a major flooding event in the Delta; and (5) DWR conducting various flood emergency response studies, including a Delta emergency channel locations study, and a case study of the response and recovery actions of the 2004 Jones Tract flooding event.

Construction and Operation: The site improvements would be executed over the course of one to two construction seasons following execution of real estate purchases and lease agreements.

Once the site improvements are completed, the sites will be maintained in a ready status until needed in emergencies. Rock stockpiles would be replenished if portions are utilized prior to and during an emergency. During an emergency event, it is anticipated that the transfer sites would operate continuously on a 24 hours per day, 7 days per week basis, including quarry rock and sand deliveries by dump trucks, and loading of barges by conveyors, barge cranes, or front-end loaders. Any replenishment of stored materials after an emergency event would be confined to normal work hours of 7 AM to 7 PM, Monday through Saturday.

Environmental Review Process: DWR has prepared an Initial Study and proposed Mitigated Negative Declaration (IS/MND) on the proposed project in accordance with the requirements of CEQA. The IS/MND describes the proposed Delta Flood Emergency Facilities Improvement Project (FIP), a component of the Delta Flood Emergency Preparedness, Response and Recovery Program that provides an assessment of the project's potential impacts on the environment. The IS/MND concludes that any potentially significant impacts that may result from the proposed project can be avoided, eliminated, or reduced to levels that are less than significant by the adoption and implementation of specified mitigation measures.

Public Review Period: The IS/MND will be circulated for public review and comment for a review period of 30 days starting April 8, 2013. Written comments should be submitted and received at the following address no later than close of business (5:00 p.m.) on May 10, 2013. Written comments may be submitted by regular mail, email, or fax to the addresses shown below:

John Paasch
Division of Flood Management
California Department of Water Resources, Division of Flood Management
3310 El Camino Avenue, Suite 200
Sacramento, CA 95821
Phone: (916) 574-2167
Fax: (916) 574-2767
Email: john.paasch@water.ca.gov

Public Workshops: Informational public workshops will be held on Monday April 22, 2013, 11:00am-1:30pm in the City of Rio Vista City Hall, Council Chambers, One Main Street, Rio Vista, CA 94571; and on Wednesday April 24, 2013, 5:30-7:00pm in the Mokelumne Classroom within the San Joaquin County – Robert J. Cabral Agricultural Center, located at 2101 E Earhart Avenue, Stockton, CA 95206 (209) 953-6051.

To Review or Obtain a Copy of the Environmental Document: Copies of the draft IS/MND may be reviewed at the following locations:

1. Attention: John Paasch
   Division of Flood Management
   California Department of Water Resources, Division of Flood Management
   3310 El Camino Avenue, Suite 200
   Sacramento, CA 95821

2. Online at http://www.water.ca.gov/floodmgmt/hafoo/fob/dfeprrp/ it will be posted by April 8, 2013

3. Sacramento Public Library: Central Library, 828 I Street, Sacramento, CA 95814

4. Stockton Public Library: 605 North El Dorado Street Stockton, CA 95202

5. Rio Vista Library: 44 South Second Street, Rio Vista, CA 94571

Your views and comments on how the project may affect the environment will be welcomed, evaluated, and responded to prior to a final agency determination for the project.

Proposed Mitigated Negative Declaration

Project: Delta Flood Emergency Facilities Improvement Project

A Component of the Delta Flood Emergency Preparedness, Response, and Recovery Program

PROPOSED MITIGATED NEGATIVE DECLARATION

Project: Delta Flood Emergency Facilities Improvement Project, a Component of the Delta Flood Emergency Preparedness, Response, and Recovery Program

Lead Agency: Department of Water Resources, Division of Flood Management (DWR)

PROJECT DESCRIPTION

This Initial Study and Proposed Mitigated Negative Declaration (IS/MND) evaluates the environmental effects of the proposed Delta Flood Emergency Facilities Improvement Project, a Component of the Delta Flood Emergency Preparedness, Response, and Recovery Program.

The project purpose, locations, site-specific improvements, construction, and operation are summarized below

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appropriate infrastructure and supplies in the Delta to respond to and recover quickly and effectively from major flood or earthquake disasters in the Sacramento-San Joaquin River Delta. The Delta Flood Emergency Preparedness, Response, and Recovery Program (DFEPRRP) contains six major elements, with the FIP being the only element that consists of physical components proposed for implementation by DWR. The other five elements of the DFEPRRP consist of: (1) DWR developing and implementing a comprehensive Delta Flood Emergency Action Plan; (2) DWR working with Local Maintaining Agencies (LMAs) local governments, State, and federal agencies to have a coordinated and effective multi-agency response during large scale Delta flood emergencies, inclusive of DWR establishing and coordinating quarterly Delta Working Group meetings with local entities, Cal EMA, and federal agencies; (3) DWR providing grant funding to local governments and LMAs for improving communications during Delta flood emergencies, and improving local preparedness and response activities of Delta agencies for Delta flood emergencies; (4) DWR improving Delta flood analyses and evaluation tools inclusive of advancing and improving the Emergency Repair and Recovery module (ERR) and the Water Analysis Module (WAM) used previously in connection with the Delta Risk Management Strategy (DRMS) into a real-time, event-specific Emergency Response/Recovery Tool (ERT) that estimates flood damaged levee repair costs, timing of various repairs and potential interruptions/recovery times to resume water deliveries through the Delta that could be interrupted due to salt water intrusions following a major flooding event in the Delta; and (5) DWR conducting various flood emergency response studies, including a Delta emergency channel locations study, and a case study of the response and recovery actions of the 2004 Jones Tract flooding event.

Construction and Operation: The site improvements would be executed over the course of one to two construction seasons following execution of real estate purchases and lease agreements. Once the site improvements are completed, the sites will be maintained in a ready status until needed in emergencies. Rock stockpiles would be replenished if portions are utilized prior to and during an emergency. During an emergency event, it is anticipated that the transfer sites would operate continuously on a 24 hours per day, 7 days per week basis, including quarry rock and sand deliveries by dump trucks, and loading of barges by conveyors, barge cranes, or front-end loaders. Any replenishment of stored materials after an emergency event would be confined to normal work hours of 7 AM to 7 PM, Monday through Saturday.

The IS/MND only covers the activities of developing the emergency response facilities, inclusive of supplementing stockpiles of levee materials and flood fight supplies. During emergency activation, the transportation of rock from quarries and stockpiles to barge loading facilities and to levee breach locations in the Delta will occur under a declared emergency with or without the project, and thus emergency activations are considered exempt from CEQA per CEQA Guidelines, Section 15269[a,b,c].

FINDINGS

An IS/MND has been prepared to assess the project's potential effects on the environment and the significance of those effects. Based on the IS/MND, it has been determined that the proposed project would not have any significant effects on the environment, inclusive of impacts associated with Greenhouse Gases, after implementation of mitigation measures. This conclusion is supported by the following findings:

1. The proposed project would have **no impacts** related to Agricultural Resources, Mineral Resources, Population and Housing, Public Services, and Utilities and Service Systems.

2a. The proposed project would have **less-than-significant impacts** on Aesthetics, Air Quality, Land Use, and Transportation/Traffic.

2b. The proposed project would have **less-than-significant impacts** on Climate Change, and the project's incremental contribution to the cumulative impact of increasing atmospheric levels of Greenhouse Gases (GHGs) is less than cumulatively considerable and, therefore, **less-than-significant**. Please refer to Section 4.8 of the Initial Study which highlights DWR's efforts to reduce its greenhouse gas (GHG) emissions consistent with Executive Order S-3-05 and the Global Warming Solutions Act of 2006 (Assembly Bill (AB) 32). Section 4.8 of the Initial Study also includes how GHG emissions were analyzed and addressed, inclusive of a Greenhouse Gas Emissions Reduction Plan (GGERP) Consistency Determination Checklist, developed and executed specifically for the subject Delta Flood Emergency Facilities Improvement Project (FIP).

3. The proposed project would have **potentially significant impacts** related to Biological Resources, Cultural Resources, Hydrology and Water Quality, Geology and Soils, Hazards and Hazardous Materials, Noise, and Recreation, but **mitigation measures are proposed that would reduce these effects to less-than-significant levels**.

Following are the specific mitigation measures that would be implemented by DWR to avoid or minimize environmental impacts. Implementation of these mitigation measures would reduce the environmental impacts of the proposed project to a less-than-significant level.

AESTHETICS

Mitigation Measure AES-1: Design BISRA Joint Use Facility with DPR Incorporating Architectural and Landscaping Technics to Minimize Impacts to Scenic Vistas and Visual Resources.

DWR will consult and coordinate with DPR staff and architect to facilitate the location and design of the joint use facility and steel warehouse within the BISRA so as not to harm the natural aesthetics, scenic vistas, and visual character available within the BISRA and from the nearby Scenic SR 160. Potential design measures may include utilizing natural earth tones for building exteriors, incorporating earthen berms and planting native plants to help screen project building features from recreational areas and from Scenic SR 160.

Mitigation Measure AES-2: Locate and Design Quarry Rock Stockpile(s) at BISRA to Minimize Impacts to Scenic Vistas and Visual Resources.

DWR will consult and coordinate with DPR staff to facilitate the location, placement, shape, and visual treatment of quarry rock stockpile(s) that will be located near the southern tip of the BISRA peninsula. The quarry rock stockpiles will be located and configured so as not to harm the natural aesthetics, scenic vistas, and visual character available within and adjacent to the BISRA and from the nearby river, sloughs and Scenic SR 160. Potential visual treatments may

include screening by natural, native vegetation of trees and shrubs, utilizing natural berms, or covering the rock stockpiles with a layer of native soil and sand materials from nearby within the BISRA.

Mitigation Measure AES-3: Locate and Treat Exterior of Warehouse and Cargo Storage Containers at BISRA to Minimize Light and Glare Impacts to Day and Nighttime Views.

DWR will consult and coordinate with DPR staff to facilitate the location and exterior visual treatment of the project warehouse on BISRA to minimize light and glare impacts to day and nighttime views, and not to harm the natural aesthetics, scenic vistas, and visual character available within and adjacent to the BISRA and from Scenic SR 160. Potential visual treatments may include treating the exterior of the warehouse walls and roof in natural earth tones and screening by natural, native vegetation of trees and shrubs.

BIOLOGICAL RESOURCES

Mitigation Measure BIO-1: Conduct Burrowing Owl Surveys at all Three of the Project Sites Prior to Development.

Prior to any land clearing operations, a burrowing owl survey following standard guidelines (The California Burrowing Owl Consortium, CBOC, 1993) shall be conducted by a qualified biologist. The survey shall entail walking throughout the entire site, including a 500-foot buffer, to identify adjacent suitable habitat that could be affected by noise and vibration from heavy equipment operation. If no burrows are observed, no impact is expected and results of the survey shall be submitted to the California Department of Fish and Wildlife (DFW). If burrows or owls are observed, a nesting season (15 April – 15 July) survey shall also be conducted, the results of which shall determine whether a winter survey will be further required or whether the results of the survey can be submitted to the DFW following the nesting survey. If the surveys confirm occupied burrowing owl habitat, the Incidental Take Minimization Measure for Burrowing Owls (Measure 5.2.4.15) in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (November 14, 2000) will be implemented.

Mitigation Measure BIO-2: Retain all Mature Trees on the Proposed Project Sites.

Mature trees that are potential nest trees and native oak trees greater than 8”dbh will not be removed from any of the project sites. If a nest tree becomes occupied during stockpiling and site development activities, then depending upon the bird species involved, appropriate monitoring and mitigation measures as specified by the (DFW) will be instituted. At a minimum, all construction activities shall remain a distance of at least two times the drip line radius of active nest trees, as measured from the nest.

Mitigation Measure BIO-3: Conduct Special Status Surveys.

DWR will consult with DFW prior to project construction to determine the extent for pre-construction sensitive species survey on the proposed project sites. For those sites determined for specific surveys, a qualified biologist shall conduct the sensitive species survey on the sites and within buffer areas of the sites. Special status bird species that could potentially nest in trees in or near the project area include Swainson’s hawk, tricolored blackbird, white-tailed

kite, double-crested cormorant, California black rail, saltmarsh common yellowthroat, song sparrow, Cooper's hawk, ferruginous hawk, merlin, yellow-headed blackbird, and western yellow-billed cuckoo. Potential habitat for special status reptiles/amphibians including the giant garter snake (GGS) and the western pond turtle exists at all three sites necessitating the need to conduct pre-construction surveys at all three sites. In addition, the western red bat could potentially roost in trees in or near the Rio Vista site and the Brannan Island site. The surveys shall be conducted no more than two weeks prior to the start of operations and depending on the expected duration of the activities a follow-up survey may also be required. All observed sensitive species shall be reported to the DFW. The proposed project will be adjusted to avoid impacting these species, or to relocate the individuals under the guidance of the DFW.

Mitigation Measure BIO-4: Conduct Pre-Construction Riparian Habitat Surveys at All Three of the Project Sites Prior to Development.

Prior to any land clearing operations, riparian habitat surveys shall be conducted by a qualified biologist to confirm that construction activities will not impact riparian habitat. The survey shall entail walking throughout the entire site, including a 100-foot buffer, to identify adjacent suitable riparian habitat that could be affected by construction activities, particularly along the top of waterside banks or slopes or low-lying areas. The riparian habitat surveys shall be submitted to DFW along with each of the site development plans to confirm that isolated project activities, inclusive of piling installations, utility installations and road/ramp improvements near or adjacent to riparian habitat or other sensitive natural communities will not result in a significant impact to riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.

Mitigation Measure BIO-5: Conduct Pre-Design Wetlands and Riparian Habitat Surveys for each of the Sites and Install and Maintain Exclusionary Fencing at the Sites to Ensure Full Avoidance of Seasonal and Permanent Wetlands and Jurisdictional Riparian Habitat.

a) DWR shall retain a qualified biologist to conduct a wetland delineation of the project sites. This delineation shall be submitted to the Corps, and verification received prior to any ground disturbing activities beyond the existing on-site roadways.

b) DWR, will preserve, and not disturb the existing wetlands, and wherever possible, establish 25-foot minimum buffers around all sides of these features. In addition, the final project design shall not cause significant changes to the pre-project hydrology, water quality or water quantity in any wetland that is to be retained on site. This shall be accomplished by avoiding or repairing any disturbance to the hydrologic conditions supporting these wetlands, as verified through wetland protection plans.

c) DWR, prior to construction activities, shall conduct an updated wetland delineation for its potential disturbance area, install orange exclusion fencing on T-posts (or equivalent), with silt fence material installed along the bottom, and wherever possible a 25-foot buffer adjacent to seasonal and permanent wetlands identified within and adjacent to the proposed site work. The fencing shall be maintained for the duration of the site work, and the DWR Operations and

Maintenance Manual for the Rio Vista site shall include the pre-construction delineation of jurisdictional wetlands and riparian habitat and note that all future traffic within the project site is limited to improved surface areas and stockpile areas, and all other areas are deemed off-limits to vehicular and construction equipment.

Mitigation Measure BIO-6: Secure Section 1600 Lake or Streambed Alteration (LSA) Agreement from DFW

Prior to any ground disturbing site improvements DWR shall consult with DFW and secure any applicable Section 1600 Lake or Streambed Alteration (LSA) agreement(s) for any permanent site improvements waterward of the top of bank at Threemile Slough for the BISRA site or at the Stockton Deep Water Ship Channel or Mormon Slough at the Stockton West Weber Avenue site.

CULTURAL RESOURCES

Mitigation Measure CUL-1: Pre-construction Field Survey.
Prior to ground disturbing activities, a field survey will be conducted by a qualified archeologist to identify any prehistoric or historic cultural resources within the project area. The survey may reveal a lack of resources, and then no further identification effort will need to be made.

If resources are found in one of the selected sites during the survey, it will be necessary to determine whether the resource is an important resource. This determination will be made by a qualified archeologist based upon surface evidence, if possible. If surface evidence is not conclusive, additional studies, including archival research or subsurface testing, will be conducted.

If the additional studies are undertaken and a resource is found to be important under the criteria of the CRHR, avoidance will be the preferred method of mitigation. The use of the site with the significant resource might need to be limited to a smaller portion of the site, with protective measures designed for the resource, such as fencing or monitoring site use. The determination of appropriate mitigation will be made by DWR.

Mitigation Measure CUL-2: Worker Cultural Resource Awareness.
Construction personnel will be informed of the potential for encountering significant archaeological resources and instructed in the identification of artifacts, bone, and other potential resources. All construction personnel will be informed of the need to stop work on the project site until a qualified archaeologist has been provided the opportunity to assess the significance of the find and implement appropriate measures to protect or scientifically remove the find. Construction personnel will also be informed of the requirement that unauthorized collection of cultural resources is prohibited.

Mitigation Measure CUL-3: Immediately Halt Construction if any Cultural Resources are Discovered.
DWR shall implement the following mitigation measure to reduce the potential impacts to buried historic cultural resources to a less-than-significant level. If cultural materials (e.g., unusual amounts of shell, animal bone, glass, ceramics, etc.) are discovered during project-related construction activities, ground disturbances in the area of the find shall be halted and a

qualified professional archaeologist shall be notified regarding the discovery. The archaeologist, to be retained by DWR, shall determine whether the resource is potentially significant per the CRHR and develop appropriate mitigation. Mitigation may include, but not be limited to, in-field documentation, archival research, archaeological testing, data recovery excavations, or recordation, and shall be implemented before resuming construction in the immediate vicinity.

Mitigation Measure CUL-4: Immediately Halt Construction if any Human Remains are Discovered.
DWR shall implement the following mitigation measure to reduce the potential impacts to human remains to a less-than-significant level. In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, the contractor and/or DWR shall immediately halt potentially damaging excavation in the area of the burial and notify the County Coroner and a professional archaeologist to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]).

If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). Following the coroner's findings, DWR, an archaeologist, and the NAHC-designated Most Likely Descendent (MLD) shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in California Public Resources Code Section (PRC) 5097.9.

Mitigation Measure CUL-5: Determination of Significance of Cultural Resources.
If previously unknown cultural resources are discovered during project construction, all work in the area of the find should cease and a qualified archaeologist should be retained by the project proponent or consultant to assess the significance of the find, make recommendations on its disposition, and prepare appropriate field documentation, including verification of the completion of required mitigation. If archaeological or paleontological resources are discovered during earth moving activities, all construction activities within 50 feet of the find should cease until the archaeologist evaluates the significance of the resource. In the absence of a determination, all archaeological and paleontological resources should be considered significant.

If the resource is determined to be significant, the archaeologist, as appropriate, should prepare a research design for recovery of the resources in consultation with the State Office of Historic Preservation that satisfies the requirements of Public Resources Code, Section 21083.2. The archaeologist should complete a report of the excavations and findings. Upon approval of the report, the project proponent should submit the report to the regional office of the California Historic Resources Information System.

HYDROLOGY AND WATER QUALITY

Mitigation Measure HYD-1: Institute Construction Best Management Practices (BMPs) for the Prevention of Erosion and Transport of Soil, Sand, and Silt Offsite During Runoff Events.
DWR shall implement construction Best Management Practices (BMPs) for all land clearing, land leveling, excavation, and fill operations associated with site preparations at the three sites. These measures will be incorporated into the construction plans and specifications. They include avoidance of existing wetlands, including placement of exclusion fencing, creating on site catchments for surface runoff, using coir logs to intercept drainage, and hydroseeding slopes, as appropriate.

Before the start of any construction work, clearing, or site grading associated with preparation, or any stockpiling activities at the sites, measures to control soil erosion and waste discharges will be prepared in accordance with BMPs. DWR will require all contractors conducting work at the sites to implement BMPs to control soil erosion and waste discharges of other construction-related contaminants. The general contractor(s) and subcontractor(s) conducting the work will be responsible for constructing or implementing, regularly inspecting, and maintaining the BMPs in good working order. In addition, the contractors will be required to submit and adhere to the applicable Storm Water Pollution Prevention Plan (SWPPP) associated with site development, preparation, and improvements.

HAZARDS AND HAZARDOUS MATERIALS

Mitigation Measure HAZ-1:

DWR has entered into an interagency agreement with the State Department of Toxic Substance Control (DTSC) to conduct applicable supplemental site investigations (SSIs) and shall develop environmental remediation plans that will be incorporated into the site plans and improvements proposed for the Stockton West Weber Avenue parcel(s) prior to any ground disturbing activities that may pose a toxic substance hazardous risk during construction of site improvements and subsequent facility operations that will be consistent with current commercial and industrial zoning land uses.

NOISE

Mitigation Measure NOI-1: Implement Measures to Control Construction Equipment Noise Levels.
DWR shall implement the following mitigation measure to reduce potential impacts from exposure to noise from construction equipment to a less-than-significant level. The contractor and/or DWR shall properly maintain construction equipment and equip it with noise control devices, such as exhaust mufflers or engine shrouds, in accordance with manufacturers' specifications. For non-emergency activities such as site construction and stockpiling quarry rock, operations will be limited to the periods 7:00 AM to 7:00 PM, Mondays through Saturdays.

RECREATION

Mitigation Measure REC-1: Implement Measures to Minimize Impacts on Recreation within Brannan Island State Recreation Area (BISRA)

DWR shall inter into a Memorandum of Understanding with the State Department of recreation (DPR) to design project elements in coordination with DPR to minimize impacts on recreational quality and visual resources within the BISRA, and to improve facilities that could jointly benefit recreational services and emergency response capabilities. These include potential features such as developing architectural treatments to blend new structures (multi-use and warehouse facilities) within the park setting, screening the placement and storage of quarry rock stockpiles with vegetation, earthen berms, and/or placing a layer of sand over the quarry rock stockpile, planting native plants to help screen project features, improving service facilities such as restrooms and roads, and collectively implement a 2,500-5,000 sf. joint use facility within the BISRA that could serve as Multi-Agency Center (MAC).

Questions or comments regarding this Initial Study and Proposed Mitigated Negative Declaration may be addressed to:

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APPROVAL OF INITIAL STUDY/MITIGATED NEGATIVE DECLARATION*

Certification by those Persons Responsible for Preparation of this Document: The Department of Water Resources, Division of Flood Management Engineering has been responsible for the preparation of this Proposed Mitigated Negative Declaration and the incorporated Initial Study. I believe this document meets the requirements of the California Environmental Quality Act, is an accurate description of the proposed project, and that the lead agency has the means and commitment to implement the project design measures that will ensure the project does not have any significant, adverse effects on the environment. I recommend approval of this document.

FOR William Croyle, Chief
Flood Operations Branch
Division of Flood Management Engineering
California Department of Water Resources

6/3/13
Date

(*To be signed upon completion of the public review process and preparation of a final project approval package, including responses to comments, if any, on the environmental document and any necessary modifications to project design measures.)

Approval of the Project by the Lead Agency: Pursuant to Section 21082.1 of the California Environmental Quality Act, the California Department of Water Resources has independently reviewed and analyzed the Initial Study and Proposed Mitigated Negative Declaration for the proposed project and finds that the Initial Study and Proposed Mitigated Negative Declaration reflect the independent judgment of the California Department of Water Resources. The lead agency finds that the project design features will be implemented as stated in the Mitigated Negative Declaration.

I hereby approve this project:

Keith Swanson, Chief
Division of Flood Management
California Department of Water Resources

6/5/13
Date

Initial Study/Mitigated Negative Declaration

Initial Study/Mitigated Negative Declaration for Delta Flood Emergency Project

A Component of the Delta Flood Preparedness Response, and Recovery Program

Table of Contents to Initial Study/Mitigated Negative Declaration

Abbreviations and Acronyms xix

1 Introduction 1

1.1 Proposed Actions and Project Description 1
1.1.1 Relationship to Previous DWR Flood Preparedness Actions in Delta 3
1.1.2 Relationship of DWR Delta Flood Emergency FIP to DWR Delta Flood Emergency Preparedness, Response, and Recovery Program (DFEPRRP) 3
1.2 Purpose and Need for Proposed Action 4
1.3 Location and Setting 5
1.3.1 Delta Geography and Resources 5
1.3.2 Resources at Risk 7
1.3.3 Delta Levees and Flooding 7
1.4 Authority 11
1.5 Related Programs, Entities, Initiatives in Sacramento San Joaquin Delta 12
1.5.1 Delta Levees Maintenance Subvention Program 12
1.5.2 Delta Levee Special Flood Control Projects 13
1.5.3 Implementation of the Central Valley Flood Protection Plan 13
1.5.4 DWR Temporary/Seasonal Delta Barriers 13
1.5.5 Franks Tract Project with Operational Control Gates Proposed for Threemile Slough and/or West False River 13
1.5.6 Bay Delta Conservation Plan (BDCP) 14
1.5.7 Ecosystem Restoration Programs 15
1.5.8 Delta Stewardship Council (DSC) 15
1.5.9 Delta Protection Commission (DPC) 15
1.5.10 Local Agencies' Activities 16
1.5.11 Delta Risk Management Strategy (DRMS) 16
1.6 Previous DWR Efforts to Improve Delta Flood Emergency Response and Recovery Capabilities 17
1.7 Purpose of this Environmental Assessment/Initial Study 17

2 Project Alternatives 19

2.1 Range of Alternatives Considered 19
2.2 No Project Alternative 19
2.3 Transfer Facility Screening Criteria and Alternatives 23
2.3.1 General Site Characteristics 23
2.3.2 Specific Functional Site Characteristics 23
2.3.3 Routine Operation and Maintenance 25
2.3.4 Emergency Operations 26
2.3.5 Environmental Considerations 27
2.3.6 Summary of Screening Criteria 27

2.3.7 Identifying Potential Transfer Facility and Incident Command Post Sites 27
2.4 Preliminary Screening of Alternatives 28
2.4.1 No Project Alternative – Maintain Existing Sites 28
2.4.2 Strategically Located Response Facilities 28

3 Screening and Selection of Alternatives and Proposed Site Improvements 32
3.1 No Project Alternative 32
3.2 Number of Alternative Transfer Facility Sites 32
3.3 Short List of Strategically Located Response Facilities 32
3.3.1 Hood Site (Private), Hood-Franklin Road Site and HWY 160 Site 33
3.3.2 Hood Site (DWR), South of Hood-Franklin Road, East of HWY 160 Site 36
3.3.3 Stockton, West Weber Avenue Site 37
3.3.4 Central Delta Area, Stockton, Navy Drive Site 38
3.3.5 Stockton, North Shore Site 41
3.3.6 Rio Vista, Existing Quarry Rock Storage Site 43
3.3.7 Antioch, Wilbur Avenue Site 45
3.3.8 Sherman Island, 17924 Highway 160 Site 48
3.3.9 Brannan Island State Recreation Area Site 51
3.4 Project Description of Proposed Site Improvements 53
3.4.1 Stockton, West Weber Avenue Site Improvements 54
3.4.2 Rio Vista Site Improvements 56
3.4.3 Brannan Island Site Improvements 58
3.5 Proximity and Travel Distance Considerations 62
3.5.1 Proximity to Repair Area by Barge 62
3.5.2 Proximity from Quarries to Transfer Facilities by Truck 62
3.6 Cost and Economic Considerations 62
3.6.1 Investment Framework 63
3.6.2 Project Alternative Costs 64
3.6.3 Project Benefits 65

4 Environmental Checklist 74
4.1 Aesthetics 74
4.1.1 Environmental Setting 74
4.1.2 Environmental Effects 76
4.1.3 Proposed Environmental Mitigation Measures 80
4.1.4 Impacts after the Application of Mitigation Measures 80
4.2 Air Quality 81
4.2.1 Environmental Setting 81
4.2.2 Environmental Effects 86
4.2.3 Proposed Environmental Mitigation Measures 92
4.3 Agricultural and Forest Resources 93
4.3.1 Environmental Setting 93
4.3.2 Environmental Effects 93

	4.3.3 Proposed Environmental Mitigation Measures	97
4.4	Biological Resources	97
	4.4.1 Environmental Setting	97
	4.4.2 Environmental Effects	112
	4.4.3 Proposed Environmental Mitigation Measures	118
	4.4.4 Impacts after the Application of Mitigation Measures	120
4.5	Cultural Resources	120
	4.5.1 Environmental Setting	120
	4.5.2 Methods	122
	4.5.3 Environmental Effects	123
	4.5.4 Proposed Environmental Mitigation Measures	124
	4.5.5 Impacts after the Application of Mitigation Measures	126
4.6	Hydrology and Water Quality	126
	4.6.1 Environmental Setting	126
	4.6.2 Environmental Effects	127
	4.6.3 Proposed Environmental Mitigation Measures	131
	4.6.4 Impacts after Implementation of Mitigation Measures	133
4.7	Geology and Soils	133
	4.7.1 Environmental Setting	133
	4.7.2 Environmental Effects	134
	4.7.3 Proposed Environmental Mitigation Measures	138
	4.7.4 Impacts after the Application of Mitigation Measures	138
4.8	Climate Change	139
	4.8.1 Environmental Setting	139
	4.8.2 Environmental Effects	142
	4.8.3 Proposed Environmental Mitigation Measures	144
	4.8.4 DWR GGERP Consistency Determination Checklist and CHG Emissions Inventory	144
4.9	Hazards and Hazardous Materials	149
	4.9.1 Environmental Setting	149
	4.9.2 Environmental Effects	150
	4.9.3 Proposed Environmental Mitigation Measures	153
4.10	Land Use and Planning	154
	4.10.1 Environmental Setting	154
	4.10.2 Environmental Effects	154
	4.10.3 Proposed Environmental Mitigation Measures	156
4.11	Mineral Resources	156
	4.11.1 Environmental Setting	156
	4.11.2 Environmental Effects	157
	4.11.3 Proposed Environmental Mitigation Measures	158
4.12	Utilities and Service Systems	158
	4.12.1 Environmental Setting	158
	4.12.2 Environmental Effects	158
	4.12.3 Proposed Environmental Mitigation Measures	160
4.13	Noise	161
	4.13.1 Environmental Setting	161

4.13.2 Environmental Effects 166
4.13.3 Proposed Environmental Mitigation Measures 169
4.13.4 Impacts after the Application of Mitigation Measures 170
4.14 Population Housing 170
4.14.1 Environmental Setting 170
4.14.2 Environmental Effects 170
4.14.3 Proposed Environmental Mitigation Measures 171
4.15 Public Services 171
4.15.1 Environmental Setting 171
4.15.2 Environmental Effects 172
4.15.3 Proposed Environmental Mitigation Measures 173
4.16 Recreation 173
4.16.1 Environmental Setting 173
4.16.2 Environmental Effects 173
4.16.3 Proposed Environmental Mitigation Measures 174
4.17 Transportation/Traffic 175
4.17.1 Environmental Setting 175
4.17.2 Environmental Effects 175
4.17.3 Proposed Environmental Mitigation Measures 178
4.18 Mandatory Findings of Significance 178

5 Summary of Mitigation Measures 181
5.1 Aesthetics 181
5.2 Biological Resources 181
5.3 Cultural Resources 183
5.4 Hydrology and Water Quality 185
5.5 Hazards and Hazardous Materials 186
5.6 Noise 186
5.7 Recreation 186

6 Final Project Implementation 187

7 References 190

8 List of Preparers 195
8.1 Lead Agency: California Department of Water Resources 195
8.2 Consultant Support 195

9 Initial Study-Mitigated Negative Declaration Distribution List 196

List of Tables

Table 2-1. Transfer and Incident Command Post Screening Criteria 28
Table 2-2a. Summary of Proposed Actions and Characteristics – Selected Sites 31
Table 2-2b. Summary of Alternative Actions and Characteristics – Screened from further Consideration 31
Table 3-1. Barging Distance to Potential Repair Areas in Miles 62
Table 3-2. Rock Haul Distance by Truck to Potential Material Transfer Facility 62
Table 3-3. Alternative Transfer Facilities Cost Comparison 64
Table 4-1. Impacted Air Basins and Air Districts with Jurisdiction for Proposed Project Locations and Quarry Locations 84
Table 4-2. Summary of Attainment Status Designations for Ozone, PM_{10}, and $PM_{2.5}$ 85
Table 4-3. Site Improvements Related to Construction Emissions 87
Table 4-4. Summary of Significance Thresholds for Construction-Related Emissions for Criteria Pollutants 88
Table 4-5. Summary of Modeled Project-Generated Construction-Related Emissions of Criteria Air Pollutants and Precursors[1] NO_x Emissions 88
Table 4-5. Continued Summary of Modeled Project-Generated Construction-Related Emissions of Criteria Air Pollutants and Precursors[1] NO_x Emissions 89
Table 4-6. Special-Status Species Considered at the Stockton West Weber Avenue Site 108
Table 4-7. Special-Status Species Considered at the Rio Vista and Brannan Island Sites 110
Table 4-8. City of Rio Vista Design Noise Thresholds 163
Table 4-9. Effect of Building Type and Window Condition on Noise Thresholds 163
Table 4-10. FHA Construction Equipment Noise Emission Levels 167
Table 4-11. Populations of Cities close to Project Sites 170
Table 4-12. Days of Trucking required to Establish Quarry Stockpile Sites 175
Table 5-1. Initial Project Cost Estimates 187
Table 5-2. Project Implementation Schedule and Expenditures 188

List of Figures

Figure 1-1. Sacramento-San Joaquin Delta Region 6
Figure 1-2. Rock Quarry Locations near the Sacramento-San Joaquin Delta 8
Figure 1-3. Navigable Channels of the Sacramento-San Joaquin Delta 10
Figure 2-1. Port of Stockton Leased Barge Loading and Stockpile Site 21
Figure 2-2. Rio Vista Stockpile Site 22
Figure 2-3. Ideal Transfer Facility and Incident Command Post 25
Figure 2-4. Proposed Alternative Sites: Delta Transfer and Emergency Response Facilities Retained for Further Evaluation 30
Figure 3-1. Hood Site(s) 34
Figure 3-2. Site Location at Stockton, West Weber Avenue 39
Figure 3-3. Site Location at Stockton, Navy Drive 40

Figure 3-4. Site Location at Stockton, North Shore 42
Figure 3-5. Site Location, Rio Vista 44
Figure 3-6. Site Location at Antioch, Wilbur Avenue 47
Figure 3-7. Site Location at Sherman Island, 17924 Hwy 160 49
Figure 3-8. Brannan Island Site 52
Figure 3-9a. Stockton West Weber Avenue 3 parcel Site Improvements 55
Figure 3-9b. Stockton West Weber Avenue 1 parcel 56
Figure 3-10. Rio Vista Site Improvements 57
Figure 3-11. Brannan Island Site Improvements 59
Figure 3-12. Post Event Transfer Capacity Analysis 73
Figure 4-1. Air Basins and Air Districts 83
Figure 4-2. Stockton West Weber Area Farmland Map 95
Figure 4-3. Rio Vista Area Farmland Map 96
Figure 4-4. Brannan Island Area Farmland Map 96
Figure 4-5. Potentially Jurisdictional Riparian Forest and Seasonal Wetlands on Portions of Rio Vista Site 101
Figure 4-6. Regional Fault Locations relative to Alternative Project Sites 136
Figure 4-7. Atmospheric CO_2 and Global Surface Temperature Trends 139

Abbreviations and Acronyms

ARB	California Air Resources Board
BISRA	Brannan Island State Recreation Area
BMPs	Best Management Practices
Cal EMA	California Emergency Management Agency
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNEL and Ldn	Community noise equivalent and day-night noise level
CNPS	California Native Plant Society
CO	Carbon monoxide
CRHR	California Register of Historical Resources
CVFPB	Central Valley Flood Protection Board
CVP	Central Valley Project
dBA	A-weighted decibels
Delta	Sacramento–San Joaquin River Delta
DFEPRRP	Delta Flood Emergency Preparedness, Response and Recovery Program
DFW	California Department of Fish and Wildlife, formerly known as California Department of Fish and Game (DFG)
DPR	California Department of Parks and Recreation
DRMS	Delta Risk Management Strategy
diesel PM	Diesel fueled engines

DWR	California Department of Water Resources
EAD	Expected Annual Damage
EPA	U.S. Environmental Protection Agency
ESA	Federal Endangered Species Act
ESU	Evolutionarily significant unit
FEMA	Federal Emergency Management Agency
FIP	Facilities Improvement Project, and Delta Flood Emergency Facilities Improvement Project
FTA	Federal Transit Administration
GHG	greenhouse gases
I-5	Interstate Highway 5
ICPs	incident command posts
LMA	Local Maintaining Agency
MAC	Multi-Agency Center
MLD	Most Likely Descendent
MRZ	Mineral Resource Zones
msl	mean sea level
Mw	Moment magnitude
NAHC	Native American Heritage Commission
NCCP	Natural Communities Conservation Plan
NMFS	National Marine Fisheries Service
NO_2	Nitrogen dioxide
NOI	Notice of Intent
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation

OAL	Office of Administrative Law
OHWM	Ordinary High Water Mark
OPR	Office of Planning and Research
PAHs	polynuclear aromatic hydrocarbons
PM_{10}, $PM_{2.5}$	Respirable and fine particulate matter
PPV	peak particle velocity
PRC	California Public Resources Code Section
RBDD	Red Bluff Diversion Dam
RMS	root mean square
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SIP	State implementation plan
SLIC	Spills, Leaks, Investigations, and Cleanups
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act of 1975
SO2	Sulfur dioxide
SR	State Route
SSJDD	Sacramento San Joaquin Drainage District
SRA	shaded riverine aquatic
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

VdB	velocity level in decibels
VOCs	volatile organic compounds
YSAQMD	Yolo-Solano Air Quality Management District

1 Introduction

1.1 Proposed Actions and Project Description

Under the facilities implementation component of the Delta Flood Emergency Preparedness, Response, and Recovery Program (DFEPRRP) the California Department of Water Resources (DWR) proposes to acquire long-term access and improve up to three sites in the Sacramento-San Joaquin Delta (Delta); these sites are located in Stockton, Rio Vista, and Brannan-Andrus. The Delta Flood Emergency Facility Improvement Project (FIP) consists of improving three transfer facilities sites where quarry rock, sand, soil and other flood fight materials can be efficiently transferred from trucks to barges to expedite levee repairs and facilitate channel closures in the event of Delta levee breaches. In addition, the FIP sites would serve other emergency response functions needed by DWR to respond rapidly and effectively to significant emergencies in the Delta, including storage of repair materials and flood fight supplies, and Incident Command Posts (ICPs). DWR proposes to acquire the needed sites through purchase from willing private sellers or through long-term lease arrangements with other governmental agencies. DWR would utilize existing improvements and construct additional improvements as needed to support the proposed emergency response functions. Such improvements are likely to include fencing, docking and loading facilities, parking, temporary office trailers, utilities (water, power, communications, and wastewater), fencing, lighting, and security improvements.

DWR proposes to take the following specific actions.

<u>Site 1 - Stockton West Weber Avenue:</u>

- Purchase up to three parcels totaling 22.6 acres from the current owner(s)
- Clean up the existing site including applicable environmental remediation measures for DWR's planned uses within the commercial/industrial zoned area of West Weber Avenue
- Improve security fencing and lighting, modify two existing buildings for use as Incident Command Post
- Properly surface and mark parking and helipad areas
- Place up to five steel storage containers with flood fight supplies,
- Establish a quarry rock stockpile of up to 40,000 tons of various rock gradations below 24-inch-minus
- Install up to six pilings near the top of bank along the Stockton Deep Water Ship Channel for mooring up to three conveyor support barges and up to three

transport barges, allowing a total of five barges to be loaded simultaneously at the improved site during emergencies following site improvements.

Site 2 - Rio Vista, Airport Road:

- Raise and widen existing access roads to the existing quarry rock stockpile on property owned by the Sacramento San Joaquin Drainage District (SSJDD) and the Central Valley Flood Protection Board (CVFPB), and create an improved roadway loop on CCVFPB property to the nearby Dutra Group barge loading facility on the Sacramento River,

- At the southwest corner of the CVFPB property near the intersection of Airport Road and S. Francis Way, improve the existing access ramp from Airport Road to the site, place up to five steel storage containers with flood fight supplies,

- Establish a 1.25-acre area for vehicle parking and a helipad, and stockpile up to 20,000 tons of well-drained sand, and

- Negotiate an agreement with the Dutra Group for access via a haul road through the Dutra Group property and for loading the quarry rock onto barges as needed in an emergency. This would allow simultaneously loading of two barges at the Dutra Group waterside facility utilizing materials stockpiled at the improved CVFPB Rio Vista site.

Site 3 - Brannan Island State Recreation Area:

- Execute an inter-agency Memorandum of Agreement or Understanding (MOA/MOU) with the California Department of Parks and Recreation (DPR) for use of portions of the Brannan Island State Recreation Area (BISRA) as described herein,

- Collaborate with the DPR in developing a 2,500 to 5,000 square-foot joint use facility for use as a Multi-Agency Center (MAC),

- Make improvements in the BISRA main boat launch area parking lot and boat launching ramp to accommodate a helipad, and loading barges with flood fight materials,

- Make improvements in the area between the BISRA boat launching facility and the BISRA Group Picnic Area west of Sevenmile Slough, including the placement of two pilings near the top of bank, to facilitate loading barges with flood fight materials,

- Place up to five steel containers with flood fight supplies and move an existing steel warehouse structure of approximately 10,000 square feet from Twitchell Island to the north end of the BISRA or mutually agreed upon location with DPR. DWR will coordinate with DPR staff and architect to facilitate the design of the joint use facility and steel warehouse so as not to diminish the natural aesthetics of the BISRA, and

- At the south end of the BISRA establish a quarry rock stockpile of up to 40,000 tons of various rock gradations below 24-inch-minus, improve and construct short haul loop roads between existing gate access points to Highway 160, improve working areas and install four pilings near the top of bank for loading up to two barges with flood fight materials, allowing a total of five barges to be loaded simultaneously at the BISRA during emergencies following site improvements.

1.1.1 Relationship to Previous DWR Flood Preparedness Actions in Delta

The proposed actions supplement the 2007-2008 Delta Emergency Rock and Transfer Facilities Project under which DWR established a quarry rock stockpile of approximately 113,000 tons at Rio Vista; executed a short-term lease with the Port of Stockton; constructed, tested, and stored a rock conveyor system at the Port; stockpiled approximately 110,000 tons at the Port; and established temporary transfer facilities in the town of Hood (which has since been removed). The 2007-2008 Delta Emergency Rock and Transfer Facilities Project was developed to assist with the emergency placement of rock slope protection material at various erosion sites in the Delta and was envisioned as an early implementation component to stockpile rock and set up barge loading facilities at strategic locations around the Delta for use during emergency flood fighting operations in the Delta.

1.1.2 Relationship of DWR Delta Flood Emergency FIP to DWR Delta Flood Emergency Preparedness, Response, and Recovery Program (DFEPRRP)

The proposed Delta Flood Emergency Facilities Improvement Project (FIP) is a larger extension of the 2007-2008 Delta Emergency Rock and Transfer Facilities Project and the FIP is also a formal component of the Delta Flood Emergency Preparedness, Response, and Recovery Program, http://www.water.ca.gov/floodmgmt/hafoo/fob/dfeprrp/, to ensure that the State has the appropriate infrastructure and supplies in the Delta to respond to and recover quickly and effectively from major flood or earthquake disasters in the Sacramento-San Joaquin River Delta. The Delta Flood Emergency Preparedness, Response, and Recovery Program (DFEPRRP) contains six major elements, with the FIP being the only element that consists of structural or physical components for implementation by DWR. The other five elements of the DFEPRRP consist of: (1) DWR developing and implementing a comprehensive Delta Flood Emergency Management Plan; (2) DWR working with Local Maintaining Agencies (LMAs) local governments, State, and federal agencies to have a coordinated and effective multi-agency response during large scale Delta flood emergencies, inclusive of DWR establishing and coordinating quarterly Delta Working Group meetings with local entities, Cal EMA, and federal agencies; (3) DWR providing grant funding to local governments and LMAs for improving communications during Delta flood emergencies, and improving local preparedness and response

activities of Delta agencies for Delta flood emergencies; (4) DWR improving Delta flood analyses and evaluation tools inclusive of advancing and improving the Emergency Repair and Recovery Module (ERR) and the Water Analysis Module (WAM) used previously in connection with the Delta Risk Management Strategy (DRMS) into a real-time, event-specific Emergency Response/Recovery Tool (ERT) that estimates flood damaged levee repair costs, timing of various repairs, and potential interruptions/recovery times to resume water deliveries through the Delta that could be interrupted due to salt water intrusions following a major flooding event in the Delta; and (5) DWR conducting various flood emergency response studies, including a Delta emergency channel locations study, and a case study of the response and recovery actions of the 2004 Jones Tract flooding event.

1.2 Purpose and Need for Proposed Action

The purpose of the Delta Flood Emergency Facilities Improvement Project (FIP) is to ensure that the State has the appropriate infrastructure and supplies in the Delta to respond to and recover timely and effectively from major flood or earthquake disasters in the Sacramento-San Joaquin River Delta.

Such disasters could cause multiple levee failures resulting in flooded Delta islands, a loss of lives and property, environmental impacts, impacts on regional and State-wide utilities and transportation corridors, and interruptions in water deliveries from the Delta. The pace of response and recovery operations is only as fast as the slowest component. DWR's analysis demonstrates the rate at which barges can be loaded with response and repair materials is the slowest component. Accordingly, the FIP is focused on identifying, evaluating, selecting, acquiring, and improving barge loading sites, which can also serve as ICPs and storage locations for flood fight materials, at strategic locations in the Delta region.

This Initial Study and draft Mitigated Negative Declaration, documents the purposes, project conditions (assumptions and constraints), environmental setting, alternative formulation process, impact analysis, and selection process leading to the preferred alternative for the FIP.

An important objective of the project is to accomplish the emergency response function with minimal environmental impact. Given the nature of the emergency response activities being contemplated, which require proximity to major land transportation routes and waterways and involve the use of heavy mechanized equipment, the search for feasible sites was focused on developed parcels with minimal environmental resources at risk.

The analysis demonstrates that the limiting factor that establishes the maximum feasible rate of placement of levee repair and channel closure materials as the rate at which barges can be loaded with materials from supply trucks. In addition, it is critical for the State to be able to respond quickly after levees have been breached to shore up those levees that have not yet failed. For both these reasons the purposes of the project can be most effectively met by establishing transfer facilities in key locations where flood fight materials and supplies can be stored and quickly transferred to barges. Accordingly, the bulk of this Initial Study is focused on the evaluation and acquisition of specific sites, which are either in State ownership or available on the open market, that can meet the emergency response needs for transfer facilities and ICPs in the Delta.

Each potential facility site has been evaluated for emergency use and effectiveness as a flood response facility. The evaluations were based on the project's engineering and logistical requirements; equipment and material needs, roadway and waterway transportation requirements; potential vulnerability to flooding; potential environmental impacts of site development; and construction and operational impacts. The Initial Study focuses on selecting the facility sites that would best support conventional levee repair methods using barge equipment and materials such as crushed rock of various sizes, sand-filled bulk bags, and sheet piles.

DWR has also evaluated the feasibility of establishing ICPs, which can also function as equipment repair sites, first aid sites for responders, storage sites for flood fight materials, and helicopter landing pads. To be effective in a disaster scenario, such sites need to be reasonably close to the disaster area and have infrastructure accessible to support emergency command operations. The required infrastructure includes water, wastewater, power, communications utilities, parking, and security, as well as sufficient space to allow these functions to be carried out safely and efficiently without interfering with each other.

1.3 Location and Setting

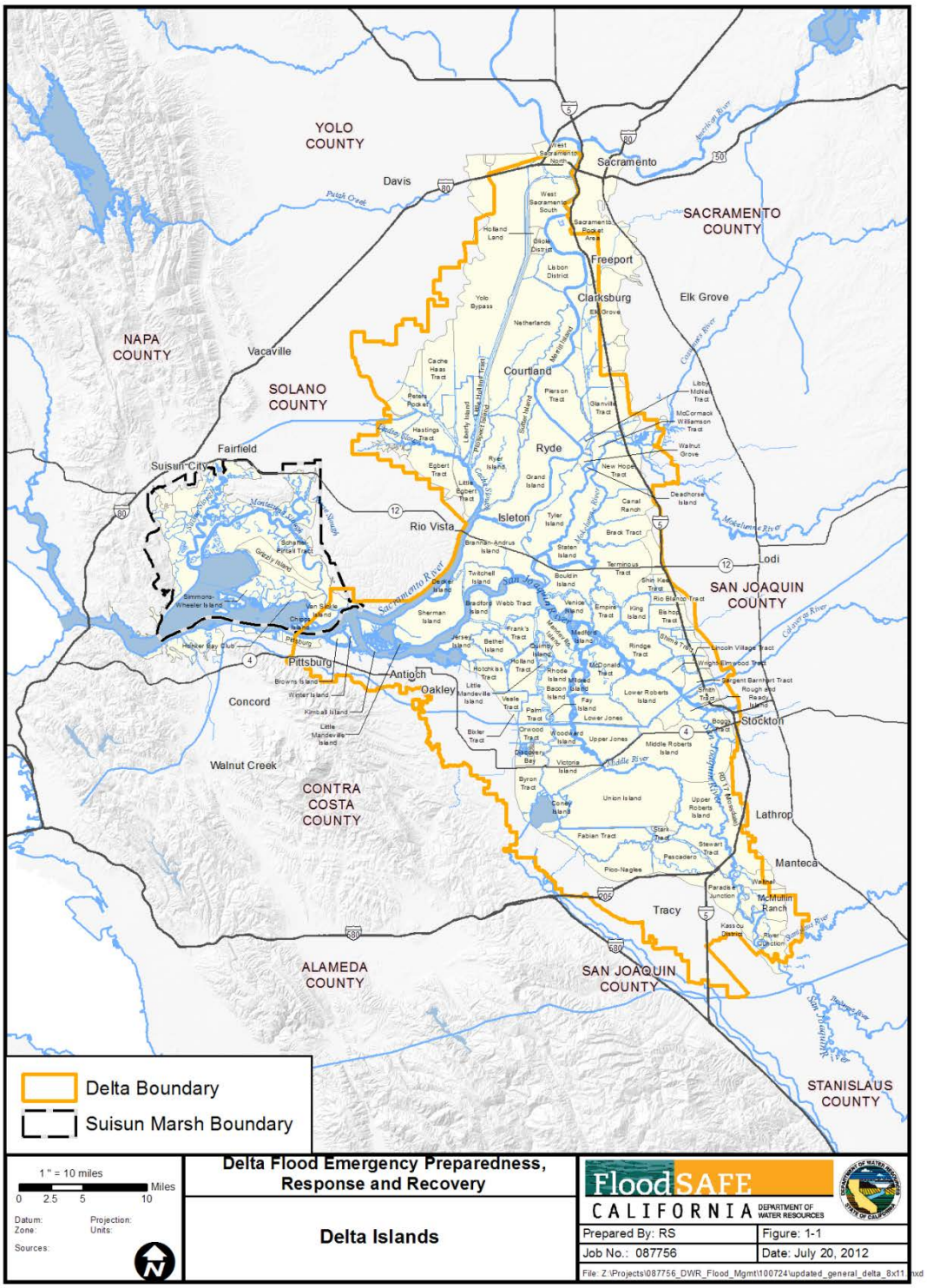
The proposed actions would take place within the boundaries of the Sacramento-San Joaquin Delta (Figure 1-1). Its key characteristics relevant to the proposed actions are summarized below.

1.3.1 Delta Geography and Resources

The Sacramento-San Joaquin Delta is an estuary and consists of a network of channels and reclaimed islands at the confluence of the Sacramento and San Joaquin Rivers in the Central Valley of California, between the cities of Sacramento, Stockton, Tracy, and Antioch (Figure 1-1). It extends approximately 24 miles east to west and 48 miles north to south and includes parts of six counties (Sacramento, San Joaquin, Alameda, Contra Costa, Solano, and Yolo). Within the boundaries of the Delta, defined in California Water Code, Section 12220, are 738,000 acres of land, much of it at or below sea level, about 700 miles of channels, and 1,100 miles of levees protecting more than 60 islands and tracts.

With its strategic location at the junction of the Sacramento River and the San Joaquin River, rich farmlands, meandering channels, and riparian habitats, the Delta is the largest estuary on the west coast and a unique and irreplaceable resource of national importance. It is along the Pacific Flyway and critically important for migratory birds and fish, as well as numerous resident fish and wildlife species. The Delta supports vibrant agricultural and recreational economies with annual values in excess of $2 billion and $350 million per year, respectively. Delta is a hub for water supply to more than 25 million Californians.

Figure 1-1. Sacramento-San Joaquin Delta Region



1.3.2 Resources at Risk

The Delta levee system protects several cities and numerous communities, State and interstate highways, railways, gas and oil pipelines, electrical transmission lines, public and private recreational sites, and other assets of regional, statewide, and national importance. In the north-western Delta the State Water Project (SWP) pumps water into the North Bay Aqueduct for the North Bay service area, and the City of Vallejo pumps water for its municipal supply. The Mokelumne Aqueduct crosses the Delta from east to west, conveying water from Pardee Reservoir to East Bay Municipal District's service area in the San Francisco Bay. The Contra Costa Water District pumps water from two intakes in the south Delta, at Rock Slough and at Middle River, serving over 500,000 people in central and eastern Contra Costa County. At the southern end of the Delta, the federal Central Valley Project (CVP) Tracy (C.W. "Bill" Jones) Pumping Plant draws water into the Delta Mendota Canal, primarily for agricultural uses in the San Joaquin Valley. The State Water Project SWP Harvey O. Banks Pumping Plant, located just west of the federal facility, draws water into Bethany Reservoir to serve the South Bay area through the South Bay Aqueduct and the California Aqueduct, which serves water users in the South Delta, San Joaquin Valley, Central Coast, and Southern California. All of these water intakes and water conveyance structures are vulnerable to disruption in the event of a major Delta levee disaster.

1.3.3 Delta Levees and Flooding

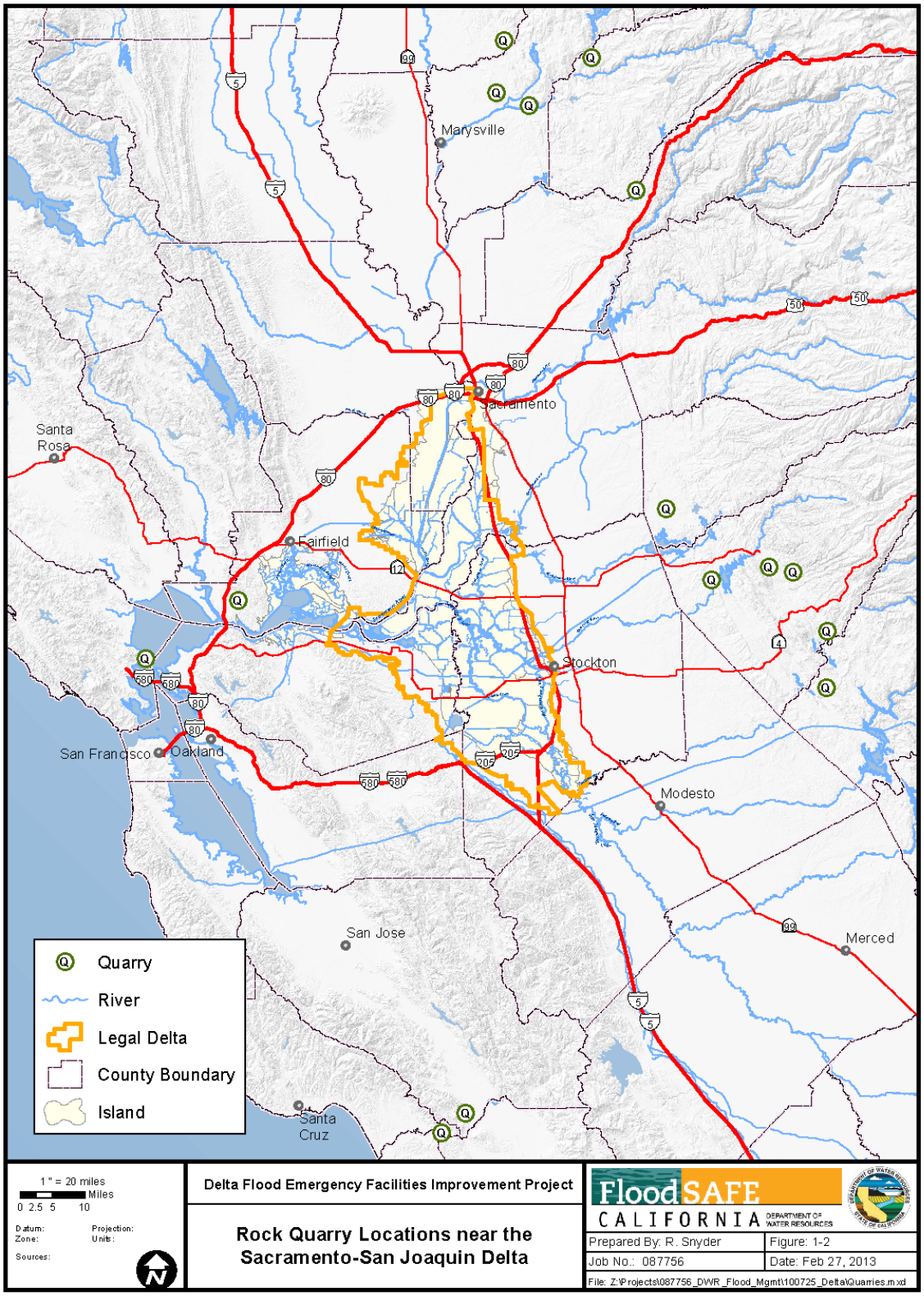
About 35 percent (385 miles) of the 1,115 miles of Delta levees are part of the State-Federal Project levee system, which form a portion of the State Plan of Flood Control. The remaining 65 percent (730 miles) are non-Project levees, constructed and maintained by local levee maintaining agencies, e.g. reclamation districts, to varying standards. Much of the Delta levee system is of marginal quality, founded on weak sands, clays, and peat soil. As a result, many of these levees have problems associated with long-term levee settlement and island subsidence.

As the levees are built higher out of necessity to compensate for both land subsidence and sea level rise, the hydraulic pressure on the levees and their foundations increase making them more vulnerable to failure from flooding, earthquake, structural defects, rodent burrows, and other causes. On the other hand, local, State, and federal investments in Delta levees have substantially improved them over time.

The levees in the Delta, unlike the ones in the upper Sacramento River, are working around the clock because the islands are sitting below the sea level and the Delta is influenced by tidal fluctuation.

During flood events, Delta levees are stressed by high water levels, strong currents, and wind generated waves, which can cause levee damage or failure through erosion, overtopping, saturation, sliding, slumping, or seepage. Local Maintaining Agencies (LMAs), local governmental agencies, State agencies, and federal agencies respond with levee patrols, flood fights where levees show signs of distress, and full-fledged disaster operations when levees fail. While sandbags and polyethylene plastic sheeting (poly sheeting) are typically deployed for rapid flood fights to deal with boils and erosion, large amounts of quarried rock material are needed to deal with major incidents of water side erosion, levee instability, and levee breach closures.

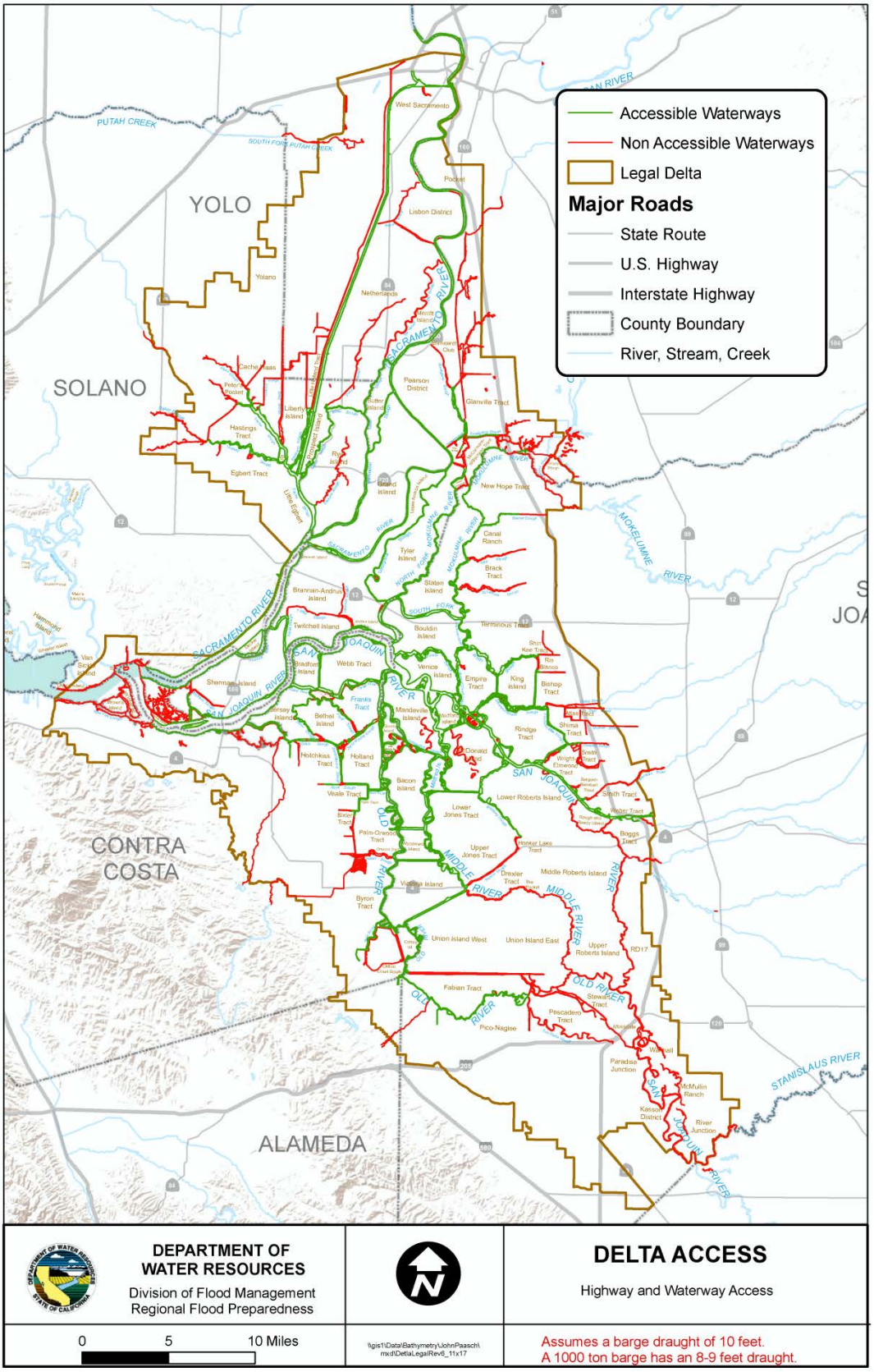
Figure 1-2. Rock Quarry Locations near the Sacramento-San Joaquin Delta



Rock quarries located in the Coast Range and the Sierra Nevada that are within a reasonable transport distance of the Delta constitute the sources for this material (Figure 1-2). Only one of these quarries, the Dutra Group's San Rafael Quarry, is located adjacent to a waterway so that quarried rock can be loaded directly onto barges for transport throughout the Delta via its navigable channels (Figure 1-3).

The impact of levee failures varies depending on the location, size, and land use of the affected Delta islands and tracts, as well as on the hydrologic conditions at the time of the failure. Since 1930 there have been approximately 60 levee failures in the Delta, with widely varying impacts. The great majority of these failures have occurred during floods. The Delta is also at risk of damage due to earthquakes, potentially originating along faults underlying the western Delta, the San Andreas fault complex, and the Sierra Foothill fault system. Numerous other incidents or defects can result in levee failures, including rodent burrows, foundation settlement, penetrations, ship impacts, and acts of terror. With the long-term, eminent threat of global warming and sea level rise it is believed that the levees in the Delta will become more susceptible to failure and exasperating the risk of catastrophic flooding of Delta islands.

Figure 1-3. Navigable Channels of the Sacramento-San Joaquin Delta



1.4 Authority

The FIP is being developed by DWR as one component of the Delta Flood Emergency Preparedness, Response, and Recovery Program under the Emergency Response Functional Area (FA1) of the FloodSAFE Initiative.

This project is generally authorized and funded via the Disaster Preparedness and Flood Prevention Bond Act of 2006 (Proposition 1E), which allocated $3 billion for flood risk reduction purposes, including "to reduce the risk of levee failure in the delta" (Public Resources Code, Section 5096.821 (c)).

Subsequently, SB2X-1 (Perata, 2008) allocated $135 million of Proposition 1E funds for DWR to acquire, design, and construct essential emergency preparedness facilities as well as stockpiling flood fight materials (Water Code, Section 83002 (a)(1)), of which $80 million are allocated to the Delta Flood Emergency Preparedness, Response and Recovery Program.

This project is also consistent with Senate Bill 27 (Simitian, 2008), the Sacramento-San Joaquin Delta Emergency Preparedness Act of 2008, which called for key public agencies, including DWR, to form a task force under the leadership of the Office of Emergency Services (now the California Emergency Management Agency) to "…coordinate the development of a draft emergency preparedness and response strategy for the Delta region" (Water Code Section 12994.5(c)(2)). The prosed project is also consistent with DWR's standing authority under Government Code Section 8607 to participate in all aspects of emergency response within the Standardized Emergency Management System framework under the overall direction of the California Emergency Management Agency (Cal EMA).

Water Code Section 128(a) gives DWR supplemental permissive authority to respond in the event of storm and flood crises, as follows: "In times of extraordinary stress and of disaster, resulting from storms and floods, or where damage to watershed lands by forest fires has created an imminent threat of floods and damage by water, mud, or debris upon the occurrence of storms, the department may perform any work required or take any remedial measures necessary to avert, alleviate, repair, or restore damage or destruction to property having a general public and state interest and to protect the health, safety, convenience, and welfare of the general public of the state. In carrying out that work, the department may perform the work itself or through or in cooperation with any other state department or agency, the federal government, or any political subdivision, city, or district." Implicit to this authority is the need to make appropriate preparations to deal with such crises.

Water Code Section 12994 authorizes DWR to spend up to $200,000 per year from the Delta Flood Protection Fund for Delta emergency repairs, with a limit of $50,000 per site.

The Public Contract Code Section 10122(b) includes provisions for DWR to execute emergency construction contracts in the case of flood-related or water facility-related emergencies.

The Department Administrative Order confers on DWR broad responsibilities and authority to prepare for and respond to flood emergencies, with particular emphasis on protecting the SWP.

The FIP is consistent with DWR's mission to manage the water resources of California in cooperation with other agencies to benefit the State's people and to protect, restore, and enhance the natural and human environments. In accordance with its mission, DWR will respond to levee failure disasters in the Delta in accordance with the following objectives:

- Protection of life, property, and infrastructure: Assist local government and State agencies with missions to reduce immediate threats posed by levee failures and flooding to life, public health and safety, and public and private property.

- Protection of water quality and water supply: Lead statewide efforts to ensure the continued operation of the water supply system and restore the system to pre-disaster operations.

- Protection of the environment: Implement response actions in a manner that minimizes adverse environmental consequences where possible, and ensures that restoration of Delta ecosystems is considered during recovery.

1.5 Related Programs, Entities, Initiatives in Sacramento San Joaquin Delta

The Delta Flood Emergency Preparedness, Response and Recovery Program and the subject FIP has been developed with the recognition that the Sacramento San Joaquin Delta is an extraordinarily important and complex region, offering a multitude of benefits. Given the Delta's location relative to the tidal waters of the San Francisco Bay, its valuable habitat to several endangered species and its role and location relative to major infrastructure of state-wide significance, DWR is not alone in protecting or preserving the Delta in its present or near present form from potential catastrophic flooding triggered by either seismic events or by coinciding high-water and high-tide events. With the Delta's multiple resource values, varied interests within the Delta and the conveyance of fresh water through the Delta by local, regional, state and federal water purveyors, there are several former and current initiatives in the Delta.

Provided below is a brief summary of the regional, State, and federal initiatives within the Delta and an indication how those initiatives may or may not be related to the FloodSAFE flood management objectives specific to the Delta. It is important to recognize the interrelationship of the many programs and initiatives currently underway in the Delta and how the DWR Flood Emergency Response Program intersects with other activities. The programs and initiatives listed below and many other activities encompasses DWR's role in the Delta and in particular the Delta Flood Emergency Preparedness, and Recovery Program efforts, inclusive of the subject FIP.

1.5.1 Delta Levees Maintenance Subvention Program

The Delta Levees Maintenance Subventions Program is a cost-share program that provides technical and financial assistance to local levee maintaining agencies in the Delta for the maintenance and rehabilitation of non-project and eligible project levees. The Subventions Program is authorized by California Water Code Sections 12980 through 12995 and is managed by the Department of Water Resources. Both the Subventions Program and the FIP have common goals of minimizing potential flooding as well as reducing response and recovery times to potential flooding of various Delta islands protected by project and non-project levees.

1.5.2 Delta Levee Special Flood Control Projects

The Delta Levees Special Flood Control Projects provides financial assistance to local levee maintaining agencies for rehabilitation of levees in the Delta. The program was established by the California Legislature under SB 34, SB 1065, and AB 360. Since the inception of the program, more than $100 million has been provided to local agencies in the Delta for flood control and related habitat projects. The intent of Legislature, as stated in the Water Code, is to preserve the Delta as much as it exists at the present time.

The program presently focuses on flood control projects and related habitat projects for eight western Delta Islands--Bethel, Bradford, Holland, Hotchkiss, Jersey, Sherman, Twitchell, and Webb; and for the towns of Thornton and Walnut Grove.

1.5.3 Implementation of the Central Valley Flood Protection Plan

Several programs are being developed under CVFPP implementation. These programs are intended to improve flood management for the areas protected by the facilities of the State Plan of Flood Control and include areas along the Sacramento and San Joaquin rivers. A Regional Flood Management Planning process is also underway (which includes the “Delta North” and “Delta South” regions) to better define flood management investment needed in these areas. A significant number of the regional and local flood management planners, LMAs, and agencies within the Delta are also participants in the Delta Working Group who have provided input to the DWR Delta Flood Emergency Preparedness, Response, and Recovery Program and the planning of the subject FIP.

1.5.4 DWR Temporary/Seasonal Delta Barriers

The South Delta Temporary Barriers Project began as a test project in 1991. The project consists of four rock barriers across South Delta channels. Three barriers are installed during the agricultural growing season to provide adequate water levels and water quality in the south Delta for local agricultural diversions. The fourth barrier is to improve conditions for salmon migrating on the San Joaquin River. This barrier may be installed in the spring to prevent migrating salmon from straying into the south Delta down river where they can be entrained in the SWP and CVP pumping facilities. It is also installed in the fall if needed to improve flows for salmon migrating up the San Joaquin River to spawn.

The concept of deploying additional temporary barriers in select channels to minimize saltwater intrusion while conveying fresh water through Delta following catastrophic levee breaches on one or more Delta islands is one of DWR’s recovery strategies to reduce potential interruptions to Delta water exports. The FIP builds upon the lessons learned on deploying the temporary barriers and how similar barriers can be installed with either stockpiled rock, sheet piles and/or large super-sacks filled with sand that may be stored and transferred from strategically located transfer facilities proposed with the subject FIP.

1.5.5 Franks Tract Project with Operational Control Gates Proposed for Threemile Slough and/or West False River

The California Department of Water Resources (DWR) and U.S. Department of the Interior, Bureau of Reclamation (Reclamation) are investigating the implementation of components of the

Franks Tract Project to improve water quality and fisheries conditions in the Sacramento-San Joaquin Delta (Delta). The overall purpose of the Franks Tract Project is to modify hydrodynamic conditions to protect and improve water quality in the central and south Delta, and to protect and enhance conditions for fish species of concern in the western and central Delta. An auxiliary benefit to better water quality and fishery protection is greater operational flexibility for pump operations in the south Delta.

The Franks Tract Alternatives considered for Threemile Slough west of Sevenmile Slough would be adjacent to the Brannan Island State Recreation Area (BISRA) and at or near the same locations proposed for installation of temporary barge loading facilities near the southern tip of the BISRA between the SR 160 bridge crossing over Threemile Slough and the Willow Campground Loop in the BISRA. With or without the implementation of a flow control structure on Threemile Slough, the DWR Division of Flood Management and the Delta Conveyance Branch believe the two projects are compatible and can co-exist utilizing the north side of Threemile Slough and limited portions of the BISRA. The proposed stockpile near the south end of the BISRA can be planned so it is not in the footprint of the construction and operation activities associated with the Franks Tract Project. The barge loading facility improvements proposed by DFM are limited to placing a limited number of pilings along the top of the northerly shoreline of Threemile Slough to accommodate the temporary moorage of loading barges during emergency conditions. These pilings and other permanent improvements would be designed to avoid major changes to the design of the Franks Tract Project. The temporary-emergency nature of the DFM facilities should not interfere with the operation of the Franks Tract control structure as barges could likely gain access and be loaded from either side of the planned flow control structure without the need to operate the control Structure. During the response and recovery period of major catastrophic flood events in the Delta DWR may seek to commandeer every available marina and/or waterside feature that would enhance or allow the transfer of levee and channel repair materials from land to water, and the proposed Franks Tract Flow Control Structure alternatives on Threemile Slough adjacent to the BISRA could potentially serve a dual purpose role as a temporary barge loading facility and water control facility to assist with flood emergency response and recovery actions within the Delta.

1.5.6 Bay Delta Conservation Plan (BDCP)

The BDCP is a 50-year, ecosystem-based plan designed to restore fish and wildlife species in the Delta in a way that also provides for the protection of reliable water supplies while minimizing impacts to Delta communities and farms. The BDCP is being developed in compliance with the federal Endangered Species Act (ESA), the California Endangered Species Act, and the California Natural Community Conservation Planning Act (NCCPA). It includes:

- Biological goals and objectives for 57 species, 11 of which are fish
- Up to 113,000 acres of restored and protected aquatic and terrestrial habitat
- Measures to address other ecological stressors
- A new governance structure to collaboratively implement the BDCP
- New water conveyance facilities to improve flow patterns for Delta fisheries while improving water supply reliability
- A clear process for addressing issues and conflicts as they arise
- Financing mechanisms and funding responsibilities

The current Delta Flood Emergency Program is consistent with the goals of the BDCP in connection with providing for additional flood protection and potential improvement and restoration of water supplies within and conveyed through the Delta. Damage and interruption of service from critical infrastructure protected by some Delta levees can affect the State Water Project, the Central Valley Project, as well as local and regional water supply systems and impact State's economy and public health and welfare. The Delta Flood Emergency Response Program is focused on developing a flood management plan and the FIP that will collectively prepare the local, State, and federal agencies to respond and recover from Delta flood emergencies that could pose a threat to human life and property and/or impact infrastructure and resources that are of significance to California's economy, inclusive, but not limited to, regional, State, and federal water supply systems that are identified in the BDCP.

1.5.7 Ecosystem Restoration Programs

DWR and other State, federal agencies, and Non-Governmental Organizations are working on the ecosystem restoration activities in the Delta. The vast majority of these projects focus on fishery issues, species assessment, ecological processes, environmental water quality, or habitat restoration.

In 2009, the legislature approved a series of bills commonly known as the Delta Reform Act. The Act created a new Delta governance structure including the Delta Stewardship Council to develop a comprehensive Delta Plan. The Act also created the Sacramento-San Joaquin Delta Conservancy as a primary Delta ecosystem restoration entity.

1.5.8 Delta Stewardship Council (DSC)

The DSC was established with the 2009 Delta Reform Act and was intended to establish coequal goals of putting the protection of the Delta ecosystem on equal footing with water supplies and water conveyances through the Delta. The DSC attempts to knit together the various regulations, policies, and plans already in place; in progress; and/or planned for the Delta. The DSC strives to increase water supply reliability by improving a variety of water management actions throughout California. The DSC coequal goals also consist of protecting and enhancing the ecosystem within the Delta, protecting rural lands for agricultural uses, protecting historic communities, and limiting new urban development to existing urbanized areas. Consistent with the DWR activities, the DSC is also seeking methods to improve flood preparedness and emergency response within the Delta, reduce the exposure to flood risk in the Delta, and set State priories for investment in Delta flood protection by 2015. The DSC is looking to certify a programmatic EIR for a Delta Plan by spring 2013 and have the Delta Plan become regulation after completion of the State rulemaking process by summer 2013.

1.5.9 Delta Protection Commission (DPC)

The DPC was established by the Delta Protection Act of 1992 that recognized the Delta as a natural resource of state-wide, national, and international significance; containing irreplaceable resources. It is the policy of the State to recognize, preserve, and protect those resources for the use and enjoyment of current and future generations. The Act, which is often referred to as the Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, was amended in 1996, 1998, 1999, 2000, and renamed the Delta Reform Act in 2009, as noted above in the development of

the DSC. The Act includes mandates for the designation and oversight of land use activities of the primary and secondary zones within the legal Delta, creation of a Delta Protection Commission, and completion of a Land Use and Resource Management Plan for the Primary Zone of the Delta. As called for in the Act, a Land Use and Resource Management Plan for the Primary Zone of the Delta was prepared and adopted by the Commission in 1995 and revised in 2002 and 2010.

The DPC consists of members of local flood control interests, inclusive of local reclamation districts, local maintaining agencies (LMAs), and local communities who have an interest in maintaining and improving flood protection on a large number of the islands within the Delta. The counties within the Delta and LMA representatives have been active participants in the Delta Working Group that was established by DWR to advance the Delta Flood Emergency Preparedness, recovery, and Response Program and the subject FIP.

1.5.10 Local Agencies' Activities

Local agencies play a major role in operation, maintenance, and improvement of Delta Levees and as the first responders are engaged and play a critical role in flood emergency response in the Delta. A number of the LMAs are also participating in DWR's Delta Levee Subventions Program and Delta Special Projects. Coordination, planning, and working closely with LMAs is an important component of DWR engagement in the Delta and is essential to proper responses to flood emergency response activities. A significant number of the local agencies, inclusive of the five Delta county Offices of Emergency Services (OES) and Delta LMA representatives, are also participants in the Delta Working Group who have provided input to the DWR Delta Flood Emergency Preparedness, Response, and Recovery Program and the development of the subject FIP.

1.5.11 Delta Risk Management Strategy (DRMS)

Following the 2000 CALFED Record of Decision, the Delta Risk Management Strategy (DRMS) looked at sustainability of the Delta and assessed major risks to the Delta resources from floods, seepage, subsidence, and earthquakes. DRMS also evaluated the consequences, and developed recommendations to manage the flood risks in the Delta. The DRMS studies and reports were completed in a relatively short period between 2006 and 2008 and indicate that there are substantial risks to any one or several islands in any given year and Delta islands are susceptible to flooding due to levee failures or full breaches triggered by either seismic events and/or coinciding high-water and high-tide events. The DRMS evaluations noted that during the last century, there have been 162 Delta levee failures leading to island inundations. In many cases, the flooding of the islands has been extremely costly to both local residents and farmers, and to the State as a whole. The findings also suggest that California has an immense interest in maintaining many of the Delta and Suisun Marsh levees, in part because the Delta is a source of conveying drinking water for about two out of every three Californians. In addition, there are important critical infrastructure elements, environmental, agricultural, and recreational benefits in the Delta region that could be severely impacted by levee failures in the Delta. The proposed FIP is intended to minimize potential impacts from flooding in the Delta that could impact Delta islands, Delta water exports, critical infrastructure, agricultural, environmental, and recreational resources.

1.6 Previous DWR Efforts to Improve Delta Flood Emergency Response and Recovery Capabilities

The proposed action builds on previous efforts to improve Delta flood emergency response and recovery capabilities. In this context "response" refers to actions that can be taken during an emergency that can mitigate further damage, such as repairing levees at risk of failing (flood fight), evacuating populations at risk, and moving equipment out of the flood zone. "Recovery" refers to actions that can be taken after flooding has occurred, to close levee breaches, pump out islands, and repair damaged infrastructure.

In 2007, DWR initiated the Delta Emergency Rock and Transfer Facilities Project to provide rock storage facilities to improve response to emergency flooding events in the Delta. The Delta Emergency Rock and Transfer Facilities Project involved the establishment of three waterside material transfer and stockpile sites, in Rio Vista, Stockton, and Hood. Approximately 223,000 tons of rock for levee repair material were acquired and collectively stockpiled at sites in Rio Vista and the Port of Stockton. A conveyor system was acquired, tested, and stored at the Port of Stockton. The rock stockpiles were established to ensure that materials would be immediately available for initial emergency actions. The lease for the Hood transfer site has since lapsed, and the lease for the Port of Stockton site has been renewed with an annual lease. The need for permanent transfer facilities and ICP sites remains pressing.

1.7 Purpose of this Environmental Assessment/Initial Study

An Initial Study (IS) is prepared by a lead agency to determine if a project may have a significant effect on the environment (State CEQA Guidelines Section 15063[a]), and thus to determine the appropriate environmental document. In accordance with State CEQA Guidelines Section 15070, a "public agency shall prepare… a proposed negative declaration or mitigated negative declaration… when: (a) The Initial Study shows that there is no substantial evidence…that the project may have a significant impact on the environment, or (b) The Initial Study identifies potentially significant effects but revisions to the project plans or proposal are agreed to by the applicant and such revisions would reduce potentially significant effects to a less-than-significant level." In this circumstance, the lead agency prepares a written statement describing its reasons for concluding that the proposed project would not have a significant effect on the environment and, therefore, does not require the preparation of an environmental impact report (EIR).

As described in this IS (in Chapter 4, Environmental Checklist and Chapter 5 Summary of Mitigation Measures), the proposed project would result in certain significant environmental impacts, but those impacts would be reduced to a less-than-significant level by implementation of revisions (in the form of mitigation measures) that have been agreed to and will be implemented by DWR. This IS/MND conforms to the content requirements of State CEQA Guidelines Section 15071.

Under CEQA, the lead agency is the public agency with primary responsibility over approval of the proposed project. DWR is the lead agency for the proposed Facility Improvement Project. The Central Valley Flood Protection Board (CVFPB) and the Department of Parks and Recreation (DPR) are both responsible agencies that will need to consider the action after DWR has approved it. The U.S. Army Corps of Engineers (USACE) is the lead regulatory permitting

agency for National Environmental Policy Act compliance under its Clean Water Act, Section 404 authority to regulate waters of the United States, including wetlands and dredge material disposal sites.

A major purpose of this document is to present decision makers and the public with environmental consequences of implementing the proposed project. This disclosure document is being made available to the public for review and comment.

2 Project Alternatives

2.1 Range of Alternatives Considered

The purpose of the Delta Flood Emergency Preparedness, Response, and Recovery Program, and the Facilities Improvement Project (FIP) is to ensure that the State has the appropriate Delta infrastructure to respond and recover quickly and effectively from major flood or earthquake disasters in the Sacramento-San Joaquin River Delta.

As described in Chapter 1, the project will improve the speed and effectiveness of DWR's Delta levee emergency response and recovery program by acquiring and developing permanent transfer facilities for loading levee repair materials and supplies onto barges for transport to levee repair sites.

The range of alternatives considered includes the acquisition in fee of appropriate sites from willing sellers, the execution of long-term leases for new sites from willing lessees, and constructing improvements on these sites and existing State-owned sites to support material storage and transfer to barges, ICPs, and related emergency operational functions, and storing flood fight materials, supplies, and equipment. The alternatives considered include combinations of these elements.

Because DWR is committed to achieving the project purposes through willing sellers and willing lessee transactions, the range of alternatives considered was limited to sites currently in government ownership or private properties listed for sale on the open market.

2.2 No Project Alternative

Under the No Project Alternative, DWR's Delta flood emergency preparedness, response, and recovery program, as it is currently in existence following short-term improvements in 2007-2008 would be expected to continue. Of particular relevance to the No Project Alternative, DWR would not acquire any new transfer facilities, nor would further improvements be made to existing facilities, but existing facilities would continue to be maintained under current authorizations.

Port of Stockton Site Lease: Under existing authority DWR will work with the Port of Stockton to renew and extend the current short-term, year-to-year, lease arrangement, which allows DWR access to the left bank of the San Joaquin River at the northwest corner of Rough and Ready Island (Figure 2-1). The current lease agreement for the loading area and for storage of a rock stockpile of approximately 110,000 tons has been renewed with an annual lease. It is assumed that under the No Project Alternative the effort to renew and extend the lease will be successful, thus retaining ensured access to this site for the foreseeable future. The site has significant attributes that support its anticipated use as an emergency transfer facility, including security fencing, improved roads, dock facilities, and storage of DWR's conveyor system that would be assembled for emergency use. However, the facility is subject to severe site access restrictions designed to protect the Port facilities from hostile intrusions, and these restrictions

could impede full-scale transfer operations by limiting expeditious access for dump trucks and emergency flood fight personnel. In addition, the round trip haul routes between the dock and the rock stockpiles are over a mile, which will require additional machinery and handling of material, leading to additional costs and time for loading levee materials under emergency conditions. The site also provides inadequate truck turnaround and loading space at the west stockpile.

Rio Vista Site Loading Facilities: DWR has stockpiled approximately 113,000 tons of rock at the Rio Vista site (Figure 2-2). The property upon which the stockpile sits is owned in fee title by the Central Valley Flood Protection Board and leased to a third party contractor. Under the No Project Alternative, it is anticipated that this rock can remain indefinitely until needed. However, no long-term contractual arrangements are in place to ensure that this rock can be loaded onto barges if and when needed under emergency conditions.

This stockpile may be difficult to access during flood conditions due to the low elevation of the access road to the stockpile and the absence of direct access to transfer facilities. The existing nearby barge loading facility is owned and operated by the Dutra Group, so the efficient use of the Rio Vista stockpile facility requires the Dutra Group's cooperation. Based on LIDAR data (2007, DWR), the base of the stockpile is at an elevation of about 6.5 feet (NAVD88), which is more than five feet below the 100-year flood elevation for this area. The 1,500-foot access road to the stockpile slopes downward from about 33 feet in elevation at the Airport Road entrance to the 6.5-foot elevation of the stockpile. The lower half of the access road would be under water in a 100-year flood. It is therefore reasonable to assume that under the No Project Alternative this rock stockpile may not be accessible during a major flood event, but would be available in the event of a dry weather levee failure event, such as an earthquake.

Figure 2-1. Port of Stockton Leased Barge Loading and Stockpile Site

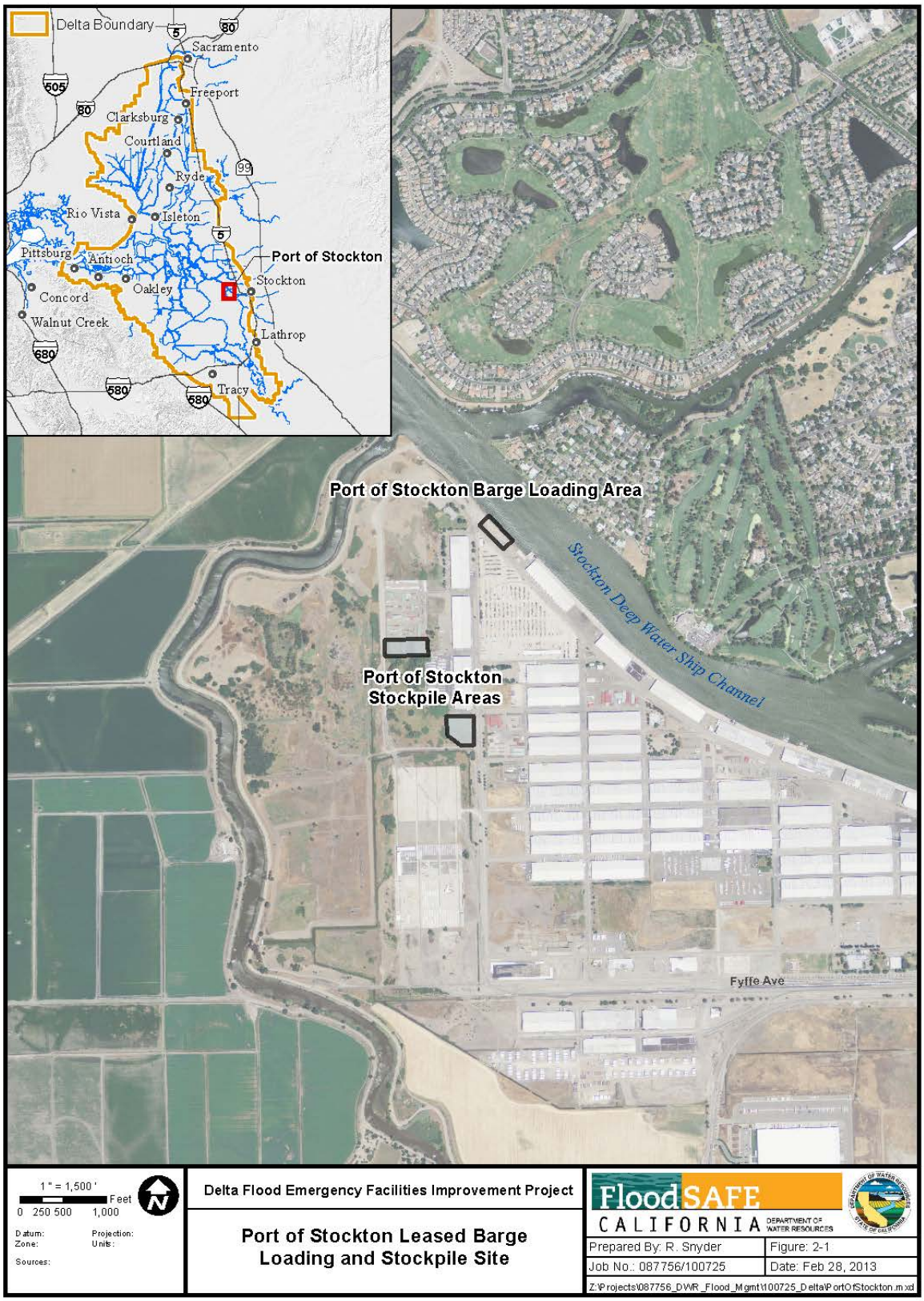
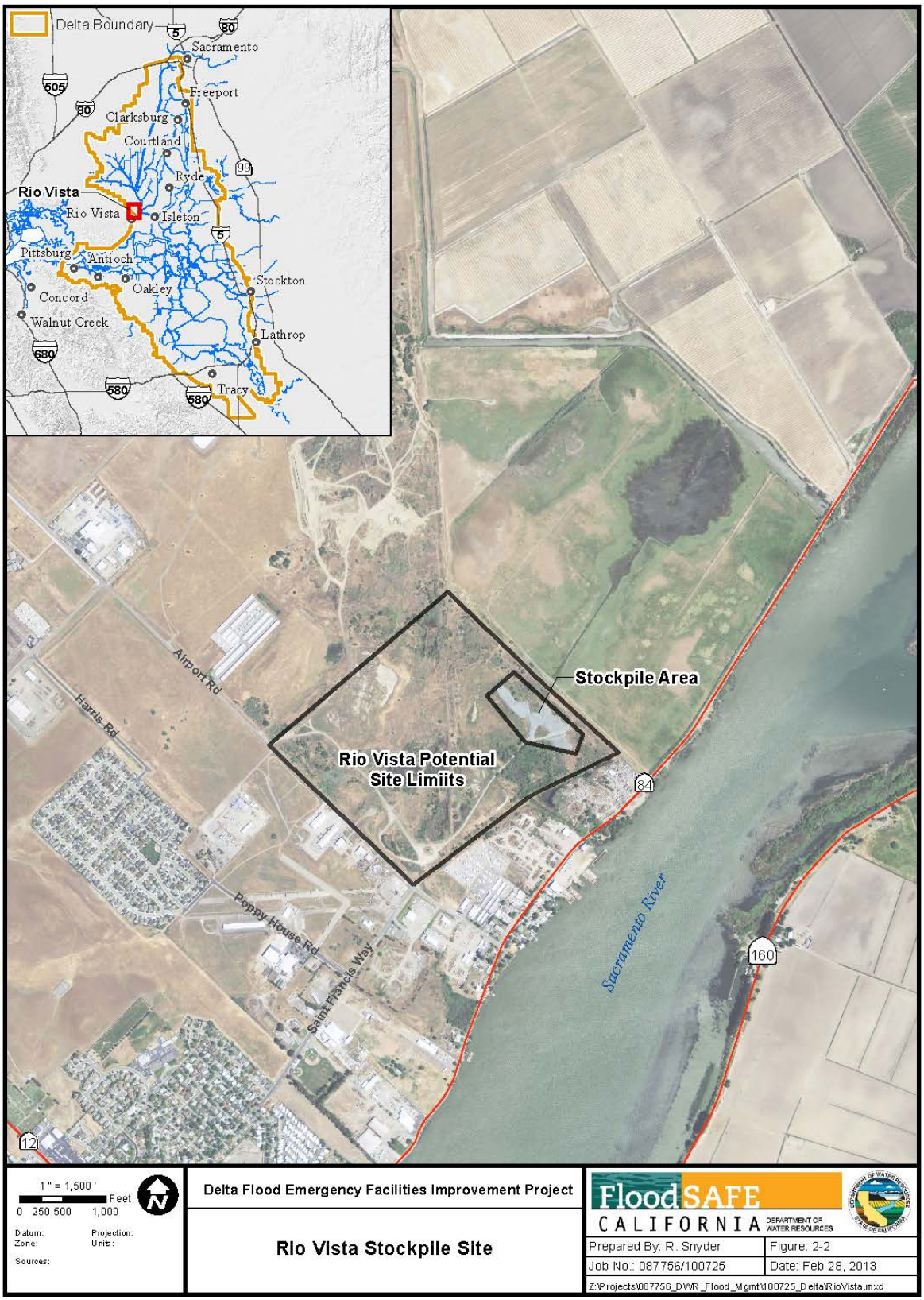


Figure 2-2. Rio Vista Stockpile Site



2.3 Transfer Facility Screening Criteria and Alternatives

Transfer facilities alternatives would involve permanent acquisition or long-term leases (20-years or more), of strategically located sites within the Delta and making site improvements to support flood fight materials storage and transfer to barges, ICPs, and related emergency operations such as equipment repair sites, first aid sites, storage for other flood fight materials, helicopter landing sites, and other related emergency functions. Access for helicopters is important for their potential use in quickly transporting staff and materials such as sandbags, bulk bags, poly sheeting, stakes, and hand tools to repair sites, as well as facilitating rapid reconnaissance and coordination functions. Therefore, the feasibility evaluation assumes that alternatives involving new barge loading sites would be selected to meet some or all of these related functions as well.

A systematic, objective process was used to identify and screen alternative sites for permanent transfer facilities and Incident Command Posts (ICPs). Among the key screening criteria are the following.

2.3.1 General Site Characteristics

The sites must:

- Be functional on a 24 hour per day, 7 days per week basis during and after a major disaster.
- Be served by one or more all-weather access roads with lane widths of at least 12 feet that connect to the regional transportation network.
- Be adjacent to a Delta waterway with a depth at low tide of at least eight feet to allow full-sized, fully loaded barges to pass.
- Be located at or above the 100-year flood elevation to ensure that the site can function during and after a major flood event. They must not be dependent upon levees to protect them during an emergency.
- Provide a solid, all-weather surface to support heavy, continuous use by transport trucks and loading equipment.

2.3.2 Specific Functional Site Characteristics

The sites must be able to:

- Allow large truck trailer combinations to enter the facility, dump or unload flood fight supplies, and leave in a safe and efficient manner. Flood fight materials include, but are not limited to, quarry rock, sand, gravel and crushed rock, sandbags, sheet piles, rolls of poly-sheeting, bulk bags, wooden stakes, twine, hand and power tools, food, water, fuel, communication gear, and first aid supplies.

- Provide sufficient space for the safe and efficient operation of equipment, such as front-end loaders, backhoes, excavators, and cranes, or forklifts to unload and transfer the flood fight materials onto barges.

- Provide room for at least two barges to be loaded simultaneously to facilitate efficient loading of flood fight supplies onto barges.

- Allow for on-site storage of stockpiled quarry rock, bulk bags, and other supplies.

- Provide on-site parking for all personnel working at the site.

- Provide for site security, including gates, fencing, electronic surveillance, and 24-hour lighting for emergency operations.

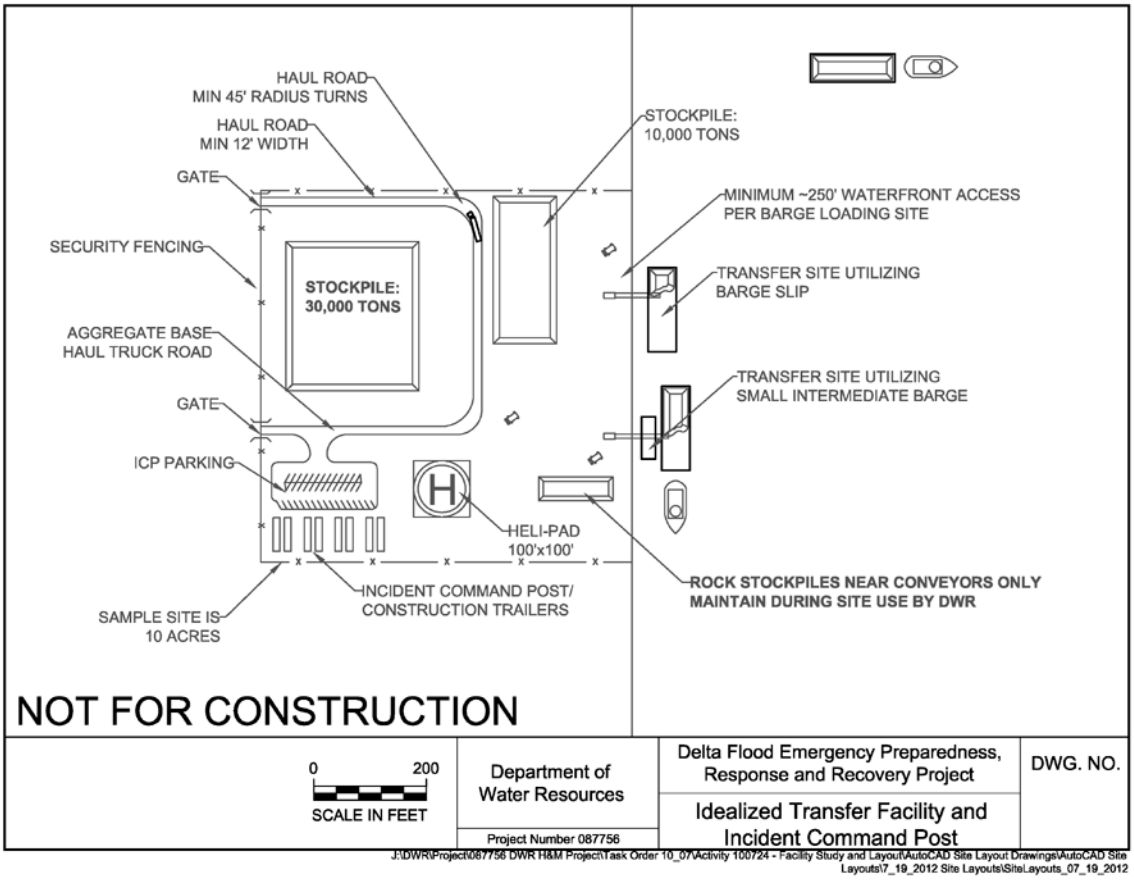
The sites should also be able to:

- Provide utilities to supply an ICP and/or a field construction office, including potable water, wastewater, electricity, and communications (telephone, radio, internet, television). Ideally the utility infrastructure is installed and ready for use, but at the very least, sufficient space must be provided on site so that these utilities can be provided with portable water tanks, portable chemical toilets, electrical generators, and communications trailers. For planning purposes it is assumed that up to six portable office trailers and one communications trailer would need to be accommodated. The trailers would be 8 to 12 feet wide by as much as 40 feet long. Parking for up to 30 vehicles would be required as well.

- Provide space for a helipad for helicopter access to support reconnaissance and command functions, as well as the potential transport of flood fight materials such as sand-filled bulk bags.

An ideal transfer facility site that supports all these functions without interference is shown in Figure 2-3. In order to allow sufficient space for these functions, approximately ten acres of land and 500 feet of waterfront are needed to accommodate loading two barges concurrently, up to 60,000 tons of quarry rock, an ICP, and a helipad. Given that the loading capacity of a single conveyor system and barge is estimated to be about 6,000 tons per day, 40,000 tons of quarry rock would supply two barge loading operations for three days; 60,000 tons for five days. Based on discussions with quarry owners and truckers, it is anticipated that delivery of additional quarry rock could begin within one to three days; thus, a stockpile of 40,000 tons or more would ensure that quarry rock delivery would not be a constraint on a site's rapid emergency response transfer capacity.

Figure 2-3. Ideal Transfer Facility and Incident Command Post



2.3.3 Routine Operation and Maintenance

All of the alternative sites, if acquired and retained by DWR and developed to achieve the project purposes, would require routine operation and maintenance. These activities include, but are not limited to:

- Regular inspection, security patrols, and maintenance to prevent unauthorized use, fixing.
- Fencing, cleaning up trash, controlling weeds, and maintaining improvements.
- Regular inspection of structures and equipment, such as dock facilities, conveyor systems, pumps, gates, and utilities to ensure structural and functional integrity.
- Functional equipment such as conveyor systems need to be assembled, operated, and disassembled every five years to ensure full functionality and to refresh the institutional knowledge needed to operate them.
- Replacing and repairing any structures and equipment as necessary.

- Maintaining any required authorizations and permits, paying fees and assessments, and maintaining complete facility records.

- Replacing flood fighting supplies that exceed their useful storage lives.

- Winterizing equipment and site.

Operations and Maintenance manuals will be developed for each site. The manuals will include detailed descriptions of each site, utilities and services, regular operation and maintenance procedures, emergency operations activation procedures (both ramp up and ramp down), and all relevant operational contracts and agreements.

2.3.4 Emergency Operations

In general, for all of the alternative sites, emergency activation would include the following elements:

- A construction contractor would be requested to provide the equipment and labor required to transfer flood fight materials to barges. The preferred system for loading barges relies on a conveyor system because it is fast and efficient. However, there are relatively few of these systems in use at any time, and their availability could only be ensured with a standby procurement contract. Alternative, less desirable ways of loading the barges could also be implemented, relying on front-end loaders, backhoes, excavators, cranes, or other equipment.

- For sites where quarry rock or other flood fight supplies have been stockpiled, these stockpiles could be used as soon as barges arrive and the barge loading equipment is operational. Once quarry rock or other flood fight supply deliveries from external sources begin arriving, the stockpiles would no longer be used. Ultimately they would be replenished after each emergency event is over. It is assumed that the primary sources of quarry rock would be those identified in Figure 1-2, based on discussions with current quarry operators. However, it is possible that one or more currently functioning quarries would cease operations and new ones would start up. Sources of other flood fight materials, such as sand, gravel, and soil that are suitable for filling super-sacks have also been identified. These are also likely to undergo some changes over time. DWR owns a 500-acre agricultural parcel in the northeast side of the Delta northeast of Thornton and New Hope Tract that could serve as a potential borrow source of soil that can be used for levee embankment repair and reconstruction.

Once activated, the transfer facilities would be expected to operate 24 hours per day, 7 days per week until the emergency situation is under control. If necessary, a water truck would be provided by the contractor for dust control during rock and soil stockpile loading and unloading operations.

A contractor would be requested to set up the ICP for the site(s), including bringing in and setting up office trailers, restroom facilities, and designated parking. If not already installed, temporary fencing would be set up as well. The command post would be connected to utilities to

provide water, wastewater, power, and communication connections or supported by temporary utility facilities.

2.3.5 Environmental Considerations

The transfer facilities will function as heavy industrial sites during a flood emergency, with intensive use of heavy equipment generating noise, light, dust, and diesel exhaust around the clock. An important advantage of establishing such sites well ahead of emergencies is that they can be preferentially located to minimize environmental impacts on fisheries, riparian vegetation, wildlife, and sensitive receptors such as residences. Therefore, sites that are already developed for industrial use and that will have minimal incremental environmental impacts are strongly preferred over new sites with significant sensitive resources or sensitive receptors. Compatibility with existing local land use zoning requirements is also an important consideration, as this will streamline permitting and will likely result in the greatest public acceptability of selected sites. Sites already in public ownership are preferable to acquiring private parcels where a choice exists, because this minimizes the incremental impact upon local tax revenues and ensures that lands in public ownership will be used as efficiently as possible.

2.3.6 Summary of Screening Criteria

The site requirements described above can be summarized as screening criteria against which potential sites can be evaluated and ranked in order to focus on the most promising sites. It is not essential that every function be fully realized at every site; the project purpose is most reasonably achieved by making the most practical use of available parcels, with the goal of achieving overall improved response capabilities. While it is most desirable to cluster all of the functions at every site, the most important function is to improve the barge loading capacity to support improved disaster response capability in the Delta. Accordingly, the screening criteria are ranked in order of importance in Table 2-1.

2.3.7 Identifying Potential Transfer Facility and Incident Command Post Sites

The potential sites for the waterside material transfer facilities include the existing sites that are part of the DWR's 2007-2008 Delta Emergency Rock and Transfer Facilities Project, government-owned properties, and private properties that are available for sale on the open market.

275 government-owned properties in and around the Delta were considered for potential material transfer facility sites for the project. The use of an existing government-owned property would potentially reduce the cost and time required to develop the facilities required for the project.

Seven privately owned properties currently for sale that met the basic screening criteria were also evaluated. Local realtors in the Delta region were consulted to locate and collect information on these potential properties.

Table 2-1. Transfer and Incident Command Post Screening Criteria

	Characteristic	Level of Importance
1	Access to navigable Delta waterways, minimum 8 feet draft at Low Tide	Critical
2	Barge docking and loading capacity, 250 feet of waterfront per barge loading operation and space for loading equipment operation	Critical
3	Access to major land transportation network, at least 12-foot lane widths each way	Critical
4	Room for trucks to enter and exit facility	Critical
5	All weather working surface and solid foundation	Critical
6	Located at or above 100-year flood elevation, not dependent upon levee for protection	Critical
7	Room for on-site storage of flood fight materials, up to 60,000 tons of quarry rock and sand	Important
8	Room for ICP trailers and parking (6 trailers, 30 vehicles)	Important
9	Utilities: Electricity, communications, water, wastewater, 24-hour emergency lighting	Important
10	Room for Helipad, no adjacent flight hazards	Important
11	Minimal environmental impacts, compatible with zoning and adjacent land use	Important
12	Cell Phone Reliability	Important

2.4 Preliminary Screening of Alternatives

2.4.1 No Project Alternative – Maintain Existing Sites

Under the No Project Alternative, DWR's flood emergency preparedness programs currently in existence would be expected to continue, but no additional transfer capacity would be established beyond DWR's current capacity of only 13,200 tons per day (tpd), which presently exists only in the Port of Stockton. For this reason, the No Project Alternative does not meet the project purpose and is screened from the group of alternatives carried forward for detailed analysis. However, the estimated flood flight delivery system capacity under the No Project Alternative has been included as a basis for comparison.

2.4.2 Strategically Located Response Facilities

Parcels in public ownership and private parcels within these geographic zones were systematically screened for conformance with the primary and secondary project requirements.

Beginning with 275 public ownership parcels and seven privately owned parcels currently available on the market, the list was screened to eight sites that largely met the screening criteria. However, three sites on the list (Stockton - West Weber Avenue, Rio Vista existing facility, and Brannan Island State Recreation Area) are selected and being considered for this project.

As a result of the screening analysis of the potential waterside material transfer facility sites, several sites or properties satisfied most of the facility requirements and operating criteria that warranted inclusion in the list of alternatives to be analyzed in detail:

1. Hood (portion of site previously leased by DWR contractor under 2007-08 program, but to be potentially expanded to include additional private property and State-owned property to improve transfer capacity, staging area, and stockpile areas)
2. Hood Site (Private) (former Stillwater Orchards Cold Storage Facility)
3. Stockton, West Weber Avenue (private parcels)
4. Stockton, Navy Drive (private parcel)
5. Stockton, North Industrial Shore (private parcels)
6. Rio Vista existing facility (on property owned by CVFPB)
7. Antioch, Wilbur Avenue (private parcels)
8. Sherman Island, 17924 Highway 160 (private parcel)
9. Brannan Island State Recreation Area (on property owned by Department of Parks and Recreation).

These alternative sites are shown in Figure 2-4. The key site characteristics of each are summarized in Table 2-2a and Table 2-2b and described in detail in Chapter 3.

Figure 2-4. Proposed Alternative Sites: Delta Transfer and Emergency Response Facilities Retained for Further Evaluation

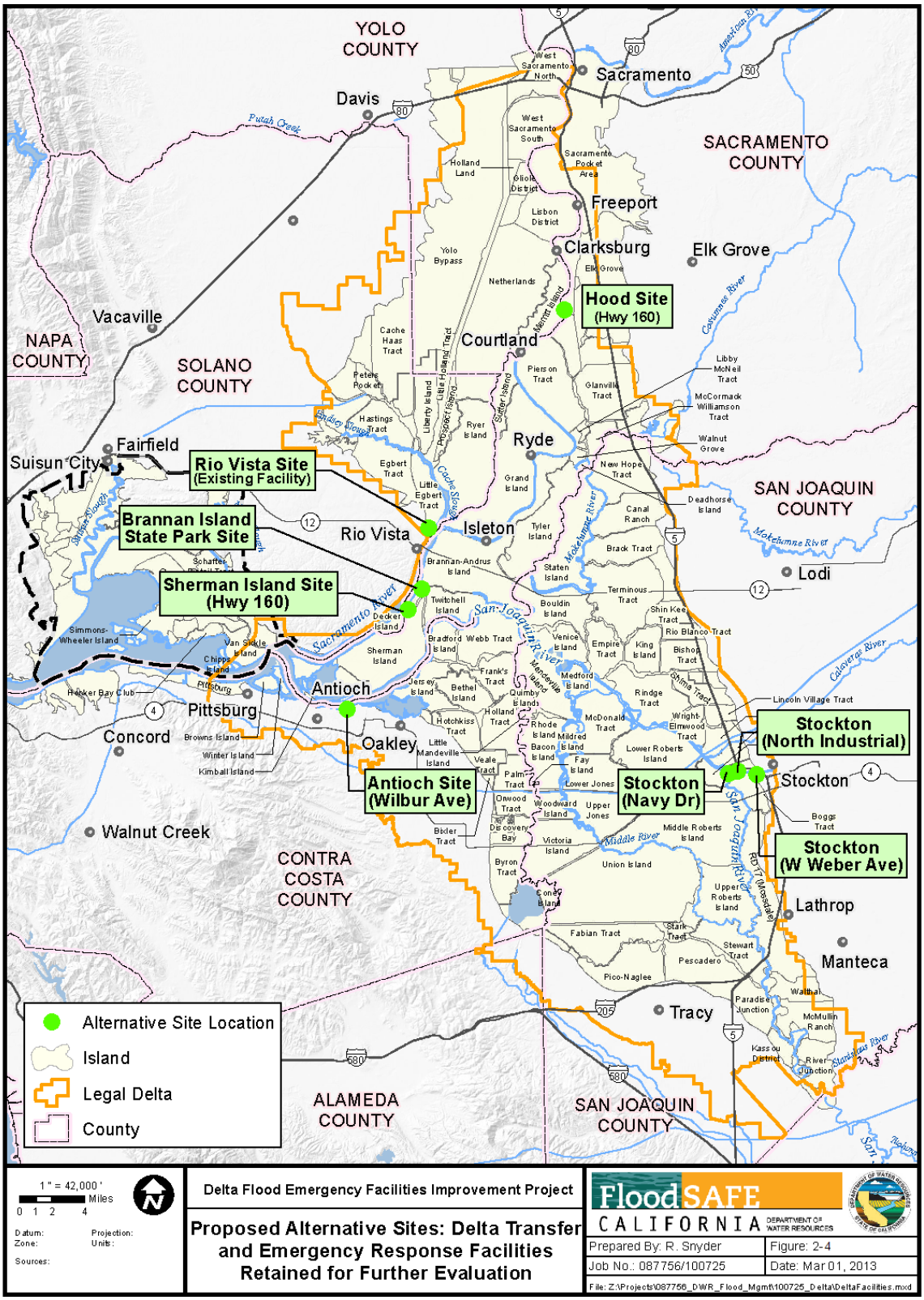


Table 2-2a. Summary of Proposed Actions and Characteristics – Selected Sites

Proposed	Actions	Size, Acres	Land Use	Est. Land Cost*	Potential Functions		
					Transfer	ICP	Stockpile
1) Stockton, West Weber Ave.	Purchase and improve site	22.6	industrial	$5,600,000	x	x	x
2) Rio Vista	1.) Establish MOA w/CVFPB; 2) Improve site; 3)long term agreement for transfer facilities with Dutra Group	110	industrial	NA	x		x
3) Brannan Island State Recreation Area	Long-term lease agreement with State Parks and improve site	313	recreation	NA	x	x	x

Table 2-2b. Summary of Alternative Actions and Characteristics – Screened from further Consideration

Alternative	Actions	Size, Acres	Land Use	Est. Land Cost*	Potential Functions		
					Transfer	ICP	Stockpile
No Project	Continue current Delta Flood Emergency Preparedness, Response, Recovery Project activities; Extend Port of Stockton Lease	NA	NA	NA	NA	NA	NA
1) Hood (DWR)	Improve site	122	ag	N/A	x	x	x
2) Hood (Private)	Purchase and Improve Site	5.8	commercial	$2,000,000	x		
3) Stockton, Navy Dr.	Purchase and improve site	8.46	industrial	$4,600,000	x	x	x
4) Stockton, North Shore Industrial	Purchase and improve site	28	industrial	$6,000,000	x	x	x
5) Antioch, Wilbur Ave.	Subdivide, purchase and improve	109	industrial	$9,500,000	x	x	x
6) Sherman Island, 17924 Highway 160	Purchase and improve site	20	residential-ag	$2,000,000	x	x	x

*Land values are approximated.

3 Screening and Selection of Alternatives and Proposed Site Improvements

3.1 No Project Alternative

Under the No Project Alternative DWR's flood emergency preparedness programs currently in existence would be expected to continue, but with some significant changes as described in Chapter 2. Although the No Project Alternative was rejected because it does not fulfill the project purposes, it is carried forward here to provide a baseline for comparison with the various alternatives that are described in detail in this chapter.

3.2 Number of Alternative Transfer Facility Sites

The analysis of the emergency response system capacities and limitations documented in demonstrate that transfer capacity is the limiting factor in determining the overall rate of repairs that could be achieved following a major disaster. The analysis demonstrates that in a major post-disaster recovery effort in which 20 or more levees are damaged, as many as 15 new transfer sites would likely need to be established in the first 90 days after the triggering event. On the other hand, it would be costly to acquire and indefinitely maintain that many sites in anticipation of a future disaster event. In addition, the importance of being able to respond quickly after a disaster, such that damaged, but still functioning levees can be repaired before they fail, is clearly among the most cost-effective post-disaster actions that could be undertaken. At least a few transfer sites, with flood fight materials stockpiles and ICP support infrastructure in place, need to be strategically in place to rapidly facilitate such repairs.

Transfer sites that can be established prior to disasters can be selected, acquired, and developed with minimal environmental impacts.

Taking all these factors into consideration, DWR proposes to fully implement up to three transfer facility sites under this project, recognizing that in the event of a major disaster additional sites may need to be established under the State's emergency response powers. This approach strikes a reasonable balance between the costs and benefits of establishing transfer sites before and during a major disaster.

3.3 Short List of Strategically Located Response Facilities

The short list of transfer facility alternatives that passed through the initial screening process described in Chapter 2 includes the following:

1. Hood Site (Private) (former Stillwater Orchards Cold Storage Facility)
2. Hood Site (DWR) (Existing 122-acre site owned by DWR)
3. Stockton, West Weber Avenue (Site 1 – Selected for Implementation)
4. Stockton, Navy Drive Site

5. Stockton, North Shore Industrial Site
6. Rio Vista, Existing Quarry Rock Storage Site (Site 2 – Selected for Implementation)
7. Antioch, Wilbur Avenue Site
8. Sherman Island, 17924 Highway 160 Site
9. Brannan Island State Recreation Area Site (Site 3 – Selected for Implementation)

Further screening of each of these alternative sites is described below.

3.3.1 Hood Site (Private), Hood-Franklin Road Site and HWY 160 Site

3.3.1.1 Description

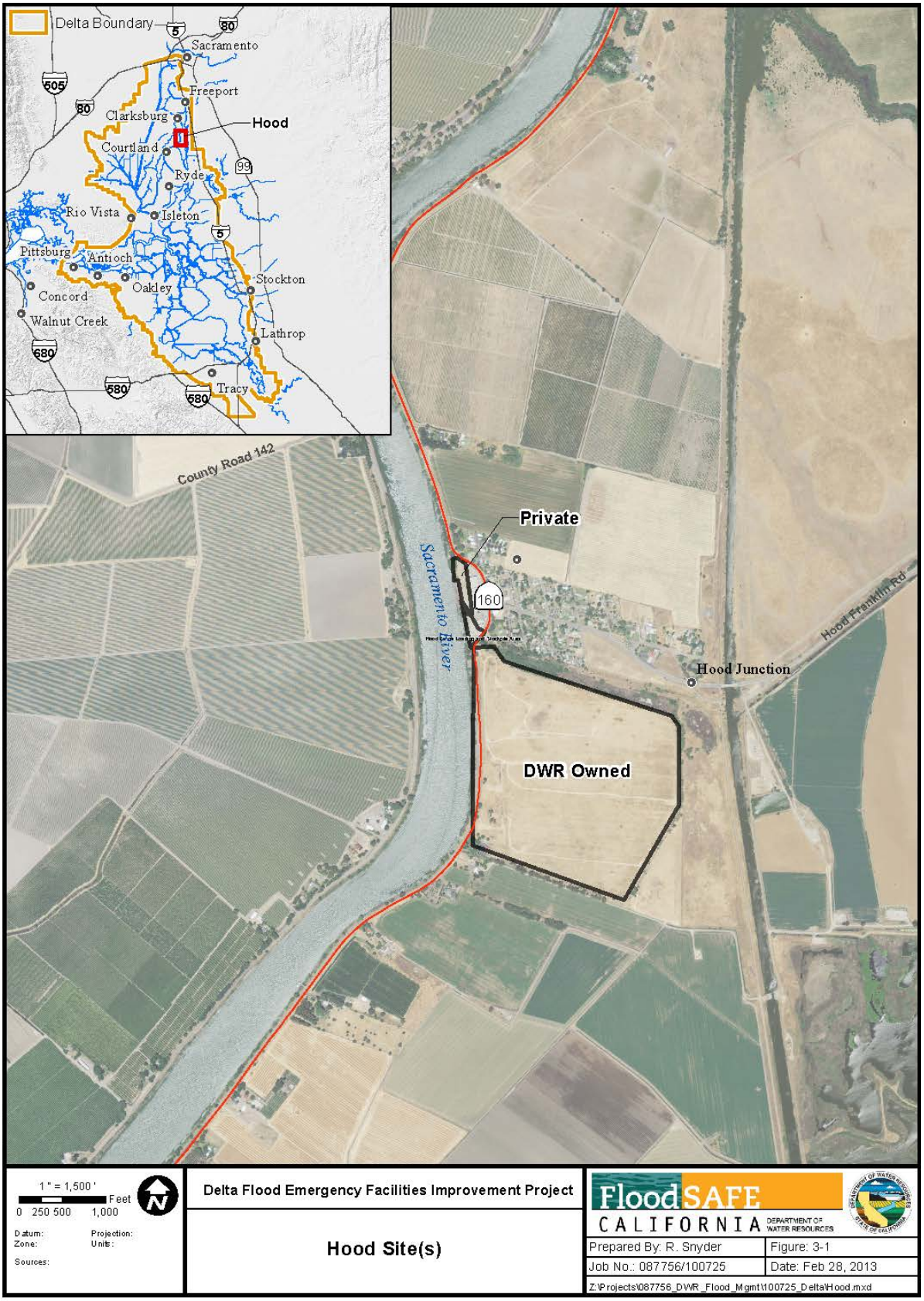
The Hood sites are located in the north Delta, along the left bank of the Sacramento River at the junction of Highway 160 and Hood Franklin Road, approximately 20 miles southeast of Sacramento (Figure 3-1). The unincorporated community of Hood, with approximately 200 residents, is immediately adjacent to the east, along Hood Franklin Road.

The FEMA flood map for this area indicates that access from Interstate 5 via Hood Franklin Road is at risk of flooding from the Morrison Stream Group to the north and the Mokelumne River and Cosumnes River to the south in a 100-year flood event. The site is also accessible via Highway 160 from both north and south directions, although the levee is vulnerable and ground transportation connectivity is fairly distant. Therefore, it is likely that the site would remain accessible from at least one of these three directions in the event of a major emergency.

The northern portion of the site, formerly known as the Stillwater Orchards Cold Storage Facility, includes about 5.8 acres and is comprised of 6 parcels. Most ground surfaces on the site are surfaced with aggregate base or pavement suitable for truck access. The current zoning for the portion of the site along the river is light industrial. The General Plan designation for the site is Intensive Industrial.

The former cold storage facility has not been used for such purposes for more than 20 years. The ammonia refrigerant has been removed; however, the cold storage buildings with insulated, reinforced concrete walls remain on site. In the early 1990s they were inspected by DWR and found to be generally structurally sound. DWR also conducted a Phase 1 Hazardous Materials Survey at the time, which determined that the site had several relatively minor issues that needed to be addressed. Those minor issues included some slag used as rip-rap on the bank adjacent to a river barge loading and storage building, some asbestos panels in the main building, and a leaking gasoline tank adjacent to Highway 160 at the southeastern side of the property, which has since been removed. The pile-supported storage shed protrudes about 46 feet over the river bank and occupies about 300 feet of shoreline. This structure was used for loading locally grown produce onto barges for shipment prior to the shift towards the current practice of transporting produce by truck (personal communication, Glenn Gordon, 1993). This building is of little functional value in terms of meeting the project purposes and obstructs a significant portion of the shoreline. It is

Figure 3-1. Hood Site(s)



possible that its removal could be problematic due to potential historic values associated with its age.

About 0.95 acre is owned by DWR and provides approximately 425 feet of shoreline access. An interior drainage discharge pipe and a water quality monitoring gage operated by DWR currently stand in the river here, accessed by a catwalk.

The entire site previously devoted to cold storage as well as the current DWR monitoring station property has a perimeter chain link security fence aligned approximately with the Highway 160 southbound lane right-of-way. The facility is served by power, water, and telephone utilities. Wastewater service is presently provided by onsite septic and leach field, which reportedly moves slowly when saturated ground conditions exist.

This site was leased to a DWR contractor for use as a barge loading facility for the 2006-2007 Emergency Levee Repair Project. Steel beams were driven into the east shoreline bank of the Sacramento River to support the conveyor system used for that project, and remain in place at the present time. The short-term lease with DW R's contractor expired in 2010. Due to the presence of the former agricultural barge loading shed facility on the shoreline, there is currently only room to load one barge at a time at the northern end of the property.

Immediately south of the former cold storage facility DWR owns 122 acres of farmland, including about 2,000 feet of river frontage. The current zoning for this portion of the site is AG-80, a Permanent Agricultural Zone, which permits one single family residence per parcel as well as all agricultural uses. The General Plan designation for this site is Agricultural Crop.

It has electrical service for agricultural pumps and a former residential site. It was acquired in 1994 to provide future flexibility for DWR in formulating State Water Project facilities, including potential use as an intake for an isolated conveyance facility.

The net river frontage provided by all the parcels owned by DWR is approximately 2,425 feet, or approximately 0.46 miles in length, of which only 425 feet are not currently encumbered by Highway 160. Highway 160, which runs primarily along the crown of the Sacramento River southeasterly levee from Freeport to Sherman Island, swings east of the former cold storage facility, providing one of the few locations along the east bank of the Sacramento River where it is currently possible to operate heavy equipment without interfering with Highway 160 traffic.

Southeast of the levee is an open field covered with grasses, with a few small shrubs trees along the perimeter. This site has previously been used for farming and viticulture, but more recently has been used for cattle grazing. A permanently flooded emergent wetland with dense vegetation (including trees, shrubs, and herbaceous species) borders the entire northern and northeastern perimeter of the property. This wetland area and an additional buffer of approximately 25-feet were fenced off from the open field, preventing cattle access to the mature vegetation surrounding the wetland. The open field is dominated by non-wetland grasses, a few shrubs/small trees, and a few herbaceous species. Several burrows of varying size were observed on the grassland portion of the property during a site visit. Because the

site is covered with vegetation and contains several mature trees and dense shrubs along the perimeter, habitat value is expected to be high and potentially will support a variety of species.

3.3.1.2 Screening Considerations

The cold storage facility portion of the site offers some access to the river sufficient to facilitate loading one barge at a time. The likely impacts of removing the potentially historic agricultural barge loading shed could be significant, as would be the relocation of DWR's existing water quality monitoring equipment south of the shed. The site, by itself is too small to allow for the storage of significant quantities of quarry rock and other levee repair materials.

For these reasons stated above and complex land and improvement appraisals, the Hood (Private) site does not appear to be one of the most feasible sites at this time. Due to the Program's need for a water-side transfer site in the north Delta region and dynamic and changing circumstances in the future, this site may warrant investigation and consideration at a later date.

This site is not pursued for further considerations at this time.

3.3.2 Hood Site (DWR), South of Hood-Franklin Road, East of HWY 160 Site

3.3.2.1 Description

The southern portion of the site includes about 122 acres of agricultural land, currently in State ownership, and acquired in 1993 for the potential future use of the State Water Project. It is currently under the control and possession of DWR. The agricultural land on this site is designated as "Farmland of Local Importance," although the site is not currently used for agricultural activities. Farmland of Local Importance is land of importance to the local economy, as defined by each county's local advisory committee, and adopted by its Board of Supervisors. Farmland of Local Importance is either currently producing, or capable of production, but does not meet the criteria of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland.

Sacramento County defines Farmland of Local Importance as "Lands which do not qualify as Prime, Statewide, or Unique designation but are currently irrigated crops or pasture or non-irrigated crops; lands that would be Prime or Statewide designation and have been improved for irrigation but are now idle; and lands which currently support confined livestock, poultry operations, and aquaculture."

3.3.2.2 Screening Considerations

Use of the southern agricultural parcel would require the widening of the existing levee by about 100 feet and the landward relocation of Highway 160, with significant impacts on traffic, loss of agricultural land, use of fossil fuels, and air quality. In addition, this site is currently under consideration as a potential intake location for an Isolated Conveyance Facility under the Bay-Delta Conservation Plan, a use that could conflict with the purposes of this project.

For these reasons stated above and potential highway modifications, the Hood (DWR) site is not pursued for further analysis at this time, but with its strategic location, it may warrant future investigations and consideration.

This site is not pursued for further considerations at this time.

3.3.3 Stockton, West Weber Avenue Site

3.3.3.1 Site Description

This site is near the Port of Stockton, which is located along the eastern edge of the Sacramento-San Joaquin River Delta (Delta), approximately 50 miles south of Sacramento. It is located between the East Complex of the Port of Stockton and near the intersections of Interstate 5 and State Highway 4, and just south of the Stockton Deep Water Ship Channel (see Figure 3-2).

The current zoning for all three parcels comprising this site of up to 22.6 acres is Industrial, General (IG). This site is currently adjacent to industrial sites. All of the parcels along West Weber Avenue west of I-5 are designated IG, as are the parcels on the east and south of Old Mormon Slough. On the north bank of the Stockton Deep Water Ship Channel, directly across from the site the parcels are designated Commercial, General (CG) and the 2035 General Plan Land Use/Circulation Diagram designation is Commercial. The parcels to the west and south are designated as Industrial in the 2035 General Plan, while the parcels to the north and east are proposed as commercially zoned (City of Stockton, 2007).

The property of interest to DWR consists of 3 parcels, totaling approximately 22.6 acres. This property is privately owned and is currently listed for sale. It has dock facilities to support at least two barge loading operations and additional water frontage to add two or three more additional barge loading facilities. The site has previously been used for construction purposes and as a barging facility. It has power and communication utilities including yard lighting, and has chain link fencing around its perimeter.

There are two metal buildings on the site. The largest building is north of and adjacent to W. Weber Avenue, with approximate dimensions of 200 feet by 80 feet (16,000 square feet). The smaller building is located adjacent to the north Bank of Old Mormon Slough, with approximate dimensions of 100 feet by 70 feet (7,000 square feet).

The three parcels of interest on West Weber have undergone environmental clean-up efforts in the past and it is anticipated that further, but minimal, efforts are required to remediate the noted parcels for the planned industrial uses by DWR.

The property located across on the south and east bank of Old Mormon Slough is a U.S. Environmental Protection Agency (EPA) Superfund site, formerly a factory for producing pressure treated wood. McCormick & Baxter, the former operator of the site, went bankrupt and ceased operation on or before 1991. Under an EPA Record of Decision (R09-99/044) issued in 1999, the site was cleaned up and stabilized to minimize the transport of pollutants off the site. Remediation included the placement of a 2-foot deep layer of sand in the Old Mormon Slough channel and the closing off of the southeastern portion of the channel from

any kind of boat traffic. As a result, access to a portion of the channel is restricted by means of a log boom for an indefinite period to prevent mobilization of contaminated sediments in the channel. The southeastern portion of the log boom is located about 600 feet from the mouth of the channel, allowing approximately 265 feet of existing dock footage along the Slough to be used for loading one or two barges at a time.

3.3.3.2 Screening Considerations

This site meets all of the key screening considerations. It is zoned for industrial use and has historically been used for construction purposes. It offers sufficient space for barge loading, materials storage, an ICP, parking, and a heliport. It offers egress to the central Delta via the Stockton Deep Water Channel. It is readily accessible from major highways in the Stockton area, including I-5, Highway 99, Highway 4, and Highway 12. It has no significant biological resources and no known historical resources. The owner has indicated a willingness to sell any combination of three parcels to the State, providing great planning flexibility. For these reasons this site was retained for detailed consideration.

3.3.4 Central Delta Area, Stockton, Navy Drive Site

3.3.4.1 Site Description

This site is located within the boundaries of the Port of Stockton, in the eastern perimeter of the Sacramento-San Joaquin River Delta (Delta), approximately 50 miles south of Sacramento. Specifically, this site is located east of the Port of Stockton complex, outside of the main gates, and on the south bank of the Stockton Deep Water Ship Channel (Figure 3-3). This property is privately owned and is currently unimproved, with the exception of a small marina platform that is in disrepair. The zoning for this site and the adjacent parcels is currently general industrial. The 2035 General Plan Land Use/Circulation Diagram designation is Industrial (City of Stockton, 2007).

The site has access to nearby utilities. It has no security fencing around its perimeter. The properties on both sides of this site are used for tank storage of various chemicals, with a total of 14 cylindrical steel storage tanks. During a site visit, it was noted that the site had several monitoring wells, likely monitoring water quality and depth conditions and possible soil conditions. This site has been impacted on two occasions by each adjacent petroleum storage facility. The site has received some environmental remediation, but it remains uncompleted. The shoreline along the Deep Water Ship Channel is vegetated and has a shallow slope.

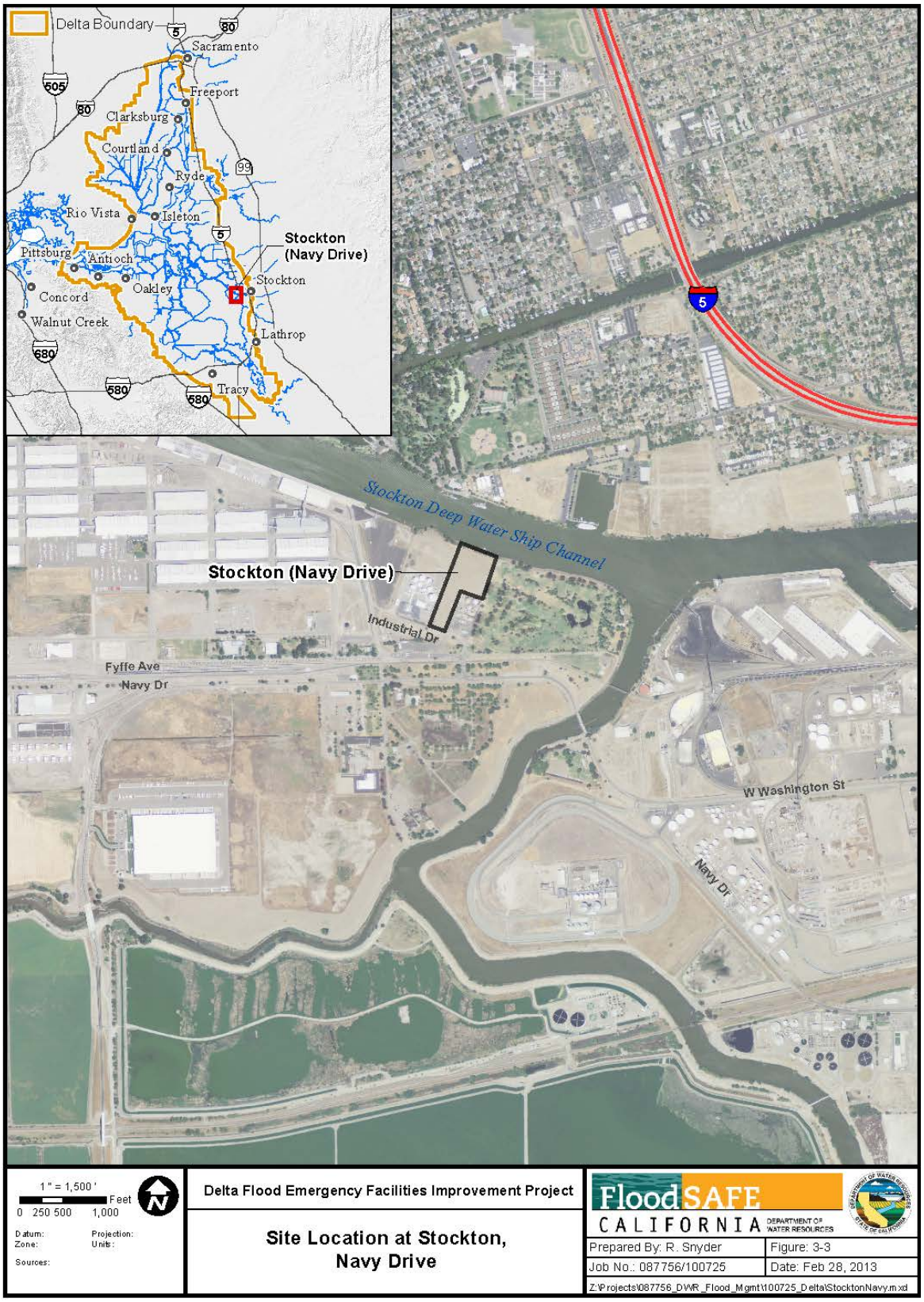
The site is covered with low vegetation. Small burrows were observed so burrowing animals may be present, although these burrows were only two to three inches in diameter and are likely not big enough for a burrowing owl to occupy (CDOW, 2009); however, the presence of burrowing owls cannot be ruled out.

3.3.4.2 Screening Considerations

Although this site is zoned general industrial, it would require major site improvements to meet project purposes. The ground would need to be surfaced to support heavy equipment.

Figure 3-2. Site Location at Stockton, West Weber Avenue

Figure 3-3. Site Location at Stockton, Navy Drive



Drainage and utilities would need to be installed. Portions of the shoreline would need to be stripped of vegetation and the near-shore channel deepened. The close proximity of numerous chemical tanks could raise concerns with regard to chemical contamination, helicopter access, and other safety concerns. Although the site is not in a natural state, it provides limited riparian habitat. In comparison with the Stockton, Weber Avenue site, this site would require more extensive improvements, and cause significantly greater environmental impacts. Based on the likelihood of significant environmental impacts and potential for conflicting adjacent land use, this site was screened from further detailed consideration.

This site is not pursued for further considerations at this time.

3.3.5 Stockton, North Shore Site

3.3.5.1 Site Description

This site is located on the northern shore of the Stockton Deep Water Ship Channel near the Port of Stockton, which is located along the eastern edge of the Delta, approximately 50 miles south of Sacramento (Figure 3-4).

The current zoning for this site is industrial and the 2035 General Plan Land Use/Circulation Diagram designation is Commercial. This site is currently adjacent to industrial and residential zoned areas. The parcels to the north are designated as Low and Medium Density Residential in the 2035 General Plan, while the parcel to the west is designated as Commercial (City of Stockton, 2007).

This site has been used for barge loading operations in the past but the barge slip was filled in 2010. The site has been available for lease for an extended offering, but was recently listed for sale. The site is approximately 34.8 acres, which is much larger than would be required for a transfer site, and the Owner's Agent has expressed an unwillingness to sell in part. There is approximately 1,500 feet of waterside access. This site is bounded on the north by residential areas, to the west by a small boat harbor, and to the east by commercial-industrial facilities. The haul route for bringing levee repair materials in by truck would likely run east-west along West Fremont Street, and Monte Diablo Ave, with mixed residential, commercial, and industrial uses along its length to I-5.

Portions of this site are covered with low ruderal vegetation. The presence of burrowing owls cannot be ruled out without further field evaluation.

3.3.5.2 Screening Considerations

This site is approximately three times larger than the estimated ten acres needed to fulfill all of the project purposes, and therefore substantially more costly to acquire. Construction of barge loading facilities, including modification of the existing shoreline would be required. Other site improvements would be required as well. The proposed uses could possibly conflict with the residential areas to the north of the property, due to noise, night lighting, and other potential impacts of emergency operations. For these reasons this site was removed from further consideration.

This site is not pursued for further considerations at this time.

Figure 3-4. Site Location at Stockton, North Shore

3.3.6 Rio Vista, Existing Quarry Rock Storage Site

3.3.6.1 Site Description

In Rio Vista, DWR established a rock stockpile of approximately 113,000 tons on approximately 3.4 acres of land owned by the Sacramento-San Joaquin Drainage District through the State of California Central Valley Flood Protection Board (CVFPB) along Airport Road (Figure 3-5). A portion of the CVFPB property is currently under lease to ASTA Construction, Inc. This property is accessed from the south-west via Airport Road. In order to transfer stored quarry rock to barges, DWR would need to contract with the Dutra Group for barge loading services at its established barge loading facility located along State Route 84/River Road, which is approximately 1,000 feet southeast of the existing stockpile area. The Dutra Group's facility includes business offices, space for unloading trucks, and a barge loading facility that is capable of docking and loading several barges concurrently.

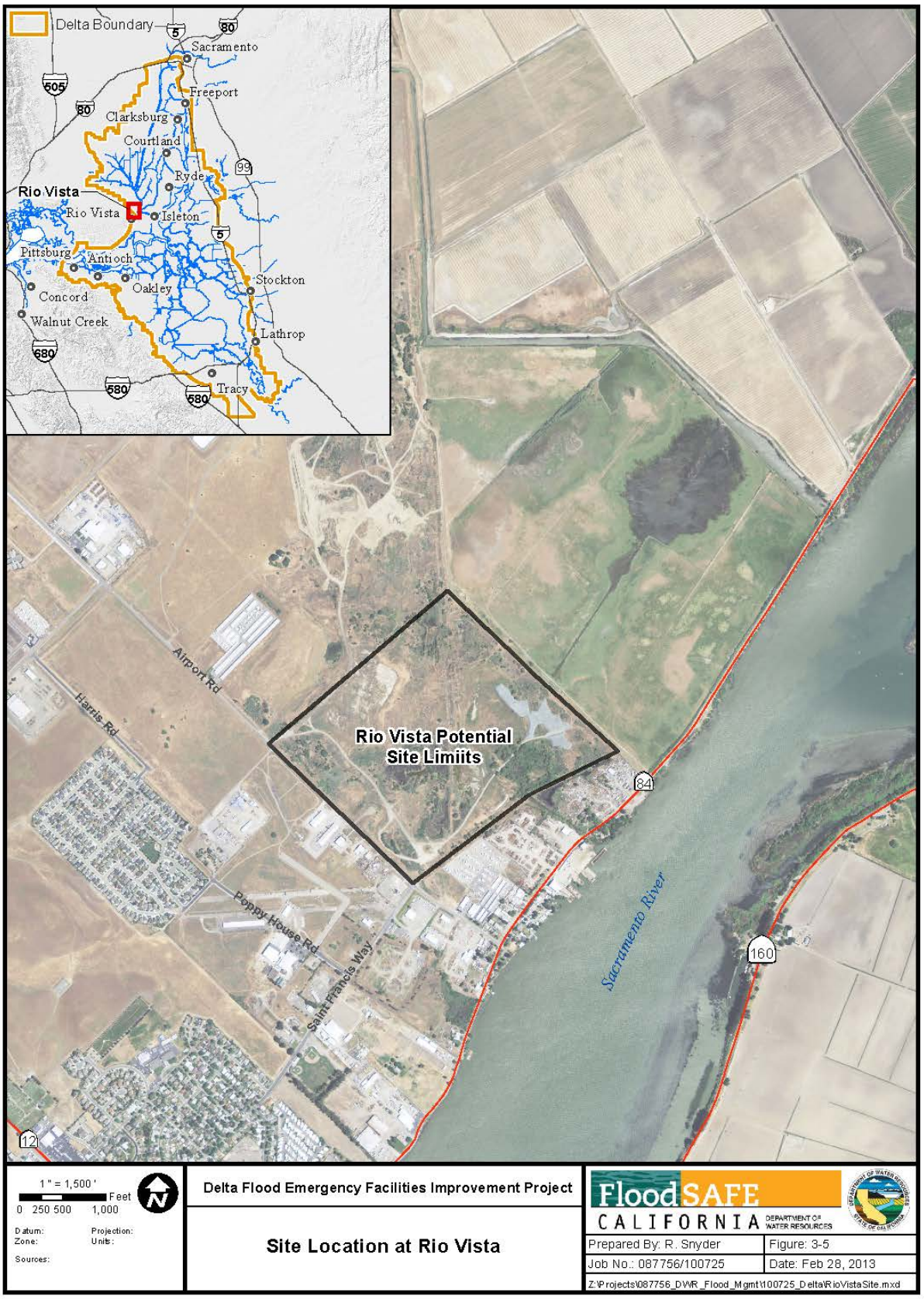
According to the Solano County General Plan (November 4, 2008), land use zoning for Rio Vista along Airport Road, west of the Rio Vista Site, is urban industrial. East of the City Limit, including the southern portion of the Sacramento San Joaquin Drainage District - CVFPB property where the existing quarry rock stockpile is located, the land is designated as agricultural. Along the waterfront where the Dutra Group has its docking and barge facilities the designation is urban industrial and water-dependent industrial. The site of interest is currently owned by the Sacramento San Joaquin Drainage District(SSJDD) acting through the CVFPB, and it is currently used by DWR to store quarry rock and is partially leased by a third party, ASTA Construction, Inc., for sand mining purposes.

The Dutra Group used its facility for loading barges in support of DWR's 2007-2008 Emergency Levee Repair Project, as well as other levee repair projects. The property managed by the CVFPB has a significant amount of storage capability for repair material, but much of the property is within the 100-year flood zone. The property has established aggregate base roads on the property to the stockpile area. During low flow conditions trucks have access from the CVFPB property to the Dutra Group barge facility. Material would be loaded onto barges with the use of earthmoving equipment. DWR can reasonably anticipate that the Dutra Group's barge loading facility would be available under contract to DWR for emergency repair work in the event of a major disaster, but as one of the goals of the project, a standby contract would be executed to provide assurances regarding the availability and cost of such services.

The site topography is variable due to the historic deposition and removal of dredged materials, but the general slope is toward the northeast. It lies generally 10 to 15 feet below Airport Road, with a steep embankment at the road shoulder. The base of the embankment is at an elevation of approximately 20 feet. From there the elevation drops gradually to approximately 6.5 feet (NAVD88) in the vicinity of the quarry rock storage area. An embankment separates the property from the waterfront to the southeast and from the farmland on the northeast. These embankments are approximately 10 to 15 feet high.

Consistent with this topography, the FEMA flood map for this area indicates that the rock stockpile and the Dutra Group's barge loading facility are at risk of flooding in a 100-year

Figure 3-5. Site Location, Rio Vista



flood event. In such a flooding event, low-lying portions of this site may not be operable until the water recedes.

In the aftermath of a seismic event, this site is expected to be operable.

3.3.6.2 Screening Considerations

This site is already in State ownership, with a large quarry rock stockpile in place, immediately adjacent to the Dutra Group's dock facilities. The site is strategically located in the West Delta, readily accessible from the I-80 corridor via Highway 12 and Highway 113. It will require relatively modest road improvements to improve the accessibility of the existing quarry rock stockpile under high water conditions, and to shorten the haul route to the Dutra Group dock area. There is a potential for limited wetlands impacts adjoining proposed haul road improvements. There are no significant space limitations. It is anticipated that this site can be substantially improved in terms of the efficiency of barge loading operations with a modest investment in road construction on site. The State investment in this site is already significant, given the CVFPB ownership of the site and the existing stockpile of quarry rock. For all these reasons the site was retained for detailed analysis.

3.3.7 Antioch, Wilbur Avenue Site

3.3.7.1 Site Description

This site consists of over 100 acres and has a waterside concrete dock access to the San Joaquin River (Figure 3-6). This site is located due south of Sherman Island. This property is privately owned. The zoning for this site is Heavy Industrial. The Contra Costa County General Plan designation is Open Space for the water front portion and Heavy Industrial for the remainder of the site (Contra Costa County, 2010).

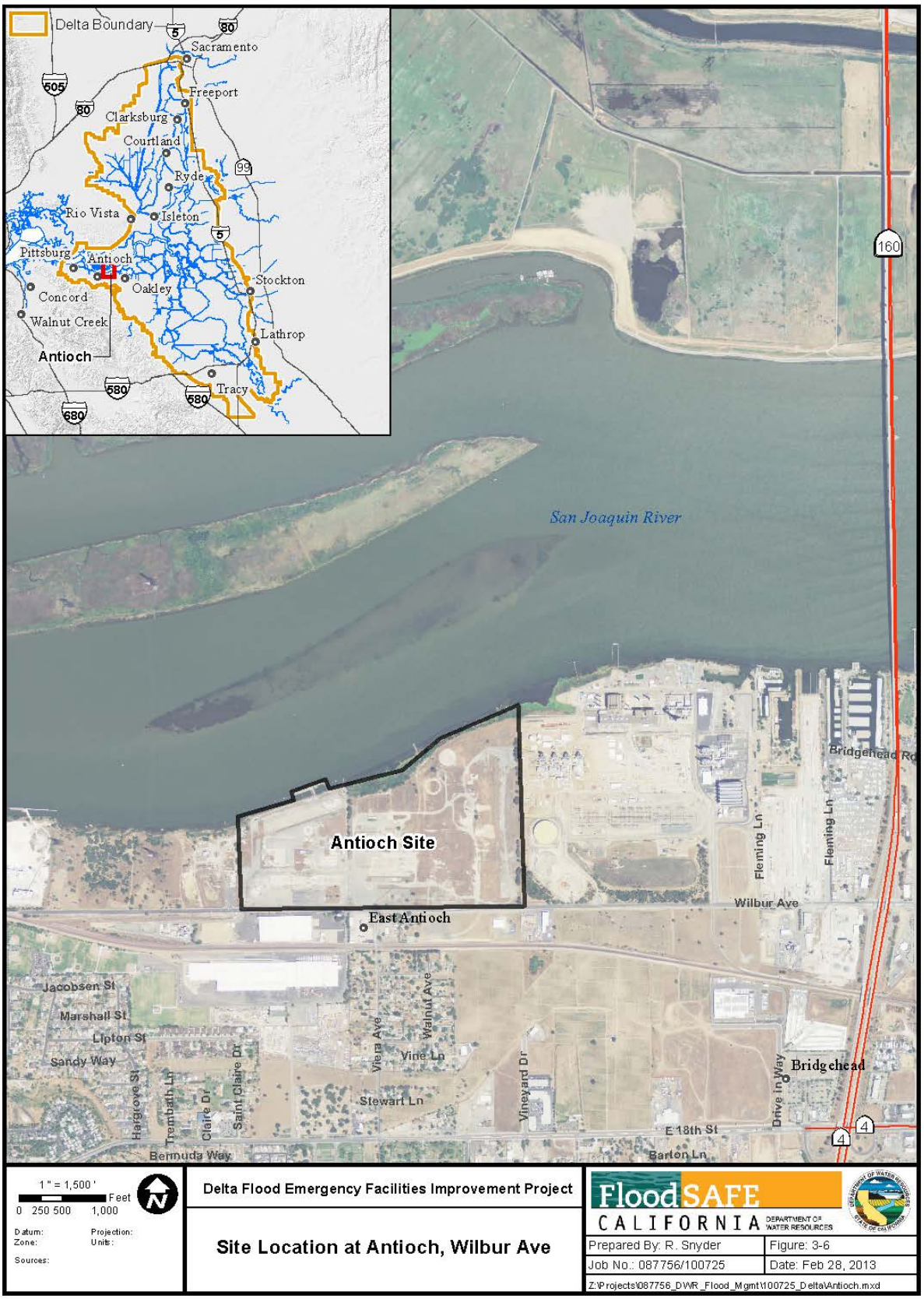
The property was previously used as a paper processing facility and has rail access and other general utilities onsite, including electric power transformers. The site is split into 2 different elevations, a 15 to 20 foot difference between the waterfront area and the area adjacent to Wilbur Avenue. According to FEMA Flood Insurance Rate Map for the vicinity of this site, the waterfront near the concrete dock would be inundated in a 100-year flood. Water supply lines exist on the property. Much of the property has concrete and asphalt surfacing. It is expected that a 5-acre portion of the property located adjacent to the existing dock could be used to stockpile various repair material and the remaining portion of the property could be left available for use by other potential users. This property has undergone environmental clean-up efforts and it is unclear if further efforts are required. Chain link fencing exists around its perimeter.

3.3.7.2 Preliminary Screening Considerations

This site meets most of the screening criteria. It is an industrial site, provides for both efficient waterside access and docking facilities as well as land transport access via Wilbur Avenue to nearby I-680 and Highway 4. It is surfaced for industrial use and can be readily served with utilities. The dock area, however, is subject to flooding in a 100-year flood

event. Most importantly, the site is offered for sale as a single 100-acre property, which would be much larger than required for DWR's purposes. The seller has not indicated any

Figure 3-6. Site Location at Antioch, Wilbur Avenue



interest in selling a smaller portion to the State, and therefore the estimated cost of this parcel is unacceptably high. For these reasons this site was screened from further consideration.

This site is not pursued for further considerations at this time.

3.3.8 Sherman Island, 17924 Highway 160 Site

3.3.8.1 Site Description

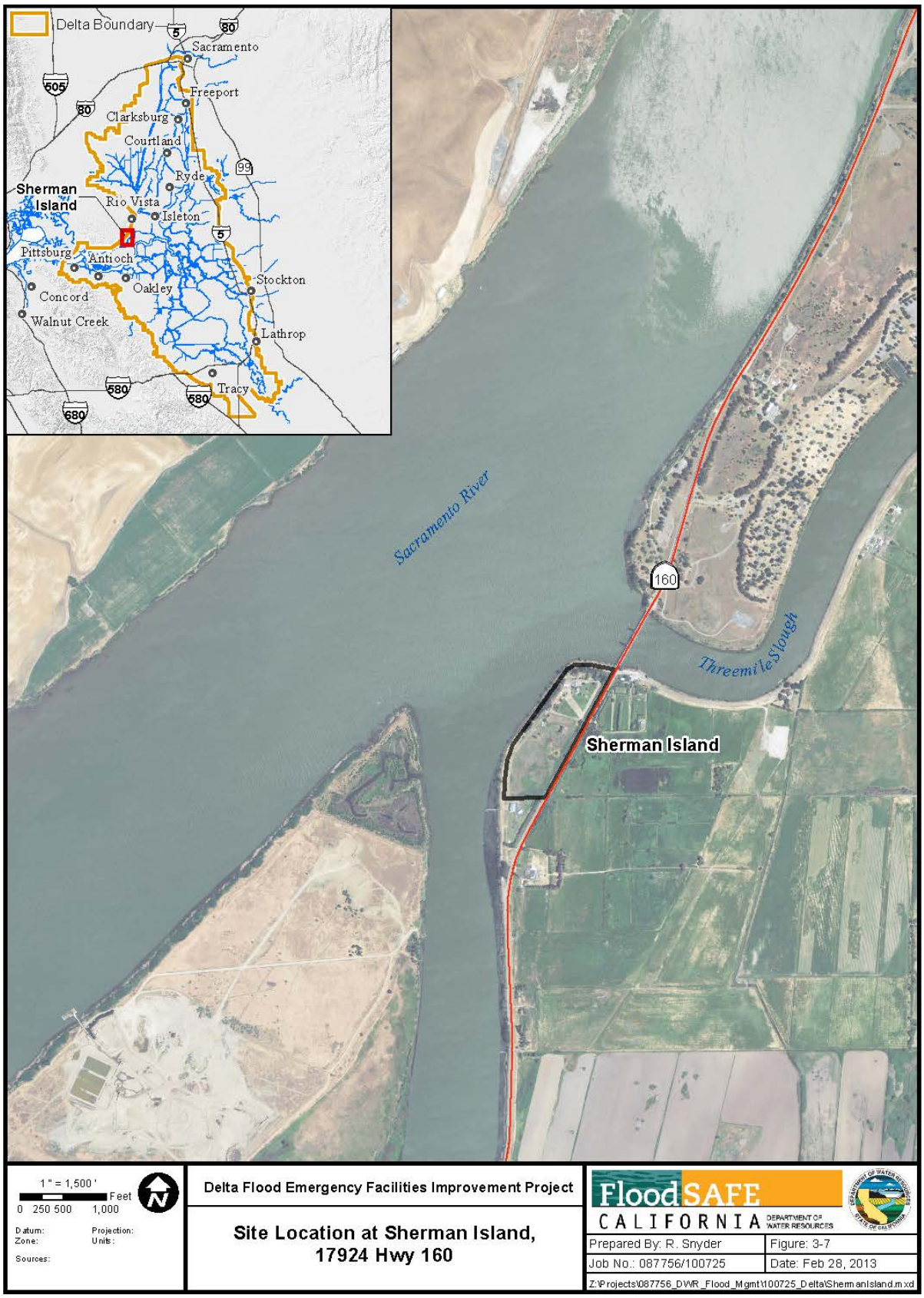
This is a 22-acre property that is on the northwest side of Sherman Island adjacent to the Sacramento River and Three-Mile Slough, and west of Highway 160 (Figure 3-7). This property is for sale by a private owner. The property has approximately 2,000 feet of water frontage along the levee that protects the island. Highway 160 previously ran along the levee crown along this reach, and the paving is still intact. Highway 160 currently bounds the property on the southeast.

The current zoning for this site is AG-80, a Permanent Agricultural Zone that permits one single family residence per parcel as well as all agricultural uses. The site is also zoned DW; Delta Waterways combining zone. This zone regulates uses along the Sacramento River and along the waterways in the area commonly known as the "Delta Area." It is suggested in the Sacramento County General Plan that these areas remain in as natural a state as possible. The General Plan designation for this site is Recreation (REC). The Recreation designation provides areas for active public recreational uses. This designation may also apply to lands within floodplains in urbanizing areas (Sacramento County).

Due to this site's location in the western Delta, it is well-suited for dealing with emergency repairs in this portion of the Delta. However, this site can only be accessed via Highway 160 from the north and south. The vulnerabilities of these routes include the Highway 160 (Senator John A. Nejedly) bridge across the San Joaquin River and Highway 160 across the floor of Sherman Island, which would be impassable in the event of Sherman Island flooding. From the north, truck traffic could travel from Rio Vista across the Highway 12 Rio Vista Bridge, then south on Brannan-Andrus Island along Highway 160 across the Threemile Slough Bridge, from Stockton via Highway 12 (crossing three bridges between I-5 and Highway 160), and from Sacramento via Highway 160 (crossing the Delta Cross Channel Bridge and the Georgiana Slough Bridge between Sacramento and Highway 12). Highway 160 follows the levee crown from Sherman Island to Highway 12, except for the intersection with Highway 12, which drops down to the island floor about 2,200 feet from the intersection. If Brannan Island is flooded, this section could be passable if trucks and vehicles were routed along the former Highway 160 route which is largely intact along the east levee crown of the Sacramento River on either side of Highway 12.

The agricultural land on the Sherman Island site is designated as "Farmland of Local Importance," although the site is not currently used for agricultural activities. Farmland of Local Importance is land of importance to the local economy, as defined by each county's local advisory committee, and adopted by its Board of Supervisors. Farmland of Local Importance is either currently producing, or capable of production, but does not meet the criteria of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. Sacramento County defines Farmland of Local Importance as "Lands which do

Figure 3-7. Site Location at Sherman Island, 17924 Hwy 160



not qualify as Prime, Statewide, or Unique designation but are currently irrigated crops or pasture or non-irrigated crops; lands that would be Prime or Statewide designation and have been improved for irrigation but are now idle; and lands which currently support confined livestock, poultry operations, and aquaculture."

All of the structures and land between the levee and the new Highway 160 embankment are about five to six feet below the estimated 100-year flood elevation. In order to be useful as a waterside material transfer facility, the existing levee crown would need to be widened to a width of about 100 feet to allow loaded trucks to pull through and unload, while front-end loaders scoop up the quarry rock and load it into the conveyor hoppers. A 400-foot stretch of the levee would need to be widened by at least 70 feet to accommodate the transfer operations, requiring the placement of 15,000 cubic yards of fill on 0.7 acre along the levee. This site would not accommodate the storage of significant quantities of quarry rock unless a suitable area is filled to bring its elevation above the 100-year flood elevation.

Several large, mature trees are growing on the land-side slope of the levee and a row of large shrubs buffer the property along the highway. Several shrubs and small trees are also present along the slope on the bank of the levee. The property currently has six residential and farm structures. The remaining area is primarily grassland, with a few shrubs and small trees. At the time of a site visit in spring 2011, the northern portion of the property contained areas of standing water and was densely covered with grasses and various herbaceous species. The south side of the property was dryer and was dominated by dry grasses, a few shrubs/small trees, and a few herbaceous species. During a February 2012 site visit, neither portion of the property had standing water. In the northern portion, live vegetation was sparser than in spring 2011. However, soil samples collected from the northern portion of the property were saturated. Similar to conditions observed in spring 2011, vegetation in the southern portion of the property was primarily dry. Soils collected from the eastern and central areas of the southern portion of the property had characteristics indicating that standing water is often present. Several burrows of varying size were observed on the south side of the property during the site visits.

Given its current minimal disturbance and residential use, the site may support significant wildlife use. Because the site is covered with vegetation, several large trees, shrubs, and potential wetlands, habitat value is expected to be moderately high and potentially will support a variety of species.

At the Sherman Island site, trees that could potentially be used by nesting Swainson's hawks are present along the levee. The drainage along Highway 160 is filled with dense blackberry bushes, which could be utilized by nesting song sparrows. The south side of the site is covered with low vegetation and several small burrows were observed. The burrows varied in size, and may potentially be big enough for a burrowing owl to occupy (CDOW, 2009).

3.3.8.2 Preliminary Screening Considerations

This site is currently vacant, but designated for use as rural residential and agricultural property. Preliminary field surveys indicate that significant portions of the site may be wetlands. As noted above, at least 15,000 cubic yards of fill would be required to create a working surface sufficiently wide to support barge loading operations. Acquisition and

development of this site to fulfill the project purposes would result in 0.7 acres impact on agricultural land and/or wetlands. Due to the significant resource impacts associated with land use conversion and fill to create a working platform, this alternative site was screened from further consideration.

This site is not pursued for further considerations at this time.

3.3.9 Brannan Island State Recreation Area Site

3.3.9.1 Site Description

Brannan Island State Recreation Area (BISRA) consists of approximately 340 acres on the southwestern end of Brannan Island and is currently owned by the State Department of Parks and Recreation (DPR). It is bounded by the Sacramento River on the west, Threemile Slough on the south and southeast, Sevenmile Slough on the east, and near Twitchell Island Road on the north (Figure 3-8).

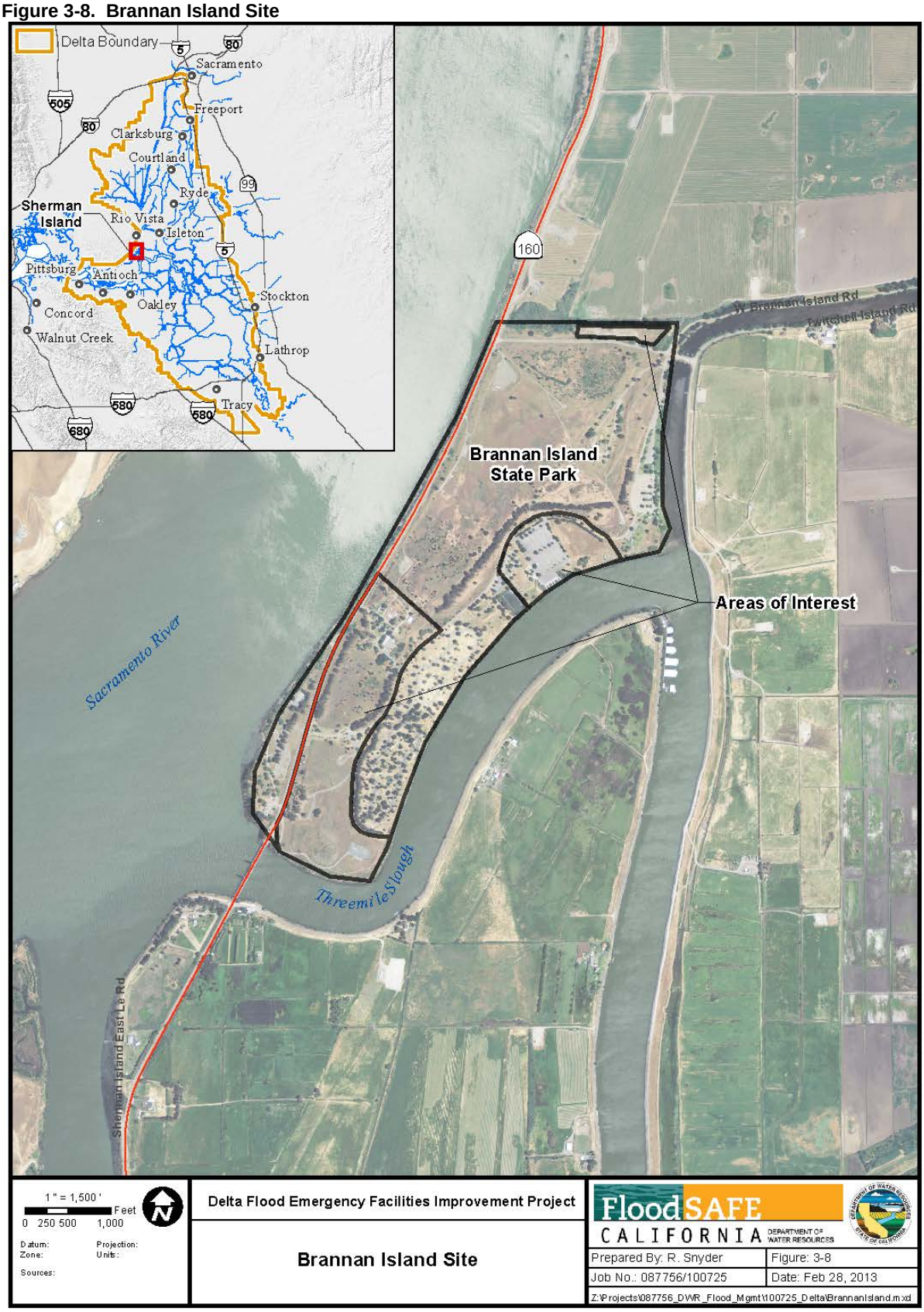
This site is zoned as Recreation (O), wherein some agricultural, commercial, and institutional uses are permitted subject to the issuance of a conditional use permit. The Island is designated as Natural Preserve and Recreation in the Sacramento General Plan. (Sacramento County, 2010).

This portion of Brannan Island was used as a disposal site for materials dredged from the Sacramento River under the authorization of the Sacramento River Minor Project, which ultimately removed approximately 200 million cubic yards of material from the river channel to facilitate navigation and to increase its flood conveyance capacity. The property at one time was primarily in the ownership of the Sacramento San Joaquin Drainage District acting through the State Reclamation Board, currently known as the Central Valley Flood Protection Board (CVFPB). Because the southern portion of Brannan Island was used for dredged materials disposal, this portion of Brannan Island consists of sand and silt deposits discharged by hydraulic dredges. Most of the land surface is at or above the former levee crown elevation, with elevations ranging from 20 to 40 feet above mean sea level (NGVD); hence, this portion of Brannan Island is not at risk of being flooded as a result of levee failures.

The State Reclamation Board executed an agreement in 1952 with the State Parks Commission to facilitate the creation of a State Recreation Area. Until 1987 the State Reclamation Board, now known as the Central Valley Flood Protection Board, retained the rights to use a portion of the property for flood management purposes. At that time the Board relinquished all surface land rights for use of the property.

DPR prepared a General Plan for Brannan Island and Franks Tract State Recreation Areas (DPR, 1988), which is still the most recent published plan for the area according to the Department's official website (DPR, 2012). The plan described the setting, as well as current and proposed facilities and uses.

Figure 3-8. Brannan Island Site



Due to the State's ongoing budget crisis, the BISRA recreational facilities are no longer operated by State staff. Beginning August 1, 2012, it has been operated by the concessionaire, American Land and Leisure, under a contract with DPR.

The park includes parking, restroom, camping, swimming, hiking, picnicking and boat launching facilities. Highway 160 passes through the site, and has essentially the same access to major highways as the Sherman Island site, which lies just downstream on the western side of Threemile Slough. A major electric power transmission line passes through the park, parallel with, and just east of, Highway 160. Ten transmission line towers support the line across the site. There are several gas wells on the site, some of which remain active.

The current recreational use of the site and the proposed use of portions of the site for emergency response facilities would be compatible if properly coordinated with the General Plan because recreational use is minimal during the flood season, and access to the Delta would be restricted in the event of a major earthquake or other emergency. Thus it is highly unlikely that the site would be needed for both emergency response activities and recreational use at the same time.

Some of the site improvements that currently serve recreational users can also be used to support emergency response operations. The existing parking, restroom, and at the BISRA boat launching area could serve to support an ICP and barge loading operation. Large portions of the site are currently undeveloped dry uplands of minimal ecological value, and could be used for storage of quarry rock and other flood fight supplies.

3.3.9.2 Preliminary Screening Considerations

This site is strategically located in the west Delta area, providing excellent access to western Delta islands by barge. It is also accessible via Highway 160 from the north and the south, although access from the south would be cut off if Sherman Island floods and access from the north could possibly be cut off if Brannan Island floods from the Sacramento River on the west. The site is not at risk of flooding, and would require relatively minor additional improvements to meet the project purposes. There would be no significant impacts upon farmlands, wetlands, recreation, or cultural resources. For these reasons this site was retained for detailed analysis**.**

3.4 Project Description of Proposed Site Improvements

The preliminary screening described in the previous sections narrowed the range of alternative sites to the following three sites:

- Stockton, Weber Avenue Site (Site 1 - Stockton West Weber)
- Rio Vista, Existing Rock Quarry Storage Site (Site 2 - Rio Vista)
- Brannan Island State Recreation Area Site (Site 3 - Brannan Island)

These three alternative transfer facility sites were retained for further analysis because the preliminary screening suggested that each site would likely be accessible during flooding emergencies and achieve the project purposes with relatively minor environmental impacts, which could likely be reduced to less than significant levels with appropriate mitigation

measures. Depending upon the final disposition, timing, and costs associated with these three sites it may still warrant further investigation and evaluation of the two adjoining sites in Hood located in the northern Delta. Two of the three preferred sites, Rio Vista and Brannan Island, are already in State ownership and have a long history of use as dredged materials discharge areas. The Stockton, Weber Avenue site is currently inactive, but has previously been developed as a barge loading and heavy industrial facility, and is offered for sale on the open market.

These three sites are analyzed in greater depth to determine whether they can fulfill the project purposes with appropriate site modifications, while limiting environmental impacts to less than significant levels. The required site improvements are described in more detail in the following sections.

3.4.1 Stockton, West Weber Avenue Site Improvements

This site has been used for loading barges in the past and has fully functional berthing areas with vertical walls comprised of sheet piles as shown in Figure 3-9a and 3-9b. The two figures show different layouts depending on whether DWR purchased all 3 parcels, or just the southernmost parcel containing in the barge slip. It can accommodate loading of at least two barges at once at the existing berthing areas. Three additional barges could be simultaneously loaded on the northern side of the property, using small barges near shore to support conveyors to load the transport barges. To temporarily moor the three small barges near the shore will require the placement of three sets or a total of 6 pilings to be driven along the top of bank above the Ordinary High Water Mark (OHWM) fronting the Stockton Deep Water Ship Channel.

This site is also expected to be an effective location for the stockpiling of up to 40,000 tons of various repair materials, including quarry rock gradations below 24-inch-minus rock. In preparation for a flood emergency, DWR may acquire various repair materials and stockpile these materials on this property. This material would be trucked in from various quarries or other material sources and stockpiled using earthmoving equipment. This preparatory stockpiling operation would generally be conducted during normal workdays Monday through Saturday, under daylight conditions from 7:00 AM to 7:00 PM.

This site is expected to support the installation of the temporary office space needed for a major Delta ICP, which would either be housed in the two existing buildings on the site, or in a portable office trailer complex, as shown in Figure 3-9a and 3-9b. This trailer complex would be located on the existing aggregate base building pad. The location for this trailer complex would require the site improvements of various utilities such as power, telephone, internet, and water. The construction of the utility services would require excavation of trenches approximately 24 to 30 inches deep from the nearest available source. Overhead utility lines would be avoided to prevent obstruction of large equipment that might be needed for the emergency. Aggregate base access roads may be constructed or improved for trucks and heavy equipment. Additional gates may be needed for improved truck routing. These improvements would only affect those areas previously used by the current owner and would not require any construction in the water channel. Existing lighting and fencing would be improved to support 24-7 emergency operations and to provide site security.

Figure 3-9a. Stockton West Weber Avenue 3 parcel Site Improvements

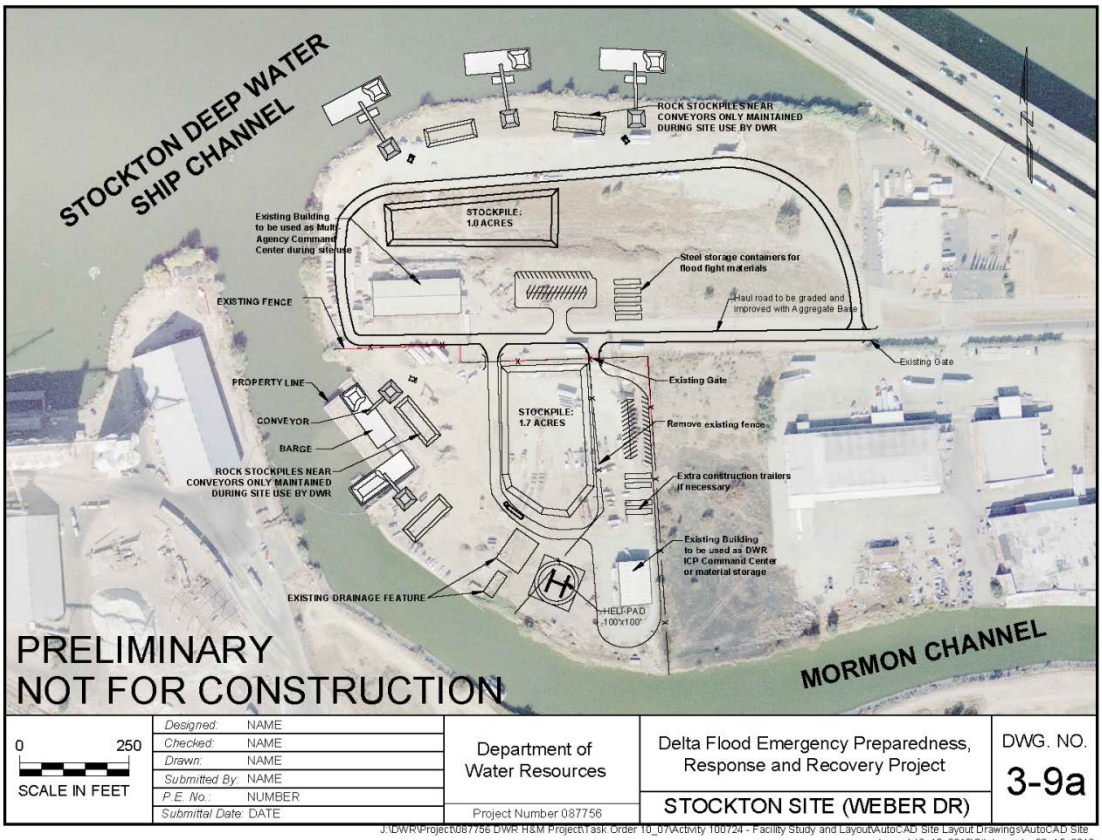
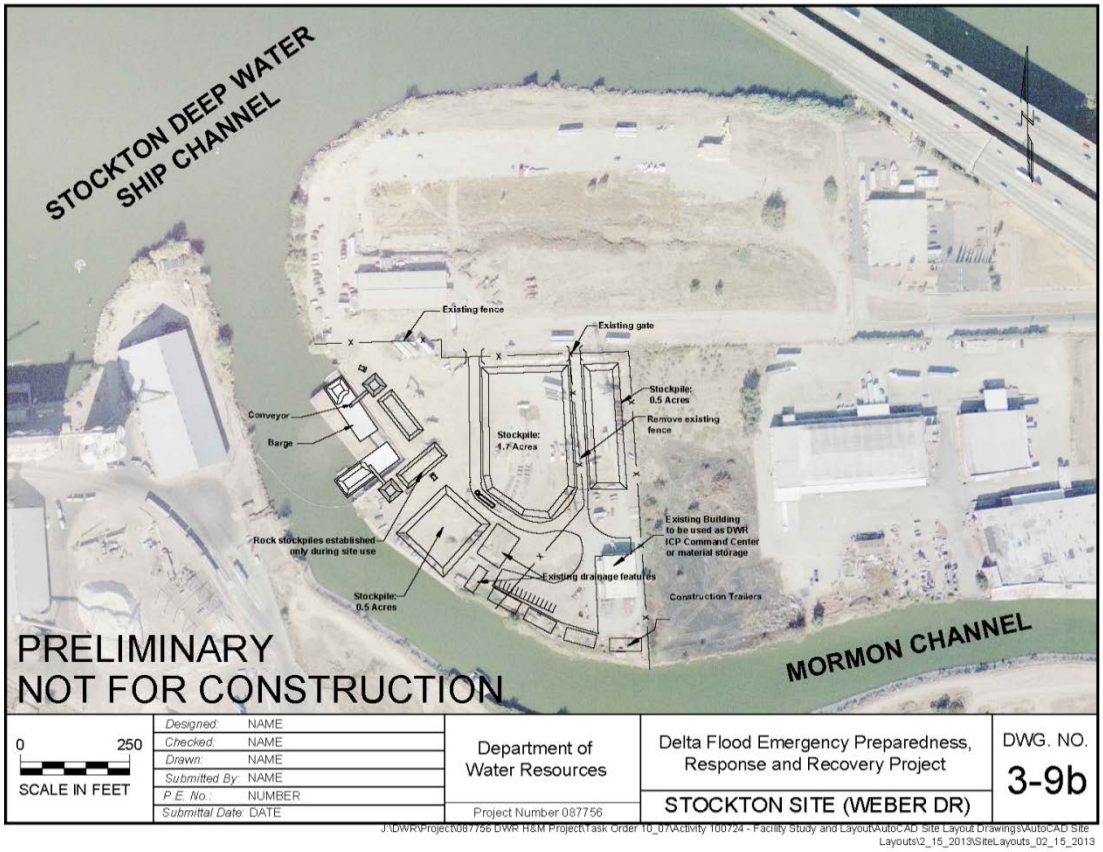


Figure 3-9b. Stockton West Weber Avenue 1 parcel



3.4.1.1 Site Improvements

The site elevation is above the estimated 100-year flood elevation.

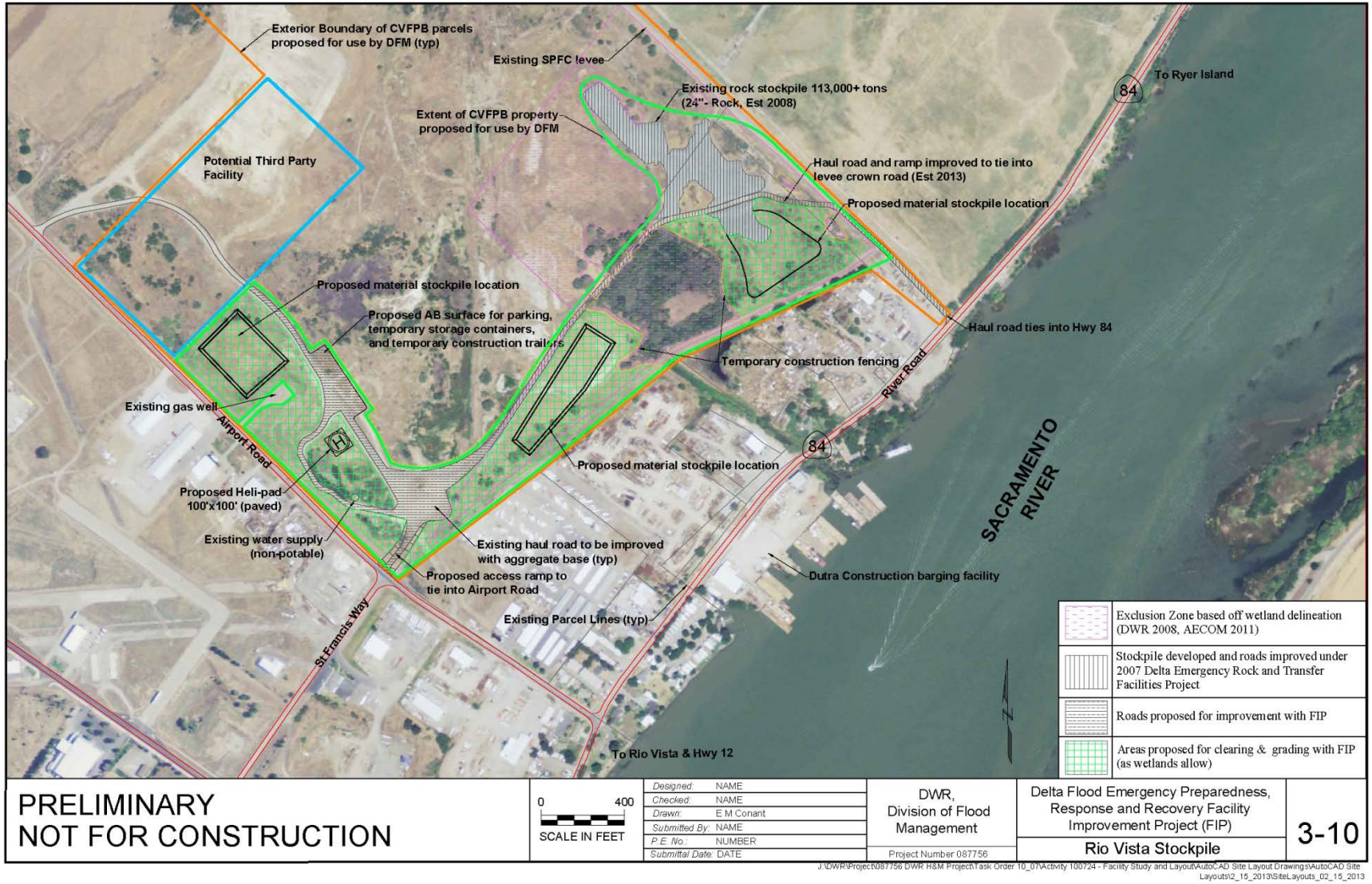
The immediate surrounding area is devoted to industrial and commercial uses, and it is unlikely that DWR's proposed use of the site would conflict with future regional development plans.

Access to the site is very secure, given its proximity to I-5, Highway 4, and a network of major surface roads in the vicinity of Stockton. Of all the sites evaluated, this site is the closest to currently operating quarries in the Central Sierras, which also meets the screening criteria.

3.4.2 Rio Vista Site Improvements

The proposed site improvements focus primarily on improving access to the rock stockpile and the Dutra Group's dock facilities, stockpiling of 20,000 tons of sand, developing a helipad and site improvements to accommodate storage containers and parking for site personnel as shown in Figure 3-10.

Figure 3-10. Rio Vista Site Improvements



The existing stockpile of quarry rock already has adequate dry weather access, but the stockpile is located well within the 100-year floodplain and could be temporarily inaccessible during a major flood event. Wet weather and flood water would have a deleterious effect on the access road, particularly under heavy truck traffic. In addition, the existing haul road is long and inefficient from the perspective of transferring rock to the Dutra Group's dock. To best address these drawbacks, this alternative would include constructing a haul road loop as shown in Figure 3-10. The haul road would access the levee road on the northeastern boundary of the property via a ramp. Similarly, the haul road near the property's southerly boundary would be improved with a new ramp from Airport Road near its intersection with St. Francis Way. The proposed haul road would be constructed to drain quickly and to tolerate the heavy truck traffic envisioned during an emergency barge loading scenario. It is recommended that the emergency contractor utilizing the site be given the responsibility for maintenance of the roads on the property as problems occur. The Dutra Group facility has all the necessary improvements at their waterside barging facility to operate under an emergency situation in conjunction with the proposed project.

Site improvements would also include placement of storage containers to store flood fight supplies, including bulk bags near the southwestern corner of the property. In addition, a helicopter landing area would be established, which would allow for the rapid deployment of sand-filled bulk bags. This portion of the property is at an elevation above the 100-year floodplain and would be readily accessible from Airport Road. An existing access ramp at the southwest corner of the property would be improved to facilitate access to the Dutra Group's Dock, the steel storage containers and the helicopter loading area. In the event of an emergency, sand for filling the bulk bags could be obtained on site.

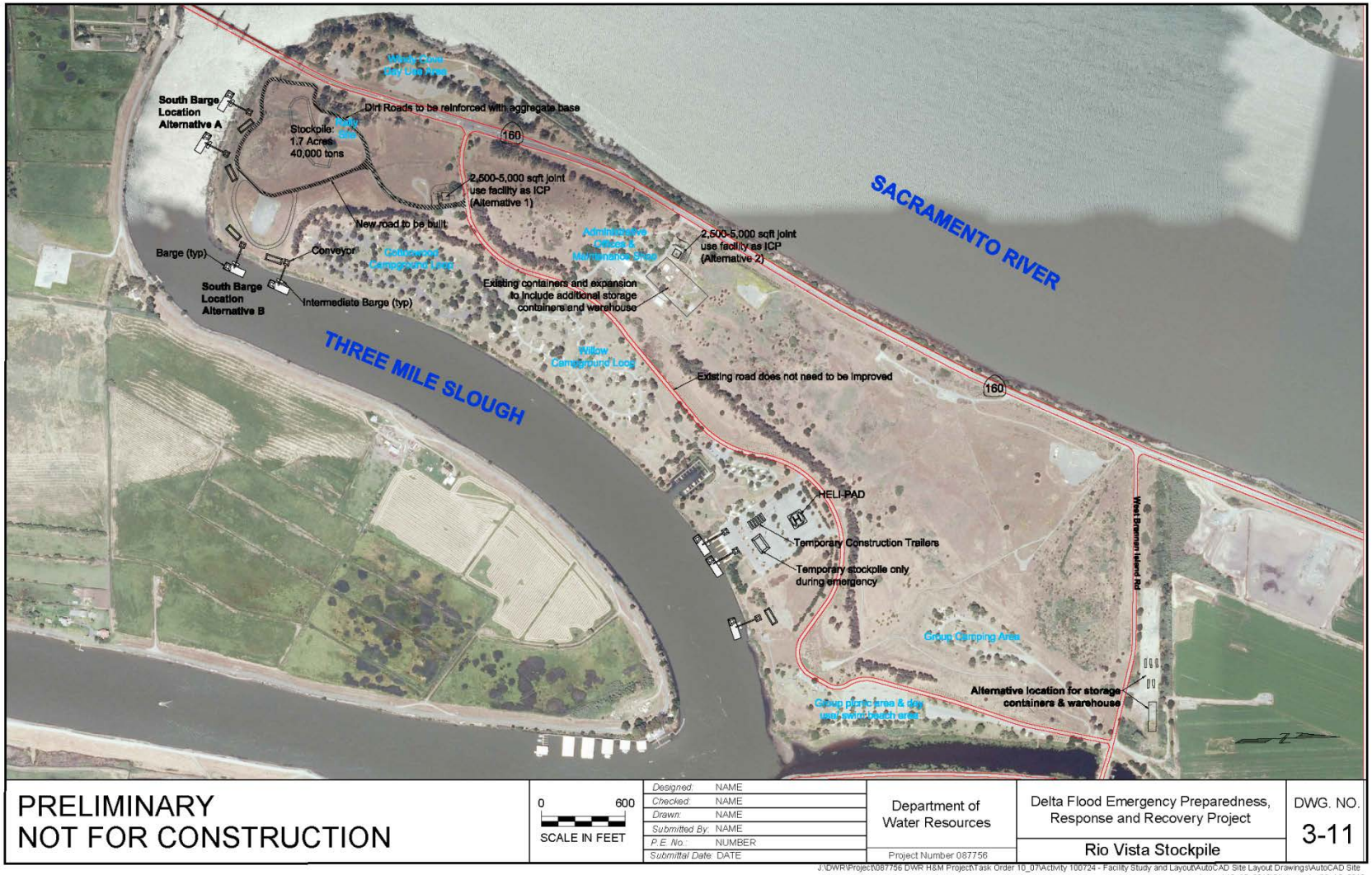
The site is not anticipated for use as an ICP location in the western portion of the Delta. DWR would rely on the proposed ICP, which would be set up on Brannan Island for coordinating west Delta flood response activities.

The site is readily accessible from I-80 via Highway 12 and Highway 113. It is also accessible from I-680 via Highway 160 to the south, and from I-5 via Highway 12 and Highway 160.

3.4.3 Brannan Island Site Improvements

The proposed site plan would include facilities for simultaneous loading up to five barges via conveyor systems, a quarry rock storage area, and up to two ICPs, one located in a new Multi-Agency Center shared with the DPC and another temporarily situated in the large BISRA boat launching parking lot as shown in Figure 3-11. In addition, flood fight supplies and equipment would be stored in metal storage containers and in a 10,000 square foot metal warehouse building that may be relocated from Twitchell Island.

Figure 3-11. Brannan Island Site Improvements



PRELIMINARY NOT FOR CONSTRUCTION	0 600 SCALE IN FEET	Designed: NAME Checked: NAME Drawn: NAME Submitted By: NAME P.E. No.: NUMBER Submittal Date: DATE	Department of Water Resources Project Number 087756	Delta Flood Emergency Preparedness, Response and Recovery Project Rio Vista Stockpile	DWG. NO. 3-11

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Up to two barges could be loaded simultaneously at the southern end of the island as shown in Figure 3-11. The proposed site improvements would include improving a haul road loop to the southwestern end of the peninsula, placing all-weather aggregate base to support a 40,000 ton quarry rock stockpile of various rock gradations below 24-inch-minus rock on approximately 2 acres, providing an all-weather aggregate base working surface over approximately 1 acre adjacent to the shoreline, and driving pilings at the top of bank for mooring barges.

The existing landforms in the proposed project area on the southern end of BISRA consist of piles of silt and sand deposited on the island from dredging of the Sacramento River channel. These piles are overgrown with ruderal vegetation, interspersed with willows and bush lupines. If there are significant concerns regarding the aesthetics of adding a quarry rock stockpile to this area, the stockpile could be screened by constructing an earthen berm and/or with shrub/tree screening to blend into the natural aesthetics of the park.

The shoreline riparian zone would not be modified to support barge loading. Instead, during emergency operations small temporary barges would be moored adjacent to the shoreline to support the conveyor system, which would convey the quarry rock downslope from the loading zone and quarry rock stockpile area. The transport barges would be moored on the waterward sides of the small temporary support barges. This would avoid any significant environmental impacts on riparian or wetlands habitats along the shoreline. Improvements in the area between the BISRA boat launching facility and the BISRA Group Picnic Area west of Sevenmile Slough, to facilitate loading barges would include the placement of two pilings near the top of bank.

Overhead power lines run parallel to Highway 160 to the east. They are elevated over 120 feet where they cross Threemile Slough. It is not anticipated that these powerlines would interfere with barge loading operations, which would occur several hundred feet to the southeast.

A gas well operated by Vintage Production California LLC is located at the southern tip of Brannan Island, just east of the proposed barge loading and stockpiling area. The proposed facilities would be designed and operated to avoid any impacts to the operating well and any collector pipelines or control cables connected to the well.

The existing boat launching area and an area just east of the launching area and west of the BISRA group picnic area could both be used as emergency barge transfer facilities. The boat launching area could potentially serve one to two barge loading operations and the area just east of the boat launching facility could easily serve as one barge loading operation each as shown in Figure 3.11. The loading facilities would likely include a loading hopper fed by one or two front end loaders, conveyors, and small rock stockpiles where dump trucks could offload the quarry rock or other flood fight materials. The boat launching area barge loading operations may be able to operate without conveyor systems and utilize either front end loaders or barge loading cranes.

The ICP could be set up in the existing paved parking area adjacent to the boat launching ramp and restroom facilities, or in a new Multi-Agency Center of 2,500 to 5,000 sf. proposed and included for co-development by DWR and DPR would be located either in the BISRA administration office and maintenance shop yard or in place of the BISRA Visitor Center Trailer near the Park's entrance as shown in Figure 3.11. Electrical and communications utilities would need to be stubbed out in trenches to the ICP that could be placed in either the boat launching parking lot area or the planned MAC and adjoining parking lot. The construction of the utility services would require excavation of trenches approximately 24 to 30 inches deep from the nearest available source. Overhead utility lines would be avoided to prevent obstruction of large equipment that might be needed for responding to emergencies.

The boat launching parking area is large enough to also accommodate a helipad as shown.

A fenced area at the north end of the BISRA or near the BISRA administration offices and maintenance shop would accommodate up to 5 steel storage containers and a 10,000 square foot steel frame building (50 feet by 200 feet) for the storage of flood fight supplies and equipment.

Vehicular and large truck access to the BISRA site under emergency flooding conditions is relatively certain. Vehicle and large truck access to the site from the north is secure via Highway 160, which is elevated on the levee crown to its junction with Highway 12, except for the 2,000-foot approach to the Highway 12 intersection, approximately three miles to the north. If Brannan Island is flooded, this section of Highway 12 could be passable if trucks and vehicles were routed along the former Highway 160 route which is largely intact along the east levee crown of the Sacramento River on either side of Highway 12. From the south Highway 160 falls below sea level as it crosses the southern portion of Sherman Island, which would be deeply flooded in the event of a Sherman Island levee failure. Access to Highway 160 from the north would also include Highway 12, both west and east. Highway 12 from the west is via the Rio Vista Bridge, which could potentially be damaged or inoperable in the event of a major earthquake event. Access from the east along Highway 12 is more vulnerable, as the highway crosses three bridges and crosses Brannan Andrus Island, Bouldin Island, and Terminous Tract at elevations below sea level before reaching I-5 north of Stockton. Although each route exhibits vulnerabilities to earthquake and flooding, the redundancy provided by potential access from the south, north, east, and west compensates for these vulnerabilities.

This site is in the Delta Primary Zone, and therefore the site and its surroundings are not likely to face any future residential or commercial development pressure. It is anticipated that the site will continue to be primarily devoted to recreational use under State ownership, managed either by the State or by a vendor on contract with the State. Accordingly, it is unlikely that future land uses surrounding the site would be incompatible with DWR's proposed use.

DWR and DPR would collaborate to determine whether any site improvements could be made as part of the project that would jointly serve the purposes of both agencies. Such improvements could include restroom facilities, utilities, and road improvements.

3.5 Proximity and Travel Distance Considerations

3.5.1 Proximity to Repair Area by Barge

Each candidate or property being considered as a potential facility site was evaluated based on its proximity to the potential repair areas that would provide a metric of response or travel time from the facility site to the repair site. Based on historical failures, the majority of levee failures have primarily been concentrated in the central Delta area. Table 3-1 shows approximate barging distances in miles from each potential material transfer facility to points in the northern (Pierson Tract), central (Mandeville Island), and southern (Union Island) Delta via the shortest navigable channels.

Table 3-1. Barging Distance to Potential Repair Areas in Miles

Material Transfer Site	Location	Northern Delta	Central Delta	Southern Delta
Stockton	Eastern Delta	39	16	26
Rio Vista	Western Delta	19	19	35
Brannan Island	Western Delta	24	14	30

3.5.2 Proximity from Quarries to Transfer Facilities by Truck

Each candidate or property considered as a potential facility site was evaluated based on its proximity from suitable quarries. An analysis was performed of the various quarries that would be used to supply material for the repair. Based on these analyses, approximate trucking travel distances were developed from these quarries to each of the candidate sites. Table 3-2 shows representative values.

Table 3-2. Rock Haul Distance by Truck to Potential Material Transfer Facility

Material Transfer Site	Distance to Quarries (miles)
Stockton	30-90
Rio Vista	25-85
Brannan Island	25-85

3.6 Cost and Economic Considerations

An economic analysis can provide an evaluation of the costs and benefits of alternative courses of action to help in selecting the preferred alternative. In the analysis of alternative transfer sites the costs of land acquisition, site improvements, and long-term operation and maintenance can be determined with a reasonable degree of certainty. With basic cost information and site characteristics, potential transfer sites can be ranked in terms of their relative costs and transfer capacity, leading to a determination of which are the most efficient investments in terms of transfer capacity per dollar expended.

It is far more challenging to quantify the economic benefits of the transfer sites because the benefits of the transfer sites are not directly based on economics. The benefits are in terms of the reduction or avoidance of damages that might otherwise occur due to levee damage or levee breaks. This involves estimates and probabilities that events could occur in the future and how flooding could be reduced by the proposed facilities. While past events are helpful in assessing what may happen in the future, such forecasting is extraordinarily complex and difficult due to the many variables that may or could be in play. It would involve a multitude of physical phenomena in a dynamic setting, coupled with complex, inter-related economic effects.

In fact, a rigorous and complete economic analysis of the proposed project alternatives is not achievable with our current state of knowledge, regardless of how much time and effort is put into it. Instead, the salient methods and considerations are discussed to provide perspective, followed by a brief description of the detailed economic analysis completed by members of the Delta Risk Management Strategy (DRMS) team that evaluated the water supply and water quality benefits that the project alternatives could possibly provide. The ranking of the alternatives is based on a qualitative assessment of all of these considerations.

The qualitative conclusion drawn from this discussion of economics is that a modest investment by the State in a limited number of permanent transfer facilities is both reasonable and prudent, and likely to be a wise, long-term use of public funds:

- **Investment Framework** - A brief discussion of the State's policy regarding Delta emergency response and its implications for procurement and implementation of transfer facility sites.

- **Project Costs** - An enumeration of the cost of land acquisition, site improvements, and operation and maintenance, excluding actual emergency operations.

- **Project Benefits** - A discussion about how benefits are calculated as a reduction in expected annual damage based on probability theory, a discussion of the various potential benefit categories, and a brief summary of the economic evaluation of water supply and water quality benefits.

- **Summary Discussion** - A discussion on the relative scale and importance of the various economic factors, considering both costs and benefits, leading to a recommended set of alternatives from an economic perspective.

3.6.1 Investment Framework

Current DWR policy with regard to the Delta is complex and nuanced, with the integration of numerous State laws, programs, and constraints. In 2011 DWR released a draft document, "*FloodSAFE, A Framework for Department of Water Resources Investments in Delta Integrated Flood Management* (February 2011). This document intends to provide a clear context and rationale for discussing, evaluating, and making difficult choices about how to invest limited DWR funds in integrated flood management-related projects in the Delta. It articulates the importance of the Delta, its vulnerabilities, and the State's interest in protecting and enhancing the Delta.

The guiding principles for DWR to integrate flood management investments in the Delta that are described in the document include the following, subject to available funding:

- Encourage projects that provide benefits for multiple areas of State interest.
- Where feasible, give preference to projects that help preserve opportunities for priority actions identified in other large-scale planning efforts.
- Where feasible, give preference to projects that provide the highest benefits, considering both economic or ecosystem benefits.

This project, which focuses on improving the preparedness, expediency, and capacity of responding to and recovering from future levee failures in the Delta, is fully consistent with these guiding principles. Given that Delta levees are the key land form structures that define the Delta as a place and that this project facilitates the rapid restoration of damaged levees after a disaster this same project provides the broadest possible benefits of collaboratively utilizing and improving two separate State properties in the Delta and helps preserve opportunities for future large-scale improvement projects such as the Bay Delta Conservation Plan.

It does not necessarily follow, however, that implementing the Delta Flood Emergency Preparedness, Response, and Recovery Program and this subject FIP that the State is committed to restoring all levees after every disaster. Those decisions will be made on a case-by-case basis. In summary, this project is fully consistent with the current State policy regarding investments in Delta integrated flood management.

3.6.2 Project Alternative Costs

The costs of acquisition, site improvements, and annual operation and maintenance are summarized in Table 3-3 for the proposed and existing transfer facility sites.

Table 3-3. Alternative Transfer Facilities Cost Comparison

Site	Initial Purchase Price	Site Improvements (Inc. Mat. Purchase)	Annual O&M				Present Worth of O&M[1]	Total Cost	Estimated Transfer Capacity (tpd)	$/ tpd of transfer capacity
			Lease or Access Contract	Site Security	Site O&M	Total Annual				
Stockton Weber	$ 6,400,000	$ 7,860,000	$ -	$ 15,000	$ 20,000	$ 35,000	$ 401,000	$14,661,000	26,400	$ 555.34
Rio Vista	$ -	$ 4,360,000		$ 10,000	$ 10,000	$ 20,000	$ 229,000	$ 4,589,000	13,200	$ 347.65
Brannan Island	$ -	$ 8,535,000	$ -	$ 15,000	$ 15,000	$ 30,000	$ 344,000	$ 8,879,000	26,400	$ 336.33
Port of Stockton[2]	$ -	$ -	$ 292,000	$ -	$ -	$ 292,000	$ 292,000	$ 292,000		
Total:	**$ 6,400,000**	**$ 20,755,000**	**$ 292,000**	**$ 40,000**	**$ 45,000**	**$ 377,000**	**$ 1,266,000**	**$28,421,000**		

[1] Discounted over 20 years, assuming an annual percentage rate of 6%

[2] Assumed lease of Port of Stockton for 2 years

Based on the site conditions for each alternative transfer facility site, the barge loading capacity in tons per day can be estimated. It is assumed that, when fully operational, each barge-loading space will have its own conveyor belt for loading quarry materials, as well as room for a crane or backhoe to load bulk bags of sand and other materials. The estimated

transfer capacity shown in the table is based on the daily transfer rate of 6,600 tons per day per conveyor. As described earlier, the Stockton West Weber facility following site improvements can accommodate four simultaneous barge loading operations, as can the Brannan Island site, whereas the Rio Vista site is constrained by the existing capacity of the Dutra Group dock area of approximately 13,200 tons per day. The transfer capacity shown in the table is the product of this capacity and the number of conveyors assumed for each site. This leads to a calculation of the estimated investment dollars per barge-loading capacity expressed in $/tpd of new transfer capacity, excluding the value of stockpiled rock and actual emergency operations costs.

3.6.3 Project Benefits

3.6.3.1 Estimating the Probability of Levee Failures

When dealing with random or sporadic events such as floods and earthquakes that are individually unpredictable, but can be assigned a probability of occurrence in any given year, the economic impact of such events can be computed as Expected Annual Damage (EAD). EAD takes into consideration both the frequency of such events and the magnitude of their impacts to come up with a constant annual cost, which in the long term would have the same value as the cumulative effect of the individual events, averaged over a long period of time or planning horizon.

The EAD approach can be applied, with varying levels of reliability, to various levee failures caused by any one or a combination of the following activities: earthquakes, flood stages, wind waves, currents, rodents, differential settlement, failures along pipes and other levee penetrations, through-levee seepage, underseepage, cracking, human error, and acts of terrorism.

For these types of events the probability of failure might be estimated from the frequency of historical occurrences, but this approach has major limitations. When historical data are used to estimate the probability of future occurrences, the estimate is only valid to the extent that the historical data are truly representative of future conditions, which is rarely the case in the complex real world.

For example, the frequency and intensity of severe flood events is predicted to increase as a result of global climate change. Concurrently, sea level data collected at the Golden Gate tide gage, as well as many other ocean tide gages, clearly show an increase in sea level. The rate of rise is projected to accelerate over the next century. These factors are expected to increase the stress on levees in the future, which would lead to an expectation that the probability of levee failures will increase over time. On the other hand, State, local, and federal investments in the Delta levee system have improved their reliability. To further complicate the picture, historic records of flood-related levee failures rarely provide a clear record of causes, as the evidence is quickly washed away by the failures themselves. It is no doubt a gross oversimplification to lump the various failure types together. Taking these factors into consideration, it is inescapable that there is considerable uncertainty in any estimate of the probability of future flood-related levee failures in the Delta.

Even greater uncertainty surrounds estimates of clear-weather failures, such as might be caused by rodents, human error and acts of terrorism. No credible analysis upon which to base the probability of future levee failures for events of this nature in the Delta has been advanced.

Earthquakes pose an extraordinarily complex analytical challenge. Many decades of effort have been devoted to mapping fault systems in California that might trigger an earthquake of sufficient magnitude to affect Delta levees. Based on extensive seismic records, geologic mapping, and highly sophisticated analyses, the probability distributions of frequency and intensity of faults underlying, or close to, the Delta have been estimated by the U.S. Geological Survey, the California Division of Mines and Geology, and the academic community. Given that earthquakes occur with the release of strain built up by continental drift and the sea floor driving underneath the continental plate along the coast the risk of earthquakes increases over time between earthquakes. Thus, the probability distribution cannot be assumed to be static over time.

Earthquakes can potentially induce levee failures due to a variety of mechanisms, but the most likely is liquefaction of levee foundations leading to collapse of the levees, accompanied by overtopping, cracking, slumping, and piping. Liquefaction is most likely to happen within layers of poorly consolidated sediments of silts, sands, and clays. While extensive geologic exploration in the Delta confirms that it is underlain by a highly variable mix of sands, silts, clays, and peat laid down over thousands of years, an estimate of liquefaction potential at any specific location requires detailed exploration and examination of the mechanical properties of each underlying layer. Sufficient detailed geologic information is not currently available, nor will it be available in the near future to determine with certainty the liquefaction potential along the entire 1,100 miles of Delta levees.

The two most important variables in predicting earthquake levee failures—the future probability distribution for ground motion events and the detailed mechanical properties of Delta levee foundations—have a substantial degree of uncertainty.

All of the mechanisms described above can damage levees without actually causing total failure. When damaged levees can be repaired before they fail, there is a great return on investment in such repair activities and the subject transfer facilities. However, there is currently no way to estimate the probability of failure of damaged levees and the likelihood that quick intervention can prevent levee breaks; this would involve site-specific, event-specific data that are simply not available, nor can we ever expect it to be until the events actually occur.

In summary, the risks of levee failures (i.e., the probability distribution for future failure events) associated with a wide variety of causative events are largely unknown, and are not likely to be known, due to the complexity and pace of change in the real world. Nevertheless, estimates of these risks have been formulated by making assumptions with varying degrees of uncertainty.

3.6.3.2 Conceptual Consequences of Levee Failures and the Duration of Flooding

As described briefly in Chapter 1, the Sacramento-San Joaquin Delta provides a multitude of economic and environmental benefits, most of which would be impacted by levee failures and flooding. Each resource category or beneficial use would be affected differently by the location, magnitude, and duration of island flooding. How each resource category or beneficial use is impacted must be understood in order to assess the economic benefits of this project, which could reduce the number of levee failures (by expediting repairs of weakened levees) and reduce the duration of flooding (by expediting the closure of levee breaches).

Public Safety and Direct Property Damage - Primary benefits accrue from preventing the full failure or breach of damaged levees. Once levees experience a full breach failure, increasing the pace of response is unlikely to offer much significant benefits to public safety or reductions in direct property damage as transitioning into the local response efforts. This is because full breach failures and subsequent inundation will cause most of the associated damage during the flooding period. The pace of levee repairs does however offer a benefit to many of the following categories.

Levee Damage - After an island is flooded, tidal flows through the levee breaches continue to erode the levee sections adjoining the breaches, increasing the damage over time. As the breaches enlarge, the tidal currents weaken, and the pace of erosion gradually lessens. The rapid placement of quarry rock and poly-sheeting on the eroding faces of levee breaches can halt the tidally induced erosion, ultimately reducing repair costs and the time needed to restore the affected levees.

The interior levee slopes of flooded islands can also be rapidly damaged by wind waves, such as occurred on the Georgiana Slough levee of Tyler Island in the aftermath of the February 1986 flood, and on the Lower Jones Tract levees after the Upper Jones Tract levee failure in June 2004. With sufficient wind and fetch, a great deal of damage can be inflicted in just a few hours. In general, interior levee erosion protection, such as poly-sheeting, is deployed in the aftermath of island flooding, but accelerating repairs may offer some benefits. These benefits would be difficult to quantify, as they would depend on the probability of wind events (duration and intensity) on the effectiveness of emergency erosion protection.

Agricultural Impacts - Once an island is flooded, crop production ceases until it is pumped out and the fields and appurtenant infrastructure such as pumps and ditches are restored. Depending upon the time of year and duration of flooding, perennial crops may be relatively unharmed or destroyed, requiring replacement planting. It is useful to think of agricultural production in terms of growing seasons. In general, once an island floods, at least one growing season will be lost. A potential economic project benefit could accrue if restoration of flooded islands can be completed before the next growing season. The scale of these potential benefits is substantial: primary agricultural production in the Delta was estimated to provide direct farm revenues of $795 million in 2009, support 25,000 jobs and a total of $2.1 billion in value added income (Economic Sustainability Plan for the Sacramento-San Joaquin Delta, UOP, 2012).

Regional Transportation and Utility Infrastructure - Levee failures could impact major highways that cross the Delta, with significant added transportation costs for re-routed traffic,

and potential interruptions of railroad service and utility services. The economic impacts include damage to roads, railroads, and pipelines, which are primarily one-time costs, and the direct and indirect effects of the interruption of service, which depends upon the duration of the interruption. The damages are different for each kind of infrastructure. For example, a flooded road may become immediately inaccessible when flooded, and the road surface may be damaged as a result of inundation. An elevated railroad may suffer minimal damage, but be out of service due to concerns about the stability of the roadbed while the surrounding land is under water.

Environmental Impacts - Delta islands provide critically important habitat for migrating and resident waterfowl, shorebirds, raptors, cranes, and songbirds along the Pacific Flyway. The large expanses of productive farmland on most Delta islands provide foraging, loafing, and nesting habitat for many of these birds. The open, deep water habitat that results when islands flood provides very limited habitat value for a small fraction of migrating waterfowl. The net effect of island flooding is a profound loss of bird habitat value.

Terrestrial species fare even worse, often drowning or are forced to seek temporary refuge on levees.

Even fisheries may be harmed as deep, open water habitat affects the migratory efficiency of native anadromous fish, non-native predators such as bass and perch proliferate, and native rearing habitat provided by protected near-shore habitat is damaged by increased wave wash. Fish drawn into the island interiors as they flood are subsequently trapped when the levees are repaired and the islands pumped out. While screening and salvage of trapped fish are part of the pump-out process, there is no doubt that the trapped fish suffer greater mortality, and potential interruption of their migrations, as compared to fish that are not trapped. The result of these effects could be direct economic impacts on the West Coast salmon fishery as well as further erosion in the populations of native resident fish species such as the delta smelt.

In total, Delta levees currently protect diverse habitats for as many as 500 species, including rare and endangered species of great importance, most of which would be impacted by levee failures.

Flooding often results in the dispersion of toxic chemicals, including diesel fuel, herbicides, polychlorinated biphenyls, pesticides, fertilizer, and raw sewage as homes, businesses, and utilities are flooded. As a result, the water within flooded islands must be treated as toxic until proven otherwise. Depending upon the specific circumstances, hazardous waste cleanup could be a significant expense.

Delta Recreation and Light Industry Impacts - Delta recreation and tourism attracts 12 million visitor days per year, with approximately $250 million per year in direct spending. This in turn supports more than 5,000 jobs and $350 million in value added income for the region and State as a whole (ESP, 2012). The impact of levee failures on recreation and tourism is difficult to quantify. Most recreational facilities are privately owned and located on or near existing levees, such as marinas, restaurants, and shops, and may not be flooded by levee failures. Some are found in small towns such as Isleton, Clarksburg, or Walnut

Grove, and could be damaged or destroyed by flooding. Loss of access through road closures, bridge closures, or restricted reconstruction areas could significantly impact such businesses. These impacts would have to be evaluated on a business-by-business basis, exploring various flooding scenarios and their likely impacts. Similarly, light industries located primarily in the eastern portion of the Delta could be impacted by flooding, loss of transportation access, and loss of power.

Export Water Supply and Export Water Quality—as described in Chapter 1, a number of major water users draw water from the Delta for municipal, industrial, and agricultural uses that could be profoundly impacted by Delta levee failures. DWR has general interest in the continued functioning of all of these diversions, and a specific interest in the function of the State Water Project, which it operates. The failure of Delta levees could primarily impact water supplies by causing the inrush of saline water from Suisun Bay as islands flood, requiring that export operations cease, or requiring the export of water of diminished quality and economic value.

3.6.3.3 Economic Impacts of Levee Failures

A number of efforts have been made over the years to quantify the risk of levee failures and their economic consequences. The most comprehensive effort undertaken by the State in this regard is the Delta Risk Management Strategy (DRMS) effort authorized by AB 1200 (Laird, October 2005), which required DWR to evaluate the potential impacts on water supplies routed through the Delta resulting from a variety of risks, including subsidence, earthquakes, floods, changes in precipitation, temperature, and ocean levels, and combinations of all of these factors. Phase I of the DRMS effort, initiated in 2006, focused on evaluating the risks and consequences of Delta levee failures as a result of these risks for the Delta and the State. The DRMS Phase I report was completed in December 2008. It documents a very comprehensive, sophisticated, and complex study effort, which provides quantitative estimates of both risks and consequences.

It is estimated that the median combined in-Delta and statewide economic costs of flooded islands due to seismic events range from $219 million to $43.7 billion, for one to 50 islands flooded, respectively. Similarly, the median combined economic costs due to flood events were estimated to range from $140 million to $22.1 billion, for one to 30 islands flooded, respectively.

Taking seismic risk, flood risk, and sunny day failure risks together, DRMS Phase 1 estimated a probability distribution for likely economic consequences (Figure 13-19a, DRMS Phase 1 Report, 2008), which indicated that there is a 5 percent annual chance of exceeding $4.5 billion in damages, a 2.2 percent chance of exceeding $20 billion in damages, and a 1.0 percent annual chance of exceeding $40.0 billion in damages.

Based upon some of this information, a benefit-cost analysis of Delta transfer facilities was conducted. This analysis primarily explored the benefits of transfer facilities in terms of reduced impacts on SWP and CVP export volumes and water quality, and on reduced repair costs as a result of executing repairs more rapidly. Secondary to this analysis were the lost uses associated with interruption of commerce and transportation within and through the Delta, including but not limited to, the lost use of highways, railroads, aqueducts, and the

substantial interruptions or losses to agricultural and recreational uses, and natural ecosystem functions throughout the Delta. To conduct the primary benefit-cost analysis, 63 possible earthquake events were modeled, coupled with 20 different possible sets of hydrologic conditions for each earthquake event, yielding 1,260 scenarios. For each of these events a model of earthquake damages estimated the number and location of levee breaches.

A model of levee repair costs calculated the volume of rock and dirt required, the duration of repairs and inundation, and the cost of repairs for each transfer facility alternative.

A hydrologic model estimated the volume of water that would enter each failed island after an earthquake, and taking the location of the various levee breaches into consideration, calculate the amount and duration of export shortage, and the increase in the amount of salts exported.

An economic model calculated the costs associated with reduced exports and increased salinity of export water, taking into consideration the hydrologic conditions at the time of the earthquake events. For example, the worst type of scenario would involve a large earthquake occurring during the late summer, in the second year of a water shortage. In late summer almost all of the water flooding the islands would be drawn from Suisun Bay, bringing huge amounts of salt water deep into the Delta, which would be flushed very slowly from the system through low summer flows and reservoir releases. Meanwhile, the value of water increases during shortages, thereby exacerbating the economic impact. Saline export water is of lower value and has less potential for re-use, further adding to the costs.

3.6.3.4 Discussion and Use of Economic Evaluation

The evaluation described above involves a complex series of calculations, built upon many simplifying assumptions and founded on unproven estimates of seismic event probabilities. It demonstrates how difficult it is to conduct an economic evaluation of just one of the many potential classes of impacts associated with Delta levee failures.

The evaluation notes that lost land use costs for affected Delta islands are 28 times larger than the water supply and water quality impacts, which are not accounted for in the modeling. This would suggest that the modeling substantially underestimates the potential economic benefits of the transfer facility alternatives.

The benefits of reducing direct and indirect impacts to Delta agriculture and Delta recreational activities are not included. If included, the benefits would further expand upon the economic benefits of the transfer facilities. The benefits of expediting repairs, such that weakened levees do not fail, were not included and have not been quantified. These benefits could also have the potential to greatly increase the apparent economic benefits of the transfer facilities.

The benefits of reducing direct and indirect impacts to the Delta ecosystem are not included, nor is there an agreed-upon methodology for the economic evaluation of such benefits. Flood events not triggered by earthquake were not evaluated, nor were clear-weather events, which could be caused by a multitude of events, as described in previous sections. Ongoing accelerating sea level rise and the potential for more intense winter runoff events will

certainly add to the stresses on the Delta levee system, and will most likely increase the risk of future levee failures. This was also not taken into consideration in the evaluation.

All of these omissions would suggest that the regional and statewide benefits of the proposed transfer facilities are far greater than the limited economic evaluation of water supply and water quality impact reduction for this project would suggest. On the other hand, the validity of the foundational assumptions regarding the frequency of levee-damaging earthquake events and their effects on Delta levees is unproven. If the assumed frequency is much higher than the actual frequency (which may require several centuries of data collection to assess), this would lead to an overestimate of the benefits of establishing new transfer facilities.

In addition, for the sake of the evaluation, it was assumed that the temporary facilities established in 2007 by DWR would continue to function and this project, consisting of one or more new transfer facilities, would be constructed prior to the next event, but that no new facilities would be constructed in the aftermath of a major event. While it is impossible to know in advance exactly what might happen in the aftermath of a major levee failure event, it is likely that additional sites would be established as rapidly as feasible after the event until transfer capacity ceased to be the critical limiting factor affecting the pace of repairs. Therefore, the economic benefit of constructing transfer facilities before future levee failure events is likely to be a short-term (up to 90 days, see Figure 3-12) boost in transfer capacity early in the post-event recovery period before additional sites can be constructed under emergency directives, rather than a long-term difference in transfer capacity that would persist throughout the repair period. This assumption, therefore, would likely lead to an overestimate of the project benefits.

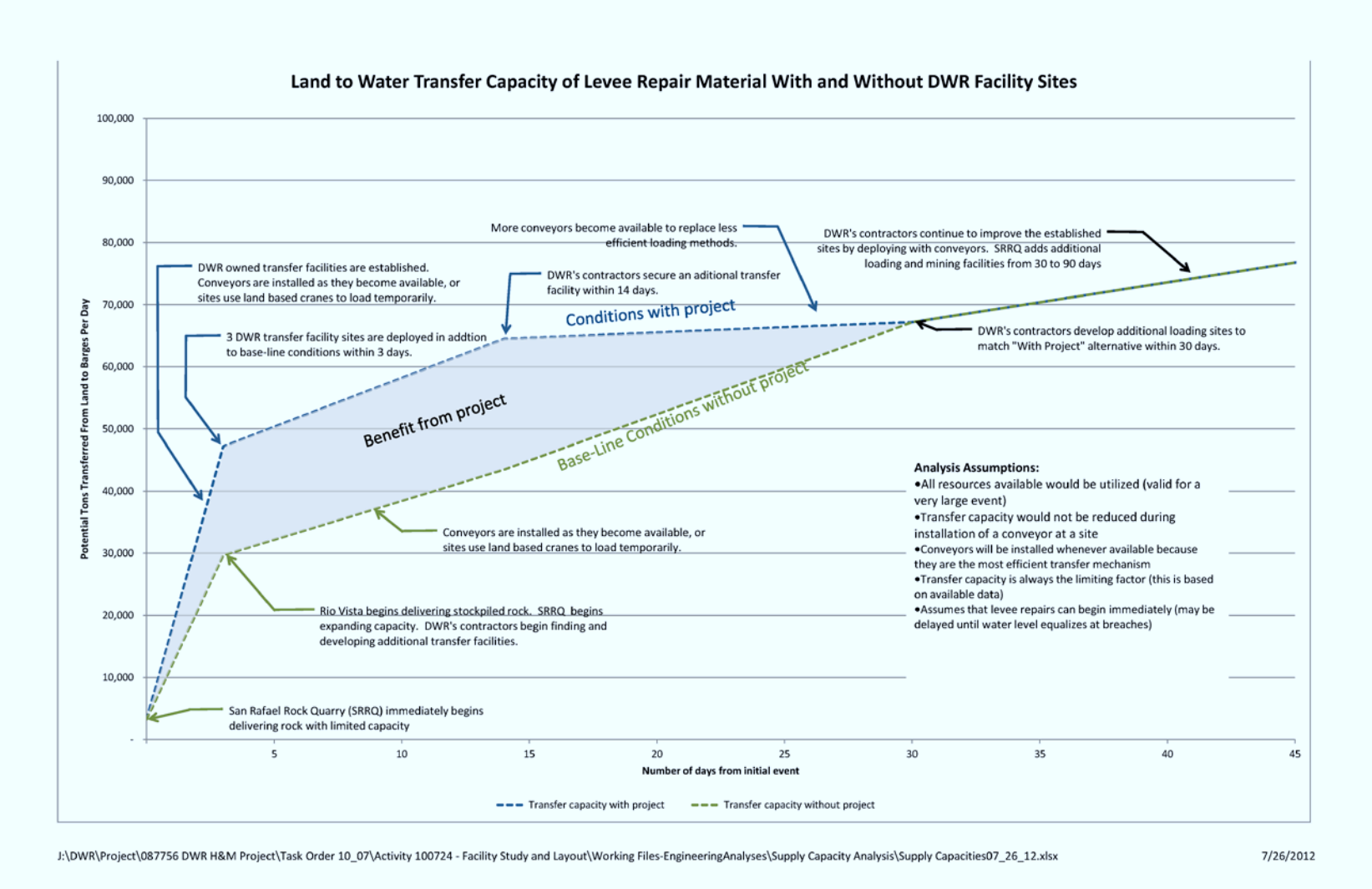
This discussion highlights the fact that the economic evaluation of project benefits is extraordinarily complex. Even the evaluation of a small portion of the economic benefits spectrum requires reliance on unproven and unverifiable probability distributions, many simplifying assumptions, and a cascade of computer models running thousands of scenarios. In the end, such analyses help elucidate the challenges, but can provide only limited guidance.

The most important conclusion that can be drawn from this discussion is that Delta levees protect a multitude of inter-related benefits, which accrue to the region, the State, and the nation. They include economic benefits as well as environmental quality benefits that cannot be quantified in terms of dollars. While the frequency of events that might trigger levee failures remains ultimately unknown, the threats are substantial and rising over time, even as levees are being raised and strengthened through the combined efforts of local, State, and federal entities.

The present worth or annualized costs of the proposed alternative transfer facilities is dwarfed by the scale of potential economic damages of Delta levee failures and the potential for reducing those damages by boosting the flow of repair materials to levee repair sites. The detailed analysis of water supply and water quality benefits that might accrue to the SWP and the CVP suggests, but does not prove, that these benefits alone would justify establishment of the transfer sites.

Taking all of these factors into consideration, the preponderance of evidence strongly suggests that investing in the three most cost-effective alternative sites in the Delta, and stockpiling modest amounts of flood fight materials and supplies are reasonable and prudent investments of public funds. Such an approach is consistent with DWR's policy framework for investments in the Delta, which seeks to protect multiple areas of State interest, preserve opportunities for future action, and give preference to projects that provide the highest economic and environmental benefits.

Figure 3-12. Post Event Transfer Capacity Analysis



4 Environmental Checklist

4.1 Aesthetics

4.1.1 Environmental Setting

4.1.1.1 Stockton, West Weber Avenue Site

The Port of Stockton is a heavily industrialized area that is densely populated with warehouses and industrial facilities as well as over 40 miles of railroad tracks (DWR, 2007). The Stockton, W. Weber Avenue Site currently consists of three parcels containing up to 22.6 acres, all of which are currently zoned Industrial, General (IG). All of the parcels along West Weber Avenue west of I-5 are designated IG, as are the parcels on the east and south of Old Mormon Slough. On the north bank of the Stockton Deep Water Ship Channel, directly across from the site the parcels are designated Commercial, General (CG) and the 2035 General Plan Land Use/Circulation Diagram designation is Commercial. The parcels to the west and south are designated as Industrial in the 2035 General Plan, while the parcels to the north and east are proposed as commercially zoned (City of Stockton, 2007).

The Stockton, W. Weber Avenue Site currently consists of three parcels totaling up to 22.6 acres of areas in both pavement and in open space with two steel structures, yard lighting, and concrete dock access. The southwest parcel contains one steel warehouse and includes about eight acres of mostly aggregate base and asphalt covered areas; the two northern parcels are primarily unimproved dirt and aggregate base. All three parcels are accessible from Stockton, West Weber Avenue from the east. The adjacent properties include a vacant lot to the east and parcels with warehouses to the south and west.

4.1.1.2 Rio Vista

The Rio Vista site is located northeast of the town of Rio Vista (estimated population 7,400, US Census Bureau, 2012). The site is on the southern portion of a large property owned by the Sacramento San Joaquin Drainage District acting through the CVFPB, with a portion leased by ASTA Construction, Inc. The site is located northwest of River Road, northeast of Airport Road, and west of the Sacramento River. According to the Solano County General Plan (November 4, 2008), land use zoning for Rio Vista along Airport Road, west of the Rio Vista Site, is urban industrial. East of the City Limit, including the southern portion of the Sacramento San Joaquin Drainage District property managed by the CVFPB where the existing quarry rock stockpile is located, the land is designated as agricultural. Along the waterfront where the Dutra Group has its docking and barge facilities the designation is urban industrial and water-dependent industrial. The adjacent area to the northeast is part of the lower Yolo Bypass, in agricultural use, and is separated from the property by a levee. The site has been previously disturbed (as recently as 2007, per aerial photography provided by Google Earth 2012) and contains dredge spoils. Currently it is used for surface mining operations by extracting sand and clay from the dredge spoils. The site contains mounds of dirt and scattered areas of ruderal vegetation, as well as some notable habitat areas. The proposed project modifications would be confined to the southern

portion of the property, comprising approximately 15 acres bounded on the southwest by Airport Road; on the southeast by an embankment that separates the property from commercial, industrial, and residential development along Highway 84 (River Road); on the northeast by the Yolo Bypass west levee; and on the north by a line drawn parallel with the southern boundary, approximately 2,500 feet north of it.

4.1.1.3 Brannan Island Site

The Brannan Island Site is part of the Brannan Island State Recreation Area located across the Sacramento River southeast of Rio Vista. The Brannan Island Site is accessible via California State Scenic Route (SR) 160 and Brannan Island Road. It is surrounded on three sides by waterways, including the Sacramento River to the west, the Threemile Slough to the south and east, and the Sevenmile Slough to the east. The areas in the vicinity of the site are agricultural lands.

The Brannan Island Site is owned by the Department of Parks and Recreation (DPR) and is currently zoned as Recreation (O), wherein some agricultural, commercial, and institutional uses are permitted subject to the issuance of a conditional use permit. The Island is designated as Natural Preserve and Recreation in the Sacramento General Plan. (Sacramento County, 2010).

Brannan Island State Recreation Area (BISRA) is operated by a private third party, and also has several natural gas wells in the property. BISRA offers multiple areas that may potentially be used by the proposed project. Collectively these sites are referred to as the Brannan Island Site. Much of BISRA consists of mounds of sand and silt deposited in the course of dredging the Sacramento River beginning in the early 1900s. The area is vegetated with grass, brush, and trees, some of which are ruderal growth and some of which has been planted and tended as part of the recreational area development.

The areas of the BISRA being considered for the proposed project include:

1) A vacant, fenced, gravel-surfaced site at the north end of the BISRA, north of Brannan Island road, consisting of approximately 3.5 acres

2) The main boat launching area, its adjoining parking area, and as mall area between the BISRA launching area and group picnic area collectively consisting of approximately 6 acres

3) The southern tip of the BISRA, consisting of approximately 13 acres of dredged materials spoil piles that have been colonized by ruderal vegetation

4) The BISRA administrative offices/maintenance shop area or the area adjoining the existing visitor center trailer near the park entrance is being considered by DWR and DPR for development as a 2,500 - 5,000 sf. joint use facility as a component of the proposed action that could serve as Multi-Agency Center (MAC)

4.1.2 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Aesthetics – Would the Project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☒	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☒	☐	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☒	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

This analysis focuses on the proposed project-related effects associated with emergency response activities, including the development of the aforementioned sites as material stockpile and transfer sites, and some of the sites as construction offices and incident command posts. By implementing the project, which involves developing these sites and preparing storage sites, these actions would ultimately contribute to the reduction in cumulative environmental impacts associated with a levee breach or failure. Because there is a great degree of uncertainty about where and when the stockpiled materials might be used, and because the impacts to visual effects will be essentially the same with or without the proposed project, impacts to visual resources associated with emergency response operations are not discussed further.

a) Will the proposed Project have a substantial adverse effect on a scenic vista?

A scenic vista is defined as an expansive view of a highly valued landscape from a publicly accessible viewpoint (DWR, 2007).

The Stockton, West Weber Avenue site is located in close proximity to the Port of Stockton, which is a heavily industrialized area where large freight ships regularly dock and trains and trucks pass by. The development of Stockton, West Weber Avenue site as a transfer facility would not significantly alter the visual character of the area and would result in **no impact.**

The Rio Vista site has historically been used as a dredged materials disposal area, beginning with the Sacramento River Minor Project in 1913. A portion of the site is currently operated by a private sand and gravel contractor under lease with the CVFPB. Portions of the site have become forested over time, and portions are designated wetlands. Approximately 113,000 tons of rock were placed on the site under the DEFPRRP, where they currently remain. Most of the properties south and southeast of the site are currently devoted to heavy industrial use, including metal storage and recycling, barge docking facilities, apartments, a mobile home park, and several single family residences. The proposed project improvements, including road improvements, clearing and leveling storage, parking, and helipad areas in the southwestern portion of the property, and placement of steel storage containers would be consistent with previous uses of the property and surrounding land uses. Therefore, the planned development of the Rio Vista site as a transfer facility would not significantly alter the visual character of the area and have a **less than significant impact.**

The Brannan Island site would use portions of the BISRA during emergencies. The northern parcel, north of Brannan Island Road, where DWR could place steel storage containers and install a steel storage building, has historically been used for these purposes, although the parcel has been cleared of buildings for the past several years. An alternative to utilizing the area north of Brannan Island Road is placing the storage containers and a steel storage building near or adjacent to the existing BISRA administrative offices and maintenance shop. At either location the proposed use would be consistent with past use. The parcel north of Brannan Island Road is screened from the rest of the recreation area by trees and shrubs, as well as most of the BISRA administration office and maintenance shop area is screened with trees from the major recreation areas and State Scenic Highway 160.

The proposed use of the main boat launching area and harbor for loading barges for an ICP and helipad would, under normal circumstances, impact the aesthetics of the site. However, DWR would only use this portion of the park during major Delta levee emergencies, during which time recreational activities would likely be restricted in the Delta for safety and limited access reasons. As soon as the emergency events are resolved, the temporary ICP trailers, vehicles, and equipment would be removed and the area returned to pre-emergency conditions.

The proposed use of the southern tip of the peninsula as a quarry rock stockpile area and barge loading facility could alter the scenic vista from the State Scenic Highway 160 Bridge across Threemile Slough, from Sherman Island, and from the slough. An all-weather aggregate base surface would be placed to support barge loading equipment and to create a roadway loop for haul trucks. The rock stockpile could be screened from park visitors and motorists on State Scenic Highway 160 by incorporating naturally looking earthen berms or by trees and vegetation. The proposed roadway, loading area, and quarry rock stockpile are consistent in visual character with the existing access road and gas well located in this area and the infrastructure on the farmlands in the area.

The development and implementation of a new joint use facility by either DWR and the DPR within the existing BISRA administration office/maintenance shop complex or adjacent to the existing BISRA visitor center trailer, if not properly planned or designed with adequate architectural visual treatments could be a deterrent or distraction from the existing scenic vistas that may be available from within the BISRA or to motorists from the adjoining State Scenic

Highway 160. Therefore, the impacts of constructing the joint use facility within the BISRA are **potentially significant and subject to mitigation** measures proposed in Section 4.13**.**

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

The Stockton, West Weber Avenue site is not located on or near a state-designated scenic highway and does not contain rock outcroppings or historic buildings that would constitute a scenic resource. There are few trees at the Stockton, West Weber Avenue site and the Brannan Island site near proposed project facilities, and no trees will be removed as part of the proposed project activities.

The Rio Vista and Brannan Island sites do not contain rock outcroppings or historic buildings that would constitute a scenic resource.

The Brannan Island site is located adjacent to SR 160, which is designated as a State Scenic Highway. The Sacramento-San Joaquin River Delta (Delta) area along Scenic SR 160 is in largely agricultural use, which requires use of heavy machinery and includes manipulation of the land areas in the project vicinity, including maintenance of the substantial levee system. The industrial and agricultural uses are characteristic of the aesthetics of the Delta. Truck hauling routes from nearby quarry sites are also not considered to have designated scenic vistas, and transporting rock from the quarries would occur during a flood with or without the proposed project. However, the development and implementation of a new joint use facility by either DWR and the DPR within the existing BISRA administration office/maintenance shop complex or adjacent to the existing BISRA visitor center trailer, if not properly planned or designed with adequate architectural visual treatments could damage any scenic resources that may be available from within the BISRA or to motorists from the adjoining State Scenic Highway 160. Therefore, the impacts of constructing the joint use facility within the BISRA are **potentially significant and subject to mitigation** measures proposed in Section 4.13**.**

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

All of the proposed project sites are previously disturbed sites containing past and existing industrial or agricultural uses, including crop production, barge loading, material storage and transport, concrete recycling, and soil salvaging. The Stockton, West Weber Avenue site currently has a few stockpiles of materials including soil and rock. The Rio Vista site has been used for dredged materials disposal and mining for nearly 90 years, and the proposed use is consistent with this historical use and the visual character of the site.

The Brannan Island site is the most sensitive from the perspective of visual character and quality due to its historic use as a recreational area and its proximity to State Scenic Highway 160 and adjacent Delta channels. The development and implementation of a new joint use facility as a MAC by either DWR or the DPR within the existing BISRA administration office/maintenance shop complex or adjacent to the existing BISRA visitor center trailer, if not properly planned or designed with adequate architectural visual treatments, could degrade the existing visual character or quality of the site and surroundings from within the BISRA or to motorists from the

adjoining State Scenic Highway 160. The placement of a 10,000 sf. warehouse facility and adjoining cargo storage containers, either in the north end of the BISRA or within the BISRA administration offices/maintenance shop yard, if not properly planned or designed with adequate architectural visual treatments, could degrade the existing visual character or quality of the site and surroundings from within the BISRA or to motorists from the adjoining State Scenic Highway 160. Also the placement of 40,000 tons of quarry rock near the southern tip of the Brannan Island peninsula as a quarry rock stockpile area, if not properly planned or designed with adequate visual screening treatments such as incorporating or developing naturally looking berms, could degrade the existing visual character or quality of the site and surroundings from within the BISRA and from within the adjoining sloughs or to motorists from the adjoining State Scenic Highway 160. The rock stockpile could be screened from park visitors and motorists on State Scenic Highway 160 by incorporating naturally looking earthen berms or by trees and vegetation. The proposed roadway, loading area, and quarry rock stockpile are consistent in visual character with the existing access road and gas well located in this area and the infrastructure on the farmlands in the area.

The impacts of constructing the joint use facility, the placement of a 10,000 sf. warehouse with adjoining cargo storage containers, and placement of 40,000 tons of quarry rock in a stockpile within the BISRA is **potentially significant and subject to mitigation** measures proposed in Section 4.13**.**

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The proposed project sites would initially be improved to accommodate emergency transfer facilities during regular business hours, primarily during daylight hours. This would include installation of any needed utilities and asphalt covering, as well as initial stockpiling of levee repair materials. The site development activities would be temporary and, once developed, the sites would be largely inactive until they are needed for emergency response. The project improvements would not add or improve permanent outdoor lighting, except at the West Weber Avenue site(s) where permanent outdoor lighting already exists on the southwest parcel.

During emergency operations, truck traffic and barge loading could occur around the clock. Lights would be used to safely extend operation through the nighttime hours with portable light towers. Barges may transit the Delta at night during emergency response operations, depending on the timing and scale of the emergency. Barge loading areas may operate during nighttime hours, but this is considered to be a less than significant impact because emergency operations would be infrequent and temporary. The Stockton, West Weber Avenue site is already in an area that is well lit at night. Rock transport by truck from nearby quarry sites would occur during a flood with or without the proposed project.

In addition to lighting the only other source for glare may be associated with final placement and exterior treating of an existing metal warehouse that may be moved from Twitchell Island to the BISRA. The warehouse building will be painted in natural tones and will be strategically placed with cargo storage containers and screened with vegetation in consultation with the DPR to minimize any daylight glare that may reflect or adversely affect day or nighttime views within the BISRA and the adjoining Scenic SR 160.

Without visual treatments, inclusive of vegetation screening to the planned warehouse and storage containers, the proposed project actions within the BISRA could create a new source of substantial light or glare which could adversely affect day or nighttime views in the BISRA area and adjoining Scenic SR 160. Therefore, the impact to day and nighttime views in the area is **potentially significant and subject to mitigation** measures proposed in Section 4.13**.**

4.1.3 Proposed Environmental Mitigation Measures

Mitigation Measure AES-1: Design BISRA Joint Use Facility with DPR Incorporating Architectural and Landscaping Technics to Minimize Impacts to Scenic Vistas and Visual Resources.

DWR will consult and coordinate with DPR staff and architect to facilitate the location and design of the joint use facility and steel warehouse within the BISRA so as not to harm the natural aesthetics, scenic vistas, and visual character available within the BISRA and from the nearby Scenic SR 160. Potential design measures may include utilizing natural earth tones for building exteriors, incorporating earthen berms and planting native plants to help screen project building features from recreational areas and from Scenic SR 160.

Mitigation Measure AES-2: Locate and Design Quarry Rock Stockpile(s) at BISRA to Minimize Impacts to Scenic Vistas and Visual Resources.

DWR will consult and coordinate with DPR staff to facilitate the location, placement, shape, and visual treatment of quarry rock stockpile(s) that will be located near the southern tip of the BISRA peninsula. The quarry rock stockpiles will be located and configured so as not to harm the natural aesthetics, scenic vistas, and visual character available within and adjacent to the BISRA and from the nearby river, sloughs and Scenic SR 160. Potential visual treatments may include screening by natural, native vegetation of trees and shrubs, utilizing natural berms, or covering the rock stockpiles with a layer of native soil and sand materials from nearby within the BISRA.

Mitigation Measure AES-3: Locate and Treat Exterior of Warehouse and Cargo Storage Containers at BISRA to Minimize Light and Glare Impacts to Day and Nighttime Views.

DWR will consult and coordinate with DPR staff to facilitate the location and exterior visual treatment of the project warehouse on BISRA to minimize light and glare impacts to day and nighttime views, and not to harm the natural aesthetics, scenic vistas, and visual character available within and adjacent to the BISRA and from Scenic SR 160. Potential visual treatments may include treating the exterior of the warehouse walls and roof in natural earth tones and screening by natural, native vegetation of trees and shrubs.

4.1.4 Impacts after the Application of Mitigation Measures

Mitigation measures will reduce potentially significant impacts to Aesthetics to a **less than significant level**.

4.2 Air Quality

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Air Quality. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the following determinations. Would the Project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

4.2.1 Environmental Setting

As required by the Clean Air Act, the United States Environmental Protection Agency (EPA) sets National Ambient Air Quality Standards for six common air pollutants, also known as "criteria pollutants":

- Ozone
- Particulate Matter (PM)
- Carbon Monoxide (CO_2)
- Nitrogen Oxides (NOx)
- Sulfur Dioxide
- Lead (EPA 2010 http://www.epa.gov/air/urbanair/)

The criteria pollutants are regulated by permissible levels based on human health (primary) and/or environmental (secondary) criteria. The most widespread of these pollutants are particulate matter and ground-level ozone. The Clean Air Act requires individual states to develop State Implementation Plans for attainment and maintenance of National Ambient Air Quality Standards. As such, the California Air Resources Board (ARB) provides leadership to air management districts in the implementation and enforcement of air pollution control rules and regulations.

The proposed project activities that will result in additional air quality emissions include truck transport of rock from quarries to proposed project sites and development of proposed project sites as transfer, stockpile, and Incident Command Post facilities including establishment of stockpiles.

The proposed stockpiling and barge loading sites and the truck routes between the quarries and the proposed project sites fall under the jurisdiction of several air districts, as illustrated in Figure 4-1. As indicated in Figure 1-2, several quarries have been identified as potential resources to supply materials at the proposed project sites. There are 17 potential quarry sites and three alternative transfer and storage sites. The air basins and applicable air districts that would be impacted by the proposed project are summarized in Table 4-1.

Figure 4-1. Air Basins and Air Districts

Table 4-1. Impacted Air Basins and Air Districts with Jurisdiction for Proposed Project Locations and Quarry Locations

Air Basin	Air District (s)
Sacramento Valley	Tehama County Air Pollution Control District (TCAPCD) Butte County Air Quality Management District (BCAQMD) Feather River Air Quality Management District (FRAQMD) Sacramento-Metro Air Quality Management District (SMAQMD) Yolo Solano Air Quality Management District (YSAQMD)
San Francisco Bay Area	Bay Area Air Quality Management District (BAAQMD)
North Central Coast	Monterey Bay Unified Air Pollution Control District (MBUAPCD)
San Joaquin Valley	San Joaquin Valley Air Pollution Control District (SJVAPCD)
Mountain Counties	Northern Sierra Air Quality Management District (NSAQMD) Placer County Air Pollution Control District (PCAPCD) Amador Air District (AAD) Calaveras County Air Pollution Control District (CCAPCD) Tuolumne County Air Pollution Control District (TCAPCD)

Source: CARB: http://www.arb.ca.gov/capcoa/dismap.htm

CARB and EPA designate areas according to attainment status for criteria pollutants based on air quality monitoring data gathered from air stations located throughout the Sacramento Valley, San Francisco Bay Area, North Central Coast, San Joaquin Valley, and Mountain counties Air Basins. The areas can be designated as:

- Nonattainment (not meeting standards)
- Attainment (meeting)
- Unclassified

The most current attainment designations for all the counties applicable to the proposed project, with respect to both the national and state standards, are shown in Table 4-2 for ozone, PM_{10}, and $PM_{2.5}$.

The California Clean Air Act enacted in 1988 requires the preparation of Air Quality Attainment Plans for nonattainment areas. In addition, nonattainment areas are required to triennially assess the extent of air quality improvements and emission reductions achieved through the use of control measures.

Table 4-2. Summary of Attainment Status Designations for Ozone, PM_{10}, and $PM_{2.5}$

	National			State		
County	**Ozone (8-hour Standard)**	**PM_{10}[1]**	**$PM_{2.5}$[2]**	**Ozone (1-hour Standard)**	**PM_{10}[1]**	**$PM_{2.5}$[2]**
Sacramento Valley Air Basin						
Sacramento	Nonattainment	Nonattainment	Nonattainment	Nonattainment	Nonattainment	Nonattainment
Yuba	Unclassified/ Attainment	Unclassified	Partial Nonattainment	Nonattainment/ Transitional	Nonattainment	Attainment
Butte	Nonattainment	Unclassified	Partial Nonattainment	Nonattainment	Nonattainment	Nonattainment
Tehama	Unclassified/ Attainment	Unclassified	Unclassified/ Attainment	Nonattainment	Nonattainment	Unclassified
Solano	Nonattainment	Unclassified	Nonattainment	Nonattainment	Nonattainment	Unclassified
Yolo	Nonattainment	Unclassified	Partial Nonattainment	Nonattainment	Nonattainment	Unclassified
San Francisco Bay Area						
Marin	Nonattainment	Unclassified	Nonattainment	Nonattainment	Nonattainment	Nonattainment
Napa	Nonattainment	Unclassified	Nonattainment	Nonattainment	Nonattainment	Nonattainment
Contra Costa	Nonattainment	Unclassified	Nonattainment	Nonattainment	Nonattainment	Nonattainment
North Central Coast						
Santa Clara	Nonattainment	Unclassified	Nonattainment	Nonattainment	Nonattainment	Nonattainment
San Joaquin Valley						
San Joaquin	Nonattainment	Attainment	Nonattainment	Nonattainment	Nonattainment	Nonattainment
Mountain Counties						
Nevada	Nonattainment	Unclassified	Unclassified/ Attainment	Nonattainment	Nonattainment	Unclassified
Placer	Nonattainment	Unclassified	Unclassified/ Attainment	Nonattainment	Nonattainment	Unclassified
Amador	Nonattainment	Unclassified	Unclassified/ Attainment	Nonattainment	Unclassified	Unclassified
Calaveras	Nonattainment	Unclassified	Unclassified/ Attainment	Nonattainment	Nonattainment	Unclassified
Tuolumne	Nonattainment	Unclassified	Unclassified/ Attainment	Nonattainment	Unclassified	Unclassified

[1] Particulate matter with a diameter of 10 microns or less.

[2] Fine particulate matter with a diameter of 2.5 microns or less.

Sources: CARB Area Designation Maps – February 2011: http://www.arb.ca.gov/desig/adm/adm.htm

4.2.2 Environmental Effects

For the 2007 DWR Initial Study, *Delta Emergency Rock and Transfer Facilities Initial Study/ Mitigated Negative Declaration*, (DWR, 2007) a detailed analysis of the air quality impacts for two potential quarry sites and the three existing sites was performed. This analysis included modeling with URBEMIS 9.2.2 and the use of EMFAC2007 and OFFROAD2007 emission factors. The DWR modeling assumed 130,000 tons of rock would be stockpiled at the Port of Stockton and 100,000 tons at Rio Vista for a total of 230,000 tons. Under the current project, it is assumed that up to 40,000 tons of rock would be stockpiled at both the Stockton, Weber Avenue site and at the BISRA site, and 20,000 tons of sand would be stockpiled at Rio Vista for a combined total of 100,000 tons of additional material. This would be a sufficient supply in each location to supply one barge-loading operation for about one week. The duration of stockpiling activities was based on the assumption that no more than 100 truckloads would occur on a daily basis. The DWR 2007 modeling was used to estimate the potential environmental impact on air quality of the waterside transfer facilities sites' development for this Initial Study. The 2007 modeling is considered conservative, as it was based on assumed stockpiles larger than considered for the current project (and therefore more truck trips). The applicable emissions analysis is summarized below for the site preparation and stockpiling of new materials at each of the preferred sites.

However, the following uncertainties preclude more specific detailed analysis of all the possible flood emergency response situations:

- Timing and location of levee breaches
- Specific location of quarries to be used
- Quantities of material needed
- The possibility of roads being unserviceable during a flood emergency situation

Therefore, the emissions related to emergency response activities are considered exempt from CEQA per CEQA Guidelines, Section 15269[c], and are not the primary focus of this analysis.

4.2.2.1 Site Preparation/Construction Emissions

The site preparation improvements at each of the sites are summarized in Table 4-3. Site preparation and construction emissions would be temporary in duration. The proposed project would require limited ground-disturbing activities at all of the sites where aggregate base would be installed.

The Brannan Island site is entirely above the 100-year flood elevation. Ground disturbing activities would be limited to constructing a concrete slab to support a 10,000 sf. warehouse, constructing a slab and footings for 2,500 to 5,000 sf. joint use facility and adjoining parking improvements, installing underground water and electrical services, and improving and adding all-weather aggregate base to roads near the southern tip of the BISRA.

The Stockton, West Weber Avenue site would require minimal additional ground disturbance for the installation of utilities. The Rio Vista site would require minimal grading and surfacing to improve the existing road system and construct an earthen ramp in the southwestern corner of the site to improve access to Airport Road.

Table 4-3. Site Improvements Related to Construction Emissions

Site	Site Improvements	Tons of Material to Stockpile
Stockton (W. Weber Ave)	Utility installation and aggregate base road installation, improve fencing and lighting, place up to 5 steel storage containers, modify existing buildings	40,000 collective tons quarry rock and sand
Rio Vista	Construct new and improve existing all-weather access roads and ramps for existing rock stockpile and new sand stockpile. Create helipad, place up to 5 steel storage containers; create staging and parking areas. Stockpile 20,000 tons of sand for potential levee repairs.	20,000 tons of sand (in addition to existing quarry stockpile of 110,000 tons)
Brannan Island	South end of BISRA: Construct new and improve existing all-weather access roads. Create new quarry rock stockpile and all weather surface roads and place pilings for loading two barges. Boat launch and boat launch parking area: stub out utilities for temporary ICP office trailers and improve area for temporary heli-pad and up to two barge loading operations. Area between boat launch and Group picnic area: improve area to accommodate single temporary barge loading operation; Develop 2,500 to 5,000 sf. joint use facility to serve as Multi-Agency Center (MAC) either near BISRA visitor center trailer or near BISRA administration offices and maintenance shop. At north end of BISRA or near BISRA administration offices and maintenance shop: Relocate 10,000 sf. warehouse from Twitchell Island and place up to 5 steel storage containers.	40,000 collective tons of quarry rock, sand and soil

The transportation of stockpile material from the Sierra Nevada foothill quarries will be a source of on-road emissions. Thus, the proposed project would result in temporary generation of reactive organic gases (ROG), NO_x, and PM_{10} emissions from stockpiling and site preparation activities.

Table 4-4 summarizes applicable thresholds of significance for construction-related emissions in the air quality management districts for the proposed project area. The San Joaquin Valley Air Pollution Control District (SJVAPCD) has the most stringent significance thresholds for construction-related emissions of criteria pollutants. If the proposed project complies with the SJVAPCD emissions criteria, then it is unlikely that implementation of the proposed project will conflict with air quality plans in any of the other applicable jurisdictions.

The analysis performed by DWR (Table 4-5) found that proposed project-generated construction emissions would be less than the significance thresholds for ROG, NO_x, and PM_{10}, in all affected air quality districts. The calculated values in the table were based on the 2007 analysis performed for the Delta Emergency Rock and Transfer Facilities Project by reducing the calculated project pollutant loads in proportion to the ratio of quarry rock in the current project versus the 2007 project.

Table 4-4. Summary of Significance Thresholds for Construction-Related Emissions for Criteria Pollutants

Air Quality District	Pollutant		
	ROG	NOx	PM10
Tehama County APCD (lb./day)	25	25	80
Butte County AQMD (lb./day)	25	25	80
Feather River AQMD (lb./day)	25	25	80
Sacramento-Metro AQMD	-	85	-
Yolo Solano AQMD tons/year	10	10	80 lb./day
Monterey Bay Unified APCD	-	-	82
San Joaquin Valley APCD (tons/year)	10	10	-

Table 4-5. Summary of Modeled Project-Generated Construction-Related Emissions of Criteria Air Pollutants and Precursors[1] NO_x Emissions

	Pollutant		
	ROG	NO_X	PM_{10}
Emissions in San Joaquin Valley-SJVAPCD (Tons/Year)			
Stockton West Weber Avenue			
Site Preparation Emissions	0.01	0.14	0.01
Stockpiling On-Site Emissions	0.01	0.08	0.21
On-road Emissions - Rock delivered from Jackson Valley Quarry	0.17	2.73	0.12
On-road Emissions - Rock delivered from Hogan Quarry	0.19	2.97	0.13
Rio Vista			
None	0.00	0.00	0
Brannan Island			
On-road Emissions - Rock delivered from Jackson Valley Quarry	0.14	1.85	0.09
On-road Emissions - Rock delivered from Hogan Quarry	0.15	1.99	0.10
Total Unmitigated (Tons/Year)-Worst Case	**0.36**	**5.18**	**0.44**
SJVAPCD Thresholds (Tons/Year)	**10**	**10**	**-**
Significant?	**No**	**No**	**No**
Emissions in Sacramento Valley-SMAQMD(lb./day)			
Rio Vista			
None	0.00	0.00	0.00
Brannan Island			
Site Preparation Emissions	0.22	2.41	45.16
Stockpiling On-Site Emissions	0.07	0.35	11.31
On-road Emissions - Rock delivered from Jackson Valley Quarry	1.45	18.80	0.94
On-road Emissions - Rock delivered from Hogan Quarry	1.29	16.70	0.83
Total Unmitigated (Tons/Year)-Worst Case	**1.45**	**18.80**	**45.16**
SMAQMD Thresholds(lb./day)	**-**	**85**	**-**

Significant?	**No**	**No**	**No**
Emissions in Solano County-YSAQMD			
Rio Vista	**ROG(tons/year)**	**NO_X(tons/year)**	**PM_{10}(lb./day)**
Site Preparation Emissions	0.04	0.44	45.16
Total Unmitigated (Tons/Year)-Worst Case	**0.04**	**0.44**	**45.16**
YSAQMD Thresholds(tons/year and lb./day)	**10**	**10**	**80**
Significant?	**No**	**No**	**No**

Table 4-5. Continued Summary of Modeled Project-Generated Construction-Related Emissions of Criteria Air Pollutants and Precursors[1] NO_x Emissions

Emissions in Amador County-ACAPCD (lb./day)			
Stockton West Weber Avenue			
On-Road Emissions-Rock Delivered from Jackson Valley Quarry	1.25	19.73	0.87
Brannan Island			
On-Road Emissions-Rock Delivered from Jackson Valley Quarry	1.45	18.80	0.94
Total Unmitigated (Tons/Year)-Worst Case	**1.45**	**19.73**	**0.94**
ACAPCD Thresholds(lb./day)	**274**	**274**	**383**
Significant?	**No**	**No**	**No**
Emissions in Calaveras County - CCAPCD (Tons/Year)			
Stockton West Weber Avenue			
On-Road Emissions-Rock Delivered from Hogan Quarry	0.19	2.97	0.13
Brannan Island			
On-Road Emissions-Rock Delivered from Hogan Quarry	0.15	1.99	0.10
Total Unmitigated (Tons/Year)-Worst Case	**0.34**	**4.96**	**0.23**
CCAPCD Thresholds (Tons/Year)	**10**	**10**	**-**
Significant?	**No**	**No**	**No**

[1] Based on EMFAC2007 and OFFROAD2007 emission factors contained in URBEMIS V. 9.2.2, using general information provided in the project description (e.g., equipment list, stockpiling volumes and area, number of truck trips), and default model settings and parameters. Stockpiling is assumed to take place at one site at a time, i.e., trucks deliver the rock to only one site at a given time.

4.2.2.2 Operation-Related Emissions of Criteria Air Pollutants and Precursors

Once the proposed project sites are prepared as discussed above, the operation-related emissions will only occur during emergency flood fighting operations. The long-term operation of the proposed project would not require any additional employees. Therefore, there would be no employee commute emissions associated with the operation of the proposed project. The long-term operation of the proposed project would not include any major stationary emission sources. Landscaping and maintenance activities at the proposed project sites will be similar to the activities that currently take place at the sites; therefore, there will be no additional emissions related to landscaping and maintenance. Implementation of the proposed project would not result in a net increase in long-term operation-related criteria pollutant emissions from mobile and

stationary sources. Project operation-related emissions would not conflict with or obstruct implementation of the applicable air quality plans.

The proposed project operations would result in temporary increases in emissions during declared emergency responses. This would include the use of construction equipment at the proposed project sites, worker commutes, and the transport of stockpiled materials to levee repair locations. The timing and location of levee breaches that would be repaired with the stockpiled material is highly unpredictable. Because the specific emissions could be highly variable depending on the size and location(s) of levee breaches and failures, modeling project-generated emissions associated with emergency operations would be too speculative at this time. Because the transport of rock from quarries and stockpiles to barge loading facilities and then to levee breach locations in the Delta will occur under a declared emergency and because these activities would occur with or without the proposed project, they are considered exempt from CEQA per CEQA Guidelines, Section 15269[c].

a) Does the proposed Project conflict with or obstruct implementation of the applicable air quality plan?

It is estimated that construction-related emissions will be short term and temporary in nature and will not represent a significant impact to air quality. This determination is based on the Modeled Project-Generated Construction-Related Emissions of Criteria Air Pollutants and Precursors (DWR, 2007). The Model evaluates three criteria pollutants—ROG, NOx, and PM_{10}. None of the three pollutants exceed the threshold limits for the applicable air quality management district. Therefore, the proposed project activities are unlikely to conflict with applicable air quality management plans in the proposed project area. This impact is **less than significant**.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

As discussed in part a), the proposed project's construction and site development activities will not result in project-generated construction emissions that would exceed the significance thresholds for ROG, NO_x, and PM_{10}, in all applicable air quality management districts. The project will not contribute to an existing or projected air quality violation for a nonattainment status area. This impact is **less than significant**.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

As indicated in the response for part a), the proposed project would not result in a cumulatively considerable net increase in criteria pollutants for regions that are designated as nonattainment under applicable federal and state ambient air quality standards. This impact is **less than significant**.

d) Expose sensitive receptors to substantial pollutant concentrations?

The Stockton, West Weber Avenue site is located in a highly industrialized area and there are no sensitive receptors in the immediate vicinity.

The Brannan Island Site is located within the Brannan Island State Recreation Area (BISRA). The areas proposed to be used by the project for permanent storage of flood fight materials, permanent stockpiling quarry rock, and loading barges are located in the existing park facilities area. However, these locations are not immediately adjacent to the park's high recreation use areas such as campgrounds and picnic areas. The permanent material storage locations are on the south end of the BISRA and a permanent joint use facility Multi-Agency Center (MAC) would be located near the temporary location of the existing BISRA Visitor Center Trailer or its administrative offices and maintenance yard. Criteria pollutant emissions will take place briefly (for less than three months) during site preparation and flood fight material storage, and then there will be no emissions from the site until an emergency situation takes place. During emergency events the recreation area will be closed for safety reasons and therefore sensitive receptors would not be exposed to emergency flood fight emissions.

Project construction, including site preparation and establishment of rock stockpiles, would result in short-term generation of diesel exhaust emissions from construction equipment and trucks used for hauling stockpile material. These activities would expose any sensitive receptors in the area to diesel particulate matter, which is considered a Toxic Air Contaminant. The duration of mobilized equipment used on proposed project sites would be a maximum of three months on each site. When hauling trucks make trips to and from the sites to and from the quarries they will not operate within 500 feet of any particular sensitive receptor for more than a few minutes per day. In addition, diesel particulate matter concentrations have been shown to decrease dramatically within approximately 300 feet of the source vehicle (DWR, 2007). Thus, the exposure of sensitive receptors to a toxic air contaminant would be temporary and very limited since sensitive receptors will not be within 300 feet of mobilized equipment for more than a few minutes at a time, if at all.

The proposed project operations will not result in any new permanent sources of emissions due to stationary emission sources on the sites nor due to commuter trips. Once the sites are developed as emergency response sites there will be no further activity except for basic maintenance of the sites until such time as a flood fight emergency is declared. The proposed project is not intended to be operated frequently or for long periods of time over the long term. This impact is **less than significant**.

The proposed project operations would result in temporary increases in emissions during declared emergency responses. This would include the use of construction equipment at the proposed project sites, worker commutes, and the transport of stockpiled materials to levee repair locations. The timing and location of levee breaches that would be repaired with the stockpiled material is highly unpredictable. Because the specific emissions could be highly variable depending on the size and location(s) of levee breaches and failures, modeling project-generated emissions associated with emergency operations would be too speculative at this time. Because the transport of rock from quarries and stockpiles to barge loading facilities and then to levee breach locations in the Delta will occur under a declared emergency, and because these activities would occur with or without the proposed project, they are considered exempt from CEQA per CEQA Guidelines, Section 15269[c].

e) Create objectionable odors affecting a substantial number of people?

The potential odors associated with the proposed project activities include diesel exhaust emissions from on-site construction equipment at the sites during site preparation phases, from trucks hauling stockpile materials from the quarries to the proposed project sites, and from establishment of stockpiles at the sites. The activities resulting in diesel exhaust emissions would be temporary and would be limited to regular business hours.

The Stockton West Weber Avenue site is surrounded by industrial properties and the proposed project would not result in significant increases in odors in and around the proposed project sites.

The Rio Vista site is surrounded by agricultural, commercial, industrial, and limited residential properties. No residential properties are closer than 500 feet from any proposed work areas.

The Brannan Island site is located in the BISRA. As described under (d), sensitive receptors would not face significant exposure to odors, due to the short duration of activities and the separation from park areas used by recreationists. Diesel particulate matter concentrations have been shown to decrease dramatically within approximately 300 feet of the source vehicle (DWR, 2007). The proposed project locations are not immediately adjacent to the park's recreation areas such as campgrounds and picnic areas, except during emergency events when the park would be closed. Criteria pollutant emission will take place briefly (for less than three months) during site preparation and establishment of stockpiles, and then there will be no emissions from the site until an emergency situation takes place.

The proposed project does not include long-term operation of any new sources of odor. Thus, the proposed project would not create objectionable odors affecting a substantial number of people. The impact would be **less than significant.**

The proposed project operations would result in temporary increases in emissions during declared emergency responses. This would include the use of construction equipment at the proposed project sites, worker commutes, and the transport of stockpiled materials to levee repair locations. The timing and location of levee breaches that would be repaired with the stockpiled material are highly unpredictable. Because the specific emissions could be highly variable depending on the size and location(s) of levee breaches and failures, modeling project-generated emissions associated with emergency operations would be too speculative at this time. Because the transport of rock from quarries and stockpiles to barge loading facilities and then to levee breach locations in the Delta will occur under a declared emergency, and because these activities would occur with or without the proposed project, they are considered exempt from CEQA per CEQA Guidelines, Section 15269[c].

4.2.3 Proposed Environmental Mitigation Measures

No significant impacts are anticipated; therefore, no mitigation measures are needed to address impacts to air quality.

4.3 Agricultural and Forest Resources

4.3.1 Environmental Setting

All of the proposed project sites are previously disturbed sites. These project sites were previously used for activities such as barge loading, material storage, concrete recycling, and soil salvaging. No agricultural activities currently take place on the project sites and the project sites are not designated or zoned for agricultural use.

4.3.2 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Agricultural Resources: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use or a Williamson Act Contract?[a]	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code § 12220 (g)), timberland (as defined by Public Resources Code § 4526), or timberland zoned Timberland Production (as defined by Government Code § 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Project emergency response operations would not result in negative impacts to any agricultural lands – in contrast, the objective of the proposed project is to implement emergency flood fighting operations and prepare for and respond to flooding, which would temporarily put flooded farmland out of production, and could lead to permanent loss if the flooded island is not reclaimed. By preparing to repair levees swiftly in the event of a failure or breach, agricultural lands in a flooded area could be salvaged and/or put back into production sooner.

Emergency levee repair operations would be required in response to breaches of existing levees that currently protect extensive amounts of agricultural properties from flood-related impacts throughout the Delta. Stockpiling levee fill materials in strategic locations in the Delta would assist in expediting levee repairs, which would help to protect agricultural resources in the Delta. Emergency levee repair activities will take place throughout the Delta should a natural disaster result in a levee failure or breach with or without the implementation of the proposed project. Any quantification of the emergency response actions, with regard to when, where, and how much rock would be transported for levee repair, would be highly speculative. In addition, an emergency flood fighting response would occur with or without the implementation of this proposed project.

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?

According to the Farmland Mapping and Monitoring Program (California Department of Conservation, Farmland Mapping and Monitoring Program. 2008a, 2008b, 2006), the three proposed project sites consist of Urban and Built-Up Lands and Other Lands. The proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (see Figures 4-2 through 4-4), and the proposed project would have **no impact**.

b) Conflict with existing zoning for agricultural use or a Williamson Act contract?

None of the three sites are zoned for agricultural uses by their respective cities and counties, nor are they currently in a Williamson Act contract.

The proposed project would have **no impact**.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code § 12220 (g)), timberland (as defined by Public Resources Code § 4526), or timberland zoned Timberland Production (as defined by Government Code § 51104(g))?

None of the three project sites are zoned for forest land, will result in the re-zoning of forest land, or timberland, or are timberland zoned Timberland Production. There will be **no impact** to forest lands or lands zoned for Timberland Production.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

None of the three project sites have forests or are zoned as forest land or will result in the rezoning of forest land to non-forest use. There will be **no impact** to forest land.

e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use?

The three project sites are proposed to be developed as transfer facilities, storage sites, or Incident Command Posts for the proposed project. The use of the project sites for these purposes will not change the existing environment in any way that could result in the conversion of Farmland to nonagricultural use or forest land to non-forest use. In contrast, the proposed project will facilitate the repair of breached or failed levees that protect valuable agricultural land within the Delta from flooding.

The objective of the proposed project is to facilitate returning valuable farmlands to their existing conditions in the event of a catastrophe. There will be **no impact.**

Figure 4-2. Stockton West Weber Area Farmland Map

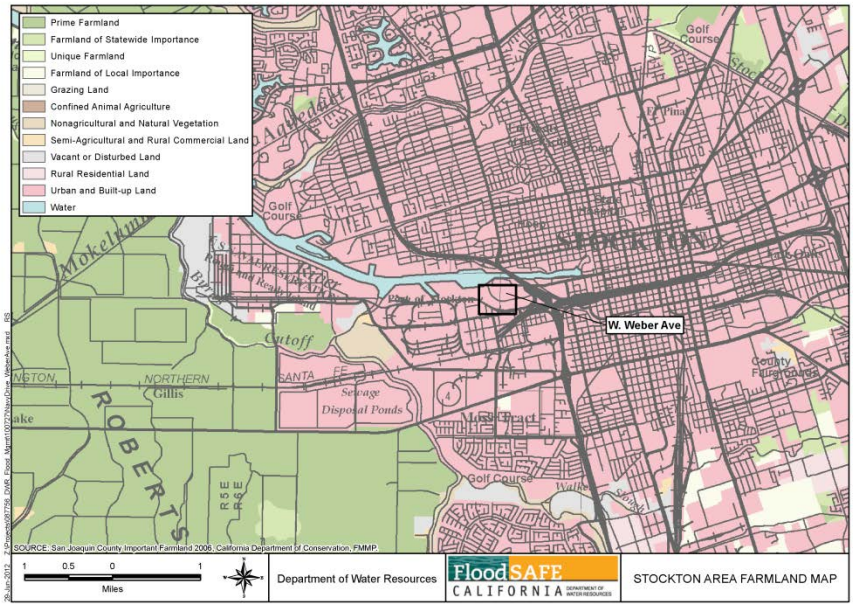


Figure 4-3. Rio Vista Area Farmland Map

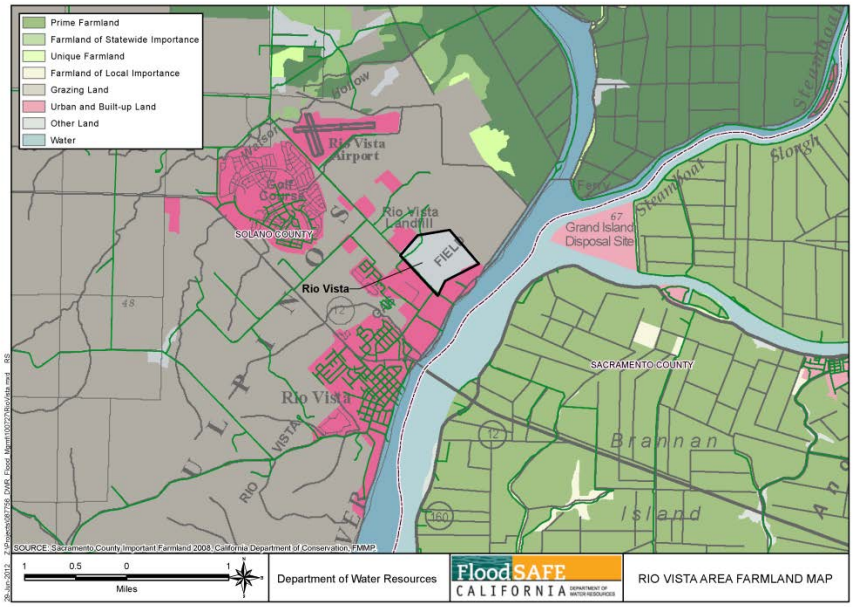
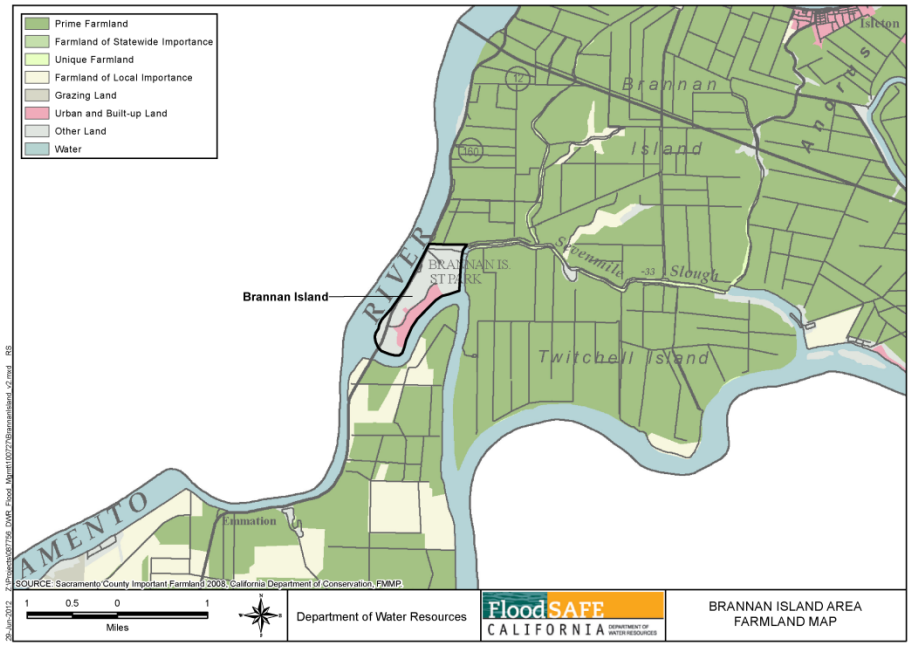


Figure 4-4. Brannan Island Area Farmland Map



4.3.3 Proposed Environmental Mitigation Measures

No significant impacts are anticipated; therefore, no mitigation measures for agriculture or forestry are needed or proposed.

4.4 Biological Resources

This section describes biological resources at the proposed project sites and identifies potential impacts to habitats and species that could result from project activities, including site improvements, emergency operations, and/or routine operations and maintenance. While the proposed project would result in certain potentially significant environmental impacts, those impacts would be reduced to a less than significant level by implementation of mitigation measures that have been agreed to and will be implemented by DWR.

4.4.1 Environmental Setting

4.4.1.1 The Sacramento-San Joaquin Delta

The Delta, as used in this document, refers to the Primary Zone of the Delta, which was established by the State's Delta Protection Act of 1992 to protect the core of the Delta from potential urban and suburban encroachment, and to maintain the quality of the Delta environment by preserving agriculture, wildlife habitat, and recreational areas. Elevations in the Delta range from more than 15 feet below sea level to about 10 feet above sea level, except for the dredged materials spoil sites on Decker Island and Brannan Island, which are up to 40 feet above sea level.

The Delta is predominantly composed of low-lying islands used for agriculture (flooded row and field crops, row and field crops, and ruderal lands), but contains a mixture of natural vegetation and other land cover. Natural land cover includes a large network of levied channels, freshwater and brackish wetlands, tule islands, vernal wetlands, and great valley riparian scrub and forest, with some patches of valley grasslands. Over 50 species of rare plants (including some listed under the California Endangered Species Act [CESA] and federal Endangered Species Act [ESA]) occur within the Delta.

The Delta provides habitat for a large number of fish and wildlife species, including 52 mammal, 22 reptile and amphibian, 225 birds, and 54 fish (DWR, 2007). Natural Delta habitats have been extensively modified for agriculture and water supply. As a result, many of the species that use the Delta (nine mammal, six reptile and amphibian, eight fish, 10 bird, and over 20 invertebrate [DWR, 2007]) are rare, including some listed under the state and federal ESA.

The Delta is especially important for fish species. Delta waterways provide vital fish spawning, rearing, and/or migratory habitat for a diverse assemblage of native and nonnative fish species. Native species can be separated into anadromous (i.e., species that spawn in freshwater after migrating as adults from marine habitat) and resident species. Native anadromous species that occur in the Sacramento River include four runs of Chinook salmon (*Oncorhynchus tshawytscha*), steelhead trout (*Oncorhynchus mykiss*), green and white sturgeon (*Acipenser medirostris* and *A. transmontanus*), and Pacific lamprey (*Lampetra tridentata*). Native resident species include delta smelt (*Hypomesus transpacificus*), longfin smelt (*Spirinchus thaleichthys*), Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento splittail (*Pogonichthys*

macrolepidotus), Sacramento sucker (*Catostomus occidentalis*), and hardhead (*Mylopharodon conocephalus*). Nonnative anadromous species include striped bass (*Morone saxatilis*) and American shad (*Alosa sapidissima*). Nonnative resident species include largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), white and black crappie (*Pomoxis annularis* and *P. nigromaculatus*), channel catfish (*Ictalurus punctatus*), white catfish (*Ameiurus catus*), brown bullhead (*Ictalurus nebulosus*), bluegill (*Lepomis macrochirus*), green sunfish (*Lepomois cyanellus*), and golden shiner (*Notemigonus crysaleucas*).

The use of different Delta waterways by various fish species is influenced by variations in habitat conditions, and by the habitat requirements, life history, and daily and seasonal movements and behavior of each species. Altered flow regimes, flood control, bank protection efforts, and development have reduced available and preferred shaded riverine aquatic (SRA) habitat, and have isolated the channel from its floodplain.

SRA vegetation and instream tree and shrub debris provide important riverine fish habitat. SRA habitat is defined as the near-shore aquatic habitat occurring at the interface between a river and adjacent woody riparian habitat. The principal attributes of this cover type are: (1) an adjacent bank composed of natural, eroding substrates supporting riparian vegetation that either overhang or protrude into the water; and (2) water that contains variable amounts of woody debris, such as leaves, logs, branches, and roots and has variable depths, velocities, and currents. Riparian habitat provides structure (through SRA habitat) and food for fish species. Shade decreases water temperatures, while low overhanging branches can provide sources of food by attracting terrestrial insects. As riparian areas mature, the vegetation sloughs off into the rivers, creating structurally complex habitat that furnishes refugia from predators, creates variable water velocities, and provides habitat for aquatic invertebrates. For these reasons, many fish species are attracted to SRA habitat.

4.4.1.2 Site-Specific Biological Settings

To determine what sensitive species may be present at or near each site, a search was performed using a literature review and the California Natural Diversity Database (CNDDB) Quick Viewer (CNDDB, 2010). This database provides a list of species that have been documented by the CNDDB to occur, both recently and historically, in the selected USGS 7.5' topographic quadrangle. The CNDDB list provided species of concern identified under the federal Endangered Species Act, California Endangered Species Act, California Department of Fish and Game, and California Native Plant Society (CNPS).

Using this CNDDB species list, reviews of literature and other databases were performed to refine our initial list and determine which species were expected to occur at each site (Table 4-6 for the Stockton West Weber site and Table 4-7 for the Rio Vista and Brannan Island sites). For instance, if basic habitat required for a species was not expected to be present at a site (e.g., vernal pools, sand dunes) or a species is endemic to a particular area (e.g., Suisun Marsh), they were removed from the list of potential species. Presence or absence of suitable habitat was confirmed during the site visits. Finally, Calflora (2010) county distribution data were used to determine if plant species had previously been found at or near each site.

Each site was then visited and visually evaluated for the presence of this refined list of special status species and/or their habitats. During site visits, attention was paid to identifying special

status species/habitats in the context of the proposed project activities. For example, species requiring riparian habitat were not considered for a given site if the riparian habitat present was not expected to be impacted by the site improvements, emergency operations, or routine operations and maintenance required for the project as previously discussed. Information gained from site visits was used to further narrow down the refined list of special status species to those that may be potentially impacted by project activities as discussed later in this section.

While not included in the tables below, two beetle species were also considered in this assessment: the Sacramento anthicid beetle (*Anthicus sacramento*) and the Antioch Dunes anthicid beetle (*A. antiochensis*). While neither species is listed under the ESA or CESA, they are both considered global and California species of high concern, with a rank of G1S1 under NatureServe (NatureServe, 2009). The Sacramento anthicid beetle is also on the IUCN Red List as endangered (IUCN, 2010). Both species are listed on California's Special Animals list (DFG, 2009).

Stockton, West Weber Avenue

The Stockton, West Weber Avenue stockpile/barge-loading site is located near the Port of Stockton along the San Joaquin River in San Joaquin County. The site is an infill area within a well-developed urban center with extensive ground disturbance and extensive paving. This site is currently used for storage and light industrial uses in a highly industrialized area. Large portions of the site are covered with concrete and/or gravel. Portions of the site surrounding buildings are not presently developed and are vegetated. This vegetated portion of the property appears to be dominated by ruderal plants growing in heavily compacted, dry soils. A storm water drainage pond is located on the southwest parcel, though it is not connected to the river and is not expected to provide habitat for any special status species. Only a few isolated trees are present at or near this site. Barge-loading would occur along a bulk headed dock on Old Mormon Slough and along the north bank of the property adjoining the Stockton Deep Water Ship Channel, which is entirely armored with rip-rap. Barge loading would not affect the sparse, existing vegetation along the north bank because the conveyors would be supported by small barges moored adjacent to the shoreline. Wildlife use of the site is expected to be minimal given the significantly disturbed environmental setting. Wildlife use is expected to be limited to a few common species such as black rats (*Rattus rattus*), rock pigeon (*Columba livia*), and house sparrow (*Passer domesticus*). Trees in the general vicinity provide potential nesting habitat for tree-nesting raptors such as red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), or red shouldered hawk (*Buteo lineatus*).

The Stockton Deep Water Channel that adjoins the site on the north is characterized by a wide, homogenous channel with little canopy or overhead vegetation and minimal bank cover (i.e., SRA habitat). Many of the fish species in the vicinity of this project site use the San Joaquin River to some degree, even if only as a migratory pathway to and from upstream spawning and rearing areas. The ship channel is also used by certain fish species (e.g., delta smelt) that make little to no use of areas in the upper segment of the San Joaquin River. Special status species that may be potentially on the site are listed in Table 4-6.

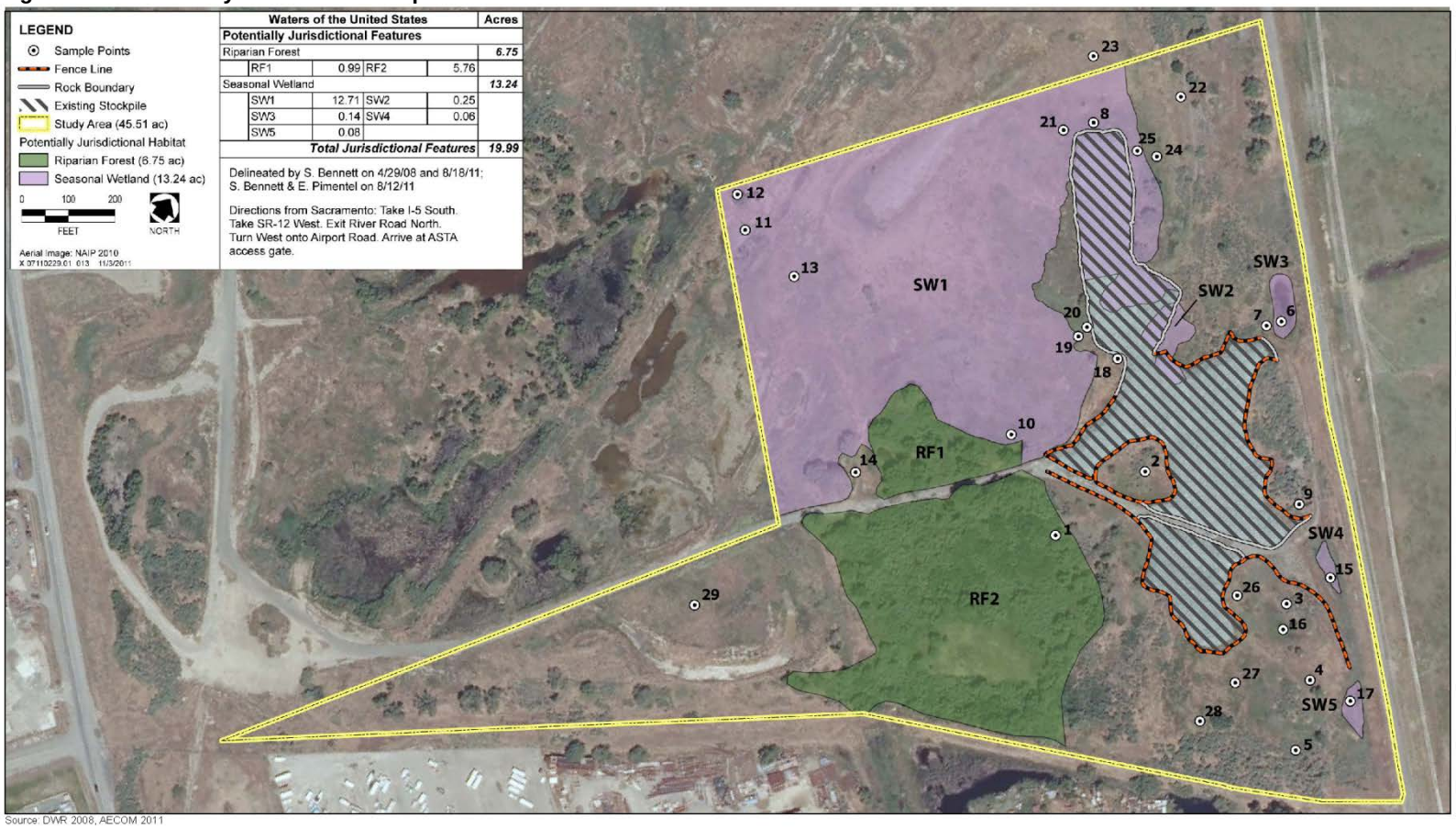
Rio Vista

The Rio Vista site is located on the southernmost 150 acres of a large dredged material disposal site owned by the Sacramento San Joaquin Drainage District and managed by the CVFPB. It consists of silty and sandy dredge spoils that support several types of vegetation. Disturbed ruderal vegetation covers most of the site and is composed of common tarweed (*Hemizonia pugens*), Great Valley gumweed (*Grindelia camporum*), birds-foot trefoil (*Lotus carniculatus*), common knotweed (*Polygonum arenastrum*), prickly lettuce (*Lactuca serriola*), ripgut brome (*Bromus diandrus*), and wild oat. The proposed site improvements will be restricted only to areas of upland ruderal vegetation. Seasonal wetlands and jurisdictional riparian areas also occur at the site as indicated in Figure 4-5. Season wetlands and jurisdictional riparian areas may exist beyond those areas identified in Figure 4-5 including areas to the east in the vicinity where project activities are planned. The wetland areas contain a mix of wetland and ruderal upland plant species, including Himalayan blackberry, curly dock (*Rumex crispus*), seaside heliotrope (*Heliotropium curassavicum*), Bermuda grass (*Cynodon dactylon*), perennial ryegrass (*Lolium perenne*), and salt grass (*Distichlis spictata*). Patches of willow scrub are also present, comprising a mix of tree and shrub species, with narrow-leaved willow (*Salix exigua*) being the most common plant. Willow scrub has an understory of nonnative grasses including ripgut brome and wild oat. Wildlife expected at the Rio Vista site include common species that use disturbed grasslands. Typical examples include western fence lizard (*Sceloporus occidentalis*), western meadowlark (*Sturnella neglecta*), savannah sparrow (*Passerculus sandwichensis*), and black-tailed jackrabbit (*Lepus californicus*). No evidence of use by burrowing mammals was documented at the site.

A riparian forest comprising approximately 6.75 acres lies southwest of the existing rock stockpile. The canopy is dominated by Fremont's cottonwood (*Populus fremontii*), Oregon ash (*Fraxinus latifolia*), Gooding's black willow (*Salix gooddingii*), and valley oak (*Quercus lobata*). Himalayan blackberry (*Rubus discolor*) and California grape (*Vitis californica*) are a prevalent species in the shrub and vine strata, respectively. The understory is dominated by mugwort (*Artemisia douglasiana*), western ragweed (*Ambrosia psilostachya*), and horseweed (*Conyza canadensis*). Topographic depressions in the forest floor are dominated by broadleaved cattail (*Typha latifolia*) (DWR, 2011).

Aquatic habitat in the Sacramento River in the vicinity of Rio Vista is characterized primarily by slow moving glides and pools, is depositional in nature, and has limited water clarity, habitat diversity, and SRA habitat. Similar to the Port of Stockton site, many of the fish species utilizing the Sacramento River in the vicinity of Rio Vista use this lower segment of the river (Delta) to some degree, even if only as a migratory pathway to and from upstream spawning and rearing areas.

Figure 4-5. Potentially Jurisdictional Riparian Forest and Seasonal Wetlands on Portions of Rio Vista Site



Source: DWR 2008, AECOM 2011

Exhibit 3: **Wetland Delineation Map (Revised)**

Rio Vista Rock Stockpile Project
Department of Water Resources

AECOM
Preliminary Delineation

Brannan Island

The Brannan Island site is located within the BISRA. Wildlife use of the site is unknown, but given its location within a State Recreation Area the site supports more wildlife than the more industrialized sites. The entire site is underlain by dredged materials deposited during dredging of the Sacramento River, primarily in the early 1900s through 1950. The site has variable topography, which, except for the shoreline, is well above the 100-year floodplain. The site includes hummocks of vegetated sand and silt, a boat launch area, picnicking and camping areas, roads, trails, restrooms, and utility buildings. The vegetation is primarily ruderal, but trees have been planted throughout the park area. Due to the disturbed nature of the site, the sandy soil, topography and use of the site, the habitat value is still expected to be low, supporting common, tolerant species such as described for the Rio Vista site.

Aquatic habitat in the vicinity of Brannan Island is characterized primarily by slow moving glides and pools, is depositional in nature, and has limited water clarity, habitat diversity, and SRA habitat. However, patches of tules grow in the shallows along the Sacramento River, Threemile Slough, and Sevenmile Slough. Sevenmile Slough offers quiet backwater suitable for western pond turtles. Special status species that may potentially be on the site are listed in Table 4-7.

4.4.1.3 Special Status Species

Special-status species include plants and animals in the following categories:

- Species listed or proposed for listing as threatened or endangered under the ESA or CESA.
- Species considered as candidates for listing as threatened or endangered under the ESA or CESA.
- Species identified by California DFW as California Species of Special Concern.
- Plants listed as endangered or rare under the California Native Plant Protection Act.
- Animals fully protected under the California Fish and Game Code.
- Plants on California Native Plant Society (CNPS) List 1B (plants considered by CNPS to be rare, threatened, or endangered in California and elsewhere) or CNPS List 2 (plants considered by CNPS to be rare, threatened or endangered in California but more common elsewhere). The CNPS lists are used by both DFG and the U.S. Fish and Wildlife Service (USFWS) when considering formal species protection under ESA and CESA.

Special-Status Plants

Over 50 species of rare plants occur within the Delta (DWR, 2007); however, no habitat for special-status plants occurs at the three sites considered in this document. The Rio Vista and BISRA sites are on disturbed dredge spoils, but they do contain ruderal vegetation that would be disturbed by the project. An EDAW botanist evaluated the CNPS (2007) list of species on the

Rio Vista U.S. Geological Survey Quadrangle, and eight surrounding quadrangles (Appendix B) and determined that none of the species was likely to occur in the ruderal grasslands at the Rio Vista site.

Special-Status Wildlife

Overall, the Delta provides habitat for several special-status species, including nine mammal, six reptile and amphibian, 10 birds, and over 20 invertebrate (DWR 2007). Special-status wildlife species documented in the California Natural Diversity Database (CNDDB) (2007) within a 5-mile radius of each site are listed in Appendix C. This appendix also includes species identified on the USFWS (2007) lists of species that could be affected by projects in the U.S. Geological Survey Stockton West, Courtland, and Rio Vista Quadrangles. Species on this list were considered in this evaluation of potential impacts to special-status species. Species with the potential to occur at the sites and be affected as a result of this project are presented in Table 4-6 and 4-7. Species that could occur at any of the project sites are discussed in more detail following the tables.

Sacramento and Antioch Dunes Anthicid Beetles

Sacramento and Antioch Dunes anthicid beetles are not listed as California species of special concern, nor are they listed under ESA or CESA. They are listed by the CNDDB as “extremely endangered” within California since they meet at least one of the following criteria: <6 viable records known; or <1,000 individuals, or <2,000 acres of occupied habitat remain. Life histories of Sacramento and Antioch Dunes anthicid beetles are poorly known. Adults are known to be scavengers of dead insects, and larvae are thought to have a similar diet. The Antioch Dunes anthicid beetle appears more restricted in habitat, using barren sandy soils, while the Sacramento anthicid beetle will use vegetated loose sandy soils and dredge spoils. Vegetation associations of the Sacramento anthicid beetle are poorly known, but they have been captured in loose sand among *Arundo* and willows (DFG 2006). Both species were captured near the Rio Vista site in dredge spoils in 1987 (CNDDB 2007).

Swainson’s Hawk

Swainson’s hawk is State listed as threatened. Historically, Swainson’s hawks nested throughout lowland California. As many as 17,000 Swainson’s hawk pairs may have nested in California at one time (DFG 1994). In 2006, their population in California was estimated to be over 2,000 breeding pairs (Anderson et. al. 2007). Swainson’s hawks typically occur in California only during the breeding season (March through September) and winter in Mexico and South America. The Central Valley population migrates only as far south as Central Mexico. In recent years, a small number of individuals have wintered in the Delta (City of Sacramento 2003). Migrant Swainson’s hawks begin to arrive in the Central Valley in March. Nesting territories are usually established by April, with incubation and rearing of young occurring through June (Estep 1989). Swainson’s hawk is most commonly found in large trees in grasslands, low shrub lands, and agricultural habitats. Nests occur in riparian woodlands, roadside trees, trees along field borders, and isolated trees. Swainson’s hawk could use trees near each of the project sites for nesting.

White-Tailed Kite

The white-tailed kite is a state-listed, fully protected small raptor, which lives in dry grass savannas, meadows, and cultivated land with trees, up to 9,000 feet above sea level. It usually nests in isolated trees in riparian, agricultural, and other open areas, and may use the same tree for several seasons. White-tailed kite could use trees near each of the project sites for nesting.

Special-Status Fish

A total of eight special-status fish species have the potential to occur in the Delta. Of the eight species, green sturgeon, Central Valley steelhead distinct population segment, Sacramento River winter-run Chinook salmon evolutionarily significant unit (ESU), and Central Valley spring-run Chinook salmon ESU are federally listed as endangered or threatened species. Sacramento River winter-run Chinook salmon ESU (endangered) and Central Valley spring-run Chinook salmon ESU (threatened) are also listed under CESA as endangered and threatened, respectively. USFWS delisted the Sacramento splittail from its threatened status on September 22, 2003. The National Marine Fisheries Service (NMFS) determined that listing is not warranted for Central Valley fall–/late fall–run Chinook salmon ESU; however, this species is designated a species of concern by NMFS and species of special concern by DFG because of concerns about specific risk factors. The remaining species (i.e., hardhead and longfin smelt) are considered species of special concern by DFG. Descriptions of the special-status fish species supported by Delta waterways are provided below.

Fall-/Late Fall-Run Chinook Salmon

Adult fall-/late fall-run Chinook salmon enter the Sacramento and San Joaquin River systems from July through April and spawn from October through February. During spawning, the female digs a redd (gravel nest) where she deposits her eggs that then are fertilized by the male. Newly emerged fry remain in shallow, lower-velocity edgewaters, particularly where debris congregates and makes the fish less visible to predators (DFG 1998). Juveniles typically rear in freshwater (in their natal streams, the Sacramento River system, and the Delta) for up to 5 months before entering the ocean. Juveniles migrate downstream during January through June. Important winter habitat for juvenile Chinook salmon include flooded bars, side channels, and overbank areas with relatively low water velocities. Juvenile Chinook salmon have been found to successfully rear in floodplain habitat, which routinely floods but is dry at other times. Growth rates appear to be enhanced by the conditions found in floodplain habitat.

Winter-Run Chinook Salmon

Adult winter-run Chinook salmon leave the ocean and migrate through the Delta into the Sacramento River system from November through July. Salmon migrate upstream past the Red Bluff Diversion Dam (RBDD) on the Sacramento River from mid-December through July, and most of the spawning population has passed RBDD by late June. Winter-run Chinook salmon spawn from mid-April through August, and incubation continues through October. The primary spawning grounds in the Sacramento River are above RBDD. Juvenile winter-run Chinook salmon rear and emigrate in the Sacramento River from July through March (Hallock and Fisher 1985). Juveniles descending the Sacramento River above RBDD from August through October and possibly November are mostly pre-smolts (smolts are juveniles that are physiologically ready to enter seawater) and probably rear in the Sacramento River below RBDD. Winter-run

salmon smolts may migrate through the Delta and bay to the ocean from December through as late as May (Stevens 1989). The Sacramento River channel is the main migration route through the Delta.

Spring-Run Chinook Salmon

Spring-run Chinook salmon historically were the second most abundant run of Central Valley Chinook salmon (Fisher 1994). Current surveys indicate that remnant, non-sustaining spring-run Chinook salmon populations may be found in Cottonwood, Battle, Antelope, and Big Chico Creeks (DWR 1997). The Feather River Fish Hatchery sustains the spring-run population on the Feather River, but the genetic integrity of that run is questionable (DWR 1997). Historical records indicate that adult spring-run Chinook salmon enter the mainstem Sacramento River in February and March and continue to their spawning streams, where they then hold in deep, cold pools until they spawn. Spawning occurs in gravel beds in late August through October, and emergence takes place in March and April. Spring-run Chinook salmon appear to emigrate at two different life stages: fry and yearlings. Fry move between February and June, while the yearling spring-run immigrate October to March, peaking in November (Cramer and Demko 1997). Juvenile spring-run Chinook salmon may leave their natal streams as fry soon after emergence or rear for several months to a year before migrating as smolts or yearlings (Yoshiyama et al. 1998).

Steelhead

The upstream migration of adult steelhead in the mainstem Sacramento River historically started in July, peaked in September, and continued through February or March. Central Valley steelhead spawn mainly from January through March, but spawning has been reported from late December through April (McEwan and Jackson 1996). During spawning, the female digs a redd (gravel nest) where she deposits her eggs, which are then fertilized by the male. Steelhead fry usually emerge from the gravel 2 to 8 weeks after hatching, between February and May, sometimes extending into June (Barnhart 1986, Reynolds et al. 1993). Newly emerged steelhead fry move to shallow, protected areas along stream banks, but move to faster, deeper areas of the river as they grow. Juvenile steelhead rear throughout the year and may spend from one to three years in freshwater before immigrating to the ocean. Smoltification, the physiological adaptation that juvenile salmonids undergo to tolerate saline waters, occurs in juveniles as they begin their downstream migration. Smolting steelhead generally emigrate from March to June (Barnhart 1986, Reynolds et al. 1993).

Green Sturgeon

Green sturgeon has recently been listed as threatened by NMFS (71 Federal Register [FR] 17757, April 7, 2006). Green sturgeon are found in the lower reaches of large rivers, including the Sacramento–San Joaquin River basin, and in the Eel, Mad, Klamath, and Smith Rivers. Green sturgeon adults and juveniles are found throughout the upper Sacramento River, as indicated by observations incidental to winter-run Chinook monitoring at the RBDD in Tehama County (NMFS 2005). Green sturgeon spawn predominantly in the upper Sacramento River. They are thought to spawn every 3 to 5 years (Tracy, 1990). Their spawning period is March to July, with a peak in mid-April to mid-June (Moyle et al., 1992). Juveniles inhabit the estuary until they are approximately 4 to 6 years old, when they migrate to the ocean (Kohlhorst et al.,

1991). Green sturgeon is found primarily in the Sacramento River, occasionally in the Feather River, and is unlikely to enter smaller tributaries to these rivers.

Delta Smelt

Delta smelt occur in the Sacramento-San Joaquin Delta where, for most of the year, they are typically associated with the freshwater edge of the saltwater/freshwater mixing zone, in the portion of the water column that has relatively low water velocities. The species moves inland to areas of flooded terrestrial vegetation for spawning. Spawning season varies from year to year and may occur from February to July, but mainly from April through May (Moyle 2002). The nearest known spawning area for this species is in the Yolo Bypass, to the west of the project study area. Delta smelt were federally listed as a threatened species in March 1993 (58 FR 12854). Critical habitat for the species was designated in December 1994 and includes the Delta and Sacramento River up to the city of Sacramento (59 FR 65256). Delta smelt are tolerant of a wide range of salinity and typically rear in shallow, fresh, or slightly brackish waters of the estuary.

Longfin Smelt

Longfin smelt is a state and federal Species of Concern. Distribution of longfin smelt is centered in the west Delta, Suisun Bay, and San Pablo Bay. In wet years, longfin smelt are distributed more toward San Pablo Bay and in dry years more toward the west Delta. Peak spawning occurs between February and April in upper Suisun Bay and the lower and middle Delta (Moyle et al. 1995). Spawning rarely occurs upstream of Medford Island in the San Joaquin River and Rio Vista on the Sacramento River. Spawning occurs in freshwater primarily from January through April in upper Suisun Bay and in the Delta. The eggs are adhesive and are deposited on rocks or aquatic plants. Larval abundance in the Bay-Delta estuary peaks from February to April. Larvae and juveniles generally move downstream and rear in Suisun and San Pablo Bays (Moyle et al. 1995). Larval longfin smelt generally are collected below Medford Island in the San Joaquin River and below Rio Vista on the Sacramento River, indicating that spawning rarely occurs above these locations (Moyle et al. 1995).

Sacramento Splittail

Recent data indicate that Sacramento splittail occur in the Sacramento River as far upstream as RBDD (Sommer et al. 1997) and that some adults spend the summer in the mainstem Sacramento River rather than returning to the estuary (Baxter 1999). Sacramento splittail spawn over flooded terrestrial or aquatic vegetation (Moyle 2002, Wang 1986). Sacramento splittail spawn in early March and May in lower reaches of the Sacramento River (Moyle et al. 1995). Spawning has been observed to occur as early as January and to continue through July (Wang 1986). Larval splittail are commonly found in the shallow, vegetated areas where spawning occurs. Larvae eventually move into deeper, open-water habitats as they grow and become juvenile. During late winter and spring, young-of-year juvenile splittail (i.e., those less than one year old) are found in floodplain habitat, sloughs, rivers, and Delta channels near spawning habitat. Juvenile splittail gradually move from shallow, near-shore habitats to the deeper, open water habitats of Suisun and San Pablo Bays (Wang 1986). In 1999, after four years of candidate status, the splittail was listed as threatened under the ESA (64 FR 25, March 10, 1999). On September 22, 2003, USFWS delisted splittail as a threatened species, indicating that habitat restoration actions implemented through the CALFED Bay-Delta Program and the Central

Valley Project Improvement Act are likely to keep the splittail from becoming endangered in the foreseeable future (68 FR 55139, September 22, 2003).

Hardhead

Hardhead are widely distributed throughout the low- to mid-elevation streams in the main Sacramento–San Joaquin drainage, including the Sacramento River system. Undisturbed portions of larger streams at low to middle elevations are preferred by hardhead. Hardhead are able to withstand summer water temperatures above 20ºC; however, they will select lower temperatures when they are available. Hardhead are fairly intolerant of low oxygenated waters, particularly at higher water temperatures. Pools with sand-gravel substrates and slow water velocities are the preferred habitat; adult fish inhabit the lower half of the water column, while the juvenile fish remain in the shallow water closer to the stream edges. Hardhead typically feed on small invertebrates and aquatic plants at the bottom of quiet water (Moyle 2002). Hardhead is a state species of special concern.

San Joaquin Roach

California roach are distributed throughout the state; however, there is a specific subspecies found in the San Joaquin River drainage. California roach occupy small, warm streams with intermittent flow in mid-elevation foothills. Dense populations often occur in isolated pools. They are tolerant of high temperatures (30 degrees Celsius [ºC] to 35ºC) and low oxygen levels, although they also can be found in cold, well-oxygenated systems; human-modified habitats; and the main channels of larger rivers (Moyle, 2002). The subspecies found in the San Joaquin River system, including the Stockton Deep Water Channel, is a California species of special concern.

4.4.1.4 Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies, or that are afforded specific consideration through CEQA, Section 1600 of the California Fish and Game Code, and/or Section 404 of the federal Clean Water Act (CWA). The seasonal wetland habitat at the Rio Vista site may be protected under Section 404 of CWA; aquatic habitat at each of the loading sites may also be regulated under Section 404 of CWA. For the purpose of this analysis, both are considered sensitive habitats. Other sensitive habitats in the Delta include, but are not limited to, riverine and riparian habitat, and freshwater, brackish, and salt marsh.

Table 4-6. Special-Status Species Considered at the Stockton West Weber Avenue Site

Highlighted rows indicate refined list of species potentially occurring at site.

Site	Group	Common Name	Scientific Name	Status	Comments
Navy Drive, W. Weber Avenue	Birds	Swainson's Hawk	*Buteo swainsoni*	CT	Need tall mature trees for nesting; prefer to hunt near hay fields
		White-tailed Kite	*Elanus leucurus*	CFP	Nest in oak woodlands or marsh edge trees; hunt in open areas
		Burrowing Owl	*Athene cunicularia*	CSSC	Require burrows; found in grasslands, deserts, and scrublands with low-growing vegetation
		California Black Rail	*Laterallus jamaicensis coturniculus*	CT, CFP	Occupy saltwater, brackish, and freshwater marsh; prefer dense cover
		Song Sparrow	*Melospiza melodia*	CSSC	Modesto population; prefer emergent freshwater marshes with *Scirpus*, cattails, willows, blackberries
		Tricolored Blackbird	*Agelaius tricolor*	CSSC	Nest near water; foraging habitat natural grassland, woodland, or agricultural cropland
	Reptiles / Amphibians	California tiger salamander	*Ambystoma californiense*	FT, CC, CSSC	Require vernal pools, ponds, or intermittent streams for breeding; estivate in animal burrows
		Western pond turtle	*Actinemys marmorata*	CSSC	Occupy ponds, marshes, streams, ditches
		Giant garter snake	*Thamnophis gigas*	FT, CT	Occupy marshes, sloughs, drainages, canals, ditches, slow-moving creeks
	Inverte-brates	Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	Associated with elderberry bushes
		Vernal pool tadpole shrimp	*Lepidurus packardi*	FE	Require vernal pools
	Plants	Palmate-bracted bird's-beak	*Cordylanthus palmatus*	FE, CE	Occupy seasonally flooded, saline-alkali soils in lowland plains and basins, edges of channels and drainages; occasionally found in seasonally wet depressions and grassy areas; reported near site by Calflora
		San Joaquin spearscale	*Atriplex joaquiniana*	CNPS 1B.2	Occupy alkali grasslands; reported near site by Calflora
		Alkali milk-vetch	*Astragalus tener* var. *tener*	CNPS 1B.2	Occupy playas, vernal pools, wetlands, riparian areas; reported near site by Calflora
		Delta tule pea	*Lathyrus jepsonii* var. *jepsonii*	CNPS 1B.2	Occupy freshwater marshes and tidal river banks; reported near site by Calflora
		Round-leaved filaree	*California macrophylla*	CNPS 1B.1	Occupy grasslands; reported near site by Calflora
		Woolly rose-mallow	*Hibiscus lasiocarpos* var. *occidentalis*	CNPS 2.2	Occupy freshwater wetlands and riparian areas; reported near site by Calflora
		Suisun Marsh aster	*Symphyotrichum lentum*	CNPS 1B.2	Occupy Suisun region; not reported in San Joaquin County by Calflora
		Delta mudwort	*Limosella subulata*	CNPS 2.1	Occupy banks and flats surrounded by freshwater wetlands and riparian scrub areas; not reported in San Joaquin County by

					Calflora
		Bristly sedge	*Carex comosa*	CNPS 2.1	Occupy freshwater wetlands and riparian areas; reported near site by Calflora
		Mason's lilaeopsis	*Lilaeopsis masonii*	CR, CNPS 1B.1	Occupy tidal zones, mud banks, banks of sloughs and rivers; reported near site by Calflora
		Big tarplant	*Blepharizonia plumosa*	CNPS 1B.1	Occupy valley grassland, foothill woodland, chaparral; reported near site by Calflora
		Heartscale	*Atriplex cordulata*	CNPS 1B.2	Occupy valley grassland, wetland-riparian; reported near site by Calflora
		Watershield	*Brasenia schreberi*	CNPS 2.3	Occupy wetland/riparian areas; reported near site by Calflora
		Side-flowering skullcap	*Scutellaria lateriflora*	CNPS 2.2	Occupy freshwater wetlands, freshwater marsh, meadows; not reported near site by Calflora
		Sanford's arrowhead	*Sagittaria sanfordii*	CNPS 1B.2	Occupy freshwater marshes and riparian areas; not reported near site by Calflora
	Fish	Delta smelt	*Hypomesus transpacificus*	FT, CE	Generally occupy brackish waters
		Chinook salmon	*Oncorhynchus tshawytscha*	T, E, CSSC	Site is within range of "Central Valley Fall-run, Late Fall-run, Winter run, and Spring-run Evolutionarily Significant Unit"
		Steelhead	*Oncorhynchus mykiss irideus*	FT	Site is within range of "Central Valley, California Steelhead Evolutionarily Significant Unit"
		Green Sturgeon	*Acipenser medirostris*	T	Requires cold, freshwater streams with suitable gravel for spawning, occurs in Delta and tributaries
		Longfin smelt	*Spirinchus thaleichthys*	CSSC	Spawns in tidally influenced freshwater wetlands and seasonally inundated uplands, occurs in Delta and tributaries
		Sacramento splittail	*Pogonichthys macrolepidotus*	CSSC	Spawning and rearing in shallow weedy areas inundated in seasonal flooding, lower Sacramento River and bypasses, occurs in Delta and tributaries
		Hardhead	*Mylopharodon conocephalus*	CSSC	Spawning in pools and side pools of rivers and creeks, juvenile rearing in same areas as well as shallow to deeper waters of lakes, occurs in the Delta and tributaries
		San Joaquin Roach	*Lavinia symmetricus sp.*	CSSC	Spawning in pools and side pools of small rivers and creeks, juvenile rearing in pools of small rivers and creeks, occurs in the Delta and tributaries

Status Codes:

CC California Endangered Candidate
CE California Endangered
CFP California DFG Fully Protected
CSSC California DFG Species of Special Concern
CT California Threatened
FE Federal Endangered
FT Federal Threatened
CNPS California Native Plant Society
CNPS 1B Rare, threatened, or endangered in California and elsewhere
CNPS 2 Rare, threatened, or endangered in California but more common elsewhere
0.1 Seriously threatened
0.2 Fairly threatened

Table 4-7. Special-Status Species Considered at the Rio Vista and Brannan Island Sites

Highlighted rows indicate refined list of species potentially occurring at site.

Sites	Group	Common Name	Scientific Name	Status	Comments
Rio Vista and Brannan Island	Birds	Swainson's Hawk	*Buteo swainsoni*	CT	Need tall mature trees for nesting; prefer to hunt near hay fields
		California Black Rail	*Laterallus jamaicensis coturniculus*	CT, CFP	Occupy saltwater, brackish, and freshwater marsh; prefer dense cover
		Song Sparrow	*Melospiza melodia*	CSSC	Modesto population; prefer emergent freshwater marshes with *Scirpus*, cattails, willows, blackberries
		Burrowing Owl	*Athene cunicularia*	CSSC	Require burrows; found in grasslands, deserts, and scrublands with low-growing vegetation
		Bank Swallow	*Riparia riparia*	CT	Occupy riparian areas; build nests on river banks, cliffs, sand/gravel pits and mounds
	Mammals	Western red bat	*Lasiurus blossevillii*	CSSC	Primarily roost in mature tree stands
	Reptiles / Amphibians	Giant garter snake	*Thamnophis gigas*	FT, CT	Occupy marshes, sloughs, drainages, canals, ditches, slow-moving creeks
		Western pond turtle	*Actinemys marmorata*	CSSC	Occupy ponds, marshes, streams, ditches
		Silvery legless lizard	*Anniella pulchra pulchra*	CSSC	Moisture essential; prefer warm, loose soil with plant cover
	Invertebrates	Sacramento Anthicid beetle	*Anthicus sacramento*	CNPS	Interior sand dunes and sand bars; reported in association with Arundo and willow, but vegetation associations are unclear. Could occur at Rio Vista and Brannal Island sites; species was trapped nearby in 1987
		Antioch Dunes Anthicid beetle	*Anthicus anthiochensis*	CNPS	Bare, unvegetated interior sand dunes and sand bars; Could occur at Rio Vista site; species was trapped nearby in 1987
		Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	Associated with elderberry bushes
	Plants	Mason's lilaeopsis	*Lilaeopsis masonii*	CR, CNPS 1B.1	Occupy tidal zones, mud banks, banks of sloughs and rivers; reported near site by Calflora
		Carquinez goldenbush	*Isocoma arguta*	CNPS 1B.1	Occupy Suisun region; alkali seasonal wetlands, grasslands; not reported near site by Calflora
		Suisun Marsh aster	*Symphyotrichum lentum*	CNPS 1B.2	Occupy Suisun region; not reported near site by Calflora
		Delta tule pea	*Lathyrus jepsonii* var. *jepsonii*	CNPS 1B.2	Occupy freshwater marshes and tidal river banks; not reported near site by Calflora
		Side-flowering skullcap	*Scutellaria lateriflora*	CNPS 2.2	Occupy freshwater wetlands, freshwater marsh, meadows; not reported near site by Calflora
		Woolly rose-mallow	*Hibiscus lasiocarpos* var. *occidentalis*	CNPS 2.2	Occupy freshwater wetlands and riparian areas; not reported near site by Calflora

		Antioch Dunes evening-primrose	*Oenothera deltoids* ssp. *howellii*	FE, CE, CNPS 1B.1	Inhabit sand dune habitat
		Soft bird's-beak	*Cordylanthus mollis* ssp. *mollis*	FE, CR, CNPS 1B.2	Occupy coastal saltmarsh and wetland riparian areas; not reported near site by Calflora
		Delta mudwort	*Limosella subulata*	CNPS 2.1	Occupy freshwater wetlands and riparian areas; not reported near site by Calflora
		Eel-grass pondweed	*Potamogeton zosteriformis*	CNPS 2.2	Occupy riparian areas with still or slow water; not reported near site by Calflora
	Fish	Delta smelt	*Hypomesus transpacificus*	FT, CE	Generally occupy brackish waters
		Chinook salmon	*Oncorhynchus tshawytscha*	T, E, CSSC	Site is within range of "Central Valley Fall-run, Late Fall-run, Winter run, and Spring-run Evolutionarily Significant Unit"
		Steelhead	*Oncorhynchus mykiss irideus*	FT	Site is within range of "Central Valley, California Steelhead Evolutionarily Significant Unit"
		Green Sturgeon	*Acipenser medirostris*	T	Requires cold, freshwater streams with suitable gravel for spawning, occurs in Delta and tributaries
		Longfin smelt	*Spirinchus thaleichthys*	CSSC	Spawns in tidally influenced freshwater wetlands and seasonally inundated uplands, occurs in Delta and tributaries
		Sacramento splittail	*Pogonichthys macrolepidotus*	CSSC	Spawning and rearing in shallow weedy areas inundated in seasonal flooding, lower Sacramento River and bypasses, occurs in Delta and tributaries
		Hardhead	*Mylopharodon conocephalus*	CSSC	Spawning in pools and side pools of rivers and creeks, juvenile rearing in same areas as well as shallow to deeper waters of lakes, occurs in the Delta and tributaries
		San Joaquin Roach	*Lavinia symmetricus sp.*	CSSC	Spawning in pools and side pools of small rivers and creeks, juvenile rearing in pools of small rivers and creeks, occurs in the Delta and tributaries

Status Codes:

CE	California Endangered	FE	Federal Endangered	CNPS	California Native Plant Society
CFP	California DFG Fully Protected	FT	Federal Threatened	CNPS 1B	Rare, threatened, or endangered in California and elsewhere
CR	California Rare			CNPS 2	Rare, threatened, or endangered in California but more common elsewhere
CSSC	California DFG Species of Special Concern			.1	Seriously threatened
CT	California Threatened			.2	Fairly threatened

4.4.2 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Biological Resources – Would the Project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?

Special Status Birds
The majority of sites visited have habitat suitable for several special status birds.

At the Stockton sites evaluated (West Weber Avenue, Navy Drive, and North Shore); a limited number of various upland and riparian trees for nesting Swainson's hawks, tricolored blackbirds, California black rails, song sparrows, and white-tailed kites are present. Some of these species prefer to forage in open areas, which are also available at the Stockton sites. Habitat for burrowing owls is limited at the Stockton, West Weber Avenue site since significant areas are paved or covered with gravel. In addition, a "burrow survey" of the site conducted in 2000 found no ground squirrel burrows in the project site or buffer area, ruling out the likelihood of burrowing owls (Moore Biological Consultants, 2000).

At the Rio Vista Site the vegetation includes clumps of willows, cottonwoods, and other woody vegetation, seasonal wetlands, and sandy hummocks colonized by ruderal vegetation. This mix of vegetation could provide nesting and foraging habitat for Swainson's hawks, tricolored blackbirds, California black rails, song sparrows, and white-tailed kites. In addition, burrowing owls cannot be ruled out. Nearby along the Sacramento River are large trees that could provide suitable Swainson's hawk habitat.

At the Brannan Island site, trees that could potentially be used by nesting Swainson's hawks are present along the perimeter. The hummocks of silt and sand that characterize the southern portion of the site may provide suitable habitat for rabbits and other small mammals, and may provide burrowing owl habitat.

Project activities are not expected to include the removal of any tree at any site; therefore, **no impacts** to special status birds associated with habitat destruction are expected. However, where project activities do require vegetated portions of sites to be developed (i.e., cleared and either paved or covered with gravel), habitat modifications for burrowing owls may result in a **potentially significant impact subject to mitigation** *if* burrowing owls are found to occupy the sites. The habitat in the area of the Brannan Island site potentially used by burrowing owls will possibly have to be cleared. The proposed project activities could disturb this species, resulting in a **potentially significant impact subject to mitigation** *if* burrowing owls are found to occupy this site. In addition, riparian/wetland vegetation suitable for bird nesting exists in portions of the Brannan Island site; these portions of the site will not be altered. Mitigation measures to reduce potential impacts are discussed in Section 4.4.3.

Site improvements at selected sites would occur during the summer construction period, April through October, which coincides with the nesting season for some special status birds. The operation of heavy equipment during site preparation and stockpiling of the materials could result in nest abandonment due to disturbance. Any such nest failure would be considered a **potentially significant impact and subject to mitigation measures** proposed

in Section 4.4.3**.** Emergency use of the stockpiled materials could also result in nest failure; however, these activities would be conducted under an emergency order and potential impacts would need to be mitigated and documented under that order.

Special Status Reptiles/Amphibians
Suitable habitat for special status reptiles and amphibians is not found on most of the proposed project sites. Potential habitat for the giant garter snake and western pond turtle exists on all of the sites; however, proposed project activities will not significantly disturb the habitat potentially used by these species.

At the Brannan Island site, with the exception of potentially driving up to six pilings or six H-beams above the ordinary high water line (OHWL) to anchor temporary barging facilities (two piles or two H-beams each for three separate barge facilities), the primary project activities are expected to occur only on uplands or developed areas, and accordingly, would not affect the habitat potentially used by the western pond turtle and the giant garter snake.

Although highly disturbed, the Stockton, West Weber Avenue site may offer limited suitable habitat for the giant garter snake and western pond turtle along the shoreline. Similar to the Brannan Island Site, DWR may potentially drive up to six pilings or six H-beams above the ordinary high water line (OHWL) to anchor temporary barging facilities (two piles or two H-beams each for three separate barge facilities). However, the primary project activities at the Stockton sites are also expected to occur only on the uplands or developed areas, and accordingly, will not significantly impact the vegetated riparian area, so these species will not be affected by the project.

The sandy dredged materials and mixed vegetation at the Rio Vista Site provide suitable habitat for the western fence lizard. Seasonal wetlands provide suitable habitat for the western pond turtle and amphibians.

The silvery legless lizard may potentially occur in the vicinity of the Brannan Island site, but the site itself does not contain suitable habitat for this species since the soils are compacted and primarily paved or graveled. The range of the silvery legless lizard extends southward of the southern bank of the San Joaquin River. The lizard requires moist, soft sand or soil, unlike the dry compact fill in the project area.

The California tiger salamander is not expected to be found on any of the project sites because suitable habitat was not observed; therefore, this species will not be impacted by the project.

Based on the above, the proposed project could result in a **potentially significant impact subject to mitigation with** measures proposed in Section 4.4.3**.**

Special Status Mammals
Special status mammals, including the western red bat and the salt marsh harvest mouse, are not expected to be directly impacted by project activities. The western red bat requires mature forest stands and/or thick cover, and trees are only present in limited numbers at each of the sites. Project activities are not expected to include the removal of any tree at any site or disturbance of riparian habitat.

Anticipated construction work would occur primarily during daylight hours, from 7:00 AM to 7:00 PM during the construction season. It is difficult to determine to what extent the project could potentially affect the western red bat during roosting if no trees are disturbed. The operation of heavy equipment during delivery and storage of the materials could result in site abandonment due to disturbance. Any such site abandonment would be considered a **potentially significant impact and subject to mitigation measures** *if* the western red bat is found to be present.

Emergency use of transfer sites, including the excavation of stored materials could also result in disturbance; however, these activities would be conducted under an emergency order and potential impacts would need to be mitigated and documented under that order.

Special Status Invertebrates

The preferred habitat of the Antioch Dunes anthicid beetle and the Sacramento anthicid beetle is interior sand dunes or sand bars. The Antioch Dunes anthicid beetle prefers bare, unvegetated sand, while the Sacramento anthicid beetle will utilize areas with some vegetative cover (DFG, 2009). The Sacramento anthicid beetle will also utilize dredge spoil heaps. Because none of these habitat types are found at any of the study sites, it is expected that the proposed activities will not affect either species.

Special Status Plants

The majority of special status plants with the potential to be present at project sites are associated with riparian areas. However, riparian areas are not expected to be impacted by project activities and therefore these species will not be affected. Special status plants associated with non-riparian habitat (i.e., grasslands, woodlands) are not likely to be affected by project activities at any of the sites. Current site conditions at all sites indicate that they are considerably disturbed and vegetation is ruderal. The presence of special status plants is unlikely given the disturbed nature of even the vegetated portions of most of these sites; rather, most vegetation is ruderal. The Rio Vista site, although used as a dredged disposal area in the past, has partially re-vegetated. Proposed road improvements would not require the removal of any trees or special status plant species. Therefore, the proposed project will have a **less than significant impact** on special status plants.

Special Status Fish

Among the barge-loading sites, Delta smelt have been observed near the Brannan Island site. Seasonal use by Chinook salmon and steelhead may also occur at the Brannan Island site. However, other than barge activity during emergency operations, no in-water work will be conducted at any of the sites. The Stockton, Weber Avenue site is within the range for Delta smelt and steelhead, and may be used by migrating Chinook salmon as well. Beyond those present at barge-loading facilities, fish occupying waterways connecting these sites to the levee breach areas may also be subject to impacts from barge activity and any in-water work required to repair the levees. In both of these cases, the timing and scale of activities is impossible to predict and impacts to these special status fish are too speculative to quantify.

Any water-side work would be limited to placing piles above the ordinary high water mark (OHWM) to serve as temporary mooring anchors for barges as they are loaded with rock. Any pile driving would be scheduled to avoid periods of potentially significant impacts upon

sensitive species; therefore, the potential for impact to special status fish is **less than significant**.

Special status fish are also known to occupy the Delta waterways surrounding and connecting the sites to areas where levee breaches are likely. However, as previously mentioned, the timing and scale of these activities are unknown and the nature of potential impacts too speculative to discuss further. Since all in-water work will be conducted under an emergency order, potential impacts will be mitigated and documented under that order.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?

Project activities are not expected to have any impacts on riparian habitat at any of the sites, although riparian habitat is present or nearby. No new docks or bulkheads will be installed where they do not presently exist, only steel pilings or H-beams would be installed at or near the top of bank above the OHWM were temporary barges would be established. In addition, impacts on any other sensitive natural communities are not expected due to project activities. Work is generally limited to upland sites in highly industrialized areas with little to no native vegetation present. However, it is possible that an isolated steel piling or portions of improved roads adjacent to riparian habitat or other sensitive natural communities could result in a **potentially significant impact subject to mitigation** for riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.

Based on the above, the proposed project could result in a **potentially significant impact subject to mitigation with** measures proposed in Section 4.4.3**.**

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Wetlands have been identified on the Rio Vista site and are present along the shorelines adjacent to Brannan Island State Recreation Area (BISRA) and the Stockton West Weber sites. Permanent wetlands also exist along the shorelines of the BISRA and the Stockton West Weber sites, but they will be fully avoided as no work is planned below the Ordinary High Water Mark (OHWM) at the BISRA and Stockton West Weber sites. To accommodate up to three temporary mooring facilities along the Stockton Deep Water Ship Channel at the Stockton West Weber Site and up to three temporary mooring facilities along Threemile Slough at the BISRA site, up to three pairs of pilings or H-beams will be driven into the top of banks, above the OHWM, at each of the noted project sites for a project total of up to 12 piles or H-beams, all located above the OHWM. No new permanent mooring facilities will be installed below the OHWM at any of the noted sites.

Figure 4-5 shows the delineation of seasonal wetlands and jurisdictional riparian habitat previously identified at the Rio Vista site in connection with previous actions associated with the 2007-2008 DWR Delta Emergency Rock and Transfer Facilities Project. The subject delineation of seasonal wetlands and jurisdictional riparian habitat unfortunately does cover the entire southwest portion of the site considered for improvement, including the area for the planned access ramp off of Airport road, the areas planned for stockpiling of sand material, nor the areas planned for parking and a helipad. To ensure full avoidance of wetlands at the subject Rio Vista facility, DWR proposes to conduct pre-design seasonal and permanent wetland and riparian habitat surveys and delineate said areas as "off limits" for project related activities.

Project actions could result in a **potentially significant impact subject to mitigation** for the protection of federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. Thus, DWR is implementing Mitigation Measure BIO-5 to fully avoid disturbance of any jurisdictional seasonal and permanent wetlands at all three sites.

Based on the above, the proposed project could result in a **potentially significant impact subject to mitigation with** measures proposed in Section 4.4.3**.**

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Project activities are not expected to interfere significantly with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Upland sites are dominated by common wildlife species and impacts to sensitive species will be avoided per the mitigation measures discussed below. Native and non-native migratory fish species are present in the Delta and surrounding waterways; however, the emergency deployment of barges and repair of breached levees are expected to have **less than significant** impacts on the movement of these species.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Please refer to the discussion below in f).

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The proposed project would not conflict with any adopted Habitat Conservation Plan, Natural Communities Conservation Plan; other approved local, regional, or state habitat conservation plans or General Plans, or local policies or ordinances.

All of the alternative sites fall within the study area of the Bay-Delta Conservation Plan (BDCP), which is designed to promote recovery of species of special concern and their habitats, and also protect and restore water supplies. Barge-loading activities will occur at sites with current or past barge use and existing riparian zones will not be impacted by activities; thus, the proposed activities do not conflict with the BDCP. In addition, degradation of water quality at the barge loading sites would be minimal or avoided (see section 3.9 "Hydrology and Water Quality"). Thus, the impact of the proposed activities would be **not significant.**

The Stockton, West Weber Avenue site is within the geographic area covered by the San Joaquin County Multi-species Habitat Conservation and Open Space Plan (SJMSCP). This plan is designed to balance open space conservation and conversion of open space to non-open space, while protecting agricultural uses, property rights, and long-term management of plants, fish, and wildlife. The site has previously been used for industrial purposes and thus does not qualify as "open space." Given the small area of the Stockton, West Weber Avenue site, and the lack of connectivity to other open space due to the industrial conditions surrounding the site, the impacts of the proposed activities would be **not significant.**

4.4.3 Proposed Environmental Mitigation Measures

Mitigation Measure BIO-1: Conduct Burrowing Owl Surveys at all Three of the Project Sites Prior to Development.

Prior to any land clearing operations, a burrowing owl survey following standard guidelines (The California Burrowing Owl Consortium, CBOC, 1993) shall be conducted by a qualified biologist. The survey shall entail walking throughout the entire site, including a 500-foot buffer, to identify adjacent suitable habitat that could be affected by noise and vibration from heavy equipment operation. If no burrows are observed, no impact is expected and results of the survey shall be submitted to the California Department of Fish and Wildlife (DFW). If burrows or owls are observed, a nesting season (15 April – 15 July) survey shall also be conducted, the results of which shall determine whether a winter survey will be further required or whether the results of the survey can be submitted to the DFW following the nesting survey. If the surveys confirm occupied burrowing owl habitat, the Incidental Take Minimization Measure for Burrowing Owls (Measure 5.2.4.15) in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (November 14, 2000) will be implemented.

Mitigation Measure BIO-2: Retain all Mature Trees on the Proposed Project Sites.

Mature trees that are potential nest trees and native oak trees greater than 8"dbh will not be removed from any of the project sites. If a nest tree becomes occupied during stockpiling and site development activities, then depending upon the bird species involved, appropriate monitoring and mitigation measures as specified by the (DFW) will be instituted. At a minimum, all construction activities shall remain a distance of at least two times the drip line radius of active nest trees, as measured from the nest.

Mitigation Measure BIO-3: Conduct Special Status Surveys.

DWR will consult with DFW prior to project construction to determine the extent for pre-construction sensitive species survey on the proposed project sites. For those sites determined for specific surveys, a qualified biologist shall conduct the sensitive species survey on the sites and within buffer areas of the sites. Special status bird species that could potentially nest in trees in or near the project area include Swainson's hawk, tricolored blackbird, white-tailed kite, double-crested cormorant, California black rail, saltmarsh common yellowthroat, song sparrow, Cooper's hawk, ferruginous hawk, merlin, yellow-headed blackbird, and western yellow-billed cuckoo. Potential habitat for special status reptiles/amphibians including the giant garter snake (GGS) and the western pond turtle exists at all three sites necessitating the need to conduct pre-construction surveys at all three sites. In addition, the western red bat could potentially roost in trees in or near the Rio Vista site and the Brannan Island site. The surveys shall be conducted no more than two weeks prior to the start of operations and depending on the expected duration of the activities a follow-up survey may also be required. All observed sensitive species shall be reported to the DFW. The proposed project will be adjusted to avoid impacting these species, or to relocate the individuals under the guidance of the DFW.

Mitigation Measure BIO-4: Conduct Pre-Construction Riparian Habitat Surveys at All Three of the Project Sites Prior to Development.

Prior to any land clearing operations, riparian habitat surveys shall be conducted by a qualified biologist to confirm that construction activities will not impact riparian habitat. The survey shall entail walking throughout the entire site, including a 100-foot buffer, to identify adjacent suitable riparian habitat that could be affected by construction activities, particularly along the top of waterside banks or slopes or low-lying areas. The riparian habitat surveys shall be submitted to DFW along with each of the site development plans to confirm that isolated project activities, inclusive of piling installations, utility installations and road/ramp improvements near or adjacent to riparian habitat or other sensitive natural communities will not result in a significant impact to riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.

Mitigation Measure BIO-5: Conduct Pre-Design Wetlands and Riparian Habitat Surveys for each of the Sites and Install and Maintain Exclusionary Fencing at the Sites to Ensure Full Avoidance of Seasonal and Permanent Wetlands and Jurisdictional Riparian Habitat.

a) DWR shall retain a qualified biologist to conduct a wetland delineation of the project sites. This delineation shall be submitted to the Corps, and verification received prior to any ground disturbing activities beyond the existing on-site roadways.

b) DWR, will preserve, and not disturb the existing wetlands, and wherever possible, establish 25-foot minimum buffers around all sides of these features. In addition, the final project design shall not cause significant changes to the pre-project hydrology, water quality or water quantity in any wetland that is to be retained on site. This shall be accomplished by

avoiding or repairing any disturbance to the hydrologic conditions supporting these wetlands, as verified through wetland protection plans.

c) DWR, prior to construction activities, shall conduct an updated wetland delineation for its potential disturbance area, install orange exclusion fencing on T-posts (or equivalent), with silt fence material installed along the bottom, and wherever possible a 25-foot buffer adjacent to seasonal and permanent wetlands identified within and adjacent to the proposed site work. The fencing shall be maintained for the duration of the site work, and the DWR Operations and Maintenance Manual for the Rio Vista site shall include the pre-construction delineation of jurisdictional wetlands and riparian habitat and note that all future traffic within the project site is limited to improved surface areas and stockpile areas, and all other areas are deemed off-limits to vehicular and construction equipment.

Mitigation Measure BIO-6: Secure Section 1600 Lake or Streambed Alteration (LSA) Agreement from DFW

Prior to any ground disturbing site improvements DWR shall consult with DFW and secure any applicable Section 1600 Lake or Streambed Alteration (LSA) agreement(s) for any permanent site improvements waterward of the top of bank at Threemile Slough for the BISRA site or at the Stockton Deep Water Ship Channel or Mormon Slough at the Stockton West Weber Avenue site.

4.4.4 Impacts after the Application of Mitigation Measures

As previously discussed, mitigation measures were designed to reduce potentially significant impacts to a less than significant level.

4.5 Cultural Resources

4.5.1 Environmental Setting

CEQA Section 15064.5 requires that lead agencies determine whether projects may have a significant effect on archaeological and historical resources. This determination applies to those resources that meet significance criteria qualifying them as “unique,” or “important,” and listed on the California Register of Historical Resources (CRHR), or eligible for listing on the CRHR. If the agency determines that a project may have a significant effect on a significant resource, the project is determined to have a significant effect on the environment, and these effects must be addressed. If a cultural resource is found not to be significant under the qualifying criteria, it need not be considered further in the planning process.

CEQA emphasizes avoidance of archaeological and historical resources as the preferred means of reducing potential significant effects. If avoidance is not feasible, an excavation program or some other form of mitigation must be developed to mitigate the impacts.

Virtually any physical evidence of past human activity can be considered a cultural resource, although not all such resources are considered to be significant. They often provide the only means of reconstructing the human history of a given site or region, particularly where there is no written history of that area or that period. Consequently, their significance is judged

largely in terms of their historical or archaeological interpretive values. Along with research values, cultural resources can be significant, in part, for their aesthetic, educational, cultural, and religious values.

State historic preservation regulations affecting this project include the statutes and guidelines contained in the CEQA (CEQA; Public Resources Code Sections 21083.2 and 21084.1 and Sections 15064.5 and 15126.4 (b)). CEQA requires lead agencies to carefully consider the potential effects of a project on historical resources. A "historical resource" includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript that is historically or archaeologically significant (Public Resources Code Section 5020.1).

Advice on procedures to identify such resources, evaluate their importance, and estimate potential effects is given in several agency publications such as the series produced by the Governor's Office of Planning and Research (OPR), *CEQA and Archaeological Resources*, 1994. The technical advice series produced by OPR strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities, including, but not limited to, museums, historical commissions, associations, and societies be solicited as part of the process of cultural resources inventory. In addition, California law protects Native American burials, skeletal remains, and associated grave goods regardless of the antiquity and provides for the sensitive treatment and disposition of those remains (California Health and Safety Code Section 7050.5, California Public Resources Codes Sections 5097.94 et al).

The California Register of Historical Resources (Public Resources Code Section 5020 *et seq*.)

The State Historic Preservation Office maintains the California Register of Historical Resources (CRHR). Properties listed, or formally designated as eligible for listing, on the National Register of Historic Places are automatically listed on the CRHR, as are State Landmarks and Points of Interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

For the purposes of CEQA, a historical resource is a resource listed in or determined eligible for listing in the CRHR. When a project will impact a site, it needs to be determined whether the site is a historical resource. The criteria are set forth in Section 15064.5(a)(3) of the CEQA Guidelines, and are defined as any resource that does any of the following:

a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

b) Is associated with the lives of persons important in our past

c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values

d) Has yielded, or may be likely to yield, information important in prehistory or history

In addition, the CEQA Guidelines, Section 15064.5(a)(4) states:

The fact that a resource is not listed in, or determined to be eligible for listing in the CRHR, is not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code) or identified in a historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be a historical resource as defined in Public Resources Code Section 5020.1(j) or 5024.1.

California Health and Safety Code Sections 7050.5, 7051, and 7054
These sections collectively address the illegality of interference with human burial remains, as well as the disposition of Native American burials in archaeological sites. The law protects such remains from disturbance, vandalism, or inadvertent destruction, and establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project, including the treatment of remains prior to, during, and after evaluation, and reburial procedures.

California Public Resources Code Section 15064.5(e)
This law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction. The section establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project and establishes the Native American Heritage Commission as the entity responsible for resolving disputes regarding the disposition of such remains.

It is possible that buried or concealed archaeological resources will be found during construction that may be eligible for the CRHR. Such resources could include midden deposits, artifact scatters, fire hearths, human burials, and historical dumps or trash pits. Disturbance of such features could be a significant effect.

4.5.2 Methods

To obtain information on previous cultural resource surveys and locations of recorded sites in or adjacent to the project sites, record searches were conducted for the sites at the applicable Information Center of the California Historical Resources Information System:

- Stockton, W. Weber Avenue - Central California Information Center: CCIC File #7700L
- Rio Vista – North West Information Center: NWIC file # 12-0017
- Brannan Island - North Central Information Center: NCIC file #SAC 10-81, and #SAC-12-54

4.5.2.1 Stockton, W. Weber Avenue

There are no prehistoric sites or historic period resources recorded in or immediately adjacent to this site. The entire site has been subjected to heavy industrial use and has been heavily disturbed, including grading, construction of docks, placement of concrete foundations,

trenching for utilities, paving, and placement of aggregate base. There are no prehistoric sites or historic period resources recorded in or immediately adjacent to this site.

4.5.2.2 Rio Vista

The Rio Vista site is located in a historic alluvial floodplain of the Delta, and the geologic unit overlying the site consists of recently formed Holocene age alluvium, which is less than 11,000 years old. The overlying Holocene age alluvial materials were historically excavated from the Sacramento River to this site. This excavation, combined with artificial levees and berms, has created a depressed area, or pit, approximately six feet deep and suitable for spoiling of suction dredge materials. Sand removal activities occurred on the site to maintain the permanent structural features of the site, including berms, levees, access roads, and the discharge spillway (State of California et al., 1993).

The site has been subject to two archeological survey efforts, which include the areas of proposed ground disturbance activities, except for the immediate vicinity of the existing quarry rock stockpile. There are no prehistoric sites or historic period resources recorded in or immediately adjacent to this site. It is extremely unlikely that the site contains any cultural resources, as the entire site is composed of fill from dredging the Sacramento River. The site has also been periodically excavated for the removal and beneficial re-use of dredged materials. Proposed construction would consist of fill with aggregate base to improve upon and extend the access roads to the quarry stockpile site, and shallow excavation of three acres or less of sand to create a sand stockpile.

4.5.2.3 Brannan Island

A 2012 records search indicates that there are no known prehistoric sites or historic period resources at the site. It is extremely unlikely that the site contains any cultural resources that could be affected by the project, as any prehistoric resources would be deeply buried by fill from dredging the Sacramento River (DPR, 1988).

4.5.3 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Cultural Resources – Would the Project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

No known significant historical resources are present at the sites. However, not all the sites have been fully surveyed. Therefore, this impact is **potentially significant and subject to mitigation measures** included in Section 4.5.4**,** which will include pre-construction cultural resource surveys to ensure that no impacts to historic resources occur.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Development that consists of structure alterations or subsurface excavations could result in a significant impact to previously unidentified cultural resources. The Rio Vista site and the Brannan Island Site would be modified with the placement of aggregate base for roadways. Aggregate base would be placed on the Brannan Island site to create a working surface for barge loading activities and for quarry rock storage. Excavation and mounding of sand to create new wetlands and a stockpile of dry silt and sand for bulk bags could potentially disturb sites that have not previously been excavated.

There will be some surface disturbance at all the sites and the potential for impact to previously unknown archeological resources. Therefore, this impact is **potentially significant and subject to mitigation measures** included in Section 4.5.4.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The proposed project is not located in an area with unique geologic features or paleontological resources. Therefore, the project would have **no impact**.

d) Disturb any human remains, including those interred outside of formal cemeteries?

Due to the disturbed nature of the sites it is highly unlikely that human remains will be uncovered. However, disturbance of previously undiscovered human remains would be **potentially significant and subject to mitigation measures** included in Section 4.5.4.

4.5.4 Proposed Environmental Mitigation Measures

4.5.4.1 Stockton, West Weber Avenue, Rio Vista, and Brannan Island

These sites have not been fully surveyed for cultural resources. The following four measures are proposed to address the potential for cultural resources on these sites.

Mitigation Measure CUL-1: Pre-construction Field Survey.
Prior to ground disturbing activities, a field survey will be conducted by a qualified archeologist to identify any prehistoric or historic cultural resources within the project site areas. The survey may reveal a lack of resources. No further identification effort will need to be made.

If resources are found in one of the selected sites during the survey, it will be necessary to determine whether the resource is an important resource. This determination will be made by a qualified archeologist based upon surface evidence, if possible. If surface evidence is not conclusive, additional studies, including archival research or subsurface testing, will be conducted.

If the additional studies are undertaken and a resource is found to be important under the criteria of the California Register of Historical Resources (CRHR), avoidance will be the preferred method of mitigation. The use of the site with the significant resource might need to be limited to a smaller portion of the site, with protective measures designed for the resource, such as fencing or monitoring site use. The determination of appropriate mitigation will be made by DWR.

Mitigation Measure CUL-2: Worker Cultural Resource Awareness.
Construction personnel will be informed of the potential for encountering significant archaeological resources and instructed in the identification of artifacts, bone, and other potential resources. All construction personnel will be informed of the need to stop work on the project site if cultural resources are found, and until a qualified archaeologist has been provided the opportunity to assess the significance of the find and implement appropriate measures to protect or scientifically remove the find. Construction personnel will also be informed of the requirement that unauthorized collection of cultural resources is prohibited.

Mitigation Measure CUL-3: Immediately Halt Construction if any Cultural Resources are Discovered.
DWR shall implement the following mitigation measure to reduce the potential impacts to buried historic cultural resources to a less-than-significant level. If cultural materials (e.g., unusual amounts of shell, animal bone, glass, ceramics, etc.) are discovered during project-related construction activities, ground disturbances in the area of the find shall be halted and a qualified professional archaeologist shall be notified regarding the discovery. The archaeologist, to be retained by DWR, shall determine whether the resource is potentially significant per the CRHR and develop appropriate mitigation. Mitigation may include, but not be limited to, in-field documentation, archival research, archaeological testing, data recovery excavations, or recordation, and shall be implemented before resuming construction in the immediate vicinity.

Mitigation Measure CUL-4: Immediately Halt Construction if any Human Remains are Discovered.
DWR shall implement the following mitigation measure to reduce the potential impacts to human remains to a less-than-significant level. In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, the contractor and/or DWR shall immediately halt potentially damaging excavation in the area of the burial and notify the County Coroner and a professional archaeologist to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (Health and Safety Code Section 7050.5[b]).

If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). Following the coroner's findings, DWR, an archaeologist, and the NAHC designated Most Likely Descendent (MLD) shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in California Public Resources Code Section (PRC) 5097.9.

Mitigation Measure CUL-5: Determination of Significance of Cultural Resources. If previously unknown cultural resources are discovered during project construction, all work in the area of the find should cease and a qualified archaeologist should be retained by DWR or consultant to assess the significance of the find, make recommendations on its disposition, and prepare appropriate field documentation, including verification of the completion of required mitigation. If archaeological or paleontological resources are discovered during earth moving activities, all construction activities within 50 feet of the find should cease until the archaeologist evaluates the significance of the resource. In the absence of a determination, all archaeological and paleontological resources should be considered significant.

If the resource is determined to be significant, the archaeologist, as appropriate, should prepare a research design for recovery of the resources in consultation with the State Office of Historic Preservation that satisfies the requirements of Public Resources Code, Section 21083.2. The archaeologist should complete a report of the excavations and findings. Upon approval of the report, the project proponent should submit the report to the regional office of the California Historic Resources Information System.

4.5.5 Impacts after the Application of Mitigation Measures

Mitigation measures will reduce potentially significant impacts to a **less than significant level**.

4.6 Hydrology and Water Quality

4.6.1 Environmental Setting

Located at the confluence of the Sacramento and San Joaquin rivers, the Delta is the largest estuary on the United States Pacific Coast. The Delta is the hub of the SWP and the CVP, two of California's largest water distribution systems, which supply a portion of the drinking water for two-thirds of the State's population and irrigation water for over 7 million acres of farmland.

The three project sites are located in previously disturbed areas of the Delta.

The Stockton, West Weber Avenue site is generally flat with large areas covered in gravel base and pavement. It is located adjacent to the Stockton Deep Water Ship Channel at its juncture with the Old Mormon Slough.

The Rio Vista site is located on the north side of the Sacramento River, just east of the town of Rio Vista and west of the lower Yolo Bypass. This site has been used as a hydraulic dredge disposal area and as a source of sand and aggregate since the early 1900s. A portion of the property lies within the 100-year floodplain. The site is set back from the Sacramento River a distance of 600 feet to 1500 feet. The waterside properties are devoted to industrial, commercial, and residential uses, including Dutra Group's dock and corporation yard facilities.

The Brannan Island site is located in the Brannan Island State Recreation Area (BISRA) surrounded by the Sacramento River on the west, Threemile Slough on the southeast, and Sevenmile Slough on the northeast.

4.6.2 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Hydrology and Water Quality – Would the Project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?	☐	☒	☐	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	☐	☒	☐	☐

e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

In the event of levee failures and flooding, the potential for salt water intrusion exists in the Delta, which would compromise the imported drinking water supplies for over 20 million people and agricultural water supplies for the State's valuable farming resources in the Central Valley. The proposed project will facilitate a more rapid emergency response and recovery effort in the event of levee damage or levee breaches in the Delta.

Use of stockpiled material could potentially occur anywhere within the Delta, at any time. The timing and location of potential breaches cannot be forecasted with enough detail to be useful in evaluating the potential impacts. In general, however, the impacts of mobilization and emergency repairs to levees could result in increased turbidity along impacted waterways. The hydrologic benefits of the project include the reduced potential for significant risk of loss, injury, or death involving flooding.

a) Violate any water quality standards or waste discharge requirements?

The project would involve some ground disturbance activities on all three proposed project sites. Minimal grading and clearing would be required at the Stockton West Weber site, as it has been previously leveled and largely covered with all-weather surfaces, including aggregate base, asphalt, and cement. However, the interior portions of the two northern parcels are currently surfaced with soil, and would be surfaced with aggregate base to support heavy vehicle traffic associated with stockpiling and transfer operations. There is a potential for sediment to be washed from the site into the Stockton Deep Water Channel with storm runoff.

At the Rio Vista site minor land-leveling road construction and placement of aggregate base would occur, which could result in minor movement of silt and sand, confined to the site, during storm runoff events. This site is surrounded by high ground or levees on all sides, so it is unlikely that any erosion would carry sediment off site.

At the Brannan Island site grading and placement of aggregate base to construct haul roads, a quarry rock stockpile, and transfer facilities working area has the potential for generating sediment that could drain to Threemile Slough. The potential is limited as the sandy and silty dredged materials are very well drained.

To ensure that the project would not violate any water quality standards or waste discharge requirements, DWR would implement best management practices (BMPs) for all construction activities in accordance with applicable federal and state regulations that provide for protecting the quality of storm water discharge at all project sites. The impact on local water quality of mobilizing sediment would be **less than significant with mitigation incorporated**. The specific mitigation measures, which reflect BMPs for construction, are described in Section 4.6.3.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

The project is limited to site improvements to facilitate transporting and stockpiling levee repair material and preparing incident command posts and would have **no impact** on groundwater quality nor would deplete groundwater supplies.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?

Proposed improvements at the three proposed project sites would not result in the substantial alteration of the course of a stream or river.

The Stockton, W. Weber Avenue site will require little or no site preparation for stockpiling of materials except the placement of aggregate base to support stockpiling, loading equipment, parking, and helicopter loading activities.

The Rio Vista site already has a quarry rock stockpile in place. Proposed site improvements associated with this site would involve raising and improving the access road that passes through the stockpile, and creating level areas in the southwestern portion of the property for the placement of steel storage containers, parking, and helipad. A new road segment is proposed to create a transport loop to the Dutra Group dock area, allowing for the efficient transportation of quarry rock to the barge loading area.

BMPs will be used throughout site preparation to ensure that the project does not directly or indirectly discharge sediments into surface waters as a result of construction activities, and

that water quality protection measures are implemented by the contractors during construction. The project would have a **less than significant impact with mitigation incorporated** as described in Section 4.6.3.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?

The project activities do not include altering drainage patterns of the sites, including through the alteration of the course of a stream or river. Some areas of some of the sites may be paved with asphalt as part of site improvements; however, the sites will overall remain aggregate covered, which will be permeable to water infiltration. The project would result in a **less than significant impact with mitigation incorporated** as described in Section 4.6.3.

e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

Overall the sites will remain covered by pervious surfaces as the project is implemented. Portions of some of the sites will be paved with asphalt adding minimal amounts of impervious surface to the area. Because of the relatively small amount of impervious surfaces being constructed, increases in storm water runoff would be small and the impacts would be **less than significant**.

f) Otherwise substantially degrade water quality?

The project activities will be performed in a manner as to protect the existing water quality at all of the sites, as discussed in the response to Item a) of Section 4.6.2. Through the practice of BMPs and compliance with existing National Pollutant Discharge Elimination System (NPDES) permits, the impact to water quality will be **less than significant with mitigation incorporated** as described in Section 4.6.3**.**

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The project scope does not include the construction of any housing or removal of flood protections for housing. Therefore, the project would have **no impact.**

h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?

The only structures proposed by the project are portable office trailers for command posts during emergency flood response. Such structures will not substantially impede or redirect flood flows. Furthermore, the project sites were chosen because they are not located in areas that have a high risk of flooding so that they will be safe to use during flood response activities if other parts of the Delta should flood. The project would have **no impact.**

i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

The project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. All of the planned project features and elements will be located above the 100-yr floodplain. Portions of the existing quarry rock stockpiles at the existing Rio Vista facility site are located behind a levee within the 100-year floodplain, but the criteria for establishing and developing the new site improvements is to have all project facilities and new storage areas located outside of the 100-year floodplain so they are accessible to DWR and others during catastrophic flood events. The project would provide stockpiles of flood fight materials in three strategic locations, all elevated above the 100-yr floodplain, in the eastern and western portions of the Delta to expedite emergency response to levee breaches within the Delta. The project is proposed to reduce loss, injury, and death associated with flooding resulting from singular or multiple levee failures. The project would have **no impact.**

j) Result in inundation by seiche, tsunami, or mudflow?

The project sites are not susceptible to seiche, tsunami, or mudflow; therefore, the project would have **no impact.**

4.6.3 Proposed Environmental Mitigation Measures

Mitigation Measure HYD-1: Institute Construction Best Management Practices (BMPs) for the Prevention of Erosion and Transport of Soil, Sand, and Silt Offsite During Runoff Events.
DWR shall implement construction Best Management Practices (BMPs) for all land clearing, land leveling, excavation, and fill operations associated with site preparations at the three sites. These measures will be incorporated into the construction plans and specifications. They include avoidance of existing wetlands, including placement of exclusion fencing, creating on site catchments for surface runoff, using coir logs to intercept drainage, and hydroseeding slopes, as appropriate.

Before the start of any construction work, clearing, or site grading associated with preparation, or any stockpiling activities at the sites, measures to control soil erosion and waste discharges will be prepared in accordance with BMPs. DWR will require all contractors conducting work at the sites to implement BMPs to control soil erosion and waste discharges of other construction-related contaminants. The general contractor(s) and subcontractor(s) conducting the work will be responsible for constructing or implementing, regularly inspecting, and maintaining the BMPs in good working order. In addition, the contractors will be required to submit and adhere to the applicable Storm Water Pollution Prevention Plan (SWPPP) associated with site development, preparation, and improvements.

Sufficient buffers from wetlands, riparian habitat, and/or other sensitive areas shall be maintained throughout the construction improvement period(s) of the project.

The plans developed by DWR or its contractor(s) will identify the grading, erosion, and tracking control BMPs and specifications that are necessary to avoid and minimize water

quality impacts to the extent practicable. Standard erosion control measures (e.g., management, structural, and vegetative controls) will be implemented for all construction activities that expose soil. Grading operations will be conducted to eliminate direct routes for conveying potentially contaminated runoff to drainage channels. Erosion control barriers such as silt fences and mulching material will be installed, and disturbed areas will be reseeded with native grasses or other plants where necessary. Tracking controls shall be required throughout the construction period, as needed, to reduce the tracking of sediment and debris from the construction site. At a minimum, entrances and exits shall be inspected daily, and controls implemented as needed.

The following specific BMPs will be implemented, as described in the California BMP Handbook www.cabmphandbook.com:

- Conduct all work according to site-specific construction plans that identify areas for clearing and grading so that ground disturbance is minimized.
- Avoid riparian vegetation, cover cleared areas with mulches, and install silt fences near riparian areas or streams to control erosion and trap sediment, and reseed cleared areas with native vegetation. Sufficient buffers (minimum 20 feet when possible) from wetlands and/or other sensitive areas shall be maintained throughout the life of the project.
- Stabilize disturbed soils before the onset of the winter rainfall season.
- Stabilize and protect stockpiles from exposure to erosion and flooding.
- Stabilize all construction access by providing a point of entrance/exit to the construction sites that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.
- Grade each construction entrance/exit to prevent runoff from leaving the construction site, and ensure that all runoff from the stabilized entrances/exits are routed through a sediment-trapping device before discharge.
- Ensure that entry/exit ways are able to support the heaviest vehicles and equipment that will use them.

BMPs will also specify appropriate hazardous materials handling, storage, and spill response practices to reduce the possibility of adverse impacts from use or accidental spills or releases of contaminants. Specific measures applicable to the project include, but are not limited to, the following:

- Develop and implement strict onsite handling rules to keep construction and maintenance materials out of drainages and waterways.
- Conduct all refueling and servicing of equipment with absorbent material or drip pans underneath to contain spilled fuel. Collect any fluid drained from machinery during servicing in leak-proof containers and deliver to an appropriate disposal or recycling facility.
- Maintain controlled construction staging, site entrance, concrete washout, and fueling areas at least 100 feet away from stream channels or wetlands to minimize accidental spills and runoff of contaminants in storm water.

- Prevent raw cement; concrete or concrete washings; asphalt, paint, or other coating material; oil or other petroleum products; or any other substances that could be hazardous to aquatic life from contaminating the soil or entering watercourses.
- Maintain spill cleanup equipment in proper working condition. Clean up all spills immediately according to the spill prevention and response plan, and immediately notify DFW and the RWQCB of any spills and cleanup procedures.

4.6.4 Impacts after Implementation of Mitigation Measures

Impacts would be less than significant with the implementation of **Mitigation Measure HYD-1**.

4.7 Geology and Soils

4.7.1 Environmental Setting

The largest watershed in California drains into the Sacramento-San Joaquin Delta (Delta), to the San Francisco Estuary, and ultimately into the Pacific Ocean. The watershed, which encompasses approximately 45 percent of the surface area in California, reaches from the western slopes of the Sierra Nevada Mountains to the eastern slopes of the Coastal Ranges. The Delta was formed by the co-mingling of organic matter deposited by tules and plants and sediment deposition to form thick deposits of peat capped by tidal marshes. The geologic boundary of the Delta is at the contact between organic and inorganic soils and is arbitrarily defined by the zero-elevation contour.

Historically, the accumulation of sediment in the Delta corresponded with the gradual rise in mean sea level (msl) and the region was dominated by tidal marshes and meandering sloughs. Farming activity in the most recent 150 years has led to the alteration and drainage of those marshes and the creation of numerous islands and a levee system (Public Policy Institute of California, 2007).

All of the project sites are located within the Delta portion of the Central Valley, which is a large northwest/southeast trending asymmetric trough bounded mostly by pre-Tertiary metamorphic, sedimentary, and granitic rocks. Depth to basement rock in the Central Valley ranges from 6 miles in the south up to 10 miles in the Sacramento Valley (Geo-Phase Environmental Inc., 2008).

The Central Valley is comprised of the Sacramento Valley to the north and the San Joaquin Valley to the south. The three proposed alternative sites are underlain by Quaternary sedimentary rocks that consist of extensive marine and non-marine sand deposits. (California Geological Survey, 2010).

4.7.1.1 Stockton, West Weber Avenue Site

The site is located on a nearly flat-lying peninsula and has little geographic variation. It was created by material dredging and built up with imported fill material. Soils in this area are generally part of the Jacktone-Hollenbeck Stockton association. These soils are somewhat poorly drained to moderately well drained, fine-grained soils with a moderately deep to deep

cemented hard pan. The site soil is classified as Urban Land Complex Soil, which is highly disturbed and not classifiable due to human activity. Based on field investigations, the on-site soils are believed to consist of a mixture of imported fill and poorly drained Jackstone Clay with moderately deep hardpan with slow permeability. The site is currently mostly gravel covered with some grass-vegetated areas. Additional portions of the site would be covered with asphalt or aggregate base as part of the project scope.

4.7.1.2 Rio Vista

The Rio Vista site was a formerly swampy area, filled with sand and silt from the Sacramento River during hydraulic dredging and widening of the river beginning in the early 1920s. Portions of the site have been periodically excavated for the beneficial re-use of sediments deposited there by the dredging operations. Such use continues on portions of the site at present. The soils are primarily characterized as Xeropsamments, which are less than 35 percent (by volume) rock fragments and have a texture of loamy fine sand or coarser in all layers. Additional soil types that are present in small percentages include Fluvaquents, Gazwell, and Sailboat. The soil in the area is originally earthy fill and is characterized as somewhat excessively well drained (NRCS, 2010c).

4.7.1.3 Brannan Island

Brannan Island, a formerly swampy area, was filled with sand and silt from the Sacramento River during dredging and widening of the river between 1926 and 1929. The area was filled to 40 feet above the water level at the time. The soils are primarily characterized as Xeropsamments, which are less than 35 percent (by volume) rock fragments and have a texture of loamy fine sand or coarser in all layers. Additional soil types that are present in small percentages include Fluvaquents, Gazwell, and Sailboat. The soil in the area is originally earthy fill and is characterized as somewhat excessively well drained (NRCS, 2010c).

4.7.2 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Geology and Soils – Would the Project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☐	☒

(Refer to California Geological Survey Special Publication 42.)				
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in nor off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

The proposed project does not propose the construction of any permanent structures, although portable construction trailers will be set up at waterside transfer sites to facilitate emergency levee repairs. The proposed sites consist of previously disturbed areas.

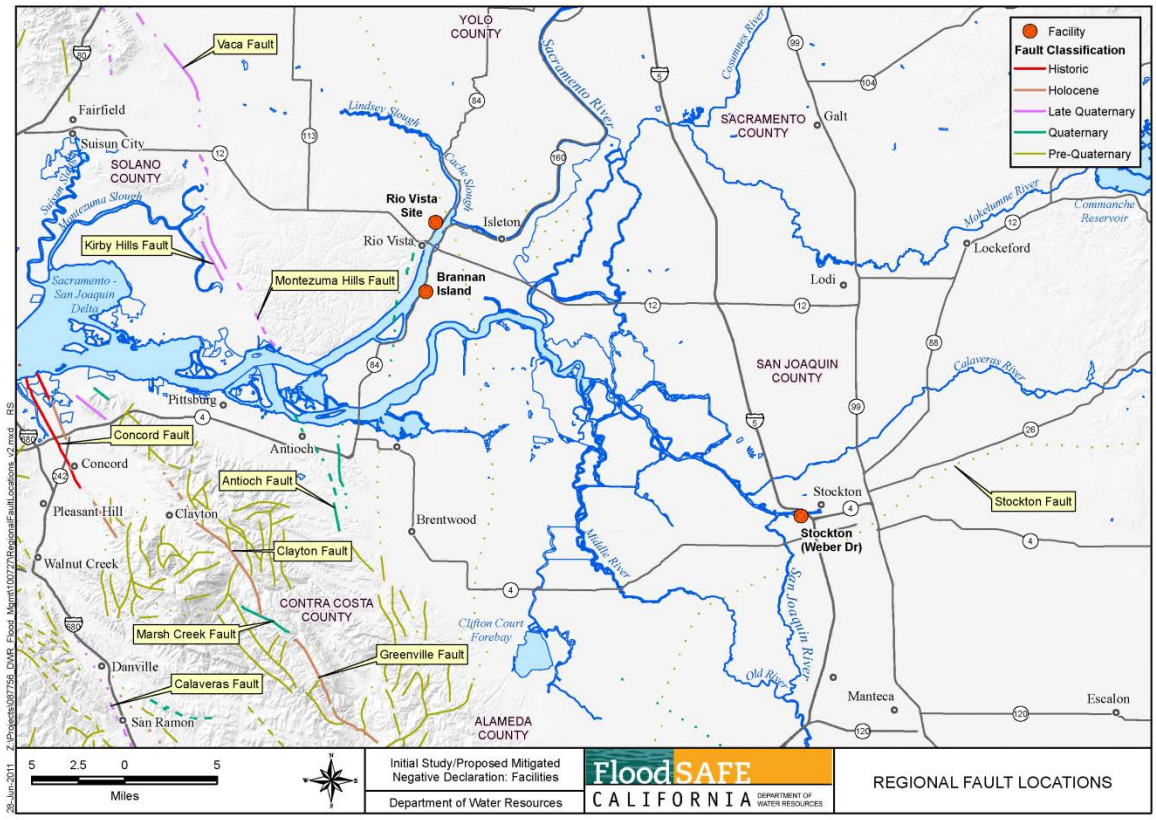
The nearest fault to the proposed project sites exhibiting historic displacement (activity within the last 200 years) is the Concord Fault as shown on Figure 4-5. The Concord Fault is located approximately 18 miles west of the nearest proposed project site, which is the Brannan Island site. Other notable active faults within 100 miles are the Hayward, Greenville, Dunnigan Hills (Zamora), Ortigalita, Healdsburg-Rodgers Creek, West Napa, and San Andreas Faults.

The Coast Range-Central Valley Geomorphic Boundary lies approximately 15 to 20 miles west of Stockton and is considered a seismically active, concealed fold and thrust belt. This fault is associated with the 6.1 moment magnitude (Mw) Kettleman Hills event and the 6.5 Mw Coalinga event. The estimated reoccurrence interval associated with a Coalinga-type

event is 200 to 2,000 years. Published estimates of the Coast Range-Central Valley slip rate range from 1 to 10 millimeters per year. The concealed Coast Range-Central Valley thrust is speculated to have produced the Vacaville-Winters earthquake (estimated 6.75 Modified Mercalli Intensity).

There are no known active faults that show evidence of movement during the past 11,000 years in the immediate vicinity of the proposed project sites as defined by the State of California. The nearest active fault is the Greenville Fault, which has been considered part of the San Andreas Fault system. The portion of this fault that has experienced historic displacement is located approximately 25 miles southwest of Rough and Ready Island and approximately 22 miles south of the Brannan Island Project site (DWR, 2007).

Figure 4-6. Regional Fault Locations relative to Alternative Project Sites



Due to the nature of the proposed project, which consists of stockpiling rocks on previously disturbed, flat graded lots and establishing emergency transfer facilities, and utility provisions for ICPs, including post-flood event construction trailers at the proposed sites, the proposed project would not pose substantial risk or threat of death resulting from the rupture of a known fault shown on an Alquist-Priolo Earthquake map, and the proposed project would have **no impact**.

ii. Strong seismic ground shaking?

As described above, the proposed project sites are located within the vicinity of fault zones that have exhibited historic displacement (activity within the last 200 years), which could cause strong seismic ground shaking at the project locations. However, due to the nature of the proposed project scope, consisting of preparing sites as emergency response command centers and stockpile storage and transfer sites, the proposed project would not pose a substantial risk or threat of injury or death resulting from strong seismic ground shaking, and the project would have **no impact**.

iii. Seismic-related ground failure, including liquefaction?

Liquefaction is a process whereby unconsolidated, granular, and saturated soil lose strength and fail when subjected to ground motion. Liquefaction only occurs in saturated soil, and its effects are most commonly observed in low-lying areas near bodies of water such as rivers, lakes, bays, and oceans (University of Washington, 2000). The areas believed to have the greatest potential for liquefaction are those in which the water table is less than 20 feet below ground and the soils are predominately clean, relatively uniform, low-density sands. Although the three alternative project sites are located in areas known to contain potential for liquefaction, some have clayey soils, which are generally not subject to liquefaction. The proposed project consists of storing and transferring flood fight materials, including rock, and establishing a command center on previously disturbed, flat-graded lots for emergency response to levee failure. Although there is a potential for some ground surface disturbance due to liquefaction, the proposed project would not pose a substantial risk or threat of injury or death resulting from such ground failure. The quarry rock stockpiles are no more than 15 feet high, with stable side slopes, and would not be expected to slide significantly in a credible earthquake. Although there may be a need to re-level the ground surface and add more aggregate base after an earthquake, the proposed project would have a **less than significant** impact.

iv. Landslides?

Given the level topography of the project area, the possibility of landslides is low and the project would have **no impact**.

b) Result in substantial soil erosion or the loss of topsoil?

The project sites would require some site preparation including minor clearing, grading, and compaction of the stockpile area, and covering roadways, parking areas, and the base of the stockpile areas with aggregate base.

Proposed project construction could cause a short-term increase in wind and water erosion. To ensure that the proposed project would not result in substantial erosion or loss of topsoil, DWR would implement BMPs for all construction activities in accordance with applicable federal and State regulations.

Implementation of, and compliance with, the specified BMPs for all construction activities would ensure that the project would not result in substantial soil erosion or the loss of topsoil, and, therefore, the project impacts would be **less than significant with mitigation incorporated**. See Mitigation Measure HYD-1.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in an off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

The peat soils of the Delta are subsiding at an estimated rate of slightly over 3 inches per year and, as a result, many islands that were formerly at or above sea level are now below sea level. Subsidence is a serious concern in the Delta that can lead to major flooding. As levees gradually sink and erode over time, costly maintenance is necessary to continue to protect the low lands behind them. However, none of the three proposed sites are subject to subsidence due to loss or compaction of peat. The Stockton Weber Avenue site is underlain by mineral soils and fill materials used to create the present industrial site. The Rio Vista site is underlain by mineral soils, silts, and sands. The Brannan Island site has approximately 40 feet of dredged materials deposits overlying the historic peat, which has substantially compressed it and prevents further oxidation, loss, and lateral movement. The project sites will be further modified with aggregate and asphalt bases, and stockpiles will be stored on aggregate material, which would serve to increase the stability of soils. The project consists of previously utilized industrial or dredged materials discharge areas located in relatively flat areas, and would include site preparations that would reduce potential for soil instability; therefore, the project would have a **less than significant** impact.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?

The project would not create or place permanent structures on expansive soils; therefore, the project would have **no impact.**

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

The project would not involve the use of septic tanks or alternative wastewater disposal systems; therefore, **no impact** could result from soil incapable of adequately supporting such facilities. The Stockton Weber Avenue site would rely on existing restroom facilities, which are connected to the Stockton municipal wastewater system. If an ICP is sited at the Rio Vista site, portable restroom facilities would be used during emergency operations. The Brannan Island site would rely on existing restroom facilities which are among the existing recreation facilities' amenities.

4.7.3 Proposed Environmental Mitigation Measures

Potential impacts involve the movement or loss of soils during construction. Construction BMPs can limit those impacts as described in Mitigation Measure HYD-1.

4.7.4 Impacts after the Application of Mitigation Measures

Such impacts would be less than significant with the implementation of Mitigation Measure HYD-1.

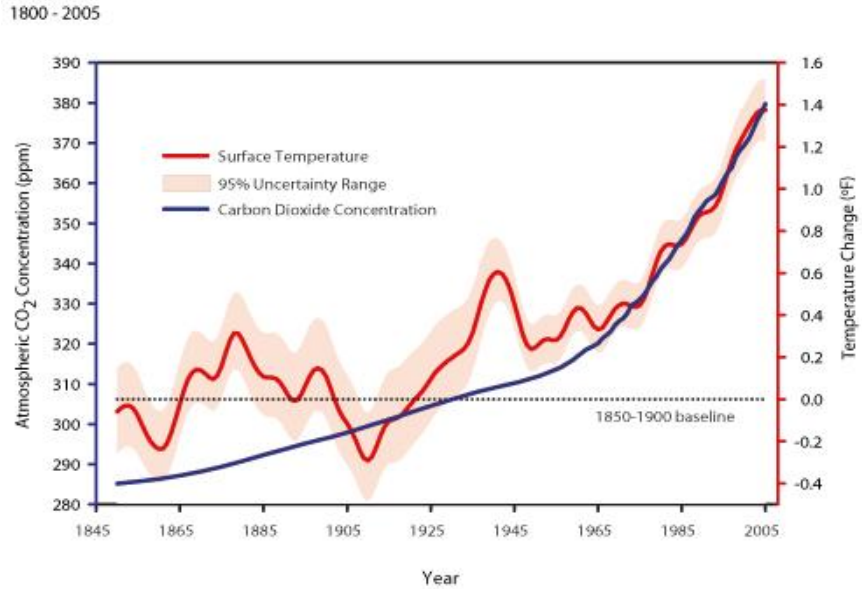
4.8 Climate Change

4.8.1 Environmental Setting

Gases that trap heat in the atmosphere are referred to as greenhouse gases (GHG). This entrapment of heat in the atmosphere is believed to contribute to climate change, which is a significant change in elements of climate lasting for decades or longer. The most prominent GHGs that have been identified as contributing to climate change are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorucarbons (PFCs), and sulfur hexafluoride (SF_6). Some GHGs such as CO_2 occur naturally and are emitted to the atmosphere through natural processes and human activities. The principal greenhouse gases that enter the atmosphere because of human activities are: CO_2, CH_4, N_2O, and fluorinated gases.

The recent increase in concentration of carbon dioxide in the atmosphere over the past 50 years is the result of human activities, mainly the burning of fossil fuels (Figure 4-6). As the concentration of CO_2 in the atmosphere has increased, so has the average surface temperature of the earth. The relationship between the atmospheric CO_2 concentration and surface temperature is shown in Figure 4-6 for the past 150 years.

Figure 4-7. Atmospheric CO_2 and Global Surface Temperature Trends



4.8.1.1 Regulatory Setting

<u>Regional Air Resources Boards</u>

The Stockton, W. Weber Avenue site is located within the San Joaquin Valley Air Pollution Control District (SJVAPCD). The Rio Vista site is located within the Yolo-Solano Air Quality Maintenance District (http://www.ysaqmd.org/, 2012). The Brannan Island site is located within the Sacramento Metropolitan Air Quality Management District (SMAQMD).

CEQA Guidelines for CHG Emissions

In 2002, with the passage of Assembly Bill 1493 (AB 1493), the State launched an innovative and proactive approach to dealing with GHG emissions and climate change at the State level.

AB 1493 requires the ARB to develop and implement regulations to reduce automobile and light truck GHG emissions beginning with 2009 vehicle models. The State has also adopted Assembly Bill 32 (AB 32) and has identified GHG reduction goals; the effect of increased GHG emissions as they relate to global climate change is inherently an adverse environmental impact.

The Legislature directed the OPR to develop CEQA Guidelines pertaining to GHG emissions by July 1, 2009 and to adopt the guidelines by January 1, 2010. OPR submitted recommended amendments to the CEQA Guidelines for GHG emissions to the Natural Resources Agency on April 13, 2009. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code Section 21083.05. The Natural Resources Agency transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law (OAL) on December 31, 2009.

On February 16, 2010, the OAL approved the amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The amendments became effective on March 18, 2010. The amendments provide changes to various portions of the existing CEQA Guidelines. Modifications address those issues where analysis of GHG emissions may differ in some respects from more traditional CEQA analysis.

The amendments include a new section (15064.4) to assist lead agencies in determining the significance of the GHG impacts. This section urges lead agencies to quantify, where possible, the GHG emissions of proposed projects. In addition to quantification, this section recommends consideration of several other qualitative factors that may be used in determination of significance, including: (1) the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether the GHG emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

The amendments include a new subdivision (15064.7(c)) to clarify that in developing thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.

CEQA Guidelines Subsection 15183.5, sbd (b) 2, also allows project specific environmental documents such as this IS/MND to tier from and/or incorporate by reference a "programmatic review" conducted for the GHG emissions reduction plan previously developed by the same lead agency, and in this case, DWR. Below and incorporated herein

Section 4.8.2.1 is the project-specific evaluation and determination that the proposed project's incremental contribution to the cumulative impact of increasing atmospheric levels of GHGs for construction- related emissions is less than cumulative considerable and, therefore, less than significant.

4.8.2 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Greenhouse Gases – Would the Project:				
a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG?	☐	☐	☒	☐

As discussed in Section 3.3, the proposed project activities would include the emission of GHGs from construction equipment and trucks hauling stockpile materials during site preparation. Once the sites are prepared there would be very little direct and indirect emissions as a result of the proposed project. During emergency activation, the transportation of rock from quarries and stockpiles to barge loading facilities and to levee breach locations in the Delta will occur under a declared emergency with or without the project, and thus emergency activations are considered exempt from CEQA per CEQA Guidelines, Section 15269[a,b,c].

4.8.2.1 Construction-Related Emissions Determined by DWR

In May 2012, DWR adopted the DWR Climate Action Plan-Phase I: Greenhouse Gas Emissions Reduction Plan (GGERP), which details DWR's efforts to reduce its greenhouse gas (GHG) emissions consistent with Executive Order S-3-05 and the Global Warming Solutions Act of 2006 (Assembly Bill (AB) 32). DWR also adopted the Initial Study/Negative Declaration prepared for the GGERP in accordance with the CEQA Guidelines review and public process. Both the GGERP and Initial Study/Negative Declaration are incorporated herein by reference and are available at: http://www.water.ca.gov/climatechange/CAP.cfm. The GGERP provides estimates of historical (back to 1990), current, and future GHG emissions related to operations, construction, maintenance, and business practices (e.g. building-related energy use). The GGERP specifies aggressive 2020 and 2050 emission reduction goals and identifies a list of GHG emissions reduction measures to achieve these goals.

DWR specifically prepared its GGERP as a "Plan for the Reduction of Greenhouse Gas Emissions" for purposes of CEQA Guidelines section 15183.5. That section provides that such a document, which must meet certain specified requirements, "may be used in the cumulative impacts analysis of later projects." Because global climate change, by its very nature, is a global cumulative impact, an individual project's compliance with a qualifying GHG Reduction Plan may suffice to mitigate the project's incremental contribution to that

cumulative impact to a level that is not "cumulatively considerable." (See CEQA Guidelines, § 15064, subd. (h)(3).)

More specifically, "[l]ater project-specific environmental documents may tier from and/or incorporate by reference" the "programmatic review" conducted for the GHG emissions reduction plan. "An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project." (CEQA Guidelines § 15183.5, subd. (b)(2).)

Section 12 of the GGERP outlines the steps that each DWR project will take to demonstrate consistency with the GGERP. These steps include: 1) analysis of GHG emissions from construction of the proposed project , 2) determination that the construction emissions from the project do not exceed the levels of construction emissions analyzed in the GGERP, 3) incorporation into the design of the project DWR's project level GHG emissions reduction strategies, 4) determination that the project does not conflict with DWR's ability to implement any of the "Specific Action" GHG emissions reduction measures identified in the GGERP, and 5) determination that the project would not add electricity demands to the State Water Project (SWP) system that could alter DWR's emissions reduction trajectory in such a way as to impede its ability to meet its emissions reduction goals.

Consistent with these requirements, a GGERP Consistency Determination Checklist is attached in Section 4.8.4 documenting that the project has met each of the required elements.

4.8.2.2 Determination

Based on the analysis provided in the GGERP and the demonstration that the proposed project is consistent with the GGERP (as shown in the attached Consistency Determination Checklist – Section 4.8.4), DWR as the lead agency has determined that the proposed project's incremental contribution to the cumulative impact of increasing atmospheric levels of GHGs is less than cumulatively considerable and, therefore, less than significant for project-specific construction activities.

4.8.2.3 Operation-Related Emissions

The proposed project operations would result in temporary increases in emissions during declared emergency responses. This would include the use of construction equipment at the proposed project sites, worker commutes, and the transport of stockpiled materials to levee repair locations. The timing and location of levee breaches that would be repaired with the stockpiled material are highly unpredictable. Because the specific emissions could be highly variable depending on the size and location(s) of levee breaches and failures, modeling project-generated emissions associated with emergency operations would be too speculative to be quantified at this time. Because the transport of rock from quarries and stockpiles to barge loading facilities and to levee breach locations in the Delta will occur under a declared emergency with or without the project, they are considered exempt from CEQA per CEQA Guidelines, Section 15269[a,b,c].

4.8.3 Proposed Environmental Mitigation Measures

Impacts are less than significant, therefore, no mitigation measures are proposed.

4.8.4 DWR GGERP Consistency Determination Checklist and CHG Emissions Inventory

DWR's project-specific GGERP Consistency Determination Checklist and supporting CHG Emissions inventory is included herein on the following four pages.

DWR GHG Emissions Reduction Plan Consistency Determination Form

For Projects Using Contractors or Other Outside Labor

Print Form

This form is to be used by DWR project managers to document a DWR CEQA project's consistency with the DWR Greenhouse Gas Emissions Reduction Plan. This form is to be used only when DWR is the Lead Agency and when contractors or outside labor and equipment are use to implement the project.

Additional Guidance on filling out this form can be found at:
dwrclimatecange.water.ca.gov/guidance_resources.cfm

The DWR Greenhouse Gas Emissions Reduction Plan can be accessed at:
http://www.water.ca.gov/climatechange/CAP.cfm

California Department of Water Resources
1416 9th Steet
Sacramento, CA
95814
dwrclimatechange.water.ca.gov
www.water.ca.gov/climatechange

Project Name:	Delta Flood Emergency Facilities Improvement Project
Environmental Document type:	Mitigated Negative Declaration
Manager's Name:	John Paash
Manager's email:	John.Paasch@water.ca.gov
Division:	Division of Flood Management
Office, Branch, or Field Division	Hydrology & Flood Operations Office

Short Project Description:

The purpose of the Delta Flood Emergency Facilities Improvement Project (FIP), a component of the Delta Flood Emergency Preparedness, Response, and Recovery Program is to ensure that the State has the appropriate infrastructure, materials and supplies in the Delta to respond to and recover quickly and effectively from major flood or earthquake disasters in the Sacramento-San Joaquin River Delta. To accomplish its purpose, the proposed project will establish material storage and transfer facility sites strategically located within the Delta.

Project GHG Emissions Summary

Total Construction Emissions	1,700	$mtCO_2e$
Maximum Annual Construction Emissions	1,500	$mtCO_2e$

☒ All other emissions from the project not accounted for above will occur as ongoing operational, maintenance, or business activity emissions and therefore have already been accounted for and analyzed in the GGERP.

Extraordinary Construction Project Determination

Do total project construction emissions exceed 25,000 $mtCO_2e$ for the entire construction phase or exceed 12,500 $mtCO_2e$ in any single year of construction.

○ Yes - Addition analysis is required, consult with C4

◉ No - Additional analysis not required

Project GHG Reduction Plan Checklist

☒ All Project Level GHG Emissions Reduction Measures have been incorporated into the design or implementation plan for the project. (Project Level GHG Emissions Reduction Measures)

Or

☐ All feasible Project Level GHG Emissions Reduction Measures have been incorporated into the design or implementation plan for the project and and Measures not incorporated have been listed and determined not be apply to the proposed project (include as an attachment)

☒ Project does not conflict with any of the Specific Action GHG Emissions Reduction Measures (Specific Action GHG Emissions Reduction Measures)

Would implementation of the project result in additional energy demands on the SWP system of 15 GWh/yr or greater?

○ Yes ◉ No

If you answered Yes, attach a Renewable Power Procurement Plan update approval letter from the DWR SWP Power and Risk Office.

Is there substantial evidence that the effects of the proposed project may be cumulatively considerable notwithstanding the proposed project's compliance with the requirements of the DWR GHG Reduction Plan?

○ Yes ◉ No

If you answered Yes, the project is not eligible for streamlined analysis of GHG emissions using the DWR GHG Emissions Reduction Plan. (See CEQA Guidelines, section 15183.5, subdivision (b)(2).)

Based on the information provided above and information provided in associated environmental documentation completed pursuant to the above referenced project, the DWR CEQA Climate Change Committee has determined that the proposed project is consistent with the DWR Greenhouse Gas Reduction Plan and the greenhouse gasses emitted by the project are covered by the plan's analysis.

Project Manager Signature:		Date:	
CA Approval Signature:		Date:	2/14/13

Attachments:

☒ GHG Emissions Inventory

☐ List and Explanation of excluded Project Level GHG Emissions Reduction Measures

☐ Plan to Update Renewable Energy Procurement Plan from DWR SWP Power and Risk Office

Delta Flood Emergency Facilities Improvement Project **- Inventory and Calculation of Greenhouse Gas Emissions**

Line	**Emissions from Construction Equipment**									
1	**Type of Equipment**	**Maximum Number per Day**	**Total Operation Days**	**Total Operation Hours[1]**	**Fuel Consumption Per Hour[2]**	**Total Fuel Consumption (gal. diesel)**	**CO_2e/gal diesel[3]**	**Total CO_2 Equivalent Emissions (metric tons)**	Sites	Max HP	**Notes**
2	Cement and mortar mixer	3	2	48	0.29	14	0.010	0.1	All	15 HP	
3	Crane	3	10	240	8.18	1,963	0.010	20.4	All	500 HP	
4	Grader	3	15	360	5.66	2,038	0.010	21.2	All	175 HP	
5	Tractors/ Loaders/ Backhoes	6	45	2160	2.37	5,119	0.010	53.2	All (2 at each site)	120 HP	
6	Off-Highway Truck	1	5	40	7.55	302	0.010	3.1	Rio Vista	250 HP	Off-Highway truck. Used to transfer sand stockpile
7	Pump	3	15	360	1.3	468	0.010	4.9	All	50 HP	Other equip
8	Water Truck	3	15	360	7.55	2,718	0.010	28.2	All	250 HP	Off-Highway truck
9	Rubber Tired Dozer	3	15	360	8.36	3,010	0.010	31.3	All	250 HP	
10	Paver			0	3.18	-	0.010	-		120 HP	
11	Scrapper	3	15	360	9.52	3,427	0.010	35.6	All	250 HP	
12	Crane (Dredging)	1	2	16	16.28	260	0.010	2.7	Brannan	750 HP	
13	Roller	3	15	360	2.71	976	0.010	10.1	All	120 HP	
14				0		-	0.010	-			
15				0		-	0.010	-			
16				0		-	0.010	-			
17				0		-	0.010	-			
18				0		-	0.010	-			
19				0		-	0.010	-			
20				0		-	0.010	-			
21				0		-	0.010	-			
22				0		-	0.010	-			
23				0		-	0.010	-			
24				0		-	0.010	-			
25	TOTAL					**20,295**		**211**			
26	[1] An 8-hour work day is assumed.										
27	[2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors										
28	[3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2										
29											

30 **Emissions from Transportation of Construction Workforce**

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Travelled (round trip)	Total Miles Travelled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)	
32	30	60	30	54000	20.8	**2596.2**	0.009	**23**	**All. Assumes 10 workers per day per site**

33 [4] United States Environmental Protection Agency. 2008. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2008. [EPA420-R-08-015]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Travelled	Average Semi-truck Fuel Efficiency	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)	
37	Delivery (stockpile)	4000	104	416000	5	83200	0.010	865	Conservative distance assumption: Ione to Rio Vista. Shorter distance to Stockton. Assumes 20 tons/ truck haul
	Delivery (AB)	4250	60	255000	5	51000	0.010	530	
38	Spoils						0.010	0	
39	TOTAL							**1395**	

40

41 **Construction Electricity Emissions**

42		MWh of electricity	$mtCO2_e$/ MWh[5]	CO_2 e emissions
43	Electricity Needed	0	0.310	0

44 [5] eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 1,628.8 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction** 2 Years

48 **Expected Start Date of Construction** July-14

49

50 **Estimated Project Useful life** 2 Years

51 **Average Annual Total GHG Emissions[7]** 814.4 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

4.9 Hazards and Hazardous Materials

4.9.1 Environmental Setting

The proposed project would consist of stockpiling and storing levee repair materials. In addition, the sites may be developed as ICPs, which will include portable office trailer complexes placed on aggregate pads and installation of necessary utilities. None of the levee repair materials that would be stockpiled contain hazardous materials or waste.

The State Water Resources Control Board (SWRCB) GeoTracker (State Water Resources Control Board, 2010) and Department of Toxic Substances Control EnviroStor databases were reviewed for each of the project site areas. The findings are summarized below (Department of Toxic Substances Control, 2010).

4.9.1.1 Stockton, West Weber Avenue Site

The Stockton, West Weber Avenue site is within an area that is part of a larger voluntary cleanup site for lead, polynuclear aromatic hydrocarbons (PAHs), and VOCs that were released during previous land use activities of the peninsula, including vehicle storage and refueling and railroad right of way. There are also three nearby designated Spills, Leaks, Investigations, and Cleanups (SLIC) sites on the peninsula where the Stockton West Weber site is located, all of which have achieved closed status. There is also an active EPA Superfund site located south of the site across the Old Mormon Slough. On the nearby Superfund site the contaminants of concern are arsenic, PAHs, VOCs, and dioxin. (California Department of Toxic Substances Control, EnviroStor data base, West Weber Avenue Voluntary Cleanup Site 60000674). The proposed site improvements would not disturb the toxic contaminants in that area.

According to a Preliminary Endangerment Assessment Report (PEA)completed in 2008 by Geo-Phase Environmental, Inc., the areas that are proposed for this project's activities exhibited some low levels of contaminants; however, none appeared to be in excess of regulatory standards for existing and planned commercial and industrial uses. The majority of the contaminant levels were consistent with background levels for the commercial and industrial area, but exceeded the contaminant levels for residential development under previous consideration by the land owner(s) in 2007-2008. Other adjacent parcels were found to have limited areas of contamination and recommendations were made for remediation of those areas (Geo-Phase Environmental, 2008).

To address any outstanding hazardous materials and/or any hazardous risks associated with disturbing the existing soils at the Stockton West Weber site DWR has been in consultation with the State Department of Toxicity Substance Control (DTSC) and has entered into an interagency agreement with DTSC to further evaluate the hazardous conditions and develop applicable remediation plans for the site. The interagency agreement with DTSC will function similarly as a voluntary clean-up agreement between DTSC and DWR, where the two agencies will collectively reevaluate the former investigations, and determine if any supplemental site investigations (SSIs) are needed in connection with development remediation plans and actions that can be incorporated into the final development plans for the site that are being developed by DWR.

Given the existing hazardous materials conditions at the Stockton West Weber site and implementation of Mitigation Measure HAZ-1, the Stockton West Weber project site would have a **less than significant impact with mitigation incorporated** as described in Section 4.9.3.

4.9.1.2 Rio Vista

There are no hazardous waste sites known to be present on or in the immediate vicinity of the Rio Vista site. The adjacent dock facilities owned by the Dutra Group have been in heavy industrial use and may have some unidentified contaminants. If they exist, they would not be disturbed as part of the proposed site improvements.

4.9.1.3 Brannan Island

There are no hazardous waste sites known to be present on or in the immediate vicinity of the Brannan Island State Recreation Area (BISRA) site.

Therefore the project site areas within the BISRA would have **less than significant impacts**.

4.9.2 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Hazards and Hazardous Materials – Would the Project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant	☐	☒	☐	☐

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Hazards and Hazardous Materials – Would the Project:				
to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

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

The scope of the project does not include the routine transport, use, or disposal of hazardous materials. Activities associated with stockpiling rock and barge loading in an emergency situation would not create a significant hazard to the public or the environment through the transport, use, or disposal of hazardous materials; thus, the project would have **no impact.**

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?

The scope of the project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment; therefore, the project would have **no impact.**

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

There are no schools within one-quarter mile of any of the proposed project sites. The project scope does not include the emission or handling of hazardous or acutely hazardous substances. Therefore, the project would have **no impact.**

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

At the Stockton West Weber site the known contaminants are at low levels, consistent with background levels for the area. All identified SLIC sites are closed. The nearby superfund site south of Old Mormon Slough would not be disturbed by the proposed improvements to the site.

There are no hazardous material sites on either the Rio Vista site or Brannan Island site and there would be no hazard to the public or environment as a result of project activities at either site.

Although one of the three proposed project sites has a past history of hazardous materials contamination in the vicinity, implementation of the project would be **less than significant with mitigation incorporated**. Implementation of specific Mitigation Measure HAZ-1 as described in section 4.9.3 will not result in a significant hazard to the public or to the environment.

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

The Rio Vista site is approximately 1.7 miles southeast of the Rio Vista Municipal Airport, with two runways, 2,200 feet long and 4,200 feet long, respectively. The airport accommodates general aviation and transient regional aviation, including small jet planes and helicopters (source: http://www.airnav.com/airport/O88, 2012). The proposed use of the Rio Vista site for emergency quarry rock storage, transfer to barges, and ICPs would not create any conflicts with the existing airport operations. None of the equipment used to transport, store, or transfer quarry rock or other flood fight materials would represent a new use in the

area since the Rio Vista site has been used for dredged materials storage and re-use for many decades. The Dutra Group docks have been used for barge loading operations in the past.

The proximity of the airport enhances the viability of this site as an ICP, as it includes aviation navigational aids, a heliport, and other support functions. DWR may consider locating the ICP on the airport property, subject to an agreement with the City of Rio Vista.

The other two proposed project sites are not within any airport land use plan or within 2 miles of a public airport or public use airport. None of the project sites would result in a safety hazard for aviation or for people residing or working in the project area; therefore, there would be **no impact.**

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

The proposed project sites are not in the vicinity of any private airstrips. The project would not result in a safety hazard for people residing or working in the project area; therefore, there would be **no impact.**

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The proposed project is the implementation of an emergency response plan for repairing levee breaks and failures in the Delta. The project would facilitate the implementation of the DFEPRRP. The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; therefore, there would be **no impact.**

h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The project scope does not include any activity in the vicinity of wildlands and would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. There would be **no impact.**

4.9.3 Proposed Environmental Mitigation Measures

Mitigation Measure HAZ-1:

DWR has entered into an interagency agreement with the State Department of Toxic Substance Control (DTSC) to conduct applicable supplemental site investigations (SSIs) and shall develop environmental remediation plans that will be incorporated into the site plans and improvements proposed for the Stockton West Weber Avenue parcel(s) prior to any ground disturbing activities that may pose a toxic substance hazardous risk during construction of site improvements and subsequent facility operations that will be consistent with current commercial and industrial zoning land uses.

4.10 Land Use and Planning

4.10.1 Environmental Setting

4.10.1.1 Stockton, W. Weber Avenue

The current zoning for all three parcels comprising this site is Industrial, General (IG). This site is currently adjacent to industrial sites. All of the parcels along West Weber Avenue west of I-5 are designated IG, as are the parcels on the east and south of Old Mormon Slough. On the north bank of the Stockton Deep Water Ship Channel, directly across from the site the parcels are designated Commercial, General (CG) and the 2035 General Plan Land Use/Circulation Diagram designation is Commercial. The parcels to the west and south are designated as Industrial in the 2035 General Plan, while the parcels to the north and east are proposed as commercially zoned (City of Stockton, 2007).

4.10.1.2 Rio Vista

According to the Solano County General Plan (November 4, 2008), land use zoning for Rio Vista along Airport Road, west of the Rio Vista Site, is urban industrial. East of the City Limit, including the southern portion of the Sacramento San Joaquin Drainage District property managed by the CVFPB where the existing quarry rock stockpile is located, the land is designated as agricultural. Along the waterfront the designation is urban industrial and water-dependent industrial.

4.10.1.3 Brannan Island

This site is zoned as Recreation (O), wherein some agricultural, commercial, and institutional uses are permitted subject to the issuance of a conditional use permit. The Island is designated as Natural Preserve and Recreation in the Sacramento General Plan. (Sacramento County, 2010).

4.10.2 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Land Use and Planning – Would the Project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the	☐	☐	☒	☐

purpose of avoiding or mitigating an environmental effect?				
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☒	☐

The three project sites are all previously disturbed. The Stockton, West Weber Avenue site is located in an industrialized area. The Rio Vista site is in area that is presently used by DWR for stockpiling quarried rock and the planned FIP uses are a simple extension of the same uses consisting of stockpiling sand and storing flood fighting supplies in steel containers. The Brannan Island Site is located in a portion of a recreational area that is currently vacant land, developed for parking, boat launching, restroom facilities, or used utility storage

Implementation of the proposed project would not require a change in zoning for any of the sites. The proposed use at the Stockton West Weber Avenue site would represent a continuation of past materials handling and barge loading operations.

The proposed project would represent a continuation of existing use at the Rio Vista site, where dredged materials have been deposited and removed for approximately 90 years. It would rely on the existing Dutra Group dock facilities for loading quarry rock and other materials onto barges. A helipad would be designated in the southwestern portion of the property for emergency uses, including transporting sand-filled bulk bags, flood fight supplies and equipment, and staff.

The proposed project would represent a change in the recent land use at the Brannan Island site, which has been almost exclusively recreational over the past several decades. However, the proposed use is compatible with the recreational zoning designation, as long as the emergency operations do not detract from the overall recreational experience. As noted earlier, the emergency operations would take advantage of existing State investments in improvements on the site, but would not occur during periods of recreational use.

For these reasons the proposed land uses are compatible with existing zoning and no zoning changes will be needed to accommodate the project. Therefore the project will have **less than significant impact.**

a) Physically divide an established community?

The project would not physically divide an established community because the project would utilize sites that have been previously developed for industrial purposes. Therefore, the project would have **no impact**.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

The proposed uses of the three sites would comply with the designated land uses and zoning for the sites. The Stockton, West Weber Avenue, Rio Vista, and Brannan Island sites would have similar uses to their current and past uses. There are no known plans for changes in zoning at the Brannan Island Site. Therefore, the project would have a **less than significant impact.**

c) Conflict with any applicable habitat conservation plan or natural community conservation plan (NCCP)?

The Stockton, West Weber Avenue, Rio Vista, and Brannan Island sites are all part of the Bay-Delta Conservation Plan. In addition, the Stockton, W. Weber Avenue site is included in the San Joaquin County Habitat Conservation Plan.

Project activities would not require the removal of woody vegetation at any of the sites and no vernal pools were observed at any of the sites. Degradation of water quality at the barge loading sites would be minimal or avoided. The impact would be **less than significant.**

4.10.3 Proposed Environmental Mitigation Measures

No significant impacts are anticipated; therefore, no mitigation measures are needed or proposed for land use.

4.11 Mineral Resources

4.11.1 Environmental Setting

Under the Surface Mining and Reclamation Act of 1975 (SMARA), the California Division of Mines and Geology and the State Mining and Geology Board administer the inventory process for mineral lands and resources. Land is categorized into four categories of Mineral Resource Zones (MRZs):

- MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- MRZ-2: Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists.
- MRZ-3: Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
- MRZ-4: Areas with no known mineral occurrences because available information is inadequate for assignment to any other MRZ zone (San Joaquin County, 1992).

Areas underlain by demonstrated mineral resources where geologic data indicate the presence of significant measured resources are designated as “regionally significant.”

The project sites are located in the following counties:

County	Site
San Joaquin	Stockton, W. Weber
Solano	Rio Vista
Sacramento	Brannan Island

Mineral resources within San Joaquin County consist primarily of sand and gravel aggregate, with limited mining of peat, gold, and silver. The principal mineral resources within Solano County are mercury, sand, gravel, clay, stone products, calcium, and sulfur (Solano County General Plan, November 4, 2008). The principal mineral resources produced in Sacramento County are aggregate and natural gas, and other mineral resources present include clay, gold, silver, peat, topsoil, lignite, and petroleum.

4.11.2 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Mineral Resources – Would the Project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Only one of the three potential project sites is known to be underlain by mineral resources as defined by SMARA (San Joaquin County, 1992, Solano County, 2008), Sacramento County, 2011). The Brannan Island site is in a "known gas region" (Sacramento County, 2011). The presence of mineral resources at the project sites was confirmed through review of the applicable County General Plans for each site wherein the known mineral resources for each county are mapped.

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

The use of the Brannan Island site for stockpiling would not preclude the continued extraction of natural gas from this site. Project activities will have **no impact** on mineral resources.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Only one of the three proposed project sites is designated as a mineral resource zone or mineral recovery site. While the Brannan Island site is in a "known gas region," use of this site for stockpiling purposes would not preclude the possibility of future gas extraction. Therefore, the proposed project would not result in the loss of any known mineral resources and there would be **no impact.**

4.11.3 Proposed Environmental Mitigation Measures

No significant impacts are anticipated; therefore, no mitigation measures are needed to address impacts to mineral resources.

4.12 Utilities and Service Systems

4.12.1 Environmental Setting

The proposed project would be built on sites that are currently developed and have been used as industrial sites, dredged materials disposal and storage sites, or recreational areas. The proposed project does not include or induce construction of new homes or buildings. It would not extend public roadways or infrastructure.

4.12.2 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Utilities and Service Systems – Would the Project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause	☐	☐	☐	☒

significant environmental effects?				
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

The proposed project will allow emergency levee repairs to take place in a timely manner, thus protecting utilities and service systems from damage, or reducing damage.

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Existing wastewater treatment facilities that meet applicable wastewater treatment requirements of the RWQCBs would be adequate to serve the project. Both the Stockton, Weber Avenue Site and the Brannan Island site have existing restroom facilities. Portable restroom facilities would be used at the Rio Vista site. These sites would be activated and used during Delta levee emergencies, which are episodic in nature. Therefore, the project would not result in the exceedance of any wastewater treatment requirements and there would be **no impact.**

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Dust control during construction activities and emergency operations would require the use of water; however, the amount of water would be minimal and existing facilities would have adequate capacity for watering activities. The project does not propose to develop undeveloped land or construct any new buildings or structures that would increase the population in these areas; therefore, the project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, and the project would have **no impact.**

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No construction of new storm water drainage facilities or expansion of existing facilities is proposed as part of the project. Therefore, there would be **no impact**.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Construction activities and movement of materials at the three sites could create dust, and the three graveled areas would require watering during construction, barge loading, and truck hauling activities to minimize the creation of dust. Water for reducing the creation of dust is generally obtained from the site or from nearby water sources such as fire hydrants or existing water spigots. Since stockpiling activities and emergency operations would be temporary and generally in response to limited emergency situations, watering activities would also be temporary and existing water sources and supply would be sufficient. Therefore, the project would have a **no impact**.

e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?

No additional wastewater demands would be generated by the project, and the project would have **no impact** on the wastewater treatment provider in the proposed project areas.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Workers would be onsite temporarily and would use available refuse containers in the project vicinity for disposing of solid waste. Additional solid waste generated during stockpiling and emergency operations would be temporary and minimal. Therefore, the project would have **no impact** on the landfills that serve the seven proposed project areas.

g) Comply with federal, state, and local statutes and regulations related to solid waste?

Workers would be onsite temporarily and would use available refuse containers in the project vicinity in accordance with federal, state, and local statutes and regulations for disposing of solid waste. Therefore, the project would have **no impact**.

4.12.3 Proposed Environmental Mitigation Measures

No significant impacts are anticipated; therefore, no mitigation measures are needed or proposed for utilities and service systems.

4.13 Noise

4.13.1 Environmental Setting

The noise standards applicable to the three project sites for regulatory compliance purposes are described in the following sections. Noise standards for the West Weber Avenue site are under the regulatory authority of the City of Stockton and San Joaquin County; noise standards for the Rio Vista site are under the regulatory authority of the City of Rio Vista and Solano County; and noise standards for the Brannan Island site are under the regulatory authority of Sacramento County.

4.13.1.1 City of Stockton

General Plan: The Noise Element of the City of Stockton General Plan contains the following policies and standards applicable to the proposed project:

> HS-2.11 Limiting Construction Activities: The City shall limit construction activities to the hours of 7 a.m. to 7 p.m., Monday through Saturday. No construction shall occur on Sundays or national holidays without a written permit from the City.

Municipal Code: The City of Stockton Municipal Code contains the following standards applicable to the proposed project:

> Division 16-340 Noise Standards: 16-340.020 – Activities Exempt from Noise Regulations: The following activities shall be exempt from the provisions of this Division:
>
> > A. Emergency exemption. The emission of sound for the purpose of alerting persons to the existence of an emergency, or the emission of sound in the performance of emergency work. Does not include permanently installed emergency generators.
> >
> > E. State or Federal pre-exempted activities. Any activity, to the extent the regulation of it has been preempted by State or Federal law.
> >
> > F. Public health and safety activities. All transportation, flood control, and utility company maintenance and construction operations at any time on public rights-of-way, and those situations that may occur on private property deemed necessary to serve the best interest of the public and to protect the public's health and wellbeing, including, debris and limb removal, removal of damaged poles and vehicles, removal of downed wires, repairing traffic signals, repair of water hydrants and mains, gas lines, oil lines, and sewers, restoring electrical service, street sweeping, unplugging sewers, vacuuming catch basins, etc. The regular testing of motorized equipment and pumps shall not be exempt.
>
> 16-340.030 – Activities Deemed Violations of this Division: The following acts are a violation of this Division and are therefore prohibited:
>
> 16-340.030A – Construction Noise. Operating or causing the operation of tools or equipment on private property used in alteration, construction, demolition, drilling, or

repair work between the hours of 10 p.m. and 7 a.m., so that the sound creates a noise disturbance across a residential property line, except for emergency work of public service utilities.

4.13.1.2 San Joaquin County

San Joaquin County has adopted a noise ordinance and noise level guidelines (San Joaquin County, 1978) for land uses within its unincorporated territory. In the Ordinance Code of San Joaquin County for Zoning and Subdivision Regulations (Ordinance Nos. 2831 and 3005), the county has set noise limits for various land uses, summarized as follows (San Joaquin County, 1988):

a) The sound level within the Commercial-Manufacturing, Restricted-Manufacturing, Manufacturing-1, and Manufacturing-2 zones must not exceed 75 dB Ldn at property lines of the property being developed.

b) No sound level must exceed 65 dB Ldn at property lines of properties that abut areas developed as residential, areas zoned residential, or areas shown for residential use on the General Plan.

c) No sound level must exceed 65 dB Ldn at the property lines of properties that abut local parks, schools, hospitals, homes for the care of the aged and infirm, and rest homes.

The county also adopted the California Airport Noise Standards, which set the 65 dB CNEL and Ldn maximum exterior noise level for residential land uses, and the California Sound Transmission Control Standards, which require developers within areas of 60 dB CNEL and Ldn to submit acoustical studies demonstrating that a 45 dB CNEL and Ldn will be achieved (San Joaquin County, 1978).

4.13.1.3 City of Rio Vista

The Rio Vista site lies outside the Rio Vista City limit line, but abuts it on the south, west, and north. Materials stockpiled on the site would be trucked to the dock facilities owned by the Dutra Group along the waterfront to the south, which lie within the City limit. Accordingly, this assessment considers the potential for impacts on sensitive receptors in the City and the thresholds for impact established by the City.

The City of Rio Vista Municipal Code establishes requirements for noise in several categories. The categories relevant to the project include highway noise and construction equipment noise. The criteria are shown below:

17.52.020 Highway noise.

Noise along the highways is to be related to the land use and distance from the highway.

A. Noise Standards. The relationship of land use on highways and noise level is established as follows:

Table 4-8. City of Rio Vista Design Noise Thresholds

Land Use Category	Design Noise Level	Description of Land Use Category
A	60 dBA (exterior)	Tracts of lands in which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, or open spaces which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B	70 dBA (exterior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, picnic areas, recreation areas, playgrounds, active sports areas and parks.
C	75 dBA (exterior)	Developed lands, properties or activities not included in categories A and B above.
D	55 dBA (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

B. Method of Application for Land Use Category D. Although State Highway 12 is planned to bypass Rio Vista in the future, applications along the now existing route through the city may be processed and noise standards may have to be verified with the State Department of Highways, Stockton. This is part of the environmental impact report to be prepared by the applicant. Noise reduction factors higher than those shown below may be used when field measurements of the structure in question indicate that a higher value is justified. In determining whether to use open or closed windows, the choice should be governed by the normal condition of the windows. That is, any building having year round air treatment should be treated as the closed window case. Buildings not having air conditioning and which have open windows a substantial amount of time should be treated as the open window case.

Table 4-9. Effect of Building Type and Window Condition on Noise Thresholds

Building Type	Window Condition	Noise Reduction Due to Exterior of the Structure	Corresponding Highest Exterior Noise Level Which Would Achieve an Interior Design Noise Level of 55 dBA
All	Open	10 dBA	65 dBA
Light Frame	Ordinary sash, closed	20	75
Light Frame	Ordinary sash, with storm windows	25	80
Masonry	Single glazed	25	80
Masonry	Double glazed	35	90

Exceptions. The design noise levels set out in these standards represent the highest desirable noise level conditions. State highway departments shall endeavor to meet the design noise levels in planning, locating, and designing

highway improvements. However, there may be sections of highway where it would be impracticable to apply noise abatement measures. This could occur where abatement measures would not be feasible or effective due to physical conditions, where the costs of abatement measures are high in relation to the benefits achieved or where the measures required to abate the noise condition conflict with other important values, such as desirable esthetic quality, important ecological conditions, highway safety, or air quality.

C. Noise Reducers. Highway noise can be reduced in sensitive locations by putting up noise barriers. A twelve (12) foot high wall along the route may reduce noise by about twenty (20) percent (from eighty (80) decibels to sixty-five (65) decibels), but may produce an unattractive appearance. Small artificial hills properly landscaped may provide a more attractive appearance, but that approach would need more right-of-way lands. Other effective barriers are buffer planting strips on easements along the highway.

D. Existing Structures. A structure existing prior to coming into force of this title shall not be deemed nonconforming by reason of failure to meet the noise requirements of this section.

E. Location of Noise Contours. According to State Law Title 7, Section 65302(g) the State Highway Department is to undertake any highway traffic noise measurement in order to verify exact location of the noise contours for use by applicants. Noise measurements along other roads than state highways are to be provided by the applicant as part of the environmental impact report information. (Prior code Appendix B § 513(B))

17.52.030 Construction equipment noise.

It is unlawful for any person within a residential zone, or within a radius of five hundred (500) feet therefrom to operate equipment or perform any outside construction or repair work on buildings or structures within the city between the hours of seven p.m. and seven a.m. or on Sundays. Emergency works are excepted. (Ord. 612 § 1 Exh. A (part), 2006: prior code Appendix B § 513(C)).

4.13.1.4 Solano County

General zoning requirements for all land uses in Solano County prohibit noise that exceeds 65dBA LDN at any property line (Solano County Code Section. 28.70.10(B)(1)(b). In addition, for "…construction storage yards, incidental to construction or public works projects, shall show that adequate controls or measures will be taken to prevent offensive noise, odor, dust, fumes, smoke or vibration; shall be so located that generated traffic will not constitute a hazard or nuisance to surrounding property (Solano County Code Section 28.78.40 (B)(2)).

4.13.1.5 Sacramento County

Sacramento County has adopted a noise ordinance and noise level guidelines (Sacramento County, 2011) for land uses within its unincorporated territory.

4.13.1.6 Project Sites

Stockton, W. Weber Avenue

The project site is located within the City of Stockton and is surrounded primarily by industrial land uses. The existing noise environment is primarily influenced by heavy-duty trucks entering the site and in the surrounding vicinity, and by traffic on I-5 located about 0.15 miles northeast of the site. Approximately 900 feet to the southwest of the property are some residences on Harbor Street, between Visalia Court and Fresno Avenue. These residences are on the normal trucking path to the Port of Stockton.

The site is zoned as industrial. This designation allows offices, retail sales and service, public and quasi-public uses, and other related and compatible uses. Uses with nuisance or hazardous characteristics are allowed. No residential uses are permitted in this designation.

Access to the site will be from Highway 4, South Fresno Avenue, West Washington Street, continue on Harbor Street, and left at West Weber Avenue to site location. Much of the path is normally used by trucks going to the Port of Stockton.

Rio Vista

The Rio Vista site is currently used for the beneficial re-use of dredged materials. Asta Corporation has an active sand and aggregate mining operation approximately 2,800 feet north of DWR's quarry rock stockpile. Various portions of the property have been mined over the years. The nearest sensitive receptors are in a mobile home park on the riverfront, approximately 2,000 feet due south of the stockpile. Most of the intervening land use is devoted to industrial use, including trucking facilities, barge facilities, and related uses. The proposed temporary emergency use of the Rio Vista site as a quarry rock storage and transfer facility would be consistent with existing land use. Noise levels associated with the loading and transfer operations would be well below the threshold of significance for residential areas.

Brannan Island

Brannan Island is a Recreation Area. No permanent residences, schools, or other sensitive receptors are found near the site. Access to the site will be along SR 160, exiting at the entrance to the Brannan Island State Recreation Area or at Brannan Island Road. No permanent residences, schools or sensitive receptors are found near the site. BISRA visitors would not be impacted by site development as most all the site improvements will take place a significant distance from the main park use areas reserved for typical day uses, picnicking boating, and camping. During emergency operations there will be no impact to visitors since emergency activation of the site would shut down the park, for safety concerns in and around the Delta, to visitors during emergency operations. The only impact could be during planned exercises and drills, which could be scheduled to take place around non-peak periods of use within the BISRA.

4.13.2 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Noise – Would the Project:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

a) Would the proposed Project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?

Project-generated noise levels would be primarily associated with construction activities including site preparation, installation of concrete pads and foundations, material transport (e.g., hauling of riprap to the stockpile areas), stockpile construction, and other miscellaneous activities. These activities, including delivery of riprap to the stockpile sites, would occur during normal working hours (7 a.m. to 7 p.m., Mondays through Saturdays). Additional project-generated noise would occur temporarily during emergency events that require use of

the stockpiled riprap and during replenishment of stockpiles following use of the rock during an emergency. However, as with the original stockpiling activity, delivery of riprap to replenish stockpiles following an emergency event would occur during normal working hours.

According to the Federal Highway Administration, the noise levels typically associated with the activities above can range from 79 to 91 dBA at 50 feet (Table 4-10). The simultaneous operation of on-site construction equipment associated with the project could result in combined intermittent noise levels higher than the noise level of the individual pieces of equipment. However, the noise levels would be expected to be below the thresholds set by both the City of Rio Vista and by Solano County for the sensitive receptors located along the waterfront south of the Dutra Group's dock facilities. Construction of site improvements and operation of the Stockton, West Weber and BISRA sites would not increase noise levels above current uses. The Stockton West Weber site is located near the intersection of Interstate 5 and SR 4 and near the Port of Stockton, areas of significant truck and transportation traffic within the City of Stockton, San Joaquin County; and the BISRA, located in the unincorporated area near the southern tip of Sacramento County experiences significant noise levels from heavy vehicular and truck traffic passing through the Delta along Scenic SR 160.

Table 4-10. FHA Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level (dBA) 50 ft. from Source*
Air Compressor	81
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane Derrick	88
Crane Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	85
Paver	89
Pneumatic Tool	85
Pump	76
Rail Saw	90

Equipment	Typical Noise Level (dBA) 50 ft. from Source*
Rock Drill	98
Roller	74
Saw	76
Scarifier	83
Scraper	89
Shovel	82
Spike Driver	77
Tie Cutter	84
Tie Handler	80
Tie Inserter	85
Truck	88

All construction activities, including delivery of rock riprap to establish the stockpiles would occur during the daytime hours (working hours would be from 7 a.m. to 7 p.m., Monday through Saturday). Construction activities would not occur during the noise-sensitive hours (e.g., evening, nighttime, early morning, and Sunday) and construction-generated source noise would not result in the annoyance and/or sleep disruption to occupants of any existing noise-sensitive land uses in the project vicinity. Thus, this portion of the project would have a **less than significant** impact.

b) Result in exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?

Construction activities have the potential to result in varying degrees of temporary ground borne vibration, depending on the specific construction equipment used and operations involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

With respect to the proposed project, the use of trucks at the site would generate the maximum ground borne vibration in comparison to the other equipment mentioned. According to the Federal Transit Administration (FTA), vibration levels associated with the use of trucks is 0.076 inches per second (in/sec) peak particle velocity (PPV) and 86 vibration decibels [VdB referenced to 1 microinch per second (µin/sec) and based on the root mean square (RMS) velocity amplitude] at 25 feet (DWR, 2007). Vibration levels decrease with distance from the source to receptor.

These vibration levels would not exceed Caltrans' recommended standards with respect to the prevention of structural building damage (0.2 and 0.08 in/sec PPV for normal and historical buildings) or FTA's maximum acceptable vibration standard with respect to human response (80 VdB for residential uses) at nearby existing vibration-sensitive land uses (Jones

and Stokes, 2004). In addition, the long-term operation of the proposed project would not include any major sources of vibration. Thus, project implementation would not result in the exposure of persons to or generation of excessive groundborne vibration or ground borne noise levels. This would be a **less than significant** impact.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Long-term operational traffic source noise would not result in the exposure of persons to or generation of noise levels in excess of applicable standards or create a substantial permanent increase in ambient noise levels in the project vicinity. As a result, there would be **no impact**.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Short-term on-site construction equipment and off-site truck travel could result in the exposure of persons to or generation of noise levels in excess of applicable standards or create a substantial temporary increase in ambient noise levels in the project vicinity. Such construction noise would be mitigated through the implementation of construction BMPs for construction, as described in Mitigation Measure NOI-1. As a result, this impact is considered **less than significant with mitigation incorporated** as described in Section 4.13.3.

e, f) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and for a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Of the three proposed sites, only the Rio Vista site is within the two-mile threshold, being approximately 1.7 miles south of the Rio Vista Municipal Airport. However, at this distance project construction workers or emergency workers would not be exposed to excessive aviation noise levels and there would be **no impact.**

4.13.3 Proposed Environmental Mitigation Measures

Mitigation Measure NOI-1: Implement Measures to Control Construction Equipment Noise Levels.
DWR shall implement the following mitigation measure to reduce potential impacts from exposure to noise from construction equipment to a less than significant level. The contractor and/or DWR shall properly maintain construction equipment, and equip with noise control devices, such as exhaust mufflers or engine shrouds, in accordance with manufacturers' specifications. For non-emergency activities such as site construction and stockpiling quarry rock, operations will be limited to the periods 7:00 AM to 7:00 PM, Mondays through Saturdays.

4.13.4 Impacts after the Application of Mitigation Measures

Implementation of NOI-1 will reduce potential impacts to **less than significant.**

4.14 Population Housing

4.14.1 Environmental Setting

The population of the Delta region when the 2000 Census was conducted was 515,000, and minimal population growth has occurred since 2000. The Delta is comprised of portions of Alameda, Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties and the major cities located within the Delta area include Sacramento, Stockton, West Sacramento and Oakley. Smaller communities such as Elk Grove, Tracy, Brentwood and Rio Vista have seen rapid growth recently (California Water Plan, 2009). The populations of the cities the project sites are located in or, most closely to, are:

Table 4-11. Populations of Cities close to Project Sites

Stockton	279,513[1]
Antioch	100,219[2]
Rio Vista	4,571

[1] (California Department of Finance 2009)
[2] (U.S. Census Bureau 2008)

4.14.2 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Populations Housing – Would the Project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Emergency levee repair operations would be required in response to failures and breaches of existing levees throughout the Delta, and would take place independent of this proposed

project. By protecting existing land uses and preventing loss of life from the effects of water inundation, the proposed project would provide beneficial impacts to the surrounding housing and population by limiting the impacts that a levee failure could have throughout the Delta.

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The proposed project does not propose construction of new homes or residential buildings, and would not extend existing roadways or infrastructure; therefore, the proposed project would not induce population growth in the area, and the project would have **no impact** on population and housing in the Delta.

b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?

There are no existing homes located on any of the three proposed project sites and the project would have **no impact**.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

There are no existing homes located on any of the three proposed project sites. To the contrary, emergency response operations will serve to protect housing and people from displacement in the event of a flood emergency. There will be **no impact** as a result of this project's proposed action.

4.14.3 Proposed Environmental Mitigation Measures

No significant impacts are anticipated; therefore, no mitigation measures are needed or proposed for population and housing.

4.15 Public Services

4.15.1 Environmental Setting

The proposed project sites in Rio Vista and Stockton West Weber are previously developed industrial or industrial agricultural sites; and the site improvements on Brannan Island are proposed for unimproved recreation areas within the BISRA. The project activities will not result in the need for new or physically altered governmental facilities or related public services.

4.15.2 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Public Services – Would the Project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Emergency levee repair operations would be required in response to breaches of existing levees throughout the Delta, and activities would take place as needed with or without this project's proposed action. The project facilities would provide beneficial impacts to the surrounding public services by limiting the time that a levee failure might have on inundating islands, or portions thereof within the Delta.

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

The proposed project would not result in the need for new governmental facilities, and would not generate additional public service demands that would require new or altered facilities, including police and fire protection. The proposed project would provide stockpiles of levee repair material and flood fight materials at two of the three project sites. They would be utilized during emergency levee repair operations that may occur throughout the Delta. The proposed project sites are previously developed sites that were used in the past for industrial activities. This project's proposed action would not result in substantial adverse physical impacts with the provision of new or physically altered governmental facilities, and no new

or expanded public service facilities would be necessary as a result of project implementation. Therefore, the project would have **no impact.**

4.15.3 Proposed Environmental Mitigation Measures

No significant impacts are anticipated; therefore, no mitigation measures are needed or proposed for public services.

4.16 Recreation

4.16.1 Environmental Setting

The proposed project would provide stockpiles of levee repair materials, establish transfer facilities, and provide infrastructure to support ICPs at three strategic locations throughout the Delta for use during flood emergency responses. All of the proposed sites are previously disturbed and were used in the past for industrial or recreational activities. No recreation facilities are present on the Stockton, West Weber, and the Rio Vista sites.

The Brannan Island site would be co-located with the BISRA. By making use of existing parking, restroom, and boat launching facilities the project will make best use of existing public infrastructure. The proposed use will not conflict with existing recreational uses because such recreational use would be restricted for safety reasons during major flood events, earthquakes, and other disasters. Stockpiles of emergency flood-fight materials and supplies, including quarry rock, poly-sheeting, sand bags, bulk bags, and hand tools would be stored out of the way of existing recreational facilities, and would not limit the carrying capacity of the recreation area nor impact the aesthetic experience of recreationists.

Barge loading operations would be conducted on or adjacent to the existing boat launching area or on the southwestern tip of the site adjacent to Threemile Slough. A quarry rock stockpile(s) with variable gradations of quarry rock less than 24-inch-minus rock would be placed on approximately 1.7 acres on the barren uplands adjacent to Threemile slough. There are currently no recreational facilities or uses on the southern tip of the BISRA peninsula area.

The potential exists for enhancing existing recreational facilities, such as roads, restrooms, and utilities, when such actions also improve emergency response capabilities of the project. DWR and DPR would collaborate during project design and implementation to optimize both uses.

4.16.2 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Recreation – Would the Project:				
a) Increase the use of existing	☐	☐	☐	☒

neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☒	☐

By preparing and responding more quickly and effectively to an emergency response in the event of a levee breach or failure in the Delta, the proposed project will reduce the effects of water inundation to the existing land uses; therefore, the proposed project would potentially provide beneficial impacts to recreational resources located in the vicinity of a levee failure.

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The proposed project would not induce population growth, and therefore, would not contribute to any increased use of recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. Therefore, the project would have **no impact.**

b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

The proposed project does not include or require the construction or expansion of recreational facilities. It may allow for the upgrading of existing facilities where such upgrades advance both the quality of the recreational experience and the functionality of the emergency response characteristics. Such improvements would affect existing structures and facilities and construction would be in accordance with all applicable BMPs; therefore, the project would have a **less than significant impact.**

4.16.3 Proposed Environmental Mitigation Measures

No significant impacts are anticipated. Nevertheless, the project offers an opportunity for State agencies to cooperate to achieve multiple public benefits. Therefore, the following mitigation and enhancement element is proposed.

Mitigation Measure REC-1: Implement Measures to Minimize Impacts on Recreation within Brannan Island State Recreation Area (BISRA)

DWR shall inter into a Memorandum of Understanding with the State Department of recreation (DPR) to design project elements in coordination with DPR to minimize impacts on recreational quality and visual resources within the BISRA, and to improve facilities that could jointly benefit recreational services and emergency response capabilities. These

include potential features such as developing architectural treatments to blend new structures (multi-use and warehouse facilities) within the park setting, screening the placement and storage of quarry rock stockpiles with vegetation, earthen berms, and/or placing a layer of sand over the quarry rock stockpile, planting native plants to help screen project features, improving service facilities such as restrooms and roads, and collectively implement a 2,500-5,000 sf. joint use facility within the BISRA that could serve as Multi-Agency Center (MAC).

4.17 Transportation/Traffic

4.17.1 Environmental Setting

The project activities consist of acquiring one site (Stockton Weber Avenue) and securing long-term use agreements with the CVFPB (Rio Vista) and DPR (Brannan Island), then constructing improvements on each site to facilitate storage and transfer of flood fight materials, operation of ICPs, and related emergency operations. After construction, the sites would only be mobilized during an emergency flood fighting activities and response. Once the project sites are prepared, no haul truck trips would be necessary and no additional traffic would be created until a flood emergency occurs. During a declared flood emergency, trucks would haul materials to the sites on an as-needed basis to support emergency operations. Following the emergency response activities, the stockpiles would be replenished to maintain the desired tonnage of material necessary at the proposed stockpile locations.

Preparation of the stockpile sites would include approximately 100 truck trips per day during the establishment of the stockpiles. The number of days required to initially establish each site is summarized in Table 4-12.

Table 4-12. Days of Trucking required to Establish Quarry Stockpile Sites

Site	Tonnage Stored	Days
Stockton, W. Weber Avenue	40,000	15
Rio Vista	100,000 existing	0
Brannan Island	40,000	15

4.17.2 Environmental Effects

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Transportation/Traffic – Would the Project:				

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

In an emergency response situation stockpiled rock would be transferred to barges and delivered to flood fighting locations. Use of the materials located at each of the stockpiled rock could potentially occur anywhere within the Delta where repair is required and could occur at any time of year. The locations of potential breaches cannot be predicted with enough accuracy to effectively describe the potential impacts of emergency response operations. If emergency response activities were required, it is likely that a large number of truck trips would be made to deliver sufficient amounts of rock to repair a failed levee during a flood event.

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to

intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

The proposed project activities would result in a temporary increase in truck activity near the Stockton West Weber Avenue site and the Brannan Island site while levee repair and flood fight materials are initially stockpiled, and at all three sites during replenishment following an emergency response situation.

The Stockton, W. Weber Avenue site is accessed via Weber Avenue and is located on a peninsula that is used for industrial activities. The Rio Vista Site would be accessed via Highway 12 (east or west), Highway 113 (north), or Highway 160 (north and south), with local access provided by Airport Road and River Road (Highway 84). The Brannan Island Site is accessible through SR 160 and West Brannan Island Road.

The temporary nature of truck hauling to the sites would not conflict with any plans, ordinances and policies establishing measures of effectiveness for the performance of circulation systems. The project would have a **less than significant** impact.

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

The proposed project activities would result in a temporary increase in truck activity near two of the three proposed project sites while levee repair and flood fight materials are initially stockpiled and at all three sites while they are replenished following an emergency response situation. The temporary nature of truck hauling to the sites would not conflict with any applicable congestion management program, level of service standards and travel demand measures, or other standards established by the county congestion management agency; therefore, the project's action would have a **less than significant** impact.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?

None of the project sites are located within an airport land use zone and the proposed project would not result in a change in air traffic patterns; therefore, there would be **no impact.**

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The proposed project would utilize existing sites that are accessed via existing roadway systems. One project site, Stockton West Weber, is located in a highly industrialized area, one site, Rio Vista, is located in an existing dredged materials disposal and reuse area adjacent to an industrial zone; and one site, Brannan Island, is located on a dredged materials disposal area that has been converted to recreational use on a large Delta island largely devoted to agriculture. At all three sites the proposed project would be compatible with the surrounding land uses. Increased truck activity would not significantly increase hazards at the sites. The project's scope does not propose any alteration to the existing public roadway

systems. The haul road to the Rio Vista quarry rock stockpile would be raised, improved, and modified to provide a shorter and safer haul road to the Dutra Group dock area. A short haul road would be extended from Highway 160 to the proposed quarry rock storage area on Brannan Island to facilitate the safe and efficient passage of haul trucks. In no case would any of these additional design features increase hazards along roadway segments. Therefore, the project would have **no impact**.

e) Result in inadequate emergency access?

The project does not propose any changes to the existing roadways in the vicinities of the proposed project sites, and the sites would continue to be used for their current purposes in accordance with existing land use designations, with the addition of slightly increased truck traffic during rock stockpiling and replenishment operations. The increase in truck traffic would be limited in volume and duration; therefore, the proposed project would have **no impact.**

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

No alternative transportation facilities are located in the immediate vicinity of any of the three stockpile or barge loading locations. Transportation of stockpiled material to these sites would not conflict with alternative transportation policies, plans, or programs, nor decrease the performance or safety of such facilities in the five project areas. Therefore, the project's action would have **no impact.**

4.17.3 Proposed Environmental Mitigation Measures

No significant impacts are anticipated; therefore, no mitigation measures are needed or proposed for transportation/traffic.

4.18 Mandatory Findings of Significance

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Mandatory Findings of Significance – Does the Project have: a) The potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or	☐	☒	☐	☐

restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?				
b) Impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☒	☐	☐
c) Environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

The proposed project would have the potential to **significantly affect** the environment in the areas described above. Mitigation has been proposed for aesthetics, biological resources, cultural resources, hydrology and water quality, hazards and hazardous materials, noise, and recreation. However, implementation of mitigation measures proposed in this chapter will reduce all adverse impacts to **less-than significant** levels.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

The initial study identifies impacts related to aesthetics, hydrology and water quality, and biological resources that would potentially result in cumulatively considerable impacts. Relating to aesthetics the project has the potential to threaten visual resources in several components of the Brannan Island State Recreation Area and the adjoining Scenic SR 160; however mitigation measures require visual design measures that include utilizing natural earth tones for building exteriors, incorporating earthen berms and planting of native plants to help screen project buildings from recreational areas and from Scenic SR 160. Relating to hydrology and water quality, the project with site improvements taking place on three separate sites within the Delta has the potential to threaten water quality; however mitigation measures require DWR to implement construction BMPs for all land clearing, land leveling,

excavation, and fill operations associated with each set of site improvements. Relating to biological resources, the project would potentially have an impact on several threatened and endangered species located in riparian and wetland habitat areas. However, mitigation measures would require pre-construction sensitive species surveys to take place, potential sensitive habitat areas be fenced off and protecting the species within, and DWR to secure Section 1600 Lake or Streambed Alteration (LSA) permits for any activities waterward of the top of banks bordering Delta waterways. DWR would replenish the proposed stockpiles following use of the materials for emergency response actions, and could utilize additional sites in the future for storage of additional emergency flood fight materials; however, the use of additional sites would require compliance with all relevant ordinances and codes and would be subject to CEQA and other relevant environmental review processes. Therefore, the proposed project would not create a mandatory finding of significance from cumulative impacts for these issue areas and effects would not be considered cumulatively considerable. Therefore, this impact would be **less than significant.**

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

The preceding analysis clearly demonstrates that the proposed project would have beneficial direct effects on human beings by preparing the Delta for quick response to potentially catastrophic levee failures that would potentially put lives of people within the area of the flood in danger as well as cause limited to substantial property damage. The proposed project could also have environmental effects that, without mitigation, could affect human beings. Implementing the mitigation measures proposed herein, however, reduce these impacts to a **less-than-significant** level.

5 Summary of Mitigation Measures

5.1 Aesthetics

Mitigation Measure AES-1: Design BISRA Joint Use Facility with DPR Incorporating Architectural and Landscaping Technics to Minimize Impacts to Scenic Vistas and Visual Resources.

DWR will consult and coordinate with DPR staff and architect to facilitate the location and design of the joint use facility and steel warehouse within the BISRA so as not to harm the natural aesthetics, scenic vistas, and visual character available within the BISRA and from the nearby Scenic SR 160. Potential design measures may include utilizing natural earth tones for building exteriors, incorporating earthen berms and planting native plants to help screen project building features from recreational areas and from Scenic SR 160.

Mitigation Measure AES-2: Locate and Design Quarry Rock Stockpile(s) at BISRA to Minimize Impacts to Scenic Vistas and Visual Resources.

DWR will consult and coordinate with DPR staff to facilitate the location, placement, shape, and visual treatment of quarry rock stockpile(s) that will be located near the southern tip of the BISRA peninsula. The quarry rock stockpiles will be located and configured so as not to harm the natural aesthetics, scenic vistas, and visual character available within and adjacent to the BISRA and from the nearby river, sloughs and Scenic SR 160. Potential visual treatments may include screening by natural, native vegetation of trees and shrubs, utilizing natural berms, or covering the rock stockpiles with a layer of native soil and sand materials from nearby within the BISRA.

Mitigation Measure AES-3: Locate and Treat Exterior of Warehouse and Cargo Storage Containers at BISRA to Minimize Light and Glare Impacts to Day and Nighttime Views.

DWR will consult and coordinate with DPR staff to facilitate the location and exterior visual treatment of the project warehouse on BISRA to minimize light and glare impacts to day and nighttime views, and not to harm the natural aesthetics, scenic vistas, and visual character available within and adjacent to the BISRA and from Scenic SR 160. Potential visual treatments may include treating the exterior of the warehouse walls and roof in natural earth tones and screening by natural, native vegetation of trees and shrubs.

5.2 Biological Resources

Mitigation Measure BIO-1: Conduct Burrowing Owl Surveys at all Three of the Project Sites Prior to Development.

Prior to any land clearing operations, a burrowing owl survey following standard guidelines (The California Burrowing Owl Consortium, CBOC, 1993) shall be conducted by a qualified

biologist. The survey shall entail walking throughout the entire site, including a 500-foot buffer, to identify adjacent suitable habitat that could be affected by noise and vibration from heavy equipment operation. If no burrows are observed, no impact is expected and results of the survey shall be submitted to the California Department of Fish and Wildlife (DFW). If burrows or owls are observed, a nesting season (15 April – 15 July) survey shall also be conducted, the results of which shall determine whether a winter survey will be further required or whether the results of the survey can be submitted to the DFW following the nesting survey. If the surveys confirm occupied burrowing owl habitat, the Incidental Take Minimization Measure for Burrowing Owls (Measure 5.2.4.15) in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (November 14, 2000) will be implemented.

Mitigation Measure BIO-2: Retain all Mature Trees on the Proposed Project Sites.

Mature trees that are potential nest trees and native oak trees greater than 8”dbh will not be removed from any of the project sites. If a nest tree becomes occupied during stockpiling and site development activities, then depending upon the bird species involved, appropriate monitoring and mitigation measures as specified by the (DFW) will be instituted. At a minimum, all construction activities shall remain a distance of at least two times the drip line radius of active nest trees, as measured from the nest.

Mitigation Measure BIO-3: Conduct Special Status Surveys.

DWR will consult with DFW prior to project construction to determine the extent for pre-construction sensitive species survey on the proposed project sites. For those sites determined for specific surveys, a qualified biologist shall conduct the sensitive species survey on the sites and within buffer areas of the sites. Special status bird species that could potentially nest in trees in or near the project area include Swainson’s hawk, tricolored blackbird, white-tailed kite, double-crested cormorant, California black rail, saltmarsh common yellowthroat, song sparrow, Cooper’s hawk, ferruginous hawk, merlin, yellow-headed blackbird, and western yellow-billed cuckoo. Potential habitat for special status reptiles/amphibians including the giant garter snake (GGS) and the western pond turtle exists at all three sites necessitating the need to conduct pre-construction surveys at all three sites. In addition, the western red bat could potentially roost in trees in or near the Rio Vista site and the Brannan Island site. The surveys shall be conducted no more than two weeks prior to the start of operations and depending on the expected duration of the activities a follow-up survey may also be required. All observed sensitive species shall be reported to the DFW. The proposed project will be adjusted to avoid impacting these species, or to relocate the individuals under the guidance of the DFW.

Mitigation Measure BIO-4: Conduct Pre-Construction Riparian Habitat Surveys at All Three of the Project Sites Prior to Development.

Prior to any land clearing operations, riparian habitat surveys shall be conducted by a qualified biologist to confirm that construction activities will not impact riparian habitat. The survey shall entail walking throughout the entire site, including a 100-foot buffer, to identify adjacent suitable riparian habitat that could be affected by construction activities, particularly

along the top of waterside banks or slopes or low-lying areas. The riparian habitat surveys shall be submitted to DFW along with each of the site development plans to confirm that isolated project activities, inclusive of piling installations, utility installations and road/ramp improvements near or adjacent to riparian habitat or other sensitive natural communities will not result in a significant impact to riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.

Mitigation Measure BIO-5: Conduct Pre-Design Wetlands and Riparian Habitat Surveys for each of the Sites and Install and Maintain Exclusionary Fencing at the Sites to Ensure Full Avoidance of Seasonal and Permanent Wetlands and Jurisdictional Riparian Habitat.

a) DWR shall retain a qualified biologist to conduct a wetland delineation of the project sites. This delineation shall be submitted to the Corps, and verification received prior to any ground disturbing activities beyond the existing on-site roadways.

b) DWR, will preserve, and not disturb the existing wetlands, and wherever possible, establish 25-foot minimum buffers around all sides of these features. In addition, the final project design shall not cause significant changes to the pre-project hydrology, water quality or water quantity in any wetland that is to be retained on site. This shall be accomplished by avoiding or repairing any disturbance to the hydrologic conditions supporting these wetlands, as verified through wetland protection plans.

c) DWR, prior to construction activities, shall conduct an updated wetland delineation for its potential disturbance area, install orange exclusion fencing on T-posts (or equivalent), with silt fence material installed along the bottom, and wherever possible a 25-foot buffer adjacent to seasonal and permanent wetlands identified within and adjacent to the proposed site work. The fencing shall be maintained for the duration of the site work, and the DWR Operations and Maintenance Manual for the Rio Vista site shall include the pre-construction delineation of jurisdictional wetlands and riparian habitat and note that all future traffic within the project site is limited to improved surface areas and stockpile areas, and all other areas are deemed off-limits to vehicular and construction equipment.

Mitigation Measure BIO-6: Secure Section 1600 Lake or Streambed Alteration (LSA) Agreement from DFW

Prior to any ground disturbing site improvements DWR shall consult with DFW and secure any applicable Section 1600 Lake or Streambed Alteration (LSA) agreement(s) for any permanent site improvements waterward of the top of bank at Threemile Slough for the BISRA site or at the Stockton Deep Water Ship Channel or Mormon Slough at the Stockton West Weber Avenue site.

5.3 Cultural Resources

Mitigation Measure CUL-1: Pre-construction Field Survey.
Prior to ground disturbing activities, a field survey will be conducted by a qualified archeologist to identify any prehistoric or historic cultural resources within the project area.

The survey may reveal a lack of resources, and then no further identification effort will need to be made.

If resources are found in one of the selected sites during the survey, it will be necessary to determine whether the resource is an important resource. This determination will be made by a qualified archeologist based upon surface evidence, if possible. If surface evidence is not conclusive, additional studies, including archival research or subsurface testing, will be conducted.

If the additional studies are undertaken and a resource is found to be important under the criteria of the CRHR, avoidance will be the preferred method of mitigation. The use of the site with the significant resource might need to be limited to a smaller portion of the site, with protective measures designed for the resource, such as fencing or monitoring site use. The determination of appropriate mitigation will be made by DWR.

Mitigation Measure CUL-2: Worker Cultural Resource Awareness.
Construction personnel will be informed of the potential for encountering significant archaeological resources and instructed in the identification of artifacts, bone, and other potential resources. All construction personnel will be informed of the need to stop work on the project site until a qualified archaeologist has been provided the opportunity to assess the significance of the find and implement appropriate measures to protect or scientifically remove the find. Construction personnel will also be informed of the requirement that unauthorized collection of cultural resources is prohibited.

Mitigation Measure CUL-3: Immediately Halt Construction if any Cultural Resources are Discovered.
DWR shall implement the following mitigation measure to reduce the potential impacts to buried historic cultural resources to a less-than-significant level. If cultural materials (e.g., unusual amounts of shell, animal bone, glass, ceramics, etc.) are discovered during project-related construction activities, ground disturbances in the area of the find shall be halted and a qualified professional archaeologist shall be notified regarding the discovery. The archaeologist, to be retained by DWR, shall determine whether the resource is potentially significant per the CRHR and develop appropriate mitigation. Mitigation may include, but not be limited to, in-field documentation, archival research, archaeological testing, data recovery excavations, or recordation, and shall be implemented before resuming construction in the immediate vicinity.

Mitigation Measure CUL-4: Immediately Halt Construction if any Human Remains are Discovered.
DWR shall implement the following mitigation measure to reduce the potential impacts to human remains to a less-than-significant level. In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, the contractor and/or DWR shall immediately halt potentially damaging excavation in the area of the burial and notify the County Coroner and a professional archaeologist to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]).

If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). Following the coroner's findings, DWR, an archaeologist, and the NAHC-designated Most Likely Descendent (MLD) shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in California Public Resources Code Section (PRC) 5097.9.

Mitigation Measure CUL-5: Determination of Significance of Cultural Resources.
If previously unknown cultural resources are discovered during project construction, all work in the area of the find should cease and a qualified archaeologist should be retained by the project proponent or consultant to assess the significance of the find, make recommendations on its disposition, and prepare appropriate field documentation, including verification of the completion of required mitigation. If archaeological or paleontological resources are discovered during earth moving activities, all construction activities within 50 feet of the find should cease until the archaeologist evaluates the significance of the resource. In the absence of a determination, all archaeological and paleontological resources should be considered significant.

If the resource is determined to be significant, the archaeologist, as appropriate, should prepare a research design for recovery of the resources in consultation with the State Office of Historic Preservation that satisfies the requirements of Public Resources Code, Section 21083.2. The archaeologist should complete a report of the excavations and findings. Upon approval of the report, the project proponent should submit the report to the regional office of the California Historic Resources Information System.

5.4 Hydrology and Water Quality

Mitigation Measure HYD-1: Institute Construction Best Management Practices (BMPs) for the Prevention of Erosion and Transport of Soil, Sand, and Silt Offsite During Runoff Events.
DWR shall implement construction Best Management Practices (BMPs) for all land clearing, land leveling, excavation, and fill operations associated with site preparations at the three sites. These measures will be incorporated into the construction plans and specifications. They include avoidance of existing wetlands, including placement of exclusion fencing, creating on site catchments for surface runoff, using coir logs to intercept drainage, and hydroseeding slopes, as appropriate.

Before the start of any construction work, clearing, or site grading associated with preparation, or any stockpiling activities at the sites, measures to control soil erosion and waste discharges will be prepared in accordance with BMPs. DWR will require all contractors conducting work at the sites to implement BMPs to control soil erosion and waste discharges of other construction-related contaminants. The general contractor(s) and subcontractor(s) conducting the work will be responsible for constructing or implementing, regularly inspecting, and maintaining the BMPs in good working order. In addition, the

contractors will be required to submit and adhere to the applicable Storm Water Pollution Prevention Plan (SWPPP) associated with site development, preparation, and improvements.

5.5 Hazards and Hazardous Materials

Mitigation Measure HAZ-1:

DWR has entered into an interagency agreement with the State Department of Toxic Substance Control (DTSC) to conduct applicable supplemental site investigations (SSIs) and shall develop environmental remediation plans that will be incorporated into the site plans and improvements proposed for the Stockton West Weber Avenue parcel(s) prior to any ground disturbing activities that may pose a toxic substance hazardous risk during construction of site improvements and subsequent facility operations that will be consistent with current commercial and industrial zoning land uses.

5.6 Noise

Mitigation Measure NOI-1: Implement Measures to Control Construction Equipment Noise Levels.
DWR shall implement the following mitigation measure to reduce potential impacts from exposure to noise from construction equipment to a less-than-significant level. The contractor and/or DWR shall properly maintain construction equipment and equip it with noise control devices, such as exhaust mufflers or engine shrouds, in accordance with manufacturers' specifications. For non-emergency activities such as site construction and stockpiling quarry rock, operations will be limited to the periods 7:00 AM to 7:00 PM, Mondays through Saturdays.

5.7 Recreation

Mitigation Measure REC-1: Implement Measures to Minimize Impacts on Recreation within Brannan Island State Recreation Area (BISRA)

DWR shall inter into a Memorandum of Understanding with the State Department of recreation (DPR) to design project elements in coordination with DPR to minimize impacts on recreational quality and visual resources within the BISRA, and to improve facilities that could jointly benefit recreational services and emergency response capabilities. These include potential features such as developing architectural treatments to blend new structures (multi-use and warehouse facilities) within the park setting, screening the placement and storage of quarry rock stockpiles with vegetation, earthen berms, and/or placing a layer of sand over the quarry rock stockpile, planting native plants to help screen project features, improving service facilities such as restrooms and roads, and collectively implement a 2,500-5,000 sf. joint use facility within the BISRA that could serve as Multi-Agency Center (MAC).

6 Final Project Implementation

Based on the results of this Initial Study, DWR proposes to establish three sites in the Delta to serve as stockpile and transfer facilities for flood fight materials and supplies and to serve as ICPs. The three sites are Stockton, West Weber Avenue, Rio Vista, and Brannan Island.

The study indicates that the project purposes can be achieved by acquiring these sites through purchase and long-term agreements, as described for each site, making structural improvements to facilitate storage, transfer, and ICP functions, then purchasing and stockpiling the required flood fight materials and supplies.

The initial cost of project implementation, excluding State administrative costs, is estimated at $28.9 million (Table 5-1). The annual operation and maintenance cost for the project facilities is estimated at $95,000.00, excluding existing and ongoing lease payments to the Port of Stockton. The conceptual economic evaluation suggests that these investments in emergency preparedness would be extremely cost-effective despite the fact that a truly rigorous evaluation is not feasible at this time due to the unknowns associated with the probabilities of various disaster scenarios and their economic impacts.

Table 5-1. Initial Project Cost Estimates

Table 5-1

	Brannan Island	Rio Vista	Weber	Port-of-Stockton	Total
Site Acquisition					
Estimated Land Acquisition			$ 5,900,000	$ 300,000	$ 6,200,000
Environmental Remediation			$ 500,000	$ -	$ 500,000
				Site Acquisition Subtotal:	**$ 6,700,000**
Prepare Plans & Specifications					
Engineering and Environmental Permitting	$ 1,500,000	$ 800,000	$ 1,500,000	$ -	$ 3,800,000
Engineering and Environmental Permitting Contingencies	$ 300,000	$ 160,000	$ 300,000	$ -	$ 760,000
				Prep Plans & Specs Subtotal:	**$ 4,600,000**
Constrution Site Improvements					
Land Preparation	$ 400,000	$ 520,000	$ 360,000	$ -	$ 1,280,000
ICP Utilties/ Improvements	$ 2,000,000	$ 1,000,000	$ 1,000,000	$ -	$ 4,000,000
Construction Contingencies	$ 480,000	$ 300,000	$ 270,000	$ -	$ 1,050,000
				Const Site Subtotal:	**$ 6,300,000**
Misc Budget Factors					
Location and Inflation Factor	$ 400,000	$ 310,000	$ 290,000		$ 1,000,000
				Misc Budget Factors Subtotal:	**$ 1,000,000**
Acquire Flood Fight and Stockpile Material					
Emergency Response Materials (Stockpiles)	$ 2,800,000		$ 2,800,000		$ 5,600,000
Misc Flood Fight Materials	$ 1,000,000	$ 1,000,000	$ 1,000,000		$ 3,000,000
Material Contingencies	$ 760,000	$ 200,000	$ 760,000		$ 1,720,000
				Acquire Flood Fight and Stockpile Material Subtotal:	**$ 10,300,000**
Total for Each Site	**$ 9,600,000**	**$ 4,300,000**	**$ 14,700,000**	**$ 300,000**	**$ 28,900,000**

A review of the likely environmental consequences of the proposed project indicates that project impacts would be less than significant if the recommended mitigation actions are implemented. It is therefore not necessary to conduct a full Environmental Impact Report.

Table 5-2. Project Implementation Schedule and Expenditures

Table 5-2

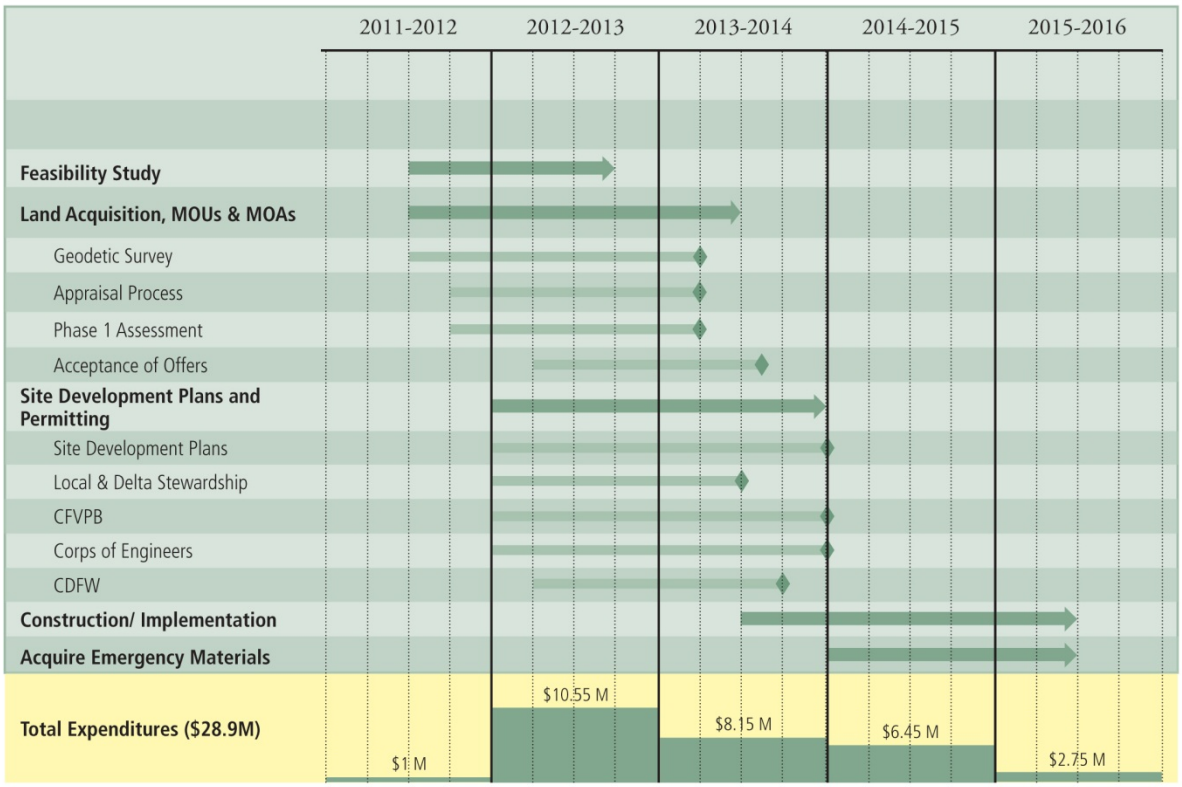
	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	Total
Site Acquisition		$ 6,550,000	$ 150,000			$ 6,700,000
Prepare Plans & Specifications	$ 1,000,000	$ 2,000,000	$ 1,600,000			$ 4,600,000
Constrution Site Improvements		$ 700,000	$ 2,000,000	$ 2,000,000	$ 1,600,000	$ 6,300,000
Misc Budget Factors		$ 300,000	$ 400,000	$ 150,000	$ 150,000	$ 1,000,000
Acquire Flood Fight and Stockpile Material		$ 1,000,000	$ 4,000,000	$ 4,300,000	$ 1,000,000	$ 10,300,000
Total for Each Site	**$ 1,000,000**	**$ 10,550,000**	**$ 8,150,000**	**$ 6,450,000**	**$ 2,750,000**	**$ 28,900,000**

The expected cost to acquire, lease or secure the three properties with MOA/MOUs for the development and operation of the waterside material transfer facilities is estimated $6,700,000. The cost for engineering and environmental permitting, and their contingencies for the development of the site improvements is estimated at $4,600,000 with the construction of the site improvements estimated at $6,300,000. The preparation of the material contracts to provide additional stockpile material and acquire the materials and supplies is estimated at $10,300,000. The total facilities development cost, excluding the State's administrative costs are estimated at $28,900,000.

The total direct costs to implement the recommendations of the Delta Flood Emergency Facilities Improvement Project (FIP) is $28,900,000. Full implementation of these recommendations and development of facility logistics will likely take two to three years, spanning as many as two construction seasons ending in 2014 or early 2015. The schedule for Project implementation is provided on the following page.

Facilities Improvement Project Schedule

(March 2013)



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P. O. Box 1105
Oakley, CA 94561-1105

Reclamation District 833 (Gridley)
P. O. Box 247
Gridley, CA 95948

Reclamation District 900 (West Sacramento)
P. O. Box 673
West Sacramento, CA 95691

Reclamation District 999 (Netherlands)
38563 Netherlands Road
Clarksburg, CA 95612-5003

962 Lambert Road
Courtland, CA 95615

Reclamation District 1007 (Pico and Nagle)
P. O. Box 1129
Tracy, CA 95378

*Reclamation District 1601 (Twitchell Island)
2360 West Twitchell Island Road
Rio Vista, CA 94571

*Reclamation District 1607 (Van Sickle Island)
P. O. Box 350
Pittsburg, CA 94565

Reclamation District 1608 (Smith Tract)
P. O. Box 4857
Stockton, CA 95204

*Reclamation District 1614 (Smith Tract)
ML Office
P. O. Box 4807
Stockton, CA 95204

Reclamation District 1667 (Prospect Island)
3310 El Camino Avenue, Suite 300
Sacramento, CA 95821

*Reclamation District 2023 (Venice Island)
1440 Arundel Court
Lodi, CA 95242

*Reclamation District 2024 (Orwood and Palm Tracts)
P.O. Box 1461
Stockton, CA 95201

*Reclamation District 2025 (Holland Tract)
311 East Main Street, Suite 504
Stockton, CA 95202

*Reclamation District 2026 (Webb Tract)
311 East Main Street, Suite 504
Stockton, CA 95202

*Reclamation District 2027 (Mandeville Island)
P. O. Box 248
Holt, CA 95234

*Reclamation District 2028 (Bacon Island)
311 East Main Street, Suite 504
Stockton, CA 95202

*Reclamation District 2029 (Empire Tract)
421 South El Dorado Street, Suite E
Stockton, CA 95203

*Reclamation District 2030 (McDonald Island)
3425 Brookside Road, Suite A
Stockton, CA 95219

*Reclamation District 2033 (Brack Tract)
165 West Cleveland Street
Stockton, CA 95204

*Reclamation District 2037 (Rindge Tract)
P. O. Box 7424
Stockton, CA 95267

*Reclamation District 2038 (Lower Jones Tract)
P.O. Box 1461
Stockton, CA 95201

*Reclamation District 2039 (Upper Jones Tract)
221 Tuxedo Court, Suite F
Stockton, CA 95204

*Reclamation District 2040 (Victoria Island)
P. O. Box 1461
Stockton, CA 95201-1461

*Reclamation District 2041 (Medford Island)
P. O. Box 1461
Stockton, CA 95201

*Reclamation District 2042 (Bishop Tract)
10100 Trinity Parkway, 5th Floor
Stockton, CA 95219

*Reclamation District 2044 (King Island)
421 South El Dorado Street, Suite E
Stockton, CA 95203
Reclamation District 2058 (Pescadero District)
3650 West Canal Boulevard
Tracy, CA 95304

Reclamation District 2059 (Bradford Island)
P. O. Box 34
Bethel Island, CA 94511

*Reclamation District 2060 (Hastings Tract)
1143 Crane Street, Suite 200
Menlo Park, CA 94025

*Reclamation District 2062 (Stewart Tract)
73 West Stewart Road
Lathrop, CA 95330

Reclamation District 2064 (River Junction)
P. O. Box 690695
Stockton, CA 95269

*Reclamation District 2065 (Veale Tract)
P. O. Box 1461
Stockton, CA 95201

*Reclamation District 2067 (Brannan Island)
P. O. Box 338
Walnut Grove, CA 95690

Reclamation District 2068 (Yolano)
7178 Yolano Road
Dixon, CA 95620-9621

*Reclamation District 2072 (Woodward Island)
P. O. Box 1461
Stockton, CA 95201-1461

*Reclamation District 2074 (Sargent-Barnhart Tract)
P. O. Box 7576
Stockton, CA 95267

Reclamation District 2085 (Kasson District)
2291 West March Lane
Stockton, CA 95207
Reclamation District 2086 (Canal Ranch)
11292 N. Alpine Road
Stockton, CA 95212

*Reclamation District 2089 (Stark Tract)
311 East Main Street, Suite 504
Stockton, CA 95202

*Reclamation District 2090 (Quimby Island)
311 East Main Street, Suite 504, Stockton, CA 95202

*Reclamation District 2095 (Paradise Junction)
7541 West Rena Drive
Tracy, CA 95304

Reclamation District 2096 (Wetherbee Lake)
P. O. Box 909
Manteca, CA 95337

Reclamation District 2098 (Cache Haas Area)
7178 Yolano Road
Dixon, CA 95620

*Reclamation District 2110 (McCormack Williamson Tract)
P. O. Box 408
Walnut Grove, CA 95690

*Reclamation District 2111 (Deadhorse Island)
P. O. Box 248
Walnut Grove, CA 95690

*Reclamation District 2113 (Fay Island)
P. O. Box 1461
Stockton, CA 95201

Reclamation District 2114 (Rio Blanco Tract)
10100 Trinity Parkway, 5th Floor
Stockton, CA 95219

*Reclamation District 2115 (Shima Tract)
P. O. Box 20
Stockton, CA 95201-3020

Reclamation District 2116 (Holt Station)
P. O. Box 1461
Stockton, CA 95201

*Reclamation District 2117 (Coney Island)
P. O. Box 1461
Stockton, CA 95201-1461

*Reclamation District 2118 (Little Mandeville Island)
P. O. Box 1267
Hollister, CA 95024

*Reclamation District 2119 (Wright-Elmwood Tract)
P. O. Box 1461
Stockton, CA 95201

Reclamation District 2121 (Bixler Tract)
2030 Newton Drive
Brentwood, CA 94513

Reclamation District 2122 (Winter Island)
293 Pueblo Drive
Pittsburg, CA 94565

*Reclamation District 2126 (Atlas Tract)
P. O. Box 4776
Stockton, CA 95204

Reclamation District 2127 (Simmons/Wheeler)

P. O. Box 2207
Walnut Creek, CA 94595

Reclamation District 2130 (Honker Bay)
2146 Colfax Street
Concord, CA 94520

*Reclamation District 2137
311 East Main Street, Suite 504
Stockton, CA 95202
Reclamation District 2136 (Grizzly West)
P. O. Box 33
Suisun City, CA 9458

Brannan-Andrus Levee Maintenance
District (BALMD)
P. O. Box 338
Walnut Grove, CA 95690

Bethel Island Municipal Improvement
District (BIMID)
P. O. Box 244
Bethel Island, CA 94511-0244

*Parties only receiving notification of
IS/MND; not direct recipient.

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For additional information, contact:
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Naser Bateni, Program Manager (PE 36128)