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ENVIRONMENTAL ASSESSMENT/ INITIAL STUDY

AMERICAN RIVER WATERSHED COMMON FEATURES
LOWER AMERICAN RIVER FEATURES
AS MODIFIED BY WRDA 1999
NATOMAS EAST MAIN DRAIN CANAL NORTH EXTENSION
SACRAMENTO COUNTY, CALIFORNIA

FEBRUARY 2014

US Army Corps of Engineers

Sacramento Area Flood Control Agency

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DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

Environmental Resources Branch

Draft FINDING OF NO SIGNIFICANT IMPACT
American River Watershed Common Features As Modified by WRDA 99
Natomas East Main Drainage Canal North Extension Project

I have reviewed and evaluated the information presented in this Environmental Assessment/Initial Study (EA/IS) prepared for the American River Watershed Common Features, as modified by the Water Resources Development Act of 1999 (WRDA 99), Natomas East Main Drainage Canal (NEMDC) North Extension project. The project would reduce flood risk by installing seepage remediation features to comply with USACE requirements being implemented throughout the lower American River levee system.

The proposed work is located approximately 2 miles upstream of the confluence of the Sacramento and American Rivers along the Natomas East Main Drain Canal levee. The proposed project includes a segment of the NEMDC east levee that extends from the Arden-Garden Connector southwest for approximately 1,350 feet, referred to in the Draft EA/IS as the NEMDC North Extension. This project is anticipated to begin in the summer of 2014.

The possible consequences of the work described in the EA/IS have been studied with consideration given to environmental, socioeconomic, cultural, and engineering feasibility. I have also considered the views of other interested agencies, organizations, and individuals. The environmental effects have been coordinated with the U.S. Fish and Wildlife Service, the California State Historic Preservation Officer, the California Department of Fish and Wildlife, the California Department of Water Resources, the Central Valley Flood Protection Board, and the Sacramento Area Flood Control Agency.

Construction is anticipated to occur in 2014 over a four month period. In order to minimize impacts to recreation trails, detour routes, temporary structures, and signs would be posted at the construction site. Best management practices, avoidance protocols, and minimization and mitigation measures would be utilized during construction to reduce effects related to sensitive biological resources, air quality, water quality, cultural resources, and noise. All areas disturbed by construction would be restored to pre-construction conditions upon the completion of construction.

Based on my review of the EA/IS and my knowledge of the project area, I have determined that the proposed levee repair work, including access routes and staging areas, would have no significant, long-term effects on environmental or cultural resources. Based on these considerations, I am convinced that there is no need to prepare an environmental impact statement. Therefore, an EA and Finding of No Significant Impact provide adequate environmental documentation for the proposed action. This concludes the National Environmental Policy Act process for this project.

_____
Date

_____
Michael J. Farrell
Colonel, U.S. Army
District Engineer

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PROPOSED MITIGATED NEGATIVE DECLARATION
AMERICAN RIVER WATERSHED COMMON FEATURES PROJECT IN SACRAMENTO, CALIFORNIA
LOWER AMERICAN RIVER COMMON FEATURES AS MODIFIED BY WATER RESOURCES DEVELOPMENT ACT OF 1999
NATOMAS EAST MAIN DRAIN CANAL NORTH EXTENSION

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Project Background

The American River Watershed Common Features Project was initially described in the Supplemental Information Report and was first authorized in Water Resources Development Act (WRDA) of 1996 and modified in WRDA 1999. The State authorized the American River Watershed Common Features Project in 1997 under California Water Code Sections 12670.10, 12670.14 and 12670.16

In August 2012, United States Army Corps of Engineers (USACE) completed the American River Watershed Common Features, Lower American River Features as Modified by WRDA 1999 Natomas East Main Drain Canal (American River North Levee, River Mile 2.0 to 3.6), Sacramento County, California (NEMDC project) Environmental Assessment/Initial Study (EA/IS). The NEMDC project involved levee improvements to two segments of the American River north levee, referred to as the upstream segment and downstream segment. Construction of the upstream segment of the NEMDC project was completed in 2013. Construction of the downstream segment is anticipated to begin in the summer of 2014.

After the August 2012 document was finalized, an additional 1,350 feet of levee immediately north of the original project footprint was evaluated for compliance with current USACE criteria. The evaluation determined that this segment of the levee further downstream (north towards the NEMDC east levee) from the 2013 NEMDC project required improvements to address seepage and stability issues. This EA/IS focuses on and describes the portion of the levee between the original NEMDC project and the Arden/Garden Connector.

The American River Watershed Common Features as Modified by Water Development Act of 1999, Natomas East Main Drain Canal North Extension (Project) is a cooperative effort among the U.S. Army Corps of Engineers, the Central Valley Flood Protection Board and the Sacramento Area Flood Control Agency. The project is one of five modifications approved by WRDA 1999.

Project Location

The proposed project is located approximately 2 miles upstream of the confluence of the Sacramento and American Rivers along the Natomas East Main Drain Canal levee. The project includes a segment of the NEMDC east levee that extends from the Arden-Garden Connector southwest for approximately 1,350 feet.

Project Description

In order to reduce the risk of through-seepage or under-seepage in the levee, construction of a conventional slot trench seepage cutoff wall will be installed in approximately 1,350 feet of levee at an approximate depth of 30 feet below the levee crown.
Conventional slot trench cutoff wall construction typically involves the excavation of a 36 inch wide trench to an approximate depth of 30 feet. In order to prevent trench collapse during the excavation, the trench would be filled with a slurry mixture of water and clay fills.

In addition to the cutoff wall, there are three proposed staging areas for the construction of the project. These small staging areas are described below:

- In the small triangle area between the northernmost reach of the project levee and the Union Pacific Railroad (UPRR) tracks.
- On the waterside toe of the levee between the Arden-Garden Connector and the Sacramento Northern Bike Trail.
- The west side of Railroad Drive from Del Paso Boulevard, north for approximately 500 feet.

Potential Impacts

Recreation

Construction of the levee improvements would have short-term negative impacts on recreational use in the American River Parkway. Construction of the slurry cutoff wall would temporarily close approximately 3,000 feet of the Sacramento Northern Bike Trail from Del Paso Boulevard to the end of Railroad Drive for approximately four months. Additionally, construction vehicles accessing the site from Del Paso Boulevard would use the access ramp that connects the American River Bike Trail to the Sacramento Northern Bike Trail. The presence of construction

vehicles in this area would likely disrupt recreationists during the construction of the project. The proximity of trail users and other recreationists to construction equipment and activities (noise, visual effects, and smells) are also likely to temporarily impact recreational experiences during the construction period.

Although no long term impacts to recreational resources are anticipated, short term effects associated with the construction process may have potentially significant effects unless mitigated.

Mitigation Measures

In order to mitigate for potential environmental impacts to recreational trail use, the following measures would be taken to ensure public safety and to keep the public informed of the project. Warning signs and signs regarding restricted access, trail closures and detours would be posted before and during construction, as necessary. Detour routes would be clearly marked, and fences erected in order to prevent access to the project area.

The section of the Sacramento Northern Bike Trail that is located on the levee crown in the construction area would be closed from the existing Del Paso Boulevard access, north to approximately where the end of Railroad Drive meets the levee. In order to reduce the impact of this closure, recreationists would be detoured east along Del Paso Boulevard to Acoma Street, then north to the bike trail. This closure/detour would be required during the entire period of construction.

In areas where recreational traffic intersects with construction vehicles, traffic control would be utilized in order to maintain public safety. Public outreach would be conducted through mailings, posting signs, coordination with interested groups, and meetings in order to provide information regarding changes to recreational access in and around the Parkway.

In the southwest end of the project where the American River Bike Trail is in close proximity to the construction area, barriers would be installed as a safety measure to keep equipment, soil or other materials from encroaching on the trail.

With the implementation of the mitigation measures discussed above, any effects to recreation would be temporary and considered less-than-significant.

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Vegetation and Wildlife

Construction activities may require trimming of native oak and other large trees in and adjacent to the project area. Temporary displacement of local wildlife populations due to noise and increased human presence is likely to occur during construction activities. The effects to vegetation and wildlife are temporary and would be less than significant once the avoidance, minimization, and mitigation measures described below are implemented.

Mitigation Measures

Trees and shrubs within the construction footprint would be protected in place with temporary fencing placed one and a half times the dripline of each tree or shrub, when possible. If tree trimming is required, trimming would be conducted under the observation or direction of a qualified arborist. It is not anticipated that trees would be removed during the construction of this project; however, if tree removal is required, tree removal would be performed between the months of October and February in order to reduce impacts to nesting birds.

Grasses removed due to construction activities would be restored through reseeding. Landscaped ornamental grasses would be replaced in-kind. Reseeded areas would be periodically monitored until 80 percent vegetation cover is achieved or until May 1 of the year following the reseeding. If hydroseeded areas do not reach the required amount of cover by May 1, additional erosion control may be required.

Effects associated with the trimming of trees and temporary removal of grasses would be less than significant after mitigation. If any further vegetation removal is necessary for construction, mitigation measures would be coordinated with the United States Fish and Wildlife Service (USFWS) under the Fish and Wildlife Coordination Act. The mitigation measures would be conducted in or near the areas that the vegetation was removed. Avoidance, minimization, and mitigation measures would reduce impacts to less-than-significant.

Special Status Species

Effects to Valley Elderberry Longhorn Beetle

The Parkway, with an abundance of elderberry shrubs in a well-connected corridor, provides high quality habitat for the Valley Elderberry Longhorn Beetle (VELB). Surveys conducted by USACE and USFWS biologists on April 3, 2013 did not detect any elderberry plants. Additional surveys would be conducted prior to construction activities to confirm previous results.

Effects to White-tailed Kite and Swainson's Hawk

Construction of the levee improvements would not directly affect White-tailed Kites or Swainson's Hawks. Indirect effects would include physical vibration, and presence of construction vehicles and workers. Construction activities in the vicinity of an active nest have the potential to result in forced fledging or nest abandonment by adult hawks, potentially causing significant effects due to the direct mortality and/or reduction in the success of a listed species.

During biological surveys conducted in 2013, two White-tailed Kites were observed perched upstream of the Arden-Garden Connector near the NEMDC North Extension project area. Additionally, a pair of White-tailed Kites engaged in nesting behavior was observed approximately 1 mile away from the project area. A pair of Swainson's Hawks was observed in and near a nest approximately ½ mile from the NEMDC North Extension project area. While some nesting activity was observed in the early part of the season, no nesting behavior was observed by the end of April, 2013. Additional biological surveys would be conducted prior to the construction of the project in 2014 and throughout the breeding season according to the CDFW Swainson's Hawk Survey Protocols. Raptor surveys would be conducted in the spring prior to the construction season of the project.

Mitigation Measures

Valley Elderberry Longhorn Beetle

Although there were no Elderberry shrubs detected during the survey on April 3, 2013, prior to ground disturbance, all on-site construction personnel would be given instruction regarding the presence of sensitive species and the importance of avoiding these species and their habitats.

White-tailed Kite and Swainson's Hawk

Prior to the onset of construction, biological surveys for the presence of nesting raptors (White-tailed Kites and Swainson's Hawks) would be conducted within one-half mile of the proposed construction area. If the survey determines that a nesting pair is present, USACE would coordinate with CDFW and USFWS, and the proper avoidance and minimization measures would be implemented. To avoid potential effects to nesting raptors, CDFW typically requires the avoidance of nesting sites during construction activities and/or avoiding construction during the nesting season. If construction activities are determined to be necessary during the nesting

season, an on-site biologist experienced with raptor behavior would monitor the nest while construction related activities are taking place. If the nesting raptors exhibit agitated behavior in response to construction related activities, the biological monitor would have the authority to stop work and would consult with CDFW and USFWS to determine the best course of action necessary to avoid nest abandonment or take of individuals. The project is currently scheduled to begin in summer 2014. It is anticipated that the timing of the project would begin after the young Swainson's Hawks and White-tailed Kites have fledged, which is normally by July or August.

The proposed mitigation measures would reduce the effects on the White-tailed Kite and the Swainson's Hawk to less than significant.

Additional avoidance, minimization, and mitigation measures would follow the recommendations provided by USFWS under the Fish and Wildlife Coordination Act, including but not limited to:

- Avoid impacts to trees and shrubs. Any trees or shrubs removed would be replaced on-site with container plantings. These plantings would be monitored for 5 years or until they are established and self-sustaining.
- Avoid impacts to nesting migratory birds by conducting pre-construction surveys for active nests near the work areas. Work activity around active nests would be avoided until the young have fledged.
- Minimize project impacts by reseeding all disturbed areas at the completion of construction.
- Contact CDFW regarding possible effects of the project on State-listed species.

The USFWS Coordination Act Report is included in Appendix C of attached EA/IS. These measures would reduce the effects on sensitive species to less-than-significant.

Air Quality

Emissions would result from the use of construction equipment, truck haul trips to and from the borrow sites, and worker vehicle trips to and from the construction sites. Prior to construction, the contractor would submit a construction equipment list to be used in the project for approval

by USACE and Sacramento Metropolitan Air Quality Management District (SMAQMD). SMAQMD would confirm the fleet emissions and endorse the list only if the total fleet emissions would meet a 20% reduction in nitrogen oxides (NOx) and a 45% reduction in PM10 in comparison to the state fleet emissions average. The contractor would be required to follow the requirements of SMAQMD's standard mitigation program (Appendix B of attached EA/IS). While NOx emissions are not anticipated to exceed the SMAQMD threshold, any remaining emissions over the NOx threshold would be reduced via a mitigation fee payment. The cost of reducing one ton of NOx is $17,460 ($8.73/lb.). The contractor would be responsible for payment of any required mitigation and administrative fees.

The standard mitigation measures for the SMAQMD Recommended Mitigation for Reducing Emissions from Heavy-Duty Construction Vehicles are:

- Use diesel-fueled equipment manufactured in 2003 or later, or retrofit equipment manufactured prior to 2003 with diesel oxidation catalysts; use low-emission diesel products, alternative fuels, after-treatment products, and/or other options as they become available.
- Maintain properly functioning emission control devices on all vehicles and equipment.
- The contractor would provide a plan, for approval by USACE and SMAQMD, demonstrating that the heavy-duty (greater than 50 horsepower) self-propelled off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20% NOx reduction and 45% particulate reduction compared to the most recent CARB fleet average at time of construction; and
- The contractor shall submit to USACE and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative shall provide SMAQMD with the anticipated construction

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timeline including start date, and name and phone number of the project manager and on-site foreman.

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

Implementation of the BMPs listed below would reduce air quality degradation caused by dust and other contaminants:

- During construction, implement all appropriate dust control measures, such as tarps or covers on dirt piles, in a timely and effective manner.
- Periodically water all construction areas having vehicle traffic, including unpaved areas, to reduce generation of dust. Application of water would not be excessive or result in runoff into storm drains.
- Suspend all grading, earth moving, or excavation activities when winds exceed 20 miles per hour.
- Water or cover all material transported offsite to prevent generation of dust.
- Sweep paved streets adjacent to construction sites, as necessary, at the end of each day to remove excessive accumulations of soil or dust.
- Cover all trucks hauling dirt, sand, soil, or other loose material, or maintain at least 2 feet of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code

Section 23114. This provision would be enforced by local law enforcement agencies.

- Revegetate or pave areas cleared by construction in a timely manner to control fugitive dust.

Impacts to air quality would be temporary, short-term and localized. Sensitive receptors, such as schools, residences, or hospitals, would not be exposed to substantial pollutant concentrations. Avoidance, minimization, and mitigation measures would reduce impacts to less-than-significant.

Climate Change

There would be no increase of long-term emissions (permanent sources) of greenhouse gases from this project. Long-term emissions would be the same with or without the project; maintenance emissions would be the same, and the slurry wall itself has no net long-term emissions. This project does not conflict with any statewide or local goals with regard to reduction of GHG.

BMPs and implementation of the standard construction mitigation measures as recommended by SMAQMD (Appendix B of attached EA/IS) would reduce greenhouse gas emissions through the same processes that reduce total NOx and PM_{10} emissions.

BMPs and implementation of the standard construction mitigation measures as recommended in the SMAQMD's "Guidance for Construction GHG Emissions Reductions" would further reduce GHG emissions:

- Minimize the idling time of construction equipment to no more than three minutes or shutting equipment off when not in use;
- Maintain all construction equipment in proper working condition;
- Encourage carpools, shuttle vans, and/or alternative modes of transportation for construction worker commutes;
- Use locally sourced or recycled materials for construction materials as much as practicable; and
- Develop a plan to efficiently use water for adequate dust control.

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Water Resources and Quality

Levee construction would occur within the levee alignment and landside levee slope. The closest the American River gets to the construction limit is approximately 1,700 feet. The waterside staging area proposed for the NEMDC North Extension segment would be used to store equipment and excess material, including stockpiles of material.

BMPs would be implemented to maintain the integrity of the stockpiles; no material would enter the canal. The contractor will be required to obtain a National Pollution Discharge Elimination System permit from the Regional Water Quality Control Board (RWQCB), Central Valley Region. As part of the permit, the contractor will be required to prepare a SWPPP and a SPCP prior to initiating construction activities, identifying BMPs to be used to avoid or minimize any adverse effects during construction to surface waters.

The incorporation of the following BMPs would reduce effects to water quality to less-than-significant:

- The contractor would prepare a spill control plan and a SWPPP prior to initiation of construction. The SWPPP would be developed in accordance with guidance from the RWQCB, Central Valley Region. These plans would be reviewed and approved by USACE before construction begins.
- Implement appropriate measures to prevent debris, soil, rock, or other material from entering the water. Use a water truck or other appropriate measures to control dust on haul roads, construction areas, and stockpiles.
- Properly dispose of oil or other liquids.
- Fuel and maintain vehicles in a specified area that is designed to capture spills. This area cannot be near any ditch, stream, or other body of water or feature that may convey water to a nearby body of water.
- Inspect and maintain vehicles and equipment to prevent the dripping of oil or other fluids.
- Schedule construction to avoid the rainy season as much as possible. Ground disturbance activities are expected to begin in the summer of 2014. If rains are forecasted during construction, additional erosion and sedimentation control measures will be implemented.

- Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event.
- Train construction workers in storm water pollution prevention practices.
- Revegetate disturbed areas in a timely manner to control erosion.

Since no significant adverse effects to groundwater or surface water resources are anticipated, no additional mitigation measures are required. Any effects to water quality will be temporary, and BMPs and proposed mitigation measures will further reduce impacts to less-than-significant.

Traffic and circulation

The project would temporarily affect local roads and major urban connector roads used as a haul route during construction. Haul trucks would cause an increase in traffic volume and reduce traffic speeds on local residential roads. Haul trucks would have a minor affect on traffic volume (less than 5%) and traffic speeds on the major urban connector roads.

During construction, haul trucks would travel between the licensed disposal facility, the commercial borrow pit, and the construction site. External haul routes would require the use of Del Paso Boulevard, Northgate Boulevard, the Arden-Garden Connector, Highway 160, Interstate 5, Highway 50, and Business 80 (Capitol City Freeway). Access points for off-hauling or importing material would be at Del Paso Boulevard and Railroad Drive. During the height of construction it is estimated that trucks conducting approximately 65 haul trips would be accessing the site per day. The type and volume of construction traffic should not cause a substantial deterioration of the physical condition of the nearby roadways; however, pre-construction and post-construction conditions would be documented by the contractor. Any deteriorated roadways determined to be caused by the project would be repaired by the contractor.

Although the American River Bike Trail would remain open for the duration of construction, it would be necessary to temporarily close a portion of the Sacramento Northern Bike Trail from Del Paso Boulevard to the end of Railroad Drive (approximately 3,000 feet) for safety reasons. Recreationists would be detoured away from the construction site using Del Paso Boulevard and Acoma Street. Potential impacts to traffic are expected to be minimal based on the current use of Del Paso Boulevard by recreationists.

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Mitigation Measures

The contractor would be required to develop a Traffic Control Plan, which would be reviewed and approved by the City of Sacramento prior to construction. This plan would include the following measures:

- Do not permit construction vehicles to block any roadways or private driveways.
- Provide access for emergency vehicles at all times.
- Select haul routes to avoid schools, parks, and high pedestrian use areas, when possible. Crossing guards would be used when truck trips coincide with schools hours and when haul routes cross student travel path.
- Obey all speed limits, traffic laws, and transportation regulations during construction.
- Use signs and flagmen, as needed, to alert motorists, bicyclists, and pedestrians to avoid conflict with construction vehicles or equipment.
- Provide a safe, clearly-marked detour during the closure of the Sacramento Northern Bike Trail. Erect signs providing information regarding closure and detour, at least two weeks prior to the closure date.
- Flagmen would be used at each roadway that crosses the levee to safely circulate traffic through the construction site.
- Use separate entrances and exits to the construction site.
- Contractor would repair roads damaged by construction.

To reduce traffic safety hazards, a flagman at Railroad Drive would direct construction traffic as the haul trucks leave the construction site. Pedestrians and bicyclists would be directed away from the construction site, towards the designated detour route with the use of concrete barriers, fencing, and/or detour signs during the construction period. These proposed mitigation measures would reduce the effects on traffic and circulation to less-than-significant.

Noise and Vibration

Construction activity noise levels at and near the construction areas would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction-related material haul trips would raise ambient noise levels along haul routes, and construction activities within the staging area would increase noise levels near the NEMDC waterway.

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Construction activities associated with the project may result in some minor amount of ground vibration. Vibration from construction activity is typically below the threshold perception when the activity is more than about 50 feet from the receptor. The closest residences to the construction activities would be approximately 350 feet away, or greater. Due to the transitional nature of the construction activities, exposure at any one location would be intermittent. The most common activity throughout each reach would be truck traffic. Additionally, vibration from these activities would be short term and would end when construction is completed.

Mitigation Measures

The following measures would be implemented to further reduce the potential adverse effects related to noise and vibration:

- In accordance with the City Noise Ordinance exemptions for construction (Sacramento City Code, 8.68.080 Exemptions) the construction activities shall be limited to between 7:00 a.m. and 6:00 p.m. Monday through Saturday and 9:00 a.m. and 6:00 p.m. on Sundays.
- Construction equipment noise shall be minimized during project construction by muffling and shielding intakes and exhaust on construction equipment (per the manufacturer's specifications) and by shrouding or shielding impact tools.
- Turn off all equipment, haul trucks, and worker vehicles when not in use for more than 3 minutes.
- Notify residences, schools, and businesses about the type and schedule of construction.

Compliance with the local noise ordinance and implementation of the measures described above would minimize the exposure of residents, schools, businesses, wildlife and recreationists to excessive noise. Construction of the North Extension is scheduled to be completed within 4 months in 2014. Therefore, the impact after mitigation is less-than-significant.

Aesthetics/Visual Resources

Construction of the levee seepage repairs would temporarily affect the aesthetics in the project area. Short-term effects would include the presence and activities of construction equipment and workers in the project area. Short-term activities would include preparing the site, removing

vegetation on the waterside slope of the levee, degrading the top of the levee and the staging area, and constructing the slurry wall.

After completion of construction the site would be restored to preconstruction conditions, including revegetation with native species. The reconstructed levee would remain visually consistent with the preconstruction conditions of the project area.

Mitigation Measures

There would be no significant long-term effects on aesthetics or visual resources in the project area, therefore, no mitigation would be required. All areas impacted by the project would be revegetated and restored to remain consistent with preconstruction conditions. Impacts are considered less-than-significant.

Cultural Resources

A records and literature search was conducted and an archaeological field survey was conducted by qualified USACE archaeologists. USACE has initiated consultation with the California State Historic Preservation Officer (SHPO) and potentially interested Native American people and groups. There are three historical resources located within the area of potential effects (APE): the existing Federal levee; an historic road, Del Paso Boulevard; and a segment of the Northern Electric/Sacramento Northern Railroad alignment. There are no known prehistoric archaeological sites within a mile of the proposed work.

USACE staff formally re-evaluated the levee in September 2013. In consultation with the State Historic Preservation Officer in a letter dated October 15, 2013, the levee was found ineligible as an individual resource but determined to have potential significance as part of an unevaluated historic district.

USACE archaeologists make every effort to identify cultural resources that occur in the APE. However, the possibility still exists that potentially significant unidentified cultural remains could be encountered during project construction. If buried or otherwise obscured cultural resources are encountered during construction, activities in the area of the find would be halted, and a qualified archeologist will be consulted immediately to evaluate the find.

Should any potentially significant cultural resources be discovered, compliance with 36 CFR 800.13(b), “Discoveries without prior planning,” will be implemented. Data recovery or other

mitigation measures might be necessary to mitigate adverse effects to significant properties. Implementation of Mitigation Measure CUL-MM-1, Compliance With National Historic Preservation Act of 1966, Historic and Archeological Resources Protection Act, and Protection of Historic Properties, will reduce this effect to less-than-significant. A letter has been sent to SHPO requesting their concurrence with a finding of no adverse effect in accordance with 36 CFR 800.4(c)(2).

CUMULATIVE EFFECTS

The cumulative effects of the Common Features Project were addressed in the 1996 SEIR/EIR. Cumulatively, other ongoing regional flood control projects could have beneficial effects by raising the level of flood protection provided to lands in the Sacramento Valley region, thereby reducing the risk of adverse effects related to floods. However, the projects could reduce the riparian ecosystems along the river where construction would take place. Mitigation would occur, resulting in no loss riparian values, but causing temporary losses and probable changes in the specific types, quantities, and locations of the habitat.

Mitigation measures, BMP's, minimization practices, and project coordination with nearby projects will reduce possible impacts to less-than-significant.

Findings

Based on the information in the Environmental Assessment and Initial Study for the American River Watershed Common Features Project Lower American River Features as Modified by the Water Resources Development Act of 1999, Natomas East Main Drain Canal North Extension and the entire record, the Central Valley Flood Protection Board finds that although the Project could have a significant impact on the environment, mitigation measures have been incorporated into the Project that reduce these impacts to less than significant.

By: _____ Date: _____
William Edgar
President

By: _____ Date: _____
Jane Dolan
Secretary

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ENVIRONMENTAL ASSESSMENT/INITIAL STUDY

AMERICAN RIVER WATERSHED COMMON FEATURES
LOWER AMERICAN RIVER FEATURES
AS MODIFIED BY WRDA 1999
NATOMAS EAST MAIN DRAIN CANAL NORTH EXTENSION
SACRAMENTO COUNTY, CALIFORNIA

FEBRUARY 2014

Prepared by the Lead Federal Agency:

U.S. ARMY CORPS OF ENGINEERS
SACRAMENTO DISTRICT

In Cooperation With:

THE CENTRAL VALLEY FLOOD PROTECTION BOARD
STATE OF CALIFORNIA

SACRAMENTO AREA FLOOD CONTROL AGENCY
SACRAMENTO, CALIFORNIA

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Acronyms and Abbreviations

APE	area of potential effects
ARFCD	American River Flood Control District
BMPs	Best Management Practices
CAAQS	California ambient air quality standards
CAR	Fish and Wildlife Coordination Act Report
CARB	California Air Resources Board
CB	cement and bentonite
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CESA	California Endangered Species Act
cfs	cubic feet per second
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
County Parks	Sacramento County Department of Regional Parks
CRWQCB	California Regional Water Quality Control Board
cy	cubic yards
CVFPB	Central Valley Flood Protection Board
dB	decibels
dbh	diameter at breast height
DOT	Department of Transportation
DWR	Department of Water Resources
EA/IS	Environmental Assessment/Initial Study
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EM	Engineering Manual
EPA	Environmental Protection Agency
ESA	Endangered Species Act
°F	degrees Fahrenheit
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
GCR	General Conformity Rule
HTRW	hazardous, toxic, and radioactive waste

Ldn	day-night sound level
lf	linear feet
NAAQS	National ambient air quality standards
NEMDC	Natomas East Main Drainage Canal
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NO_X	nitrogen oxide
NPDES	National Pollution Discharge Elimination System
OSHA	Occupational Safety and Health Administration
PA	programmatic agreement
PG&E	Pacific Gas and Electric Company
PL	public law
PM_{10}	particulate matter 10 microns or less
RM	river mile
ROG	reactive organic gas
RWQCB	Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Control Agency
SEIS/EIR	Supplemental Environmental Impact Statement/Environmental Impact Report
SFNA	Sacramento Federal Ozone Nonattainment Area
SHPO	State Historic Preservation Officer
SIR	Supplemental Information Report
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Metropolitan Utility District
SOx	sulfur oxides
SPCP	Spill Prevention and Countermeasure Plan
SRA	shaded riverine aquatic habitat
SRBPP	Sacramento River Bank Protection Project
SRCSD	Sacramento Regional County Sanitation District
SSWD	Sacramento Suburban Water District
SWPPP	Storm Water Pollution Prevention Plan
UPRR	Union Pacific Railroad
USA	Underground Service Alert
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VELB	valley elderberry longhorn beetle
WRDA	Water Resources Development Act

1.0 PURPOSE AND NEED FOR ACTION

1.1 Proposed Action

The U.S. Army Corps of Engineers (USACE), the State of California Central Valley Flood Protection Board, (CVFPB), and the Sacramento Area Flood Control Agency (SAFCA) propose to strengthen approximately 1,350 feet of levee within a 6,150 linear foot reach along the lower American River in the American River Parkway, near downtown Sacramento (Plate 1). The purpose of this proposed action is to reduce flood risk by installing seepage remediation features to comply with USACE requirements being implemented throughout the lower American River levee system.

USACE criteria requires a Factor of Safety of 1.4 and maximum seepage exit gradient of 0.5 in order to meet the design flood event of 160,000 cubic feet per second (cfs). Evaluation of the NEMDC east levee between the Arden-Garden Connector and Del Paso Boulevard (project area) determined that improvements are required in order to address seepage and stability issues. During flood events, this site would be a potential hazard for levee underseepage. Excessive underseepage could undermine the integrity of the levees, and could lead to emergency floodfighting activities to prevent flooding in the possible event of levee failure.

The project design would reduce flood risk in this section of levee by meeting the requirements as defined by: (1) current design criteria used to certify levees as providing 100-year flood protection under regulations adopted by the Federal Emergency Management Agency (FEMA); (2) design criteria under the USACE Engineer Manual (EM) 1110-2-1913; and (3) current congressionally authorized project criteria in order to convey emergency releases from Folsom Dam of 160,000 cubic feet per second (cfs).

1.2 Location of the Project Area

The proposed work is located approximately 2 miles upstream of the confluence of the Sacramento and American Rivers along the Natomas East Main Drain Canal levee. The proposed project includes a segment of the NEMDC east levee that extends from the Arden-Garden Connector southwest for approximately 1,350 feet (Plate 2).

1.3 Background and Need for Action

The American River Common Features Project is a cooperative effort among local, State, and Federal agencies to increase the level of flood protection for the city of Sacramento and surrounding areas located along both banks within the American River Parkway, as well as sections along the Sacramento River. Actions taken have been constructed by USACE and the CVFPB, and are maintained by the American River Flood Control District (ARFCD).

The levees along the Lower American River were originally constructed by USACE between 1955 and 1956, coinciding with the construction of Folsom Dam. The levees were designed to contain a controlled flow of 115,000 cfs from Folsom Dam. In the early 1950s when these criteria were developed, this dam was expected to provide the Sacramento area with 250

year level flood protection. Due to new hydrologic data, it has been determined that the dam will not provide that level of protection. Modifications of the Folsom Dam have been authorized to increase storage capacity and discharge capability (up to 160,000 cfs) during extreme flood events; however, the levees on the American River are currently not capable of handling releases greater than 115,000 cfs for an extended time period.

Major storms in northern California caused record flood flows in 1986, 1995, 1997, 1998, and 2005 in the American River Basin. Outflows from Folsom Reservoir, together with high flows in the Sacramento River, caused water levels to rise above the safety margin for the levees protecting the Sacramento area. These major storms raised concerns over the adequacy of the existing flood control system, which led to a series of investigations of the need to provide additional protection for Sacramento. These studies culminated in the "American River Watershed Investigation Feasibility Report," which recommended construction of levee and related improvements in the Sacramento area (USACE, 1996).

In March 1996, USACE and CVFPB completed the Supplemental Information Report (SIR) and Supplemental Environmental Impact Statement/Environmental Impact Report (SEIS/EIR) for the American River Project. The SIR was undertaken to develop supplemental information to the American River Watershed Investigation Feasibility Study that had been completed in 1991. The SIR evaluated an array of alternatives to provide increased flood risk management to the Sacramento area. The Chief of Engineers, in his June 27, 1996 report, deferred a decision on a comprehensive flood control plan. However, the Chief of Engineers recommended the features common to all three proposed plans be authorized as the first component of a comprehensive flood control plan for the Sacramento area. Congress authorized these "common features" in WRDA 1996.

Subsequently, further modifications of the American River Common Features Project were authorized in WRDA 1999. Under Section 366 of WRDA 1999, numerous specific modifications to the Common Features Project along the lower American River and in the Natomas Basin were authorized. Those modifications along the lower American River included:

- Raising the south (left) non-Federal levee upstream of the Mayhew Drain for a distance of 4,500 feet by an average of 2.5 feet.
- Raising the north (right) levee of the American River from 1,500 feet upstream to 4,000 feet downstream of the Howe Avenue Bridge by an average of 1 foot.
- Installing gates to the existing Mayhew Drain culvert to prevent backup of flood water on the Folsom Boulevard side of the gates.
- Installing a slurry wall in the north levee of the American River from the east levee of the Natomas East Main Drainage Canal upstream for a distance of approximately 1 mile.
- Installing a slurry wall in the north levee of the American River from 300 feet west of Jacob Lane, north for a distance of about 1 mile, to the end of the existing levee.

Both projects at Mayhew (Levee Raise and Drain Closure Structure) and the majority of the work at Jacob Lane have been completed at the time of this writing. The Howe Avenue

project was completed in 2012. The remaining work at Jacob Lane is planned for construction in 2014.

In August 2012, USACE completed the American River Watershed Common Features, Lower American River Features as Modified by WRDA 1999 Natomas East Main Drain Canal (American River North Levee, River Mile 2.0 to 3.6), Sacramento County, California (NEMDC project) Environmental Assessment/Initial Study (EA/IS). The NEMDC project involved levee improvements to two segments of the American River north levee, referred to as the upstream segment and downstream segment. Construction of the upstream segment of the NEMDC project was completed in 2013. Construction of the downstream segment is anticipated to begin in the summer of 2014.

After the August 2012 document was finalized, an additional 1,350 feet of levee immediately north of the original project footprint was evaluated for compliance with current USACE criteria. The evaluation determined that the segment of the levee further downstream (north towards the NEMDC east levee) from the NEMDC project required improvements to address seepage and stability issues. This EA/IS focuses on and describes the portion of the levee between the original NEMDC project and the Arden/Garden Connector, referred to in this document as the NEMDC North Extension (Plate 2). The NEMDC North Extension is anticipated to begin in the summer of 2014.

1.4 Authority

The proposed levee work is part of the ongoing American River Watershed Common Features project. The Common Features Projects encompass several actions under two authorizations: the Water Resources Development Act of 1996 (Pub. L. No. 104-303, § 101[a][1], 110 Stat. 3658, 3662-3663) (WRDA 96), and the Water Resources Development Act of 1999 (Pub. L. No. 106-53, § 366, 113 Stat. 269, 319-320) (WRDA 99).

1.5 Purpose of the EA/IS

This EA/IS (1) describes the existing environmental resources in the project area; (2) evaluates the environmental effects of the alternatives on these resources; and (3) identifies measures to avoid or reduce any effects to a less than significant level. This EA/IS has been prepared in accordance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

1.6 Decisions Needed

The District Engineer, commander of the Sacramento District, must decide whether or not the proposed levee work qualifies for a Finding of No Significant Impact (FONSI) under NEPA or whether a supplemental EIS must be prepared due to potentially significant environmental impacts. Also, the CVFPB must decide if the proposed action qualifies for a Mitigated Negative Declaration under CEQA or whether an EIR must be prepared.

2.0 ALTERNATIVES

2.1 Alternatives Considered But Eliminated from Further Consideration

The topographic and metropolitan features of the project area limit alternative project options. The project area is situated in a narrow corridor between the American River Parkway and Sacramento area industrial businesses, office buildings, transportation features, and endangered species critical habitat. Just beyond this corridor is the urban community of Del Paso Heights, with many small businesses and residences. The purpose of the project is to protect these areas from flood damages by improving the levee to reduce flood risk and to meet current USACE standards.

Rather than installing a seepage cutoff wall, other alternatives that could be considered include setting back the levee in order to widen the flood plain to increase channel conveyance and reduce hydrostatic pressure on the levee. This alternative is not a feasible option because of the current proximity of the levee to the local residential and business areas. The construction of setback levees would require the removal and relocation of many structures; the acquisition of acres of commercial and industrial lands; and the relocation of roads and other infrastructure.

Another option considered was the possibility of protecting the various commercial and residential properties themselves to prevent flood damages. Considering the high density of these features within the flood plain, and the number of structures that would need to be flood-proofed, this alternative is not economically feasible and was eliminated from further consideration.

A more detailed evaluation of alternatives for the American River Watershed Common Features Project can be found in the final EIS/EIR dated March 2002.

2.2 Alternative 1 - No Action

NEPA requires that the lead agency, USACE, analyze a “no action” alternative that establishes the benchmark to compare the effects of the action alternatives. CEQA guidelines require that decision makers compare the impacts of approving the proposed project with the impacts of not approving the proposed project (14 CCR § 15126.6[e]). CEQA also requires that the existing conditions at the time of writing are discussed, as well as what would reasonably be expected to occur in the foreseeable future.

In the reasonably foreseeable future, it is possible that DWR or SAFCA would pursue levee repairs without Federal funding. This future foreseeable alternative would be evaluated for environmental effects if and when this future project is proposed. For the purpose of evaluating effects, it is assumed that a future project similar to the proposed project described in this document would not be implemented due to uncertainties in funding, authorization, and other approvals. Therefore, the no action alternative would be evaluated as though no levee repair or strengthening would be built.

Assuming that no levee repair or strengthening would occur under the no-action alternative, the levees described in this document would not meet the current standard requirements in EM 1110-2-1913 for USACE levees and would not safely convey an emergency release of 160,000 cfs. The levees would continue to be operated and maintained by local levee maintenance districts. During flood events, this site would remain a potential hazard for levee underseepage. Excessive underseepage could undermine the integrity of the levees, and could lead to emergency floodfighting activities to prevent flooding in the possible event of levee failure.

2.3 Alternative 2 - Proposed Levee Improvements

This section describes the proposed action. This includes a discussion of features, construction details, staging and stockpile areas, borrow and disposal sites, construction workers and schedule, and operation and maintenance for each reach.

2.3.1 Features

Current levee standards require that levees on the American River have a Factor of Safety of 1.4 and maximum seepage exit gradient of 0.5 in order to be capable of safely conveying an emergency release of 160,000 cfs. The levees in the NEMDC project area currently do not meet USACE criteria for seepage and slope stability. In order to reduce the risk of through-seepage or under-seepage in the levee, a conventional slot trench seepage cutoff wall would be installed in approximately 1,350 feet of levee at an approximate depth of 30 feet below the levee crown.

2.3.2 Construction Details

Seepage Cutoff Wall Construction

Conventional slot trench cutoff wall construction typically involves the excavation of a 36 inch wide trench to an approximate depth of 30 feet. In order to prevent trench collapse during the excavation, the trench would be filled with a slurry mixture of water and clay fills. All water associated with slurry wall construction would be acquired from the Sacramento Municipal Water Supply. There would be no pumping from the river involved with construction.

Access and Staging

A combination of existing ramps and temporary ramps would be used during the construction of the project. One temporary waterside ramp and one temporary landside ramp would be built during the construction of the project, in addition to the existing access ramp that connects the project area to the American River Bike Trail. Ramps are shown on Plate 3.

There are three proposed staging areas for the construction of the project. These small staging areas are described below and are shown on Plate 4.

- A small staging area is proposed in the small triangle area between the northernmost reach of the project levee and the Union Pacific Railroad (UPRR) tracks.

- Another proposed staging area is located on the waterside toe of the levee between the Arden-Garden Connector and the Sacramento Northern Bike Trail.
- The last proposed staging area is proposed for the west side of Railroad Drive from Del Paso Boulevard, north for approximately 500 feet. This staging area would narrow Railroad Drive to one lane in the area near Del Paso Boulevard and would require a flagger and signage to safely manage traffic entering and exiting Railroad Drive.

During construction, haul trucks would be concentrated along a haul route around the project site when soil is excavated from the levee and is being transferred to the staging areas. The haul routes would be used to import suitable material as well as transport spoils for disposition. The haul route would also be used when the construction of the slurry cutoff walls has been completed and the levees are being reconstructed.

The maintenance road located along the waterside toe of the levee would allow trucks to be loaded with excavated material and travel toward the proposed waterside staging area. During the degradation of the levee, haul trucks being loaded with material would follow the levee along the waterside toe in order to deposit materials in the proposed waterside toe staging area. Empty trucks would then travel up the temporary ramp leading to the top of the levee and exit the construction area where Railroad Drive meets the levee. Trucks would continue down Railroad Drive, exiting the project area onto Del Paso Boulevard and returning to the project area using the existing ramp leading from the American River Bike Trail. During the reconstruction of the levee, the directional haul route would be reversed. The haul route is shown on Plate 5.

The American River Bike Trail would remain open during the entire project, but the existing ramp leading from the American River Bike Trial to the Sacramento Northern Bike Trail would be used by construction trucks entering and exiting the project area. Flaggers would be present during construction hours to safely conduct construction traffic and recreational traffic without conflicts. The Sacramento Northern Bike Trail would be closed from the existing Del Paso Boulevard access north to approximately where the end of Railroad Drive meets the levee. This is due to the fact that the bike trail is on top of the levee in the project area. Access to the Sacramento Northern Bike Trail would be detoured east along Del Paso Boulevard to Acoma Street, then north to the bike trail. Plate 6 shows the Sacramento Northern Bike Trail closure and detour. This closure/detour would be required during the entire time of construction, expected to be approximately four months long. Construction is currently scheduled for the summer of 2014.

Site Preparation

Before the start of construction, all construction areas would be fenced off to limit access, including the staging areas. Construction fencing would be installed on the landside of the project site adjacent to the commercial property lines and along the boundary of the access/haul road at the waterside toe for site safety and security. In any areas where the bike trail is in the vicinity of the project footprint, barriers would be installed along the edge of the trail in order to separate recreationists from the construction area.

Construction of the slurry wall would require that the levee crown and the levee slopes be cleared and grubbed of all vegetation and surface material. This would total approximately 600

cubic yards (cy) of removed material and would be disposed by the contractor at a State-approved, licensed, and permitted facility. Additionally, preparation of the waterside toe staging area would require clearing and grubbing of the top 4 to 6 inches of soil and vegetation. Clearing and grubbing the proposed staging area located on the waterside toe of the downstream segment would require the removal of approximately 2,420 cy of material. This material would be disposed by the contractor at an approved, licensed, and permitted facility. Slurry batch plants would most likely be located in the landside triangle staging area.

Construction of Slurry Wall

After the reach has been cleared and grubbed, the levee would be degraded approximately 4 feet. It is estimated that 4,050 cy of material would be removed from the levee through degrading and excavation. Although removed material may be stored in the staging area for reuse, for the purposes of analysis it is assumed that all soil removed during levee degrade and excavation would be disposed as spoils. It is also assumed that an equal amount of material would be imported for the reconstruction of the levee.

Once the levee has been degraded, the slurry cutoff wall would be constructed. The conventional "slot trench" method would be used where a long reach, or "long-stick", excavator would dig the trench approximately 30 feet deep in order for the wall to tie into an impervious layer of soil. The wall would be constructed of cement and bentonite (CB). The CB method would result in a greater amount of soil to be disposed, and generally takes longer to construct; however, this process is less expensive. Slurry batch plants would be located at one of landside staging areas, most likely the small triangular staging area adjacent to the UPRR tracks (Plate 4).

Restoration and Cleanup

Once the levee work is completed, all equipment and excess materials would be transported offsite via neighborhood streets and regional highways. The barren earthen and levee slopes would be reseeded with native grasses to promote re-vegetation and minimize soil erosion. The levee crown and access ramps would be restored to pre-project conditions and the staging areas would be reseeded. Any damage to the residential streets and bike trails from construction activities would be repaired. Finally, the work sites and staging areas would be cleaned of all rubbish, and all parts of the work area would be left in a safe and neat condition suitable to the setting of the area.

2.3.3 Borrow and Disposals Sites

Construction of the north extension would require approximately 4,050 cy of borrow material to build/rebuild the features of the project. Based on the availability of borrow sites within 15 to 20 miles of the project site, it is reasonable to assume the material would be acquired from sites within 15 to 20 miles of the project site. Similarly, it is assumed that the disposal sites for excess materials or spoils would be located within 20 miles of the project site because at least two different landfills are located within 20 miles of the project site. The contractor is responsible for determining the location of borrow and disposal sites; however, the

borrow and disposal sites must be permitted and meet environmental standards as specified in the contract. The borrow and disposal sites also must be approved by USACE.

It is assumed that the haul routes used to transport soil and materials to the project site and to transport spoils offsite for disposal would use Highway 50, Business 80 (Capitol City Freeway), Highway 160, Northgate Boulevard, Arden Way-Garden Highway, and Del Paso Boulevard. Once trucks are within the project site, the respective internal project haul routes, described above, would be used.

2.3.4 Construction Workers and Schedule

An estimated 10 to 20 workers would be onsite each day during construction. These workers would access the area via regional and local roadways, and park their vehicles in the Railroad Drive staging area. Although the project construction is located within the American River Parkway, managed by the County of Sacramento, the areas surrounding the project area are within the city of Sacramento. Therefore, the requirements of the City of Sacramento Noise Ordinance would dictate the work hours of the project. Section 8.68.080 of the ordinance states that construction activity between the hours of 7:00 a.m. and 6:00 p.m., Monday through Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday is exempt from the ordinance. The NEMDC North Extension project is anticipated to be completed in the summer of 2014, and construction would last approximately four months.

2.3.5 Operation and Maintenance

After construction is completed, the non-Federal sponsor, CVFPB, would be responsible for operation, maintenance, repair, rehabilitation and replacement (O&M) of all project features. CVFPB would transfer these responsibilities to SAFCA, who would contract with the American River Flood Control District (ARFCD) to operate and maintain the levee. Regular maintenance activities include mowing and herbicide treatments of the levee slopes, controlling rodents, clearing the maintenance road, and inspecting the levee. An amendment to the existing user's O&M manual would include the constructed slurry wall; therefore the O&M requirements would remain the same. All O&M activities would remain consistent with USACE guidance and the existing O&M manuals.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the environmental resources in the project area, as well as any potential environmental impacts of the alternatives on those resources.

3.1 Environmental Resources Not Evaluated in Detail

Initial evaluation of the effects of the project indicated that there would likely be little to no effect on several resources. These resources are discussed below to add to the overall understanding of the project area.

3.1.1 Climate

The climate of the area is characterized by cool, wet winters and hot, dry summers. The average yearly temperature for Sacramento is 61 degrees Fahrenheit (°F) with an average high of 74°F and an average low of 48°F. The hottest months are June through September and the coldest months are November through January (Weatherbase, 2008).

Precipitation ranges from 16 to 20 inches on the valley floor. Annual precipitation occurs almost entirely during the winter storm season (November to April), and high water events are most likely to occur during these months. The prevailing wind direction in the Lower American River basin is from the south and southeast from April to September and from the north from October to March.

Due to the small scale of the proposed project, there would be no effect on the climate in the project area; therefore, climate is not discussed in detail in this document. Construction activities would emit airborne contaminants associated with climate change; these effects are addressed in Climate Change, Section 3.2.5.

3.1.2 Topography, Geology, and Soils

The lower American River area consists of low rolling foothills and flood plain areas near the confluence with the Sacramento River. The floor of the Sacramento Valley is generally flat and open with little natural relief. Flood control levees provide the only significant topographic relief in or near the project area.

Geologic formations underlying the Sacramento Valley include igneous, metamorphic, and sedimentary rock types, which range in age from pre-cretaceous to recent. The valley is situated on vast alluvial deposits which have slowly accumulated over the last 100 million years. The materials have been derived from the surrounding uplands; transported by major streams; and deposited in successive clay, silt, sand, and gravel layers on the valley floor.

The lower American River area is part of the Great Valley Geomorphic province of California. The broad valley was filled with erosion debris that originated in the surrounding mountains. Most soils in the area are recent alluvial flood plain soils consisting of unconsolidated deposits of clay, silt, and sand that occur as flood plain deposits. Fresh alluvium is deposited with each floodflow.

Sedimentation rates in the American River basin and adjacent river basins are relatively low due to limited development, the general shallowness of soils, a low rate of upstream erosion, and numerous containment basins. Sedimentation in the river is also controlled by Folsom and Nimbus Dams. Estimates of the annual sediment yield range from 0.1 to 0.3 acre-feet per square mile. As a result, the channel is in a state of degradation and sedimentation is not causing a reduction in channel conveyance or levee stability. Since the completion of Folsom Dam in 1955, only about 2 percent of the reserved sediment storage space in the reservoir has been filled (USACE, 1996).

The work proposed primarily consists of earth work, as the surface of the levee would be cleared and grubbed of the immediate surface material. All suitable excavated soil material would be reused in the project, and any unsuitable material would be disposed offsite at a commercial landfill. Areas temporarily disturbed by construction would be returned to pre-project conditions after construction. Barren areas would be seeded with native grasses to reduce the potential for erosion except the levee crown where the aggregate base would be reinstalled.

The project would not affect project area topography or geology because the seepage remediation cutoff wall would be constructed within the existing levee. The removal or import of soil material for the levee construction would not significantly affect the soil condition in the project area because the only soil that would be removed and replaced would be the levee crown and portions of the staging area. The project would not alter flows within the channel, nor would it promote sedimentation downstream.

3.1.3 Land Use and Socioeconomics

A detailed discussion of socioeconomics (population, housing, and the economy) and land use are presented in the 1996 SEIS/EIR. The project area is located within the Sacramento metropolitan area between the American River Parkway and the Natomas East Main Drainage Canal. The predominant land use in the project area is commercial and industrial. Some residences and areas of public land are located just outside the project area. The project would not result in any long-term changes in land use or socioeconomics in the area. The development adjacent to the levee is anticipated to remain the same, and the staging areas would be returned to pre-project uses after construction.

As directed in Executive Order 12898, all Federal agencies must identify and address adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. There are some small homeless encampments located near the project area; however, these encampments would not be disturbed or removed due to construction activities. Any impacts caused by construction activities would not disproportionately affect minority or low-income populations.

As directed in Executive Order 13045, all Federal agencies must identify and address adverse environmental effects of their programs, policies, and activities on children. There is one school located near the project area. This school is on the landside of the levee away from the main construction area, and is additionally buffered from construction activities by the UPRR tracks and several large buildings and fences. The project would not have adverse or disproportionate impacts on children.

Upon completion of the project, the levee and the areas surrounding the levee would be restored to pre-construction conditions. The project would reduce flood risk for all residents, schools, and businesses in the area; therefore, there would be no effect to land use and socioeconomics from the project.

3.1.4 Fisheries

Fisheries and fish habitat is associated with the American River and vegetation along its shoreline. The Central Valley steelhead distinct population segments (DPS) and its habitat is present on the lower American River adjacent to the project reach. Construction would take place on the levee crown and the approximate 20-foot area adjacent to the waterside toe of the levee. The closest the American River channel gets to the project area is approximately 1,700 feet. There would be no construction in, or near, the American River. Additionally, implementation of Best Management Practices (BMPs) during the construction of the project would prevent material from entering the canal located on the waterside of the project levee.

The contractor would be required to develop and submit a Storm Water Pollution Prevention Plan (SWPPP) to minimize the potential for soil or contaminants to enter the canal. Erosion/sediment controls such as hay bales, straw wattles, silt fencing, or other types of barriers would be used at the waterside toe of the levee to prevent soil from entering the slough. Water trucks would be used for dust suppression along all areas of disturbed soil and along the haul routes on the top of the levee, and at the levee toes. Fuel would be brought to the project site on the day that work is to be performed. If fuels, lubricants, or other potential hazardous substances must be stored on site, the contractor would follow all applicable Federal, State, and local laws related to the transportation, storage, and handling of the materials, and take appropriate measures against accidental spillage. If equipment is to be refueled on site, the contractor would take measures to avoid and contain any spills. The contractor would be required to develop and submit a Spill Prevention and Countermeasure Plan (SPCP) prior to initiating construction activities. The SWPPP and SPCP must be approved by USACE. No riparian habitat would be affected by construction. This project would have no effect on fisheries, fish habitat, or shaded riverine aquatic (SRA) habitat.

3.1.5 Public Utilities and Services

The project site is surrounded by the American River Parkway, undeveloped private property, and light industrial and office buildings. The project site is not immediately adjacent to residences. Implementation of the project is not expected to interrupt public services such as mail delivery, trash pickup, street sweeping, etc. No utilities services would be interrupted during construction. Prior to initiating ground disturbing activities, the contractor would coordinate with Underground Service Alert (USA) to insure all underground utilities are identified and marked. No interruption of utility service would take place as a result of construction.

3.1.6 Hazardous and Toxic Waste

A Phase I environmental site assessment was conducted to identify and evaluate potential hazardous and toxic waste issues in and near the project area. The purpose of the Phase I was to review available documentation regarding past and current land use activities to assess the possible presence of hazardous substances and wastes. The site assessment was completed in December 2011 and concluded that there is no apparent hazardous and toxic waste contamination within the project area. Based on the results of the site assessment, there would

be no effect to hazardous and toxic waste. If evidence of hazardous and toxic waste is found prior to construction, more detailed studies including field sampling and analysis would be conducted to determine the nature and extent of any hazardous and toxic waste, and the hazardous and toxic waste would be remediated before the start of construction. Additionally, any imported fill material would be tested for contaminates to ensure the material used does not contaminate the project area.

3.2 Environmental Resources Evaluated in Detail

Initial evaluation of the effects of the project indicated that there could be the potential for impacts on several resources. Sections 3.2.1 through 3.2.11 describe the baseline conditions, effects, and the proposed measures to avoid, reduce, minimize, mitigate, or compensate for any potential significant effects. Baseline conditions are defined under the CEQA guidelines as 'environmental conditions as they exist at the time of analysis.' In determining effects, the consequences of the proposed action are compared to the consequence of taking no action. Impacts are identified as direct, indirect, or cumulative. Cumulative impacts are addressed separately in Section 5, Cumulative Impacts. Effects are assessed for significance based on significance criteria. The significance criteria used in this document are based on the checklist presented in Appendix G of the State CEQA Guidelines; factual or scientific information and data; and regulatory standards of Federal, State, and local agencies.

3.2.1 Recreation

Baseline Conditions

The project area is located along the north bank of the lower American River within the American River Parkway. The American River Parkway consists of a 5,000-acre regional park along the riparian corridor stretching from the confluence with the Sacramento River upstream to Folsom Lake. The Parkway is valuable regional resource which attracts bicyclists, runners, walkers, horseback riders, and rafters. The Sacramento County Department of Regional Parks (County Parks) is the agency with primary responsibility over the American River Parkway.

The lower American River is a Federally- and State-designated Wild and Scenic River. The lower American River is included in the Federal and State Wild and Scenic Rivers systems because of some or all of its fisheries, wildlife, scenic, and recreational values, but primarily its recreation and anadromous fishery values.

The primary recreational feature within the Parkway which could be affected by the project is the Sacramento Northern Bike Trail, which runs along the top of the NEMDC east levee within the project area. The Sacramento Northern Bike Trail connects the northern parts of Sacramento County to downtown via the American River Bike Trail. The southern terminus of the Sacramento Northern Bike Trail is located at the point where the American River Bike Trail crosses Del Paso Boulevard headed downstream. The American River Bike Trail also connects to the Sacramento River Trail and Old Sacramento State Historic Park, and many people use it daily to commute to work by bicycle into Downtown Sacramento.

Within the project boundary there is no vehicular access for recreationists into the American River Parkway. Pedestrians and bikers may access the bike trails at Del Paso Boulevard, just south of the North Extension project area. In addition, the Sacramento Northern Bike trail can be accessed via Acoma Street/Arden Way, at the north end of the North Extension.

Environmental Effects

Basis of Significance. Effects to recreational resources are considered significant if construction would: (1) Eliminate or severely restrict access to recreational facilities and resources; (2) Result in substantial long-term disruption of use of an existing recreation facility; or (3) Be inconsistent with the State or Federal Wild and Scenic Rivers Act.

Alternative 1 - No Action. Under this alternative, the NEMDC North Extension project would not be constructed; therefore there would be no effects on recreation. The bike trail and levee roads would remain open, and there would be no changes to the project area; however, the recreational trail could be damaged in the event of a flood.

Alternative 2 - Proposed Levee Improvements. Construction of the levee improvements would have short-term negative impacts on recreational use in the American River Parkway. Construction of the slurry cutoff wall would temporarily close approximately 3,000 feet of the Sacramento Northern Bike Trail from Del Paso Boulevard to the end of Railroad Drive for approximately four months (Plate 6). Additionally, construction vehicles accessing the site from Del Paso Boulevard would use the access ramp that connects the American River Bike Trail to the Sacramento Northern Bike Trail. The presence of construction vehicles in this area would likely disrupt recreationists during the construction of the project. The proximity of trail users and other recreationists to construction equipment and activities (noise, visual effects, and air quality) are also likely to temporarily impact recreational experiences during the construction period; however, these impacts would be less than significant because the temporary detour would reduce the number of recreationists near the project area. Temporary impacts to noise, visual effects, and air quality are further discussed in the document under Section 3.2.4, Air Quality; Section 3.2.8, Noise; and Section 3.2.9, Aesthetics.

Construction of the project would be consistent with the Wild and Scenic Rivers Act because the project would neither adversely affect the resources for which the American River was designated under the Wild and Scenic Rivers Act nor adversely affect the river's free-flowing status. All construction activities would be at least 1,700 feet away from the river. Implementation of BMPs during construction would prevent material or sediment from flowing into the canal.

Avoidance, Minimization, and Mitigation Measures

In order to mitigate for potential environmental impacts to recreation trail use, the following measures would be taken to ensure public safety and to keep the public informed of the project. Warning signs and signs regarding restricted access, trail closures and detours would be posted before and during construction, as necessary. Detour routes would be clearly marked, and fences erected in order to prevent access to the project area.

The section of the Sacramento Northern Bike Trail that is located on the levee crown in the construction area would be closed from the existing Del Paso Boulevard access, north to approximately where the end of Railroad Drive meets the levee. In order to reduce the impact of this closure, recreationists would be detoured east along Del Paso Boulevard to Acoma Street, then north to the bike trail. This closure/detour would be required during the entire period of construction. Plate 6 shows the Sacramento Northern Bike Trail closure and detour.

In areas where recreational traffic intersects with construction vehicles, traffic control would be utilized in order to maintain public safety. Public outreach would be conducted through mailings, posting signs, coordination with interested groups, and meetings in order to provide information regarding changes to recreational access in and around the Parkway.

In the southwest end of the project where the American River Bike Trail is in close proximity to the construction area, barriers would be installed as a safety measure to keep equipment, soil or other materials from encroaching on the trail.

Any effects to recreation would be temporary, and the proposed avoidance, minimization, and mitigation measures would reduce impacts to less than significant. Therefore, no further mitigation would be required.

3.2.2 Vegetation and Wildlife

Baseline Conditions

There are five major plant communities and cover types within and around the project area: ruderal herbaceous, ornamental landscaping, developed areas, riparian forest and scrub, and open water (canal). A plant community is a natural or human influenced assemblage of plants that have common characteristics and can be easily identified by key species. These communities and associated wildlife are described below. Sensitive native communities are considered native-diverse communities that are regionally uncommon or of special concern to Federal, State, and local resource agencies. The riparian forest and scrub, and open water habitats are considered sensitive native communities. Due to their local significance, native oak trees are separately addressed.

Ruderal Herbaceous**.** Ruderal herbaceous community is a native community that occurs in the project area. This community is located on the levee slopes and landside area between the levee and fences of the nearby buildings and in undeveloped properties. Areas of ruderal herbaceous community also occur in the waterside area between the levee, the canal, and American River.

This community is dominated by annual grasses such as ripgut brome (*Bromus diadrus*), wild oat (*Avena fatua*), and forbs including horsetail (*Equisetum spp.*). Ruderal herbaceous community provides cover and foraging habitat for resident and migratory songbirds, small mammals, and reptiles.

The ruderal herbaceous community within the project area is predominantly limited to the grasses on the slopes of the levee and in the undeveloped properties on the landside of the levee. The grasses on the levee occur as a result of restoration from previous levee projects and they are mowed as part of the maintenance program by ARFCD to reduce wildfire danger.

Ornamental Landscape. Ornamental landscape community is a nonnative community that occurs primarily around the buildings on the landside toe. Vegetation type and size are managed by property owners and is usually disturbed by maintenance practices and artificial irrigation. Some of this vegetation is trimmed by ARFCD while performing maintenance along the landside easement. This community provides nesting, cover, and foraging habitat for resident and migratory songbirds, and other wildlife species that have become adapted to urban areas.

Developed Areas. Nonnative communities occur in areas developed for urban use in the project area. Developed areas include sidewalks, roadways, buildings, railroad tracks, parking lots, and recreation trails. This cover type provides little to no habitat for wildlife, and has little to no vegetation and ground cover.

Riparian Forest and Scrub. Riparian forest and scrub is a native community that occurs near the project area. This community consists of forested areas and underbrush habitat along the American River and adjacent slough. This community includes native and nonnative trees, shrubs, vines, and brush in narrow bands along the river and canal, as well as expanses of habitat in the area between the two bodies of water.

Open Water. The American River is located approximately 1,700 feet west and south of the reach and is well outside the construction footprint. NEMDC is located adjacent to the proposed waterside toe staging area. Both the American River and NEMDC are considered open water habitat.

Native Oak Trees. The City of Sacramento's Heritage Tree Ordinance, Chapter 12.64 Heritage Trees (Oak tree ordinance), regulates the protection of significant specimen trees existing in the city, particularly oak tree species removal or disturbance to all species of heritage trees in the City of Sacramento. The ordinance applies to all trees with a trunk circumference of 100 inches (31 inch diameter at breast height [dbh]), or greater, or any native oak (*Quercus spp.*), buckeye (*Aesculus californica*), or sycamore (*Platanus racemosa*) having a trunk circumference of 36 inches (11.5 inch dbh) or greater. The ordinance applies to any native oak trees immediately within, or adjacent to the project area. Typically, only trees 6 inches dbh, or greater, are protected.

Environmental Effects

Basis of Significance. A project would significantly affect vegetation and wildlife if it would, in comparison to the no-action baseline: (1) significantly reduce the amount of native vegetation and wildlife habitat in the project area to a point that native wildlife could not live or survive in the project area; or (2) permanently remove or disturb sensitive native communities.

Alternative 1 - No Action. Under the No Action alternative, the affected levee reach would continue to be maintained by local levee maintenance districts. Maintenance activities typically include mowing and herbicide treatment to the levee slopes to regulate vegetation growth. Under this alternative the proposed project would not be built. There would be no change to the native vegetation or wildlife in the project area; however, emergency actions taken to prevent flooding in the possible event of levee failure may result in loss of vegetation.

Alternative 2 - Proposed Levee Improvements. Construction activities may require trimming of native oak and other large trees in and adjacent to the project area. Temporary displacement of local wildlife populations due to noise and increased human presence is likely to occur during construction activities. The effects to vegetation and wildlife are temporary and would be less than significant once the avoidance, minimization, and mitigation measures described below are implemented.

Avoidance, Minimization, and Mitigation Measures

Trees and shrubs within the construction footprint would be protected in place with temporary fencing placed one and a half times the dripline of each tree or shrub, when possible. If tree trimming is required, trimming would be conducted under the observation or direction of a qualified arborist. It is not anticipated that trees would be removed during the construction of this project; however, if tree removal is required, tree removal would be performed between the months of October and February in order to reduce impacts to nesting birds.

Grasses removed due to construction activities would be restored through reseeding. Landscaped ornamental grasses would be replaced in-kind; areas not associated with landscaping would be reseeded with native vegetation including California brome (*Bromus carinatus*), small fescue (*Vulpina microstachys*), and creeping wildrye (*Leymus triticoides*). Reseeded areas would be periodically monitored until 80 percent vegetation cover is achieved or until May 1 of the year following the reseeding. If hydroseeded areas do not reach the required amount of cover by May 1, additional erosion control may be required.

Effects associated with the trimming of trees and temporary removal of grasses would be less than significant after mitigation. If any further vegetation removal is necessary for construction of project, mitigation measures would be coordinated with the United States Fish and Wildlife Service (USFWS) under the Fish and Wildlife Coordination Act. USFWS recommends that native trees or shrubs with a diameter of 2 inches or greater should be replaced on-site, in-kind with container plantings. Additional recommendations by USFWS are located in the draft Coordination Act Report (CAR), located in Appendix C. The mitigation measures would be conducted in or near the areas that the vegetation was removed. Avoidance, minimization, and mitigation measures would reduce impacts to less than significant.

3.2.3 Special Status Species

Baseline Conditions

Regulatory Setting. Certain special status species and their habitats are protected by Federal, State, or local laws and agency regulations. The Endangered Species Act (ESA) of 1973 (16 U.S.C. § 1531 et seq.) provides legal protection for plant and animal species in danger of extinction. This act is administered by USFWS and the National Marine Fisheries Service (NMFS). The California Endangered Species Act (CESA) of 1977 parallels the ESA and is administered by the California Department of Fish and Wildlife (CDFW). Other plant and animal species lack legal protection, but have been characterized as "sensitive" based on policies and expertise of agencies or private organizations, or policies adopted by local government. Special status species are those that meet any of the following criteria:

- Listed or candidate for listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).
- Listed or candidate for listing under the California Endangered Species Act of 1977.
- Nesting bird species and active nests of birds listed under the Migratory Bird Treaty Act.
- Species listed in the Bald and Golden Eagle Protection Act.
- Fully protected or protected species under stated the California Fish and Game Code.
- Wildlife species of special concern listed by the CDFW.
- Plant species listed as Rare under the California Native Plant Protection Act.
- Plant species listed by the California Native Plant Society.
- Species protected by local ordinances such as the Sacramento County Ordinance, Chapter 19.12, Tree Preservation and Protection.
- Species protected by goals and policies of local plans such as the American River Parkway Plan, which includes anadromous and resident fishes, as well as migratory and resident wildlife.
- Essential Fish Habitat listed under the Magnuson-Stevens Fishery Conservation and Management Act. Essential Fish Habitat (EFH) is defined in the Magnuson-Stevens Act as "...those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The Act requires that Federal agencies consult with NMFS when any activity proposed to be permitted, funded, or undertaken by a Federal agency may have adverse effects on designated Essential Fish Habitat.

Special Status Species Evaluation. A list of Federally listed and candidate species, and species of concern that may be affected by projects in United States Geological Survey (USGS) quad East Sacramento was obtained on February 27, 2012, September 3, 2013, and December 4, 2013 via the USFWS website. In addition, a search of the California Natural Diversity Database (CNDDB) was conducted on February 28, 2012 and October 8, 2013. These species lists indicated that several State and Federally listed species have been reported within, or near the project boundaries; however, only the Federally threatened valley elderberry longhorn beetle

(*Desmoceros californicus dimorphus*) (VELB), the State threatened Swainson's hawk (*Buteo swainsoni*), and the CDFW fully protected white-tailed kite (*Elanus leucurus*) have been reported within one half mile of the project boundary. The one half mile boundary is used in order to meet CDFW recommendations for mitigation and protection of Swainson's hawks, Special status species that were not identified as occurring or having habitat in the project area are not discussed further in this document. The complete USFWS and CNDDB lists are included in Appendix A.

The green sturgeon (*Acipenser medirostris*), the delta smelt (*Hypomesus transpacificus*) and its critical habitat, the Central Valley steelhead (*Oncorhynchus mykiss*) and its critical habitat, the Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) and its critical habitat, and the Sacramento River winter-run Chinook salmon are listed by the USFWS as "Federal Threatened or Endangered species that Occur in or may be Affected by Projects in the Sacramento East U.S.G.S. 7 ½ Quad", however, there have been no occurrences reported in the CNDDB. It should be pointed out that presence or absence of a species should not be based solely on CNDDB occurrence reports. The project area is over 1,700 feet away from the American River and is approximately two miles from the Sacramento River. There would be no instream work, and the proposed action does not remove riparian habitat or SRA needed by listed salmonids or other native fish species. USACE has therefore determined that the project would have no effect on these species and they will not be further discussed in this document.

Valley Elderberry Longhorn Beetle. The VELB is endemic to the riparian habitats in the Sacramento and San Joaquin Valleys where it resides on elderberry (*Sambucus spp*.) plants. The beetle's distribution is patchy throughout the remaining riparian forests of the Central Valley from Redding to Bakersfield (USFWS, 1984). The beetle is a pith-boring species that depends on elderberry plants during its entire life cycle. The beetle tends to be located in population clusters that are not evenly distributed across the Central Valley (Barr, 1991).

The Parkway, with an abundance of elderberry shrubs in a well-connected corridor, provides high quality habitat for the VELB. Surveys conducted by USACE and USFWS biologists on April 3, 2013 did not detect any elderberry plants. Additional surveys would be conducted prior to construction activities to confirm previous results.

White-tailed Kite. The white-tailed kite (*Elanus leucurus*) is a common to uncommon yearlong resident in coastal and valley lowlands and is rarely found away from agricultural areas. The white-tailed kite forages in undisturbed, open grasslands, meadows, farmlands and emergent wetlands. Nests are made of loosely piled sticks and twigs; lined with grass, straw, or rootlets; and placed near the top of a dense oak, willow, or other tree stand usually 6 to 20 meters (20 to 100 feet) above ground. Nests are located near open foraging areas in lowland grasslands, agricultural areas, wetlands, oak-woodland and savannah habitats, and riparian areas associated with open areas.

White-tailed kite are recorded as occurring in several locations along the American River and the riparian habitat in the vicinity of the project area provides suitable nesting habitat for this species. The most recent record of a nesting white-tailed kite in CNDDB was recorded in August of 2009 and is located over a half mile east of the project area along the American River.

Other CNDDB records (1974 and 1988) indicate observations of nests even further away from the project area.

During biological surveys conducted in 2013, two white-tailed kites were observed perched upstream of the Arden-Garden Connector near the NEMDC North Extension project area. Additionally, a pair of white-tailed kites engaged in nesting behavior was observed approximately 1 mile away from the project area (Appendix A). Additional biological surveys would be conducted prior to the construction of the project in 2014 and throughout the breeding season according to the CDFW Swainson's Hawk Survey Protocols.

Swainson's Hawk. Swainson's hawks (*Buteo swainsoni*) are uncommon breeding residents and migrants in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and the Mojave Desert. Swainson's hawks breed in California and over-winter in Mexico and South America. They usually arrive in the Central Valley between March 1 and April 1, and migrate south between September and October. Swainson's hawk nests usually occur in trees near the edges of riparian stands, in lone trees or groves of trees in agricultural fields, and in mature roadside trees.

During biological surveys conducted in 2013, a pair of Swainson's hawks was observed in and near a nest approximately ½ mile from the NEMDC North Extension project area. While some nesting activity was observed in the early part of the season, no nesting behavior was observed by the end of April, 2013. Additional biological surveys would be conducted prior to the construction of the NEMDC North Extension segment of the project in 2014 and throughout the breeding season according to the CDFW Swainson's Hawk Survey Protocols. Raptor surveys would be conducted in the spring prior to the construction season of the project.

Environmental Effects

Basis of Significance. Adverse effects on special status species were considered significant if an alternative would result in any of the following: (1) Direct or indirect reduction in the growth, survival, or reproductive success of species listed or proposed for listing as threatened or endangered under the Federal or State Endangered Species Acts; (2) Direct mortality, long-term habitat loss, or lowered reproduction success of Federally or State-listed threatened or endangered animal or plant species or candidates for Federal listing; (3) Direct or indirect reduction in the growth, survival, or reproductive success of substantial populations of Federal species of concern, State-listed endangered or threatened species, species of special concern, or regionally important commercial or game species; or (4) An adverse effect on a species' designated critical habitat.

<u>Alternative 1 - No-Action</u>. Under the no action alternative, there would be no effects on existing special status species or critical habitat. The types of special status species and their associated habitat would remain the same. Current levee maintenance, recreation, and public activity would not change. The effects of these activities on special status species and their associated habitat would be the same; however, the possible event of levee failure may result in the loss of critical habitat, and special status species could be adversely affected.

Alternative 2 - Proposed Levee Improvements. Construction of the NEMDC North Extension would result in no effects to the Federally-listed valley elderberry longhorn beetle, since there are no elderberry shrubs located in the project area. The project could result in indirect affects to the white-tailed kite and the Swainson's hawk. These effects could be considered significant to these special status species unless mitigated.

Effects to White-tailed Kite and Swainson's Hawk. Construction of the levee improvements would not directly affect white-tailed kites or Swainson's hawks. Indirect effects would include physical vibration, and presence of construction vehicles and workers. Construction activities in the vicinity of an active nest have the potential to result in forced fledging or nest abandonment by adult hawks, potentially causing significant effects due to the direct mortality and/or reduction in the success of a listed species. Avoidance, minimization, and mitigation measures to avoid these potential impacts are discussed below.

Avoidance, Minimization, and Mitigation Measures

Prior to ground disturbance, all on-site construction personnel would be given instruction regarding the presence of sensitive species and the importance of avoiding these species and their habitats. Additional avoidance, minimization, and mitigation measures would follow the recommendations provided by USFWS under the Fish and Wildlife Coordination Act, including but not limited to:

- Avoid impacts to trees and shrubs. Any trees or shrubs removed would be replaced on-site with container plantings. These plantings would be monitored for 5 years or until they are established and self-sustaining.
- Avoid impacts to nesting migratory birds by conducting pre-construction surveys for active nests near the work areas. Work activity around active nests would be avoided until the young have fledged.
- Minimize project impacts by reseeding all disturbed areas at the completion of construction.
- Contact CDFW regarding possible effects of the project on State-listed species.

The USFWS Coordination Act Report is included in Appendix C. These measures would reduce the effects on sensitive species to less than significant. Species-specific avoidance, minimization, and mitigation measures are described below.

White-tailed Kite and Swainson's Hawk. Prior to the onset of construction, biological surveys for the presence of nesting raptors (white-tailed kites and Swainson's hawks) would be conducted within one-half mile of the proposed construction area. If the survey determines that a nesting pair is present, USACE would coordinate with CDFW and USFWS, and the proper avoidance and minimization measures would be implemented. To avoid potential effects to nesting raptors, CDFW typically requires the avoidance of nesting sites during construction activities and/or avoiding construction during the nesting season. If construction activities are determined to be necessary during the nesting season, an on-site biologist experienced with raptor behavior would monitor the nest while construction related activities are taking place. If

the nesting raptors exhibit agitated behavior in response to construction related activities, the biological monitor would have the authority to stop work and would consult with CDFW and USFWS to determine the best course of action necessary to avoid nest abandonment or take of individuals. The project is currently scheduled to begin in summer 2014. It is anticipated that the timing of the project would begin after the young Swainson's hawks and white-tailed kites have fledged, which is normally by July or August. The proposed mitigation measures would reduce the effects on the white-tailed kite and the Swainson's hawk to less than significant.

3.2.4 Air Quality

Baseline Conditions

Regulatory Background. The Federal Clean Air Act establishes National Ambient Air Quality Standards (NAAQS) and delegates enforcement to the states, with direct oversight by the U.S. Environmental Protection Agency (EPA). In California, the Air Resources Board (CARB) is the responsible agency for air quality regulation.

The California Clean Air Act established California Ambient Air Quality Standards (CAAQS). These standards are more stringent than Federal standards and include pollutants not listed in Federal standards. All Federal projects in California must comply with the stricter State air quality standards. The Federal standards and local thresholds for Sacramento County are shown in Table 1.

On November 3, 1993, the U.S. EPA issued the General Conformity Rule, stating Federal actions must not cause or contribute to any violation of a NAAQS or delay timely attainment of air quality standards for those areas designated as in nonattainment of Federal standards. A conformity determination is required for each pollutant where the total of direct and indirect emissions caused by a Federal action in a nonattainment area exceeds *de minimus* threshold levels listed in the rule (40 CFR 93.153).

Table 1. Air Emission Thresholds for Federal and Local Criteria Pollutants

Criteria Pollutant	Federal Standard (tons/year)	SMAQMD Threshold (lbs/day)
NO_x	25**	85
CO	100	*
SO	100	*
PM_{10}	100	*
ROG	25**	*

NO_x = nitrogen oxides PM_{10} = particulate matter SO = sulfur oxides
CO = carbon monoxide ROG = reactive organic gases
* = default to State standard (see California Ambient Air Quality Standards, Appendix B)
** = rates for "severe" Federal nonattainment areas [Federal Register (40 CFR), 1993]
SMAQMD = Sacramento Metropolitan Air Quality Management District
Source: SMAQMD, 2011

Local Air Quality Management. The Sacramento area is included in the Sacramento Valley Air Basin. The air quality in the area is managed by the Sacramento Metropolitan Air Quality Management District (SMAQMD), which is included in the Sacramento Federal Ozone

Nonattainment Area (SFNA) and is also subject to regulations, attainment goals, and standards of the U.S. and California EPAs. The EPA General Conformity Regulation requires that "serious" designated nonattainment areas further reduce nitrogen oxides (NOx) and reactive organic gases (ROG) thresholds to 50 tons/year rather than 100 tons/year. On February 14, 2008, CARB, on behalf of the air districts in the Sacramento region, submitted a letter to EPA requesting a voluntary reclassification (bump-up) of the Sacramento Federal Nonattainment Area from a "serious" to a "severe" 8-hour ozone nonattainment area with an extended attainment deadline of June 15, 2019, and additional mandatory requirements. On May 5, 2010 EPA approved the request effective June 4, 2010 (SMAQMD, 2011). The SFNA is thus designated a "severe" nonattainment area for the 8-hour NAAQS for ozone.

With respect to the State and Federal 24-hour particulate matter 10 microns or larger (PM_{10}) NAAQS, Sacramento County is designated as a nonattainment area. Additionally, on October 16, 2006, the EPA promulgated a new 24-Hour standard for $PM_{2.5}$. This change lowered the daily standard from 65µg/m3 to 35µg/m3 to protect the general public from short term exposure of the fine particulate matter. Sacramento does not meet the new standards (EPA, 2006). The California Clean Air Act of 1988 requires nonattainment areas to achieve and maintain the CAAQS by the earliest practicable date and local air districts to develop plans for attaining State ozone standards.

Sources of Pollutants. There are many sources of air pollutants within the region. To estimate the sources and quantities of pollution, CARB, in cooperation with local air districts and industry, maintains an inventory of California emission sources (CARB, 2009). Table 2 shows the 2008 Estimated Annual Average Emissions as estimated for the SMAQMD (CARB, 2008).

Table 2. 2008 Estimated Annual Average Emissions (Tons per Year)

Stationary Sources	**ROG**	**CO**	**NO_x**	**SO_x**	**PM**	**PM_{10}**	**$PM_{2.5}$**
Fuel Combustion	0.3	3.7	3.6	0.1	0.4	0.4	0.4
Waste Disposal	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Cleaning and Surface Coatings	4.0	-	-	-	-	-	-
Petroleum Production and Marketing	2.5	0.0	0.0	-	-	-	-
Industrial Processes	0.9	0.3	0.2	0.1	2.3	1.1	0.5
TOTAL Stationary Sources	**8.1**	**4.1**	**3.9**	**0.1**	**2.7**	**1.5**	**0.9**
Area wide Sources							
Solvent Evaporation	13.2	-	-	-	0.0	0.0	0.0
Miscellaneous Processes	4.0	40.3	3.1	0.1	74.4	34.9	10.1
TOTAL Area wide Sources	**17.3**	**40.3**	**3.1**	**0.1**	**74.4**	**34.9**	**10.1**
Mobile Sources							
On-road Motor Vehicles	22.7	209.3	44.1	0.2	2.1	2.0	1.4
Other Mobile Vehicles	12.9	86.0	24.9	0.2	1.5	1.5	1.3
TOTAL Mobile Sources	**35.6**	**295.3**	**69.0**	**0.4**	**3.6**	**3.5**	**2.8**
GRAND TOTAL for SMAQMD	**61.0**	**339.6**	**76.0**	**0.6**	**80.7**	**44.4**	**13.8**

NO_x = nitrogen oxides
CO = carbon monoxide
SO_x = sulfur oxides
PM_{10} = particulate matter 10 micrometers or less
$PM_{2.5}$=particulate matter 2.5 micrometers or less
ROG = reactive organic gases
Note: Estimates are rounded.

Toxic Air Contaminants. Under the Clean Air Act, toxic air contaminants (TACs) are airborne pollutants that may be expected to result in an increase in mortality or serious illness or which may pose a present a potential hazard to human health. A chemical becomes a regulated TAC after it is identified by CARB's California Air Toxics Program or the EPA's National Air Toxics Assessments, assessed for its potential for human exposure, and evaluated for its health effects on humans. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, or genetic damage; or short-term acute effects such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches. Regulating TACs is important not only because of the severity of their health effects, but also because the health effects can occur with exposure to even small amounts of TACs. TACs are not classified as criteria air pollutants (CAPs) and no ambient air quality standards have been established for them. The effects of various TACs are very diverse and their health impacts tend to be local rather than regional; consequently uniform standards for these pollutants have not been established.

The California Almanac of Emissions and Air Quality (Almanac), which is published annually by ARB, presents the trends of various TAC emissions in California. Currently, the estimated risk from particulate matter emissions from diesel exhaust (diesel PM) is higher than the risk from all other TACs combined, and this TAC poses the most significant risk to California's population. In fact, ARB estimates that 79% of the known statewide cancer risk from the top 10 outdoor air toxics is attributable to diesel PM. In September 2000, ARB adopted the Diesel Risk Reduction Plan, which recommends many control measures to reduce the risks associated with diesel PM and achieve a goal of 75% PM reduction by 2010 and 85% by 2020. The key elements of the Diesel Risk Reduction Plan are to clean up existing engines through engine retrofit emission control devices, to adopt stringent standards for new diesel engines, to lower the sulfur content of diesel fuel, and implement advanced technology emission control devices on diesel engines.

Construction activity can result in emissions of particulate matter from diesel exhaust (diesel PM). The use of off-road heavy-duty diesel equipment for site grading and excavation, paving, and other construction activities results in the generation of diesel PM emissions, which was identified as a TAC by ARB in 1998. SMAQMD has not established a quantitative threshold of significance for construction-related TAC emissions. Therefore, the SMAQMD recommends that lead agencies address this issue on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and its proximity to off-site receptors.

Implementation of SMAQMD's Basic Construction Emission Control Practices would result in the reduction of diesel PM exhaust emissions in addition to CAP emissions, particularly the measures to minimize engine idling time and maintain construction equipment in proper working condition and according to manufacturer's specifications.

Environmental Effects

Basis of Significance. A project would significantly affect air quality if it would: (1) violate any ambient air quality standard; (2) contribute on a long-term basis to existing or

projected air quality violation; (3) expose sensitive receptors (such as schools, residents, or hospitals) to substantial pollutant concentrations; or (4) not conform to applicable Federal and State standards, and local thresholds on a long-term basis.

Alternative 1 - No Action. Under the no action alternative, the project would not be constructed, and there would be no construction-related effects on air quality in the project area. Air quality would continue to be influenced by climatic and geographic conditions, local and regional emissions from vehicles and households, and local commercial and industrial land uses. Air quality is expected to improve in the future based on the stricter standards implemented by CARB and SMAQMD.

Alternative 2 - Proposed Levee Improvements. Construction activities would last approximately four months, and emissions associated with the project would be short-term. Combustion emissions would result from the use of construction equipment, power generators, truck haul trips to and from commercial sources and disposal sites, and worker vehicle trips to and from the work areas. Exhaust from these sources would contain ROG, carbon monoxide (CO), NO_x, PM_{10}, and carbon dioxide (CO_2). Exhaust emissions would vary depending on the type of equipment, the duration of use, and the number of construction workers and haul trips to and from the construction site. Fugitive dust would also be generated during disturbance of the ground surfaces during construction. Although material removed during the levee degrade would likely be stored in the staging area for reuse, for the purposes of analysis it is assumed that all soil removed during levee degrade and excavation would be disposed as spoils. It is also assumed that an equal amount of material would be imported for the reconstruction of the levee. Based on these assumptions, it is estimated that approximately 65 construction vehicles hauling materials would access the site per day.

The updated Road Construction Emissions Model, Version 7.1.3 (May 2013) was used to estimate project emission rates for ROG, CO, NO_X, PM_{10}, $PM_{2.5}$, and CO_2. The estimated equipment to be used, volume of material to be moved, and disturbance acreages were compiled to determine the data to input into the emissions model. The emission calculations are based on standard vehicle emission rates built into the model. Details and results of the calculations for each reach are provided in Appendix B. The estimated emissions for the NEMDC North Extension are shown in Table 3.

Table 3. Estimated Air Emissions for NEMDC North Extension

	ROG	**CO**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**
Total emissions (lbs/day)	7.5	38.7	73.4	24.1	7.9	9,073.6
SMAQMD thresholds (lbs/day)	N/A	N/A	85	N/A	N/A	N/A
Total (tons/construction project)	**0.2**	**0.8**	**1.4**	**0.5**	**0.2**	**170.3**
Federal standards (tons/year)	**25**	**100**	**25**	**100**	**N/A**	**N/A**

NO_x = nitrogen oxides
CO = carbon monoxide
SO_x = sulfur oxides
PM_{10} = particulate matter 10 micrometers or less
$PM_{2.5}$=particulate matter 2.5 micrometers or less
ROG = reactive organic gases
Note: Estimates are rounded.

Table 3 summarizes the estimated emissions (in pounds per day and total tons for the project) for the project and compares them to the Federal standards and local thresholds. Based on the air quality analysis performed, the estimated emissions totals of PM_{10} and ROG for the NEMDC project would be below the Federal conformity *de minimis* thresholds established by the EPA. As a result, the proposed action does not require an in-depth conformity analysis to evaluate ambient air quality concentrations and instead is presumed to conform to the region's ozone and PM_{10} State implementation plan. Therefore, USACE has determined the proposed action is in compliance with the conformity rule.

The tables also show that construction emissions of PM_{10} and ROG would each be less than the *de minimis* thresholds established by the EPA for conformity analyses. In addition, the BMPs listed below would be implemented to reduce the NO_X emissions below the SMAQMD significance threshold.

The project would not contribute on a long-term basis to existing or projected air quality violations, or expose sensitive receptors to substantial pollutant concentrations. The project would implement all the SMAQMD Basic Construction Emission Control Practices (included in Appendix B) and would disturb less than 15 acres of area per day. These factors, along with mitigation, below, would ensure that air quality impacts related to implementation of the project would be less than significant.

Avoidance, Minimization, and Mitigation Measures

Emissions would result from the use of construction equipment, truck haul trips to and from the borrow sites, and worker vehicle trips to and from the construction sites. Prior to construction, the contractor would submit a construction equipment list to be used in the project for approval by USACE and SMAQMD. SMAQMD would confirm the fleet emissions and endorse the list only if the total fleet emissions would meet a 20% reduction in NO_X and a 45% reduction in PM_{10} in comparison to the state fleet emissions average. The contractor would be required to follow the requirements of SMAQMD's standard mitigation program (Appendix B). While NOx emissions are not anticipated to exceed the SMAQMD threshold, any remaining emissions over the NO_X threshold would be reduced via a mitigation fee payment. The cost of reducing one ton of NO_X is $17,460 ($8.73/lb). The contractor would be responsible for payment of any required mitigation and administrative fees.

The standard mitigation measures for the SMAQMD Recommended Mitigation for Reducing Emissions from Heavy-Duty Construction Vehicles are:

- Use diesel-fueled equipment manufactured in 2003 or later, or retrofit equipment manufactured prior to 2003 with diesel oxidation catalysts; use low-emission diesel products, alternative fuels, after-treatment products, and/or other options as they become available.
- Maintain properly functioning emission control devices on all vehicles and equipment.
- The contractor would provide a plan, for approval by USACE and SMAQMD, demonstrating that the heavy-duty (greater than 50 horsepower) self-propelled off-road

vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20% NO_X reduction and 45% particulate reduction compared to the most recent CARB fleet average at time of construction; and

- The contractor shall submit to USACE and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative shall provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.
- The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour. Any equipment found to exceed 40% opacity (or Ringelmann 2.0) shall be repaired immediately, and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other SMAQMD or state rules or regulations.
- If at the time of construction, the SMAQMD has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation. Consultation with SMAQMD prior to construction will be necessary to make this determination.

Implementation of the BMPs listed below would reduce air quality degradation caused by dust and other contaminants:

- During construction, implement all appropriate dust control measures, such as tarps or covers on dirt piles, in a timely and effective manner.
- Periodically water all construction areas having vehicle traffic, including unpaved areas, to reduce generation of dust. Application of water would not be excessive or result in runoff into storm drains.
- Suspend all grading, earth moving, or excavation activities when winds exceed 20 miles per hour.
- Water or cover all material transported offsite to prevent generation of dust.

- Sweep paved streets adjacent to construction sites, as necessary, at the end of each day to remove excessive accumulations of soil or dust.
- Cover all trucks hauling dirt, sand, soil, or other loose material, or maintain at least 2 feet of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114. This provision would be enforced by local law enforcement agencies.
- Revegetate or pave areas cleared by construction in a timely manner to control fugitive dust.

Impacts to air quality would be temporary, short-term, and localized. Sensitive receptors, such as schools, residences, or hospitals would not be exposed to substantial pollutant concentrations. Avoidance, minimization, and mitigation measures would reduce impacts to less than significant.

3.2.5 Climate Change

Environmental Setting

Warming of the climate system is now considered to be unequivocal (IPCC, 2007). Global average surface temperature has increased approximately 1.33 °F over the last one hundred years, with the most severe warming occurring in the most recent decades. In the twelve years between 1995 and 2006, eleven years ranked among the warmest years in the instrumental record of global average surface temperature (going back to 1850). Continued warming is projected to increase global average temperature between 2 and 11 °F over the next 100 years (IPCC, 2007).

The causes of this warming have been identified as both natural processes and as the result of human actions. Increases in greenhouse gas (GHG) concentrations in the Earth's atmosphere are thought to be the main cause of human induced climate change. GHGs naturally trap heat by impeding the exit of solar radiation that has hit the Earth and is reflected back into space. The six principal GHGs of concern are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, and perfluorocarbons.

<u>Requirements</u>. CEQA requires that lead agencies consider the reasonably foreseeable adverse environmental effects of projects they are considering for approval. CEQA requires that the cumulative impacts of GHG, even impacts that are relatively small on a global basis, need to be considered.

On February 18, 2010, CEQ released draft guidance regarding the consideration of GHGs in NEPA documents for Federal actions. The draft guidelines include a presumptive threshold of 25,000 metric tons of carbon dioxide equivalent (CO2e) emissions from a proposed action to trigger a quantitative analysis (CEQ, 2010).

Some statewide standards have been established that provide information about the order of magnitude of emissions that might be considered significant. Pursuant to AB 32, CARB

mandates that only "large" facilities (stationary, continuous sources of GHG emissions) that generate greater than 25,000 metric tons of CO_2e per year report their GHG emissions. In addition, on October 24, 2008, CARB released a preliminary draft staff proposal that recommends 7,000 metric tons of CO_2e per year be used as the baseline threshold for impacts (CARB, 2008b).

Environmental Effects

Basis of Significance. It is unlikely that any single project by itself could have a significant impact on the environment. However, the cumulative effect of human activities has been linked to quantifiable changes in the composition of the atmosphere, which in turn have been shown to be the main cause of global climate change (IPCC, 2007). The Department of Water Resources has not established a quantitative significance threshold for GHG emissions; instead, each project is evaluated on a case by case basis using the most up to date calculation and analysis methods.

The proposed project could result in a significant impact if it would generate GHG emissions: (1) either directly or indirectly, that may have a significant cumulative impact on the environment; or (2) that would conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs, including the state goal of reducing GHG emissions in California to 1990 levels by 2020, as set forth by the timetable established in AB 32, California Global Warming Solutions Act of 2006. In addition, CARB has released a preliminary draft staff proposal that recommends 7,000 metric tons of CO_2e per year be used as the baseline threshold for impacts (CARB, 2008b).

Draft guidance released by CEQ regarding the consideration of GHG's in NEPA documents for Federal actions include a presumptive threshold of 25,000 metric tons of CO_2 emissions from a proposed action to trigger a quantitative analysis (CEQ, 2010).

Alternative 1 - No Action. Under the no action alternative, the project would not be constructed, and there would be no construction-related effects on climate change in the project area. Locally generated emissions, including levee operations and maintenance, would continue. The climate would continue to be influenced by local and regional emissions from vehicles, and local commercial and industrial land uses. However, with CARB and the SMAQMD implementing stricter ozone precursor standards, it is anticipated that GHG emissions should be reduced from current levels in the future.

Alternative 2 - Proposed Levee Improvements. Construction of the NEMDC North Extension is a relatively small, short-term project and emissions from construction vehicles would occur during a short time period. Using the emissions model and calculations previously discussed in Air Quality (Section 3.2.4), CO_2 emissions are estimated to be less than 2,000 tons per year. Additionally, the CEQA Climate Change Committee GHG emissions calculator estimates total project emissions to be approximately 381.7 tons of CO_2e. Some statewide standards have been established that provide information about the order of magnitude of emissions that might be considered significant.

The proposed construction would use large, diesel-fueled construction vehicles during all phases of the project. The partial degrade of the levee crown would result in emissions from bulldozers and graders, as well as emissions from the haul trucks used to dispose of material. The construction of the slurry wall would result in emissions from the jet-grout equipment and haul trucks, as well as the diesel-powered mixers required for the mixing of the cement and bentonite. Diesel-powered graders, compactors, pavers, and haul trucks for borrow materials would be used for the re-construction of the levee crown.

In addition to the construction vehicles, mixers, and haul trucks involved in the actual construction of the project, there would also be GHG emissions from the workforce vehicles. Workers would commute from their homes to the construction site and park in the staging area. Workers are assumed to commute no further than 20 miles from the construction site based on the availability of housing and the urban setting of the project. During construction, there may be times during which large construction vehicles on the roads slow regular traffic patterns, increasing emissions from vehicles that use the roads on a regular basis.

The long-term operations and maintenance of the project sites would remain the same with or without project conditions. Current operations and maintenance involves the periodic mowing and spraying of the levee slopes for fire danger control. While the project does not improve operation maintenance efficiency, the project would also not increase emissions due to operations and maintenance. Additionally, the construction of the project would reduce the possibility of large amounts of GHG emissions from flood-fighting activities in the event of levee failure.

In response to the concerns regarding GHG emissions, the most recent version of the SMAQMD Road Construction Emissions Model (version 7.1.3) now generates an output for CO_2. The SMAQMD Road Construction Emissions Model was based on knowledgeable individuals from SMAQMD, the California Department of Transportation, CARB, and the EPA. As discussed in Table 3 (Section 3.2.4), estimated CO_2 emissions for the NEMDC North Extension would total approximately 9,073.6 lbs/day or approximately 170.3 tons for construction of the project.

The CEQA Climate Change Committee has created a guidance document for GHG emissions calculations. This document requires data entry related to construction equipment, workforce transportation, materials transportation, and maintenance and operational emissions. According to this calculator, the total emissions of GHGs for the NEMDC North Extension would be approximately 381.7 tons. Details and results of the calculations are provided in Appendix B. While the data entered on this form is based on assumptions and estimates, the amounts of CO_2e can be used to determine significance according to CEQA. Based on the 7,000 metric tons of CO_2e per year significance threshold as recommended in the preliminary draft staff proposal released by CARB, the effects from the project would not be significant.

There would be no increase of long-term emissions (permanent sources) of GHGs from this project. Long-term emissions would be the same with or without the project; maintenance emissions would be the same, and the slurry wall itself has no net long-term emissions. Based

on the review discussed above, this project does not conflict with any statewide or local goals with regard to reduction of GHG.

Avoidance, Minimization, and Mitigation Measures

BMPs and implementation of the standard construction mitigation measures as recommended by SMAQMD would reduce GHG emissions, including but not limited to:

- Minimize the idling time of construction equipment to no more than three minutes or shutting equipment off when not in use;
- Maintain all construction equipment in proper working condition;
- Encourage carpools, shuttle vans, and/or alternative modes of transportation for construction worker commutes;
- Use locally sourced or recycled materials for construction materials as much as practicable; and
- Develop a plan to efficiently use water for adequate dust control.

Additional measures are included in Appendix B. These measures and other BMPs as listed in Section 3.2.4, Air Quality, would reduce impacts to less than significant.

3.2.6 Water Resources and Quality

Baseline Conditions

The Sacramento metropolitan area is situated at the confluence of the American and Sacramento River in a low-lying flood basin. Levees along these rivers reduce flood risk and convey water from the Sierra Nevada to the Sacramento-San Joaquin Delta. Winter rains and spring snow melt can cause high flows in the valley's rivers. High water flows stresses levees and berms, weakening them, causing them to erode, and possibly fail. To maintain the levee system, areas with existing or potential erosion and seepage damage are identified and repaired.

The American River is the major waterway in the project area. The river flow is influenced by upstream dams, local weather, spring snow melt, flood by-passes, and upstream tributaries. Folsom Dam has the greatest effect on water flow in this section of the river. The mean water level for the American River at the confluence of the Sacramento River was 20.44 feet in 2007. The maximum water level of the American River was 33.54 feet and the minimal water level was 16.75 feet at the confluence in 2007 (DWR, 2012a).

The local rivers, lakes, and rainfall recharge the ground water table in the project area. The City of Sacramento uses the ground water to supply drinking water to businesses and residential homes. The ground water table is approximately 75 feet below the surface (DWR, 2011). Average ground water depth can be affected by seasonal changes in water volume in the valley, rivers, and lakes, local rainfall, and urban demand on the ground water (DWR, 2012b).

Environmental Effects

Basis of Significance. A project would significantly affect water resources if it would: (1) result in the loss of a surface or groundwater source; or (2) interfere with existing beneficial uses or water rights.

Alternative 1 - No Action. Under this alternative, there would be no construction activity to affect water resources or quality in the project area. The surface and groundwater conditions would not change.

Alternative 2 - Proposed Levee Improvements. Levee construction would occur within the levee alignment and landside levee slope. The closest the American River gets to the construction limit is approximately 1,700 feet. The waterside staging area proposed for the NEMDC North Extension segment would be used to store equipment and excess material, including stockpiles of material. BMPs would be implemented to maintain the integrity of the stockpiles; no material would enter the canal. The completed levee improvements would not significantly alter the alignment of the current levee nor would they provide for any additional flow capacity beyond the current design requirements. The improvements would stabilize the levees in this section of the levee system to safely convey an emergency release of 160,000 cfs with 3 feet of freeboard to allow for wave or wind action. The improvements would not alter the river hydraulics nor would they alter the downstream capacity of the levee system. The sections of the levee system on the American River upstream and downstream of the project reach are already capable of safely conveying an emergency release of 160,000 cfs with 3 feet of freeboard.

Approximately 3 acres of bare soil would be exposed until construction is completed and the levee slope and staging area would be reseeded with native noninvasive species. Dust control measures would be implemented on the levee crown, side slopes, maintenance roads and stockpiles to avoid dust and soil from entering the river, canal, or other drainages as a result of construction activities. BMPs would be followed to avoid erosion and movement of soils into the drainage system.

In addition, inadvertent spills of oil or fuels from construction equipment could be a source of contamination at work or staging areas. Precautions would be followed to avoid contamination. The contractor would be required to properly store and dispose of any hazardous waste generated at the site. These BMPs and the avoidance, minimization, and mitigation measures listed below would prevent any contaminants from entering the river.

The slurry wall would only be approximately 30 feet deep, and based on the depth of groundwater in the area there would be no impacts to groundwater. The project would have no impacts to water rights. For all the reasons stated above, water quality impacts related to implementation of the project would be less than significant.

Avoidance, Minimization, and Mitigation Measures

Since the project would disturb more than 1 acre of land, the contractor would be required to obtain a National Pollution Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board (RWQCB), Central Valley Region. As part of the permit, the contractor would be required to prepare a Storm Water Pollution Prevention Plan (SWPPP), identifying BMPs to be used to avoid or minimize any adverse effects during construction to surface waters.

The incorporation of the following BMPs would reduce effects to water quality to less than significant:

- The contractor would prepare a spill control plan and a SWPPP prior to initiation of construction. The SWPPP would be developed in accordance with guidance from the RWQCB, Central Valley Region. These plans would be reviewed and approved by USACE before construction begins.
- Implement appropriate measures to prevent debris, soil, rock, or other material from entering the water. Use a water truck or other appropriate measures to control dust on haul roads, construction areas, and stockpiles.
- Properly dispose of oil or other liquids.
- Fuel and maintain vehicles in a specified area that is designed to capture spills. This area can not be near any ditch, stream, or other body of water or feature that may convey water to a nearby body of water.
- Inspect and maintain vehicles and equipment to prevent dripping of oil or other liquids.
- Schedule construction to avoid the rainy season as much as possible. Ground disturbance activities are scheduled to begin early summer 2014. If rains are forecasted during construction, erosion control measures would be implemented as described in the RWQCB Erosion and Sediment Control Field Manual.
- Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event.
- Train construction workers in stormwater pollution prevention practices.
- Revegetate disturbed areas in a timely manner to control erosion.

Since no significant adverse effects to groundwater or surface water resources are anticipated, no additional mitigation is required.

3.2.7 Traffic and Circulation

Baseline Conditions

Streets in the project area consist of a mix of regional highways, minor traffic arteries and minor industrial/office access streets maintained by the City of Sacramento. Sidewalks are

virtually non-existent in the project area and the nearest residences are located approximately 350 feet from the project. The American River Parkway provides recreation trails used for pedestrian traffic (running and walking), horseback riding, and bicycling adjacent to the entire project area.

Roadways adjacent to the reach include: Highway 160, Northgate Boulevard, Del Paso Boulevard, Railroad Drive, and the Arden-Garden Connector. With the exception of Highway 160 and the Arden-Garden Connector, these roadways are two-lane roadways on the landside of the levee. A portion of Northgate Boulevard is also located on the waterside of the levee. The smaller roads connect industrial area and office complexes to major urban connector roads. Traffic on these streets includes private automobiles, light and heavy (semi-trucks) commercial vehicles, delivery/service vehicles, bicycles, and pedestrians. The average daily traffic (ADT) on Del Paso Boulevard at Railroad Drive in 1988 was 9,131 vehicles. The ADT dropped to 4,840 vehicles in 1995 (City of Sacramento, 2012). Traffic volume on these roads peaks during the morning and evening rush hours and reduces in volume during the middle of the day.

The nearest major roads to the project area are Highway 160 and the Arden-Garden Connector. Highway 160 is a major, four-lane urban roadway that connects residential and commercial areas in downtown Sacramento to the Arden area, the Capitol City Freeway, and other parts of the metropolitan area. Highway 160 is outside of the project area but would be used to access the project area during construction. Types of traffic on Highway 160 include private automobiles, light commercial vehicles, semi-truck trailers, emergency vehicles, and public buses. Traffic volume on Highway 160 peaks during the morning and evening rush hour and becomes a steady but lower volume during the day. The ADT on Highway 160 at Northgate Boulevard was approximately 53,000 vehicles in 2009 (Caltrans, 2010).

The Arden-Garden Connector is also a major, four-lane urban roadway that connects the residential and commercial areas along Arden Way to the residential and commercial areas along Garden Highway in south Natomas. The Arden-Garden Connector runs along the northern edge of the project area and would likely be used to access the project area during construction. Types of traffic on the Arden-Garden Connector would likely be consistent with the traffic on Highway 160. The ADT on the Arden-Garden Connector at Northgate Boulevard was 23,714 vehicles in 2007 (City of Sacramento, 2012).

Pedestrian traffic is low during the day and peaks in the early evening. Recreation traffic in the American River Parkway and associated bicycle trail is moderate throughout the day. The American River Bike Trail is a paved two-lane bike trail that generally follows the path of the American River; the Sacramento Northern Bike Trail is located on top of the levee in the project area and would be closed to recreational access during the four month construction period.

Environmental Effects

Basis of Significance. The project would significantly affect traffic if it would: (1) cause an increase in traffic volume that is substantial in relation to the existing load and capacity of a roadway; (2) cause an increase in safety hazards on an area roadway; or (3) cause substantial deterioration of the physical condition of the nearby roadways.

Alternative 1 - No Action. The no action alternative would have no effect on the traffic and circulation in the project area. The existing roadways, bike paths, types of traffic, traffic volume, and circulation patterns would not change.

Alternative 2 - Proposed Levee Improvements. The project would temporarily affect local roads and major urban connector roads used as a haul route during construction. Haul trucks would cause an increase in traffic volume and reduce traffic speeds on local residential roads. Haul trucks would have a minor affect on traffic volume (less than 5%) and traffic speeds on the major urban connector roads.

During construction, haul trucks would travel between the licensed disposal facility, the commercial borrow pit, and the construction site. External haul routes would require the use of Del Paso Boulevard, Northgate Boulevard, the Arden-Garden Connector, Highway 160, Interstate 5, Highway 50, and Business 80 (Capitol City Freeway). Access points for off-hauling or importing material would be at Del Paso Boulevard and Railroad Drive. During the height of construction it is estimated that trucks conducting approximately 65 haul trips would be accessing the site per day. The type and volume of construction traffic should not cause a substantial deterioration of the physical condition of the nearby roadways; however, pre-construction and post-construction conditions would be documented by the contractor. Any deteriorated roadways determined to be caused by the project would be repaired by the contractor.

Although the American River Bike Trail would remain open for the duration of construction, it would be necessary to temporarily close a portion of the Sacramento Northern Bike Trail from Del Paso Boulevard to the end of Railroad Drive (approximately 3,000 feet) for safety reasons. Recreationists would be detoured away from the construction site using Del Paso Boulevard and Acoma Street. Details of impacts to recreation are described in Section 3.2.1, Recreation. Potential effects to traffic are expected to be less than significant based on the current use of Del Paso Boulevard by recreationists.

Avoidance, Minimization, and Mitigation Measures

The contractor would be required to develop a Traffic Control Plan, which would be reviewed and approved by the City of Sacramento prior to construction. This plan would include the following measures:

- Do not permit construction vehicles to block any roadways or private driveways.
- Provide access for emergency vehicles at all times.
- Select haul routes to avoid schools, parks, and high pedestrian use areas, when possible. Crossing guards would be used when truck trips coincide with schools hours and when haul routes cross student travel path.
- Obey all speed limits, traffic laws, and transportation regulations during construction.
- Use signs and flagmen, as needed, to alert motorists, bicyclists, and pedestrians to avoid conflict with construction vehicles or equipment.

- Provide a safe, clearly-marked detour during the closure of the Sacramento Northern Bike Trail. Erect signs providing information regarding closure and detour, at least two weeks prior to the closure date.
- Flagmen would be used at each roadway that crosses the levee to safely circulate traffic through the construction site.
- Use separate entrances and exits to the construction site.
- Prior to construction, notify local residents, business, schools, and the City of Sacramento if road closures would occur during construction.
- Contractor would repair roads damaged by construction.

To reduce traffic safety hazards, a flagman at Railroad Drive would direct construction traffic as the haul trucks leave the construction site. Pedestrians and bicyclists would be encouraged through the use of concrete barriers, fencing, and/or detour signs to use the designated detour route during the construction period. These proposed mitigation measures would reduce the effects on traffic and circulation to less than significant.

3.2.8 Noise and Vibration

Baseline Conditions

Noise is defined as unwanted sound that evokes a subjective reaction to the physical characteristics of a physical phenomenon. Ambient noise in the project area is generated by the traffic on the adjacent surface streets. Other noise may be generated primarily in the summer by motorized recreation on the American River. Based on experience with similar settings, it is assumed existing noise levels in the project area are in the range of 60 to 70 decibels (dB) day-night sound level (Ldn). Noise-sensitive receptors in or near the project area include residents, schools, businesses, recreational users, and wildlife.

The project area is located between two major road ways and an active railroad track in an area with light commercial and industrial businesses. Residential areas located nearby are separated from the project area by the open space associated with the NEMDC waterway. Currently, the main sources of noise include motor vehicles, industrial noise, human activity, and natural sounds. Additional noise is associated with periodic trains passing the area on the UPRR tracks.

Since the reach lies within the City of Sacramento, the City's noise policies and regulations apply to the project. The City has established policies and regulations concerning the generation and control of noise that could adversely affect their citizens and noise-sensitive land uses. The General Plan is a document required by state law that serves as the city's "blueprint" for land use and development. The General Plan provides an overall framework for development in the city and protection of its natural and cultural resources. The Noise Element of the General Plan contains planning guidelines relating to noise.

In addition, the Sacramento Municipal Code, Title 8 (Health and Safety) establishes the enforcement mechanism for controlling noise in the City. Specifically, the Noise Ordinance in the Municipal Code is described under Chapter 8.68 (Noise Control), Article II (Noise Standards). Section 8.68.060 sets the standards, Section 8.68.060B discusses the length of exposure, and Section 8.68.080 details the exemption, including the exemption for construction.

The City's Noise Ordinance establishes 60 A-weighted decibels (dBA) Ldn as the maximum acceptable exterior noise level for schools and single and multi-family residential areas. The City's Noise Ordinance also states any exterior noise limits must not exceed 50 dBA between 10:00 p.m. and 7:00 a.m. and 55 dBA between 7:00 a.m. and 10:00 p.m. for residential and agricultural areas. However, Section 8.68.080 of the Sacramento Municipal Code exempts construction activities between the hours of 7:00 a.m. and 6:00 p.m., Monday through Saturday, and 9:00 a.m. and 6:00 p.m. on Sunday. The ordinance further states internal combustion engines in use on construction sites must be equipped with "suitable exhaust and intake silencers which are in good working order."

The County of Sacramento General Plan Noise Element (1993) has established noise standards for various land use categories. These standards are broken out into Acceptable, Conditionally Acceptable, and Unacceptable noise exposure ranges based on A-weighted decibel (dBA) Ldn, measurements. The project reach would most likely fall into the land use category of Agricultural/Residential 5 to 10 acres. The noise standards for this land use category are: Acceptable – up to 60; Conditionally Acceptable – 65 to 75; Unacceptable – above 75.

Although construction equipment may cause noticeable increase in ambient noise levels near individual levee construction and staging areas, any noise increases would be short term and intermittent. Construction noise would fluctuate, depending on construction phase, equipment type and duration of use, distance between noise source and receptor, and presence or absence of barriers between noise source and receptor. Noise from construction activity generally attenuates at six to none dBA per doubling of distance. Assuming an attenuation rate of six dBA per doubling of distance, construction equipment noise in the range of 80 to 90 dBA at 50 feet would generate noise levels of 74 to 84 dBA at 100 feet from the source. The nearest residences are located approximately 350 feet from the edge of the staging area; however, the construction itself would occur at least 500 feet away from the nearest residence. Using the same attenuation rate of 6 dBA per doubling of distance, the noise levels would be reduced a moderate amount based on the distance from the source. It should be noted that the residences are separated from the construction area by the Arden-Garden Connector, a major roadway that increases the level of ambient noise in the area. Additionally, the NEMDC waterway and several large, mature trees are located between the nearest residences and this section of the levee. This vegetation should provide for additional attenuation of the noise.

Environmental Effects

Basis of Significance. Adverse effects related to noise are considered significant if an alternative would result in any of the following:

- Exposure of persons or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- Substantial short-term or periodic increase in ambient noise levels in the project vicinity above existing levels existing without the project.
- Substantial long-term increase in ambient noise levels in the project vicinity above levels existing without the project.
- Vibration exceeding 0.2 inch per second within 75 feet of existing buildings.

The significance criteria for increases in noise from project operations are listed below. These criteria are based on the City of Sacramento Noise Ordinance.

- A 3-dBA increase in noise if the existing noise level already exceeds the "normally acceptable range" for the land use (60 dBA or less for residential uses).
- A 5-dBA increase in noise if the existing noise level is in the "normally acceptable range" and the resulting level is within the "normally acceptable range" for the land use.
- A resulting offsite exterior noise level that exceeds 55 dBA for a cumulative duration of 30 minutes in an hour (L50) during the daytime (7:00 a.m. to 10:00 p.m.) or 50 dBA L50 during the nighttime (10:00 pm to 7:00 a.m.).

Alternative 1 - No Action. Under the no action alternative, there would be no project-related effects to noise. Sources of noise and noise levels would continue to be determined by local activities, development, and natural sounds.

Alternative 2 - Proposed Levee Improvements. Construction activity noise levels at and near the construction areas would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction-related material haul trips would raise ambient noise levels along haul routes, and construction activities within the staging area would increase noise levels near the NEMDC waterway. Table 4 shows typical noise levels during different construction stages. Table 5 shows typical noise levels produced by various types of construction equipment.

Table 4. Typical Construction Noise Levels

Construction Phase	Noise Level (dBA, Leq)[a]
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

[a] Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.
Source: U.S. Environmental Protection Agency, 1971.

Table 5. Typical Noise Levels From Construction Equipment

Construction Equipment	Noise Level (dBA, Leq at 50 feet)
Dump Truck	88
Portable Air Compressor	81
Concrete Mixer (Truck)	85
Scraper	88
Jack Hammer	88
Dozer	87
Paver	89
Generator	76
Backhoe	85

Source: Cunniff, Environmental Noise Pollution, 1977.

Noise from construction activities generally attenuates at a rate of 6 to 7.5 dBA per doubling of the distance from the reference noise source. Based on the project site layout and terrain, an attenuation of 6 dBA will be assumed. Residences are located approximately 350 feet from the construction activities; however, the construction itself would occur at least 500 feet away from the nearest residence. The nearest businesses are located on the landside of the levee approximately 50 feet away from the construction area, and there are several businesses located along the haul route. During the height of construction, the haul route is expected to have up to 65 round trips per day. A receptor at 50 feet from a dump truck would experience noise levels up to approximately 88 dBA during a pass by.

Construction noise at these levels would be greater than existing noise levels at nearby sensitive receptor locations. Construction activities associated with the project would be temporary in nature and related noise impacts would be short-term. However, since construction activities could substantially increase ambient noise levels at noise-sensitive locations, especially if they were to occur during the nighttime hours, noise from construction could be potentially significant without mitigation.

Construction activities would result in short-term increases in ambient noise. Sensitive receptors that could be affected by this increase include residents, wildlife, and recreationists. Construction of the project would occur between the hours of 7:00 a.m. and 6:00 p.m., Monday through Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday. The noise associated with the construction activities would typically fall within the City of Sacramento's conditionally acceptable noise exposure category at the point of sensitive receptors. Construction would be short-term, and construction activities would be limited to these times.

Construction activities associated with the project may result in some minor amount of ground vibration. Vibration from construction activity is typically below the threshold perception when the activity is more than about 50 feet from the receptor. The closest residences to the construction activities would be approximately 350 feet away; however, the construction itself would occur at least 500 feet away from the nearest residence. Due to the transitional nature of the construction activities, exposure at any one location would be intermittent. The most common activity throughout each reach would be truck traffic. Additionally, vibration from these activities would be short term and would end when construction is completed.

Avoidance, Minimization, and Mitigation Measures

The following measures would be implemented to further reduce the potential adverse effects related to noise and vibration:

- In accordance with the City Noise Ordinance exemptions for construction (Sacramento City Code, 8.68.080 Exemptions) the construction activities shall be limited to between 7:00 a.m. and 6:00 p.m. Monday through Saturday and 9:00 a.m. and 6:00 p.m. on Sundays.
- Construction equipment noise shall be minimized during project construction by muffling and shielding intakes and exhaust on construction equipment (per the manufacturer's specifications) and by shrouding or shielding impact tools.
- Turn off all equipment, haul trucks, and worker vehicles when not in use for more than 30 minutes.
- Notify residences, schools, and businesses about the type and schedule of construction.

Compliance with the local noise ordinance and implementation of the measures described above would minimize the exposure of residents, schools, businesses, wildlife, and recreationists to excessive noise. Construction of the North Extension is scheduled to be completed within four months in 2014. Therefore, the impact after mitigation is less than significant.

3.2.9 Aesthetics and Visual Resources

Baseline Conditions

The lower American River is a component of the National Wild and Scenic Rivers System. Section 7 of the Wild and Scenic Rivers Act prohibits Federal agencies from "assist[ing] by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established." The lower American River is designated under this act for its recreational values pertaining to fishing and parkway activities.

Aesthetic resources must be considered along with other natural resources. Aesthetic resources are those natural resources, landforms, vegetation, and manmade structures in the environment that generate one or more sensory reactions and evaluations by the observer, particularly in regard to pleasurable response. These sensory reactions are traditionally categorized as pertaining to sight, sound, and smell. Aesthetic quality is the significance given to aesthetic resources based on the intrinsic physical attributes of those specific features and recognized by public, technical, and institutional sources. The identification of scenic resources in the landscape requires a process that identifies the relevant visual features and that is derived from established Federal procedures. Visual quality is influenced by many landscape features including geologic, hydrologic, botanical, wildlife, recreational, and urban characteristics.

The area along this stretch of the American River has a moderate aesthetic value. The American River is located over 1,700 feet from the project reach and provides valuable riparian

habitat as well as recreational opportunities. Nearer to the project area, the aesthetic components include the project levee, American River Parkway access points, the American River Bike Trail, roadways, and light industrial business areas. These components intermix with the parkway at its fringes which also tempers the aesthetic value in these areas.

Environmental Effects

Basis of Significance. An alternative would be considered to have a significant effect on aesthetics if changes in landform, vegetation, or structural features create substantially increased levels of visual contrast as compared to surrounding conditions.

Alternative 1 - No Action. Under the no action alternative, there would be no effect on aesthetics. The views and aesthetic quality of both reaches would remain the same.

Alternative 2 - Proposed Levee Improvements. Construction of the levee seepage repairs would temporarily affect the aesthetics in the project area. Short-term effects would include the presence and activities of construction equipment and workers in the project area. Short-term activities would include preparing the site, removing vegetation on the waterside slope of the levee, degrading the top of the levee and the staging area, and constructing the slurry wall.

After completion of construction the site would be restored to preconstruction conditions, including revegetation with native noninvasive species. The reconstructed levee would remain visually consistent with the preconstruction conditions of the project area.

Avoidance, Minimization, and Mitigation Measures

There would be no significant long-term effects on aesthetics or visual resources in the project area. Short term effects could impact recreationists due to the presence of construction along the Sacramento Northern Bike Trail; however, recreationists would be detoured away from the construction areas and would not be exposed to the visual impacts of the construction. Impacts would be minimal and short term. All areas impacted by the project would be revegetated and restored to remain consistent with preconstruction conditions.

3.2.10 Cultural Resources

Baseline Conditions

Regulatory Setting. Section 106 of the National Historic Preservation Act of 1966 (NHPA) and the implementing regulations (36 CFR Part 800) requires Federal agencies to consider the effects of their actions on the properties that may be eligible for listing or are listed in the National Register of Historic Places (NRHP). To determine whether an undertaking could affect National Register-eligible properties, the Federal agency determines the area of potential effects (APE) which then must be inventoried for cultural resources (including archeological, historical, and traditional cultural properties). Any resources encountered are then evaluated for listing in the National Register, and impacts to any National Register eligible sites are considered prior to implementation of the undertaking.

CEQA also requires that for public or private projects financed or approved by public agencies, the effects of the projects on historical resources and unique archeological resources must be assessed. Historical resources are defined as buildings, sites, structures, objects, or districts that have been determined to be eligible for listing in the California Register of Historical Resources. Properties listed in the National Register are automatically eligible for listing in the California Register.

Cultural Setting. The term "cultural resources" is used to describe several different types of properties: prehistoric and historic archeological sites; architectural properties, such as buildings, bridges, and infrastructure; and resources of importance to Native Americans (traditional cultural properties). Artifacts include any objects manufactured or altered by humans.

Prehistoric archeological sites date to the time before recorded history. This area of the U.S. consists primarily of sites associated with Native American use before the arrival of Europeans. Archeological sites dating to the time when these initial Native American-European contacts were occurring are referred to as protohistoric. Historic archeological sites can be associated with Native Americans, Europeans, or any other ethnic group. In the study area, these sites include the remains of historic structures and buildings. Structures and buildings are considered historic when they are more than 50 years old or when they are exceptionally significant.

A traditional cultural property is defined generally as one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community (National Park Service, 1998). Although normally associated with Native Americans, traditional cultural properties can include those that have significance derived from the role the property plays in any cultural groups' or communities' historically rooted beliefs, customs, and practices.

Pursuant to 36 CFR §800.16(l)(1), historical property is defined as "…any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria."

Cultural Resources in the Area of Potential Effects. There are two historic resources located within the APE, the existing Federal levee (CA-SAC-481H) and an historic road, Del Paso Boulevard (CA-SAC-570H). There is one additional historic resource, a segment of the Northern Electric/Sacramento Northern Railroad alignment (CA-SAC-571H), that while not located directly within the APE, is located within one mile of the APE. There are no known prehistoric archaeological sites within a mile of the proposed work.

Records and Literature Search. The records and literature search indicated that a number of surveys have taken place in and around the APE. The existing Federal levee (CA-SAC-481H)

was recorded as an historical site during the 1995 Dames & Moore American River Survey. During the Western Area Power Administration Transmission Line Corridor survey, Herbert and Blosser updated the CA-SAC-481H (P-34-508) site report and provided a detailed and thorough history of the levee. Herbert and Blosser determined that the levee was ineligible for inclusion in the NRHP due to extensive repairs and maintenance. USACE staff formally re-evaluated the levee in September 2013. In consultation with the SHPO, in a letter dated October 15, 2013, the levee was found ineligible as an individual resource but was determined to potentially contribute to a larger unevaluated historic district. The current undertaking would not affect the eligibility of this larger district.

Field Survey. Archaeological field surveys were conducted by qualified USACE archaeologists. USACE has initiated consultation with the SHPO and potentially interested Native American people and groups. No cultural resources beyond those identified in the record search were identified during the survey.

Environmental Effects

Basis of Significance. An alternative would be considered to have a significant adverse effect on cultural resources if it diminishes the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association. Types of effects include physical destruction, damage, isolation, or alteration of the character of the setting; introduction of elements that are out of character; neglect; and transfer, lease, or sale.

Alternative 1 - No Action. The no-action alternative assumes that no levee improvements would be constructed by USACE. The cultural resources are expected to remain as described in the existing conditions. However, a major flooding event could alter existing conditions by burying, destroying, or revealing cultural resources.

Alternative 2 - Proposed Levee Improvements. The project, as planned, would impact only the Federal levee, site CA-SAC-481H. Herbert and Blosser determined that the levee was ineligible for inclusion in the NRHP due to extensive repairs and maintenance. USACE staff formally re-evaluated the levee in September 2013. In consultation with the State Historic Preservation Officer in a letter dated October 15, 2013, the levee was found ineligible as an individual resource but determined to have potential significance as part of an unevaluated historic district. That district would include Folsom Dam and the surrounding area, as well as both the American River right and left bank levees from Folsom Dam down to the confluence with the Sacramento River.

While ongoing maintenance has altered the integrity of materials and workmanship of the levee, and development in the area has diminished the setting and feeling of the resource, USACE has determined that the character defining features of the levee are its location, its earthen construction, its general trapezoidal form, and its function within a larger flood control system including Folsom Dam. Because the location, function, and general form of the levee will not be affected by the proposed project, USACE has determined that the current project will not adversely affect the levee.

A letter has been sent to SHPO requesting their concurrence with a finding of no adverse effects to historic properties in accordance with 36 CFR § 800.5(d)(1). Additional coordination with SHPO, potentially interested Native American individuals, and groups identified by the Native American Heritage Commission would be conducted prior to the finalization of this document.

Avoidance, Minimization, and Mitigation Measures

USACE archaeologists make every effort to identify cultural resources that occur in the APE. However, the possibility exists that potentially significant inadvertent discoveries of cultural remains could be encountered during project construction. If buried or otherwise obscured cultural resources are encountered during construction, activities in the area of the find would be halted, and a qualified archeologist would be consulted immediately to evaluate the find.

Should any potentially significant cultural resources be discovered, compliance with 36 CFR § 800.13(b), "Discoveries without prior planning," would be implemented. Data recovery or other mitigation measures might be necessary to mitigate adverse effects to significant properties. Compliance with NHPA of 1966 would reduce this effect to a less-than-significant level.

4.0 GROWTH-INDUCING EFFECTS

Local population growth and development would be consistent with the City of Sacramento 2030 General Plan, adopted in 2009 (City of Sacramento, 2009). The proposed action alternative would not induce growth in or near the project area. As mentioned previously, the goal of the proposed action alternative is to construct levee improvements in one reach along the American River that would meet USACE requirements for levee seepage criteria and would not increase levee height or encourage additional development in the floodplain. In addition, construction, operation, and maintenance of the improved levee would not result in a substantial increase in the number of permanent workers or employees.

5.0 CUMULATIVE EFFECTS

NEPA and CEQA require discussion of project effects that, when combined with the effects of other projects, result in significant cumulative effects. The NEPA regulations define a cumulative effect as:

"The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor or collectively significant actions taken over a period of time" (40 CFR § 1508.7).

The CEQA Guidelines require an EIR discuss cumulative effects "when they are significant" (Section 15130). The CEQA Guidelines define cumulative effects as "two or more individual affects which, when considered together, compound or increase other environmental impacts" (Section 15355). Additionally, the CEQA Guidelines state: "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to the other closely related past, present, and reasonable foreseeable probable future projects" (Section 15355).

The effects of the proposed construction of the NEMDC North Extension would result in minor net cumulative effects for some resources. Resources such as wildlife habitat would be affected somewhat during construction, but would recover to preconstruction conditions based on the BMPs and mitigation measures described in this document. Additionally, resources such as wildlife habitat should recover to comparable levels regionally over the long term as a result of the mitigation measures for this and other projects.

The NEMDC North Extension, when added to other past, present, and reasonably foreseeable future projects, would likely have no adverse cumulative effects on topography and soils, land use, socioeconomics, noise, recreation and visual resources, cultural resources, HTRW, fisheries, vegetation and wildlife, or special-status species. There would be short term cumulative effects on traffic and air quality. The amounts of traffic and emissions would increase due to the operation of construction; however, mitigation measures would be implemented to reduce the effects.

The cumulative effects of the American River Common Features Project were addressed in the 1996 SEIR/EIR. Cumulatively, other ongoing regional flood control projects could have beneficial effects by raising the level of flood protection provided to lands in the Sacramento Valley region, thereby reducing the risk of adverse effects related to floods. At the same time, however, the projects could reduce the riparian ecosystems along the river where construction would take place. Mitigation would occur, resulting in no loss riparian values, but causing temporary losses and probable changes in the specific types, quantities, and locations of the habitat.

5.1 Local Projects

This section briefly describes other major Federal projects in the Sacramento area. All of these projects are required to evaluate the effects of the proposed project features on environmental resources in the area. In addition, mitigation or compensation measures must be developed to avoid or reduce any adverse effects to less than significant based on Federal and local agency criteria. Those effects that cannot be avoided or reduced to less than significant are more likely to contribute to cumulative effects in the area.

5.1.1 Folsom Dam Flood Management Operations Study

The Flood Management Operations Study is being completed in conjunction with the Joint Federal Project (JFP) by USACE, USBR, CVFPB, and SAFCA. The Flood Management Operations Study for Folsom Dam will develop, evaluate, and recommend changes to the flood

control operations at Folsom Dam that would further reduce flood risks to the Sacramento area. Operational changes may be necessary to fully realize the flood risk reduction benefits of the following:

- The additional operational capabilities created by the auxiliary spillway;
- The increased downstream conveyance capabilities anticipated to be provided by the American River Common Features Project (Common Features);
- The increased flood storage capacity anticipated to be provided by completion of the Folsom Dam Raise Project (Dam Raise); and
- The use of improved forecasts from the National Weather Service.

Further, the Flood Management Operations Study will evaluate options for the inclusion of creditable flood control transfer space in Folsom Reservoir in conjunction with Union Valley, Hell Hole, and French Meadows Reservoirs (also referred to as Variable Space Storage). The study will result in a USACE decision document and will be followed by a water control manual implementing the recommendations of the Study. It should be recognized that the initial water control manual will implement the recommendations of the study, but will not include the capabilities to be provided by the Dam Raise and additional Common Features project improvements until such time as these projects have been completed.

5.1.2 Folsom Dam Raise

The Folsom Dam Raise project will follow the JFP. This project includes raising the Folsom Dam, and the dikes around Folsom Reservoir by 3.5 feet; replacing the three emergency spillway gates; and three ecosystem restoration projects (automation of the temperature control shutters at Folsom Dam and restoration of the Bushy and Woodlake sites downstream). The ecosystem restoration projects have been prioritized at different levels and separated, with automation of the temperature control shutters to be the next completed feature in 2017 and the two downstream restoration sites to be completed in approximately 2016 or 2017. For the dam raise portion of the project, the design should begin in 2015 and be completed in FY16, with construction following in phases through 2017 and 2018.

5.1.3 Folsom Dam Safety and Flood Damage Reduction Project Ongoing Construction Activities

The Folsom Dam Safety and Flood Damage Reduction Project addresses dam safety and flood risk management at the Folsom Facility. Several activities associated with the project include: Phase II, Phase III, and Phase IV of the Folsom Dam Auxiliary Spillway Joint Federal Project, referred to as the Joint Federal Project (JFP), static upgrades to Dike 4, Mormon Island Auxiliary Dam (MIAD) modifications, and seismic upgrades (piers and tendons) to the Main Concrete Dam.

<u>Auxiliary Spillway Excavation</u>. Spring 2009 to Fall 2010. Major work under Phase II of the JFP includes partial excavation of the western portion of the auxiliary spillway, construction of the downstream cofferdams, relocation of the Natoma Pipeline, and the creation of an access

road to the stilling basin. This portion of the JFP was covered under the U.S. Bureau of Reclamation (USBR) 2007 Folsom Dam Safety and Flood Damage Reduction Project EIS/EIR (2007 EIS/EIR). Construction was conducted by USBR and was completed prior to the start of the control structure construction effort.

Dike 4 and 6 Repairs. Summer 2009 to June 2010. To address seepage concerns due to static and hydrologic loading for Dikes 4 and 6, USBR installed full height filters, toe drains, and overlays on the downstream face of each earthen structure. This portion of the JFP was covered under the 2007 EIS/EIR.

Mormon Island Auxiliary Dam Modification Project. Summer 2010 to Summer 2014. USBR released the Draft EIS/EIR for the MIAD Modification Project in December 2009. The preferred MIAD action alternative of jet grouting selected in the 2007 EIS/EIR was determined to be neither technically nor economically feasible. Four action alternatives were analyzed in the MIAD Draft Supplemental EIS/EIR. All alternatives address methods to excavate and replace the MIAD foundation, place an overlay on the downstream side, and install drains and filters; the alternatives differ only in their method of excavation. In addition, all four action alternatives in the Draft Supplemental EIS/EIR include habitat mitigation proposed for up to 80 acres at Mississippi Bar on the shore of Lake Natoma to address impacts from the JFP.

Pier Tendon Installation, Spillway Pier Wraps, and Braces at Main Concrete Dam. April 2011 through Spring 2012. These three projects address seismic concerns at the main concrete dam. These improvements will help to stabilize the main concrete dam against movement during a major earthquake. This portion of the JFP was covered under the 2007 EIS/EIR, and will be completed prior to implementation of the Approach Channel project.

Control Structure, Chute and Stilling Basin. Spring 2011 to Fall 2017. Phase III of the JFP consists of construction of the auxiliary spillway control structure. This effort is currently under construction by USACE and is projected to be completed in the fall of 2014. Concrete lining of the spillway chute and stilling basin will be conducted by USACE from approximately summer 2013 to fall 2017. Construction of the control structure and the concrete lining of the chute and stilling basin were all covered under the USACE 2010 EA/EIR.

Additional Downstream Features. Fall 2012 to Fall 2013. The design refinements to Phase III construction were evaluated in a supplemental EA/EIR that was finalized in the fall of 2012. The design refinements consist of the construction of a temporary traffic light, modification to the existing dirt access haul road, installation of the stilling basin drain, and use of the existing nearby staging area with the installation of a new batch plant to be used and operated for other downstream features work. Construction of these features was completed in the fall of 2013.

Approach Channel. Spring 2013 to Fall 2017. The approach channel project is the final construction activity of Phase IV of the JFP. The primary and permanent structures consist of the 1,100 foot long excavated approach channel and spur dike. A transload facility and concrete batch plant will be constructed as necessary temporary structures to facilitate the construction. Additional existing sites and facilities that would be used for the length of the project include the

Folsom Prison staging area, the existing Bureau of Reclamation Overlook, the MIAD area, and Dike 7. These sites and facilities are connected by an internal project haul road. Criteria pollutant emissions from the approach channel project and the downstream project would be less than significant for ROG, CO, SO_2, and PM2.5, and less than significant with mitigation for PM10. NO_x exceeds the General Conformity Rule (GCR) *de minimis* threshold, but would be addressed by inclusion in the State Implementation Plan, which would provide compliance with the GCR of the Federal Clean Air Act. The draft supplemental EIS/EIR was released for public review July 20, 2012 and the Record of Decision was signed on March 8, 2013. Construction began in summer 2013, with completion anticipated in October 2017.

5.1.4 Lower American River Common Features Project

Based on congressional authorizations (Water Resource Development Act, or WRDA) in 1996 and 1999, USACE, the Board, and SAFCA have undertaken various improvements to the levees along the north and south banks of the American River and the east bank of the Sacramento River. Under WRDA 96, the most recent improvements include seepage protection at RM 62 on the east bank of the Sacramento River (2009), RM 7.0 left and right bank (2010), RM 8.5 left bank (2010), and RM 5.5 right bank (2011), all on the American River. A site at RM 6.5 right bank (Site R6) was completed in 2012 and a site at RM 9.5 (Site R10) was completed in 2013. Two smaller sites under WRDA 96 (L9/L9A, and L5A, totaling 371 linear feet) are currently under construction with completion anticipated in 2014; however, they are approved under NEPA Categorical Exclusions and would not have air quality emissions data to consider under cumulative effects. Sites L7, L10, R3A, and R7 are proposed for construction in 2014. Additional sites may be considered for construction in 2014 and beyond, but evaluation of environmental impacts of these future projects has not yet begun.

Of the five sites authorized under WRDA 99, Mayhew Levee Raise (2008) and Mayhew Drain Closure Structure (2008) have been completed; Jacob Lane (Reaches A & B, 2009 and 2010) would be completed with the construction of Reach C scheduled for 2014; Howe Avenue was completed in 2012; and the NEMDC upstream segment was completed in 2013. The NEMDC downstream segment and north extension are anticipated for construction in 2014.

Several other phases of repairs have been completed in the Natomas Basin under the Common Features Project. The project will continue to study potential erosion control repairs along the lower American River and the east bank of the Sacramento River.

5.1.5 Sacramento River Bank Protection Project

The Sacramento River Bank Protection Project (SRBPP) was authorized to protect the existing levees and flood control facilities of the Sacramento River Flood Control Project. The SRBPP is a long-range program of bank protection authorized by the Flood Control Act of 1960. The SRBPP directs USACE to provide bank protection along the Sacramento River and its tributaries, including that portion of the lower American River bordered by Federal flood control project levees. Beginning in 1996, erosion control projects at five sites covering almost 2 miles of the south and north banks of the lower American River have been implemented. Additional sites at RM 149 and 56.7 on the Sacramento River totaling one-half mile have been constructed

since 2001. During 2005 through 2007 construction of 29 critical sites under the Declaration of Flood Emergency by Governor Schwarzenegger totaling approximately 16,000 linear feet. This is an ongoing project, and additional sites requiring maintenance will continue to be identified indefinitely until the remaining authority of approximately 24,000 linear feet is exhausted over the next 3 years. The Water Resources Development Act of 2007 authorized an additional 80,000 linear feet of bank.

These projects would help to improve flood protection to residents in the Sacramento area by ensuring the integrity of the levees along the American and Sacramento Rivers. The Lower American River Common Features Project and the Sacramento River Bank Protection Project would also help meet FEMA's 100-year flood criteria for the Sacramento area levee system. These would be considered beneficial cumulative effects.

5.1.6 Natomas Levee Improvement Project

The Natomas Levee Improvement Project was authorized in 2007 as an early-implementation project initiated by SAFCA in order to provide flood protection to the Natomas Basin as quickly as possible. These projects consist of improvements to the perimeter levee system of the Natomas Basin in Sutter and Sacramento Counties, California, as well as associated landscape and irrigation/drainage infrastructure modifications. SAFCA, DWR, CVFPB, and USACE have initiated this effort with the aim of incorporating the Landside Improvements Project and the Natomas Levee Improvement Project into the Federally authorized American River Common Features Project. The project is still under construction at this writing. Future project features would be completed under the proposed American River Common Features General Reevaluation Report, upon authorization.

5.2 Cumulative Effects

5.2.1 Land Use

The River Corridor Management Plan and American River Parkway Plan recognize the American River Parkway as the key feature of the American River flood control system in Sacramento, and consider flood management the primary land use on the Parkway. The use of Parkway land to provide flood protection to the Sacramento area is consistent with these plans. Levee improvements from this project and other levee improvement projects in the area would not increase or decrease the level of urbanization in the greater Sacramento region as there is little room for future growth. As a result, the project, when added to other past, present, and reasonably foreseeable future actions, would not result in significant cumulative effects on land use.

5.2.2 Recreation

The project would have a short-term restriction on recreation access during construction; however, recreationists would be detoured around the construction area and the project would not severely restrict recreational access. The project would have a minor, short-term restriction on recreation access during construction. This project and other similar past, present, and

reasonably foreseeable future projects, as noted above, are not expected to result in permanent changes to recreation access or opportunities on the Parkway. In order to reduce the cumulative effects of projects proposed to be constructed in immediate vicinity of each other, such as other sites in the Lower American River Common Features Project, construction schedules would be coordinated to avoid significant trail closures taking place in multiple areas at the same time. Additionally, detours and traffic control would reduce impacts to recreation to less than significant. Cumulative effects to recreation would be reduced to less than significant with mitigation measures and the use of BMPs.

5.2.3 Aesthetics and Visual Resources

The lower American River is a Federally and State-designated component of the National Wild and Scenic Rivers System. Although this project and other projects in the area would result in short-term changes to aesthetics, there would be no construction in the river and no waterways would be altered. All areas that would be disturbed during construction would be restored and revegetated upon completion of construction activities. Any trees that would be removed during construction would be replaced with native tree species.

This project and other related projects in the American River Parkway would temporarily affect local scenic views based on the presence of construction equipment and the construction of levees. These short term impacts would be minimal due to the distance between different construction projects. Additionally, these effects are temporary and are not expected to result in significant long-term effects on aesthetics. Thus, the NEMDC North Extension, in combination with other projects as described above, would not significantly contribute to cumulative effects

5.2.4 Traffic and Circulation

The construction of all projects in the local area would involve trucks and worker vehicles entering and exiting residential areas, potentially disrupting traffic flow and possibly posing a safety hazard to other motorists, pedestrians, and bicyclists on and along these roadways and access points to the Parkway. Large trucks transporting equipment and materials to the work areas would not be consistent with the types of residential traffic using the neighborhood streets; however, the increases in traffic due to construction vehicles would not be significant as compared with existing levels of neighborhood traffic. These projects would be constructed in different areas and on different schedules, and implementation of measures in the Traffic Management Plans used by each different project would minimize traffic congestion and delays. Minimization measures and BMPs at all sites would reduce adverse effects; therefore, the cumulative effects to traffic would be less than significant.

5.2.5 Noise

This project and other local projects in the American River Parkway would have temporary, short-term impacts on ambient noise levels during construction. Movement and operation of equipment, haul trucks, and worker vehicles would generate noise in the work area, as well as on neighborhood roadways that provide access through the residential area. Noise levels could reach the high 80’s dBA, depending on the type of equipment or truck. Since

ambient noise levels normally range in the low to mid-50's dBA, such an increase would be significant. However, the City Noise Ordinance (Sacramento City Code, 8.68.080 Exemptions) contains a section specifically exempting construction activities from the standards between the hours of 7:00 a.m. and 6:00 p.m. Monday through Saturday, as well as between the hours of 9:00 a.m. and 6:00 p.m. on Sundays. As a result, the cumulative effects related to noise would be less than significant.

5.2.6 Air Quality

According to SMAQMD, a project is considered to have a significant cumulative effect if: (1) The project requires a change in the existing land use designation (general plan amendment or rezone); (2) Projected emissions (ROG or NOx) or emission concentrations (criteria pollutants) of the proposed project are greater than the emissions anticipated for the site if developed under the existing land use designation; and (3) The project individually would result in a significant effect on air quality.

Construction of the NEMDC project is not expected to have any long-term effects on air quality since the operational activities (including inspection and maintenance) are expected to be similar to existing conditions. However, construction would result in direct, short-term effects on air quality mainly related to combustion emissions and dust emissions. Construction of the NEMDC North Extension would likely coincide with the construction of the NEMDC downstream segment, Jacob Lane C, the WRDA 96 Sites L5A, L7, L10, R3A, and R7 projects, as well as the construction of the auxiliary spillway for the JFP. Table 6 shows the combined emissions for the Jacob Lane Reach C, NEMDC, and the WRDA 96 Sites L7, L10, R3A, and R7 projects. No Federal conformity *de minimus* thresholds would be exceeded during the construction of these projects, and only the SMAQMD threshold for NO_x (combined total) would be exceeded. Although the JFP identified impacts to air quality that would be significant and unavoidable, measures to reduce or offset emissions to demonstrate conformity with the General Conformity Rule (GCR) would be evaluated under the State Implementation Plan under the Clean Air Act.

In order to reduce cumulative effects on air quality, the contractor would be required to follow the requirements of SMAQMD's standard mitigation program (Appendix B) which is intended to reduce NOx emissions by 20 percent. Any remaining emissions over the NOx threshold should be reduced via a mitigation fee payment. Implementation of mitigation measures during construction would reduce emissions to the extent possible. Since the project would not require a change in the existing land use designation, long-term projected emissions of criteria pollutants would be the same with or without the construction of the levee improvements. Therefore, the NEMDC North Extension project in combination with other projects as described above would not contribute significantly to cumulative effects on air quality.

Table 6. Combined Estimated Air Emissions for Concurrent Construction Projects (2014)

	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$	CO_2
Total emissions (lbs/day)	**41.1**	**234.4**	**370.7**	**110.1**	**36.8**	**48,094.4**
SMAQMD thresholds (lbs/day)	N/A	N/A	85	N/A	N/A	N/A
Total (tons/construction project)	1.2	6.7	10.2	2.9	0.9	1,307.9
Federal standards (tons/year)	25	100	25	100	N/A	N/A

NO_x = nitrogen oxides
CO = carbon monoxide
SO_x = sulfur oxides
PM_{10} = particulate matter 10 micrometers or less
$PM_{2.5}$=particulate matter 2.5 micrometers or less
ROG = reactive organic gases
Note: Estimates are rounded.

5.2.7 Climate Change

Projects in the area would emit GHGs as part of the combustion engine process in light- and heavy-duty vehicles. GHGs by definition are cumulative in nature; that is, the significance of GHG emissions is negligible until all GHG emissions are accounted for on a global scale.

In addition to the overall cumulative effect of climate change, there would be a cumulative effect if the North Extension is constructed at the same time as the NEMDC project's downstream segment. Cumulative GHG emissions would be generated by the operation of construction equipment at these sites. Approximately 18,539.3 pounds of GHGs per day, or a total of 405.9 tons overall, would be generated by the construction of both of these sites together.

Other projects in the local area and state wide would have varying levels of GHG emissions. Standard construction techniques and BMPs would reduce the GHGs emitted from these construction projects. Additionally, large ongoing construction projects such as the JFP are implementing "Green Construction" policies in order to reduce the potential overall emissions associated with the construction. Therefore, the cumulative emissions from these sites and other local construction projects would not contribute significantly to climate change based on the presumptive threshold of 25,000 metric tons of CO_2e per yer as drafted by CEQ (CEQ, 2010).

5.2.8 Water Resources and Quality

The NEMDC North Extension and other projects in the area could result in accidental spills or leaks that could affect surface and ground water resources. With multiple projects under construction, the possibility exists that several accidental spills or leaks could enter the water. All projects have BMPs, as well as avoidance, minimization, and mitigation measures included in the construction plans that would be implemented to avoid or reduce these effects to less than significant. As a result, these projects would not contribute significantly to cumulative effects on water resources and quality. In addition, the projects in the area could have an overall beneficial effect on water quality. By diminishing the possibility for a catastrophic flood event, significant long-term impacts to water quality through contamination from flooded vehicles, household and industrial chemicals, raw sewage, and other wastes that may be present in the area would be reduced to less than significant.

5.2.9 Vegetation and Wildlife

The grassland habitat that would be occupied by the staging area would be disturbed during project construction. The waterside slope of the levee would also be disturbed in order to implement the levee improvements. These areas would be restored and re-vegetated upon completion of project construction. The project would result in short-term disturbances of wildlife habitat, but the project would not substantially reduce the connectivity or extent of natural vegetation and wildlife habitat along the American River. The NEMDC North Project and the Jacob Lane Reach C Project would have short-term effects on vegetation and wildlife associated with construction activities; however, mitigation measures for project related impacts would establish native vegetation in the Parkway through the planting of native tree species, such as valley oak and sycamore, would result in improved habitat. Such measures are expected to result in a net, long-term improvement in native vegetation and wildlife habitat values in the Parkway primarily by restoring degraded areas at a ratio higher than what was removed. Therefore, there would be no significant cumulative adverse effects to wildlife and vegetation.

5.2.10 Special Status Species

The construction of the NEMDC North Extension would not result in significant cumulative effects on the Federally-listed threatened valley elderberry longhorn beetle. However, other local projects including the NEMDC project, Mayhew Levee Raise Project, and the Mayhew Drain Closure Structure Project resulted in the removal of elderberry shrubs. The short-term impacts of the removal of these elderberry shrubs is unknown due to the cryptic nature of the VELB; however, because of the limited spatial extent of elderberry shrub removal and the prevalence of existing elderberry shrubs in the project area, in addition to the establishment of additional beetle mitigation areas in the Parkway, the overall extent and connectivity of beetle habitat is not expected to be diminished by this project or other local projects. Establishment of new, additional beetle mitigation areas on the Parkway consistent with USFWS Guidelines would result in the long-term net improvement of beetle habitat by increasing habitat extent and connectivity along the American River. While this and other projects have resulted in short-term, localized effects to beetle habitat, the incorporation of habitat mitigation on the Parkway is expected to result in the long-term, cumulative improvement to beetle habitat on the Parkway and ultimately assist in the recovery of the species.

No other special status species would be affected in addition to the VELB. As a result, the project, when added to other past, present, and reasonably foreseeable future projects, would not result in cumulative adverse effects on special status species.

5.2.11 Cultural Resources

Based on existing information from literature searches and field examination, the project would have no effect on historic properties in the NEMDC North Extension area. If necessary, mitigation measures would be implemented to provide for any buried resources that might be uncovered during construction. Since the anticipated effects on known and potential archaeological sites would be less than significant, the project would not contribute significantly to cumulative effects on cultural resources.

6.0 COMPLIANCE WITH LAWS AND REGULATIONS

6.1 Federal

Clean Air Act of 1972, as amended, 42 U.S.C. 7401, et seq. *Full Compliance*. The proposed action is not expected to violate any Federal air quality standards, exceed the EPA's general conformity *de minimis* threshold, or hinder the attainment of air quality objectives in the local air basin. Implementation of best management practices and adopted SMAQMD measures would reduce NO_X emissions to below local thresholds. Thus, USACE has determined that the proposed project would have no significant effects on the future air quality of the area.

Clean Water Act of 1972, as amended, 33 U.S.C. 1251, et seq. *Full compliance.* The proposed action is not expected to adversely affect surface or ground water quality or deplete ground water supplies. Best management practices would be implemented to avoid movement of soils or accidental spills into the river. No discharge of dredge or fill materials into navigable waters or adjacent wetlands would occur under the project. USACE has determined that the proposed project would have no significant effects on the future water quality of the area.

The contractor would be required to obtain a NPDES permit from the CRWQCB, Central Valley Region, since the project would disturb 1 or more acres of land and involve possible storm water discharges to surface waters. As part of the permit, the contractor would be required to prepare a SWPPP identifying best management practices to be used to avoid or minimize any adverse effects of construction on surface waters.

Endangered Species Act of 1973, as amended, 16 U.S.C. 1531, et seq. *Full compliance.* In accordance with Section 7(c), USACE obtained a list from USFWS of Federally listed and proposed species likely to occur in the project area on February 27, 2012 and September 3, 2013. The only listed species with the potential to occur in the project area is the valley elderberry longhorn beetle. Based on surveys conducted in the study area on April 3, 2013, and the lack of any elderberry shrubs in the North Extension project area, there would be no potential effects to the valley elderberry longhorn beetle due to construction of the NEMDC North Extension. Therefore, USACE has made a "no effect" determination on those species under jurisdiction of the USFWS. In addition, USACE as the action agency has made the determination that there would be "no effect" on any listed species under the jurisdiction of the National Marine Fisheries Service (NMFS). As a result, consultation is not required under Section 7 of the Endangered Species Act.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. *Full compliance*. This order directs all Federal agencies to identify and address adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. There are some small homeless encampments located near the project area; however, these encampments would not be disturbed or removed due to construction activities. Any impacts caused by construction activities would not disproportionately affect minority or low-income populations.

Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks. *Full compliance*. This order directs all Federal agencies to identify and

assess environmental health and safety risks that may disproportionately affect children. There is one school located near the project area. This school is on the landside of the levee away from the main construction area, and is additionally buffered from construction activities by the UPRR tracks and several large buildings and fences. The project would not have adverse or disproportionate impacts on children.

Farmland Protection Policy Act (7 U.S.C. 4201, et seq). *Full compliance*. There are no prime and unique farmlands in the project area.

Fish and Wildlife Coordination Act of 1958, as amended, 16 U.S.C. 661, et seq. *Ongoing.* Coordination with USFWS is ongoing to determine the effects on vegetation and wildlife in the project area. On February 11, 2014, USFWS issued a draft Coordination Act Report (CAR) to address potential effects of the NEMDC North Extension project (Appendix C). Issuance of a final CAR to include the NEMDC North Extension would provide full compliance with the Fish and Wildlife Coordination Act.

Migratory Bird Treaty Act (15 U.S.C 701-18h). *Full compliance.* Construction would be timed to avoid physical destruction of active bird nests or young of birds that breed in the area. If this is not feasible, a qualified biologist would survey the area prior to initiation of construction. If active nests are located, a protective buffer would be delineated and the entire area avoided, preventing direct physical disturbance of nests until they are no longer active. Because only minimal removal of vegetation would be required for construction, no impacts to nesting migratory birds are anticipated.

National Environmental Policy Act of 1969, as amended, 42 U.S.C. 4321, et seq. *Ongoing.* Comments received during the public review period will be incorporated into the final EA/IS, as appropriate, and a comments and responses appendix will be prepared. The final EA/IS will be accompanied by a final FONSI if determined appropriate by the District Engineer after consideration of public comments.

National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq. *Ongoing.* Section 106 of the NHPA requires a Federal agency to take into account the effects of Federal undertakings on historic properties, following the procedures outlined in 36 CFR Part 800. A records and literature search, as well as a field survey of the area of potential effects (APE), have been conducted by USACE archeological staff. Both the historic Del Paso Boulevard (CA-SAC-570H), and the segment of the Northern Electric/Sacramento Northern Railroad alignment (CA-SAC-571H) have been determined ineligible for listing in the National Register of Historic Places (NRHP) due to their lack of integrity. The existing Federal levee (CA-SAC-481H) has been determined ineligible for inclusion in the NRHP as an individual resource due to extensive repairs and maintenance. Therefore, pursuant to 36 CFR § 800.5(d)(1), the proposed project would have no adverse effect on any NRHP listed or eligible properties. A letter has been sent to the State Historic Preservation Officer (SHPO) and local Tribes explaining our findings and asking for concurrence. Any responses received from SHPO and the Tribes will be included in the final EA/IS.

Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271 et seq.). *Full compliance*. The lower American River has been designated as a "recreational" component of the Federal Wild and Scenic Rivers system. The project would neither adversely affect the resources for which the American River was designated nor adversely affect the river's free-flowing status. All construction activities would be at least 1,700 feet away from the river.

6.2 State

California Clean Air Act of 1988. *Full compliance.* The SMAQMD determines whether project emission sources and emission levels significantly affect air quality based on Federal standards established by the EPA and State standards set by the California Air Resources Board. The project is in compliance with all provisions of the Federal and State Clean Air Acts.

California Endangered Species Act of 1984. *Full compliance.* The California Department of Fish and Wildlife administers this State law providing protection of fish and wildlife resources. This act requires the non-Federal lead agencies to prepare biological assessments if a project may adversely affect one or more State-listed endangered species. Mitigation measures as described in this document would reduce potential effects on State-listed species to less than significant.

California Environmental Quality Act, California Public Resources Code, Section 21000 et seq. *Ongoing*. This EA/IS is in partial compliance with this act. All comments received during the public review period will be considered and incorporated into the EA/IS, as appropriate. The final EA/IS will be accompanied by a final Negative Declaration. The Central Valley Flood Protection Board as the non-Federal sponsor will ensure full compliance with the requirements of this act.

7.0 COORDINATION AND REVIEW OF THE DRAFT EA/IS

The draft EA/IS and draft FONSI/Negative Declaration will be circulated for 30 days to agencies, organizations, and individuals known to have a special interest in the project. Copies of the draft EA/IS will be posted on the SAFCA website, made available for viewing at local public libraries, or provided by mail upon request. This project will be coordinated with all the appropriate Federal, State, and local government agencies including USFWS, SHPO, CDFW, and DWR prior to the finalization of this document.

8.0 FINDINGS

This EA/IS evaluated the environmental effects of the proposed project. Potential adverse effects to the following resources were evaluated in detail: recreation, special status species, vegetation and wildlife, air quality, water resources and quality, traffic and circulation, aesthetics, noise, and cultural resources.

Results of the EA/IS, field visits, and coordination with other agencies indicate that the proposed project would have no significant long-term effects on environmental resources. Short-term effects during construction would either be less than significant or mitigated to less than significant using best management practices.

Based on this evaluation, the proposed project meets the definition of a FONSI as described in 40 CFR. § 1508.13. A FONSI may be prepared when an action would not have a significant effect on the human environment and for which an environmental impact statement would not be prepared. Therefore, a draft FONSI has been prepared and accompanies the EA/IS.

The Central Valley Flood Protection Board, as the non-Federal sponsor, is evaluating this project under the CEQA guidelines. Should their evaluation determine that the project would have less than significant impacts on the environment with the implementation of avoidance, minimization, and mitigation measures, a Mitigated Negative Declaration would be attached to the final EA/IS reflecting this determination.

9.0 LIST OF PREPARERS

Robin Rosenau
Environmental Manager, U.S. Army Corps of Engineers
Report preparation and coordination

Anne Baker
Technical Writer, U.S. Army Corps of Engineers
Report preparation and editing

S. Joe Griffin
Archeologist, U.S. Army Corps of Engineers
Cultural resources analysis and coordination

Stefanie Adams
Social Science Student Trainee, U.S. Army Corps of Engineers
Cultural resources analysis and coordination

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10.2 List of Agencies and Persons Contacted

California State Department of Water Resources: Ms. Erin Brehmer
Sacramento Area Flood Control Agency: Mr. Grant Kreinberg
Sacramento County Regional Parks: Ms. Mary Maret

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Plates

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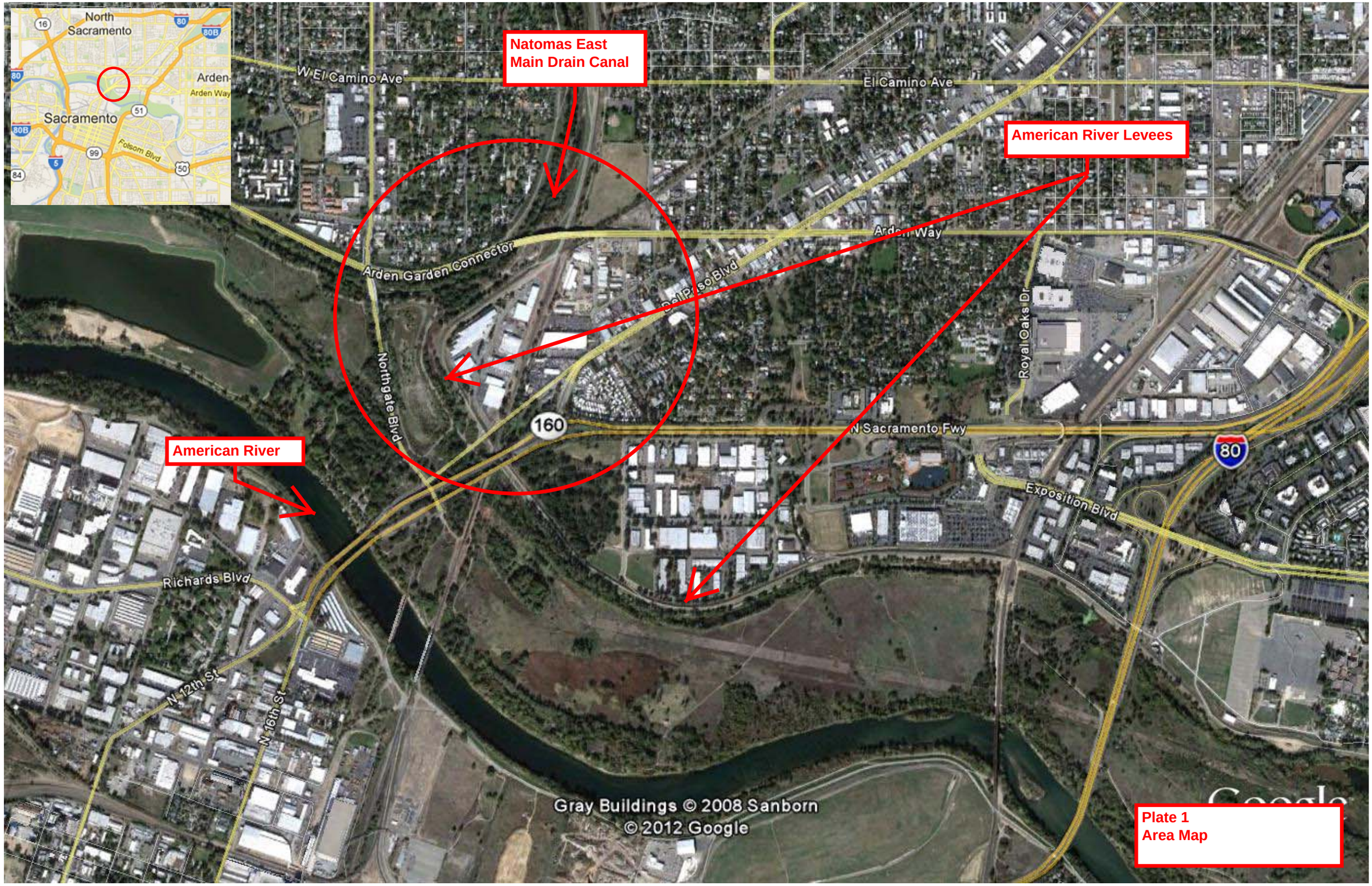

Plate 1
Area Map

Jefferson Ave
Columbus Ave
Arden Garden Connector
Traction Ave
Arden Way
Walkway
Railroad Dr
Trail
American River Bike
Northgate Blvd
Proposed Project
Cutoff Wall
UPRR Tracks
Acoma St
Barstow St
Colfax St
Dale Ave
Del Paso Blvd
Del Paso Blvd
Lochbrae
Southga
Dean Rd
Baxter Ave
Mhp
Globe Ave
160
Plate 6
Proposed Project
Cutoff Wall Section

Plate 3
Access Ramps

Plate 4
Staging Areas

Garden Hwy
Jefferson Ave
Jefferson Ave
Arden Garden Con
Arden Garden Connector
Arden Way
Arden Way
Traction
Columbus Ave
Walkway
Arden Garden Connector
Jedediah Smith Memorial Trail
Northgate Blvd
Acoma St
Sacramento Northern Bike Trail
American River Bike Trail
El Monte Ave
El Monte Ave
Jedediah Smith Memorial Trail
Whitewater Adventures
Del Paso Blvd
Baxter Ave
Walkway
Globe Ave
Dean Rd
N Sac Mhp
Northgate Blvd
160
Lincoln Hwy
160
Lincoln Hwy
Jedediah Smith Memorial Trail
46B
Del Paso Blvd
N Sacramento Fwy
American River Bike Trail
River City Scout Shop
160
Imagery ©2013 DigitalGlobe, Sanborn, U.S. Geological Survey, USDA Farm Service Agency, Map data ©
Plate 5
Haul Route

Plate 6
Sacramento Northern Bike
Trail Closure/Detour

Appendix A

Correspondence Regarding Special Status Species

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U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

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

Document Number: 131204052834

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

Branchinecta lynchi

vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus

Critical habitat, valley elderberry longhorn beetle (X)

valley elderberry longhorn beetle (T)

Lepidurus packardi

vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris

green sturgeon (T) (NMFS)

Hypomesus transpacificus

delta smelt (T)

Oncorhynchus mykiss

Central Valley steelhead (T) (NMFS)

Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha

Central Valley spring-run chinook salmon (T) (NMFS)

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

winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)

Rana draytonii

California red-legged frog (T)

Reptiles

Thamnophis gigas

giant garter snake (T)

Quads Containing Listed, Proposed or Candidate Species:

SACRAMENTO EAST (512C)

County Lists

No county species lists requested.

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

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

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

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

Plants

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

Surveying

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

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

Your Responsibilities Under the Endangered Species Act

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

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

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

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

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

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

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

Critical Habitat

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

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

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

Candidate Species

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

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem.

However, we recommend that you get an updated list every 90 days. That would be March 04, 2014.

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad is (Sacramento East (3812154))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S3	WL
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S2	SSC
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S2S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S2	
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3	FP
Elderberry Savanna Elderberry Savanna	CTT63440CA	None	None	G2	S2.1	
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S2S3	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G3	S2S3	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2S3	
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Taxidea taxus American badger	AMAJF04010	None	None	G5	S4	SSC

Record Count: 15

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Appendix B

Construction Emissions Estimates

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Road Construction Emissions Model, Version 7.1.3

Emission Estimates for -> NEMDC North Extension Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	7.0	32.4	64.0	23.7	3.7	20.0	7.6	3.4	4.2	6,223.2
Grading/Excavation	7.5	38.7	73.4	24.1	4.1	20.0	7.9	3.7	4.2	9,073.6
Drainage/Utilities/Sub-Grade	5.7	31.4	50.2	23.0	3.0	20.0	6.9	2.7	4.2	5,984.1
Paving	6.8	34.2	62.9	3.5	3.5	-	3.2	3.2	-	6,540.8
Maximum (pounds/day)	7.5	38.7	73.4	24.1	4.1	20.0	7.9	3.7	4.2	9,073.6
Total (tons/construction project)	0.2	0.8	1.4	0.5	0.1	0.4	0.2	0.1	0.1	170.3

Notes: Project Start Year -> 2014
Project Length (months) -> 2
Total Project Area (acres) -> 4
Maximum Area Disturbed/Day (acres) -> 2
Total Soil Imported/Exported (yd^3/day)-> 300

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> NEMDC North Extension Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	3.2	14.7	29.1	10.8	1.7	9.1	3.4	1.6	1.9	2,828.7
Grading/Excavation	3.4	17.6	33.4	11.0	1.9	9.1	3.6	1.7	1.9	4,124.4
Drainage/Utilities/Sub-Grade	2.6	14.3	22.8	10.4	1.4	9.1	3.1	1.2	1.9	2,720.0
Paving	3.1	15.5	28.6	1.6	1.6	-	1.4	1.4	-	2,973.1
Maximum (kilograms/day)	3.4	17.6	33.4	11.0	1.9	9.1	3.6	1.7	1.9	4,124.4
Total (megagrams/construction project)	0.1	0.7	1.3	0.4	0.1	0.3	0.1	0.1	0.1	154.5

Notes: Project Start Year -> 2014
Project Length (months) -> 2
Total Project Area (hectares) -> 2
Maximum Area Disturbed/Day (hectares) -> 1
Total Soil Imported/Exported (meters ^{3}/day)-> 229

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sume of exhaust and fugitive dust emissions shown in columns K and L.

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Road Construction Emissions Model

Version 7.1.3

Data Entry Worksheet

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells C10 through C25.

Input Type

Project Name	NEMDC North Extension	
Construction Start Year	2014	Enter a Year between 2009 and 2025 (inclusive)
Project Type	2	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	2.0	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length	0.3	miles
Total Project Area	4.0	acres
Maximum Area Disturbed/Day	2.0	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported	150.0	yd^3/day
Soil Exported	150.0	yd^3/day
Average Truck Capacity	15.0	yd^3 (assume 20 if unknown)

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of Construction Months	Program Calculated Months	2005	%	2006	%	2007	%
Grubbing/Land Clearing	0.25	0.20	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	1.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade	0.50	0.60	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.25	0.30	0.00	0.00	0.00	0.00	0.00	0.00
Totals	2.00	2.00						

Hauling emission default values can be overridden in cells C45 through C46.

Soil Hauling Emissions

User Input	User Override of Soil Hauling Defaults	Default Values
Miles/round trip		30
Round trips/day		20
Vehicle miles traveled/day (calculated)		600

Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate (grams/mile)	0.28	10.43	1.26	0.25	0.18	1713.35
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day	0.4	13.8	1.7	0.3	0.2	2264.3
Tons per contruction period	0.00	0.15	0.02	0.00	0.00	24.91

Worker commute default values can be overridden in cells C60 through C65.

Worker Commute Emissions

	User Override of Worker Commute Default Values	Default Values
Miles/ one-way trip		20
One-way trips/day		2
No. of employees: Grubbing/Land Clearing		5
No. of employees: Grading/Excavation		20
No. of employees: Drainage/Utilities/Sub-Grade		14
No. of employees: Paving		10

	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.182	0.249	2.208	0.047	0.020	443.370
Emission rate - Grading/Excavation (grams/mile)	0.182	0.249	2.208	0.047	0.020	443.370
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.182	0.249	2.208	0.047	0.020	443.370
Emission rate - Paving (grams/mile)	0.182	0.249	2.208	0.047	0.020	443.370
Emission rate - Grubbing/Land Clearing (grams/trip)	0.616	0.407	5.187	0.004	0.003	95.481
Emission rate - Grading/Excavation (grams/trip)	0.616	0.407	5.187	0.004	0.003	95.481
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.616	0.407	5.187	0.004	0.003	95.481
Emission rate - Paving (grams/trip)	0.616	0.407	5.187	0.004	0.003	95.481
Pounds per day - Grubbing/Land Clearing	0.107	0.128	1.201	0.021	0.009	199.523
Tons per const. Period - Grub/Land Clear	0.000	0.000	0.003	0.000	0.000	0.549
Pounds per day - Grading/Excavation	0.107	0.128	1.201	0.021	0.009	199.523
Tons per const. Period - Grading/Excavation	0.001	0.001	0.013	0.000	0.000	2.195
Pounds per day - Drainage/Utilities/Sub-Grade	0.107	0.128	1.201	0.021	0.009	199.523
Tons per const. Period - Drain/Util/Sub-Grade	0.001	0.001	0.007	0.000	0.000	1.097
Pounds per day - Paving	0.187	0.128	1.201	0.021	0.009	394.841
Tons per const. Period - Paving	0.001	0.000	0.003	0.000	0.000	1.086
tons per construction period	0.003	0.003	0.026	0.000	0.000	4.927

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.

Water Truck Emissions	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Miles Traveled/Day	Default Values Miles Traveled/Day
Grubbing/Land Clearing - Exhaust	2.00	1		40
Grading/Excavation - Exhaust	2.00	1		40
Drainage/Utilities/Subgrade		1		40

	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.28	10.43	1.26	0.25	0.18	1713.35
Emission rate - Grading/Excavation (grams/mile)	0.28	10.43	1.26	0.25	0.18	1713.35
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.28	10.43	1.26	0.25	0.18	1713.35
Pounds per day - Grubbing/Land Clearing	0.05	1.84	0.22	0.04	0.03	301.91
Tons per const. Period - Grub/Land Clear	0.00	0.02	0.00	0.00	0.00	3.32
Pound per day - Grading/Excavation	0.05	1.84	0.22	0.04	0.03	301.91
Tons per const. Period - Grading/Excavation	0.00	0.02	0.00	0.00	0.00	3.32
Pound per day - Drainage/Utilities/Subgrade	0.03	0.92	0.11	0.02	0.02	150.96
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.01	0.00	0.00	0.00	0.83

Fugitive dust default values can be overridden in cells C110 through C112.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		2	20.0	0.1	4.2	0.0
Fugitive Dust - Grading/Excavation		2	20.0	0.2	4.2	0.0
Fugitive Dust - Drainage/Utilities/Subgrade		2	20.0	0.1	4.2	0.0

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Concrete/Industrial Saws	0.62	3.02	4.25	0.34	0.31	467.14
1.00		Cranes	0.79	3.00	9.03	0.41	0.38	601.76
0.00	1	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	2	Excavators	0.89	5.58	10.20	0.50	0.46	1145.54
2.00		Forklifts	0.53	1.80	4.34	0.36	0.33	330.93
2.00		Generator Sets	1.23	6.05	8.80	0.66	0.61	974.13
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Off-Highway Tractors	0.42	2.54	4.73	0.24	0.22	493.62
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Rubber Tired Dozers	1.32	4.42	14.34	0.67	0.62	945.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Signal Boards	0.45	1.45	1.42	0.12	0.11	157.43
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Sweepers/Scrubbers	0.45	1.57	3.57	0.31	0.29	270.09
1.00		Tractors/Loaders/Backhoes	0.14	1.57	1.34	0.05	0.05	336.13
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing	pounds per day	6.8	31.0	62.0	3.7	3.4	5721.8
	Grubbing/Land Clearing	tons per phase	0.0	0.1	0.2	0.0	0.0	15.7

Grading/Excavation	Default Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	*Program-estimate*	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Air Compressors	0.80	3.47	5.00	0.44	0.41	507.95
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
2.00		Cement and Mortar Mixers	0.14	0.71	0.85	0.04	0.03	115.76
1.00		Concrete/Industrial Saws	0.62	3.02	4.25	0.34	0.31	467.14
	0	Cranes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
2.00	3	Excavators	0.89	5.58	10.20	0.50	0.46	1145.54
1.00		Forklifts	0.26	0.90	2.17	0.18	0.17	165.47
2.00		Generator Sets	1.23	6.05	8.80	0.66	0.61	974.13
0.00	2	Graders	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Off-Highway Tractors	0.42	2.54	4.73	0.24	0.22	493.62
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Pumps	0.52	2.50	3.63	0.28	0.26	396.14
1.00	2	Rollers	0.39	1.51	3.40	0.25	0.23	279.56
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Rubber Tired Loaders	0.54	3.12	7.00	0.24	0.22	662.78
0.00	2	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Signal Boards	0.45	1.45	1.42	0.12	0.11	157.43
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Sweepers/Scrubbers	0.45	1.57	3.57	0.31	0.29	270.09
2.00	4	Tractors/Loaders/Backhoes	0.28	3.15	2.68	0.11	0.10	672.25
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation	pounds per day	7.0	35.6	57.7	3.7	3.4	6307.9
	Grading	tons per phase	0.1	0.4	0.6	0.0	0.0	69.4

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
	1	Air Compressors	0.80	3.47	5.00	0.44	0.41	507.95
1.00		Bore/Drill Rigs	0.41	3.80	6.42	0.19	0.18	945.25
1.00		Cement and Mortar Mixers	0.07	0.35	0.43	0.02	0.02	57.88
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Cranes	0.79	3.00	9.03	0.41	0.38	601.76
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Excavators	0.45	2.79	5.10	0.25	0.23	572.77
1.00		Forklifts	0.26	0.90	2.17	0.18	0.17	165.47
2.00	1	Generator Sets	1.23	6.05	8.80	0.66	0.61	974.13
0.00	1	Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Rough Terrain Forklifts	0.26	2.03	3.18	0.19	0.17	372.52
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Signal Boards	0.45	1.45	1.42	0.12	0.11	157.43
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Sweepers/Scrubbers	0.45	1.57	3.57	0.31	0.29	270.09
	3	Tractors/Loaders/Backhoes	0.42	4.72	4.02	0.16	0.15	1008.38
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage	pounds per day	5.6	30.1	49.1	2.9	2.7	5633.6
	Drainage	tons per phase	0.0	0.2	0.3	0.0	0.0	31.0

Paving Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Cement and Mortar Mixers	0.07	0.35	0.43	0.02	0.02	57.88
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Cranes	0.79	3.00	9.03	0.41	0.38	601.76
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
2.00		Generator Sets	1.23	6.05	8.80	0.66	0.61	974.13
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Pavers	0.48	2.84	5.28	0.26	0.24	481.40
	1	Paving Equipment	0.36	2.69	4.26	0.20	0.19	426.10
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
	2	Rollers	0.77	3.02	6.80	0.51	0.47	559.13
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Scrapers	1.54	7.26	19.16	0.77	0.71	1609.63
	1	Signal Boards	0.45	1.45	1.42	0.12	0.11	157.43
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Sweepers/Scrubbers	0.45	1.57	3.57	0.31	0.29	270.09
	3	Tractors/Loaders/Backhoes	0.42	4.72	4.02	0.16	0.15	1008.38
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Paving	pounds per day	6.6	33.0	62.8	3.4	3.2	6145.9
	Paving	tons per phase	0.0	0.1	0.2	0.0	0.0	16.9
Total Emissions all Phases (tons per construction period) =>			0.1	0.7	1.2	0.1	0.1	133.0

Equipment default values for horsepower and hours/day can be overridden in cells C289 through C322 and E289 through E322.

Equipment		Default Values Horsepower		Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		106		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		10		8
Concrete/Industrial Saws		64		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		142		8
Excavators		163		8
Forklifts		89		8
Generator Sets		66		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		26		8
Pumps		53		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		20		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98		8
Trenchers		81		8
Welders		45		8

0

END OF DATA ENTRY SHEET

Greenhouse Gas Emissions Inventory and Calculation							
	Project Name - WRDA 99 NEMDC Downstream Segment						
Construction Equipment Emissions							
Type of Equipment	**Maximum Number Per Day**	**Total Operation Days**	**Total Operation Hours (8 hr work day)**	**Fuel Consumption Per Hour**	**Total Fuel Consumption (gal. diesel)**	**CO2e/gal Diesel**	**Total CO2 Equivalent Emissions (metric tons)**
Backhoes	2	8	128	3	384	0.010391	3.9901
Bobcats	0	0	0	2	0	0.010391	0.0000
Bulldozers	1	20	160	13	2080	0.010391	21.6133
Compactors	1	4	32	18	576	0.010391	5.9852
Cranes	1	4	32	13	416	0.010391	4.3227
Drill Rig	1	4	32	10	320	0.010391	3.3251
Dump Trucks	0	0	0	30	0	0.010391	0.0000
Earth Mover	0	0	0	57	0	0.010391	0.0000
Excavators	1	30	240	9	2160	0.010391	22.4446
Forklifts	1	30	240	3	720	0.010391	7.4815
Generators	2	30	480	16	7680	0.010391	79.8029
Grader	0	0	0	9	0	0.010391	0.0000
Loaders	2	22	352	10	3520	0.010391	36.5763
Off-road Trucks	2	15	240	28	6720	0.010391	69.8275
Pavers	1	5	40	7	280	0.010391	2.9095
Pile Drivers			0	4	0	0.010391	0.0000
Roller	1	10	80	11	880	0.010391	9.1441
Scrapers	1	10	80	21	1680	0.010391	17.4569
Side Boom Pipe Handler Tractor			0	5	0	0.010391	0.0000
Highway Truck	2	30	480	10	4800	0.010391	49.8768
			0				
			0				
			0				
TOTAL							**334.7565**
Construction Workforce Transportation Emissions							
Average Number of Workers Per Day	Total Number of Workdays	Average Distance Travelled	Total Miles Travelled	Average Passenger Fuel Efficiency	Total Fuel Consumption (gal. gasoline)	CO2e/gal Gasoline	Total CO2 Equivalent Emissions (metric tons)
10	30	20	6000	20.8	288.4615385	0.00901	2.5990
TOTAL							**2.5990**
Construction Materials Transportation Emissions							
Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Travelled	Average Semi-truck Fuel Efficiency	Total Fuel Consumption (gal. diesel)	CO2e/gal Diesel	Total CO2 Equivalent Emissions (metric tons)
Delivery	150	20	3000	8	375	0.010391	3.8966
Spoils	150	20	3000	8	375	0.010391	3.8966
TOTAL							**7.7933**

Maintenance Emissions							
	Total Number of Trips	Average Trip Distance	Total Miles Travelled	Average Fuel Efficiency	Total Fuel Consumption	CO2e/gal	Total CO2 Equivalent Emissions (metric tons)
Mowers	10	30	300	10	30	0.010391	0.3117
sprayers	10	30	300	10	30	0.010391	0.3117
inspection vehicles	30	30	900	20.8	43.26923077	0.010391	0.4496
Worker commute emissions	50	30	1500	20.8	72.11538462	0.010391	0.7494
Operational Emissions							
	MWH of electricity	MT CO2/MWH	CO2e emissions				
Average Annual Electricity Needed	none	0.329858					
TOTAL							**1.8224**
Greenhouse Gas	**Average Annual Production Emissions (MT)**	**Global Warming Potential**	**CO2e emissions**				
CO2		1					
CH4		23					
N2O		296					
SF6		22000					
Others as necessary							
Construction Equipment Emissions							334.7565
Workforce Transportation Emissions							2.5990
Construction Materials Emissions							7.7933
Maintenance and Operational Emissions							1.8224
Total Project Greenhouse Gas Emissions (Metric Tons)							**346.9712**
					convert to US tons	x	1.1000
							381.6683

National Ambient Air Quality Standards (NAAQS)

The Clean Air Act, which was last amended in 1990, requires EPA to set National Ambient Air Quality Standards (40 CFR part 50) for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards. *Primary standards* set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. *Secondary standards* set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

The EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards for six principal pollutants, which are called "criteria" pollutants. They are listed below. Units of measure for the standards are parts per million (ppm) by volume, milligrams per cubic meter of air (mg/m^3), and micrograms per cubic meter of air ($\mu g/m^3$).

National Ambient Air Quality Standards

	Primary Standards		Secondary Standards	
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Time**
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour [1]	None	
	35 ppm (40 mg/m^3)	1-hour [1]		
Lead	0.15 $\mu g/m^3$ [2]	Rolling 3-Month Average	Same as Primary	
	1.5 $\mu g/m^3$	Quarterly Average	Same as Primary	
Nitrogen Dioxide	0.053 ppm (100 $\mu g/m^3$)	Annual (Arithmetic Mean)	Same as Primary	
Particulate Matter (PM_{10})	150 $\mu g/m^3$	24-hour [3]	Same as Primary	
Particulate Matter ($PM_{2.5}$)	15.0 $\mu g/m^3$	Annual [4] (Arithmetic Mean)	Same as Primary	
	35 $\mu g/m^3$	24-hour [5]	Same as Primary	
Ozone	0.075 ppm (2008 std)	8-hour [6]	Same as Primary	
	0.08 ppm (1997 std)	8-hour [7]	Same as Primary	
	0.12 ppm	1-hour [8] (Applies only in limited areas)	Same as Primary	
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Mean)	0.5 ppm (1300 $\mu g/m^3$)	3-hour [1]
	0.14 ppm	24-hour [1]		

[1] Not to be exceeded more than once per year.

[2] Final rule signed October 15, 2008.

[3] Not to be exceeded more than once per year on average over 3 years.

[4] To attain this standard, the 3-year average of the weighted annual mean PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m3.

[5] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m3 (effective December 17, 2006).

[6] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)

[7] (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.

[8] (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is < 1.
(b) As of June 15, 2005 EPA revoked the 1-hour ozone standard in all areas except the 8-hour ozone nonattainment Early Action Compact (EAC) Areas.

California Ambient Air Quality Standards[1]		
Pollutant	**Averaging Time**	**Concentration[2]**
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m^3)
Respirable Particulate Matter (PM_{10})	Annual Geometric Mean	30 μg/m^3
	24 Hour	50 μg/m^3
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)
	1 Hour	20 ppm (23 mg/m^3)
	1 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)
Nitrogen Dioxide (NO_2)	1 Hour	0.25 ppm (470 μg/m^3)
Lead	30 Days Average	1.5 μg/m^3
Sulfur Dioxide (SO_2)	24 Hour	0.04 ppm (105 μg/m^3)
	1 Hour	0.25 ppm (655 μg/m^3)
Visibility Reducing Particles	8 Hour (10am-6pm, PST)	10 Miles (30 Miles Lake Tahoe) or more[3]
Sulfates	24 Hour	25 μg/m^3
Vinyl Chloride[4]	24 Hour	0.01 ppm (26 μg/m^3)
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m^3)

Footnotes:

1. Standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter-PM_{10}, and visibility reducing particles are values not to be exceeded. All others are not to be equaled or exceeded. (Table of Standards, Section 70200, Title 17, California Code of Regulations)
2. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are bases upon a reference temperature of 25° C and a reference pressure of 760 mm of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25° C and a reference pressure of 760 mm of mercury (1,013.2 millibar). ppm = parts per million; μg/m^3 = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter.
3. In sufficient amount to produce an extinction coefficient of 0.23 per kilometer – visibility of ten miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent.
4. The standard notes that vinyl chloride is a “known human and animal carcinogen” and that “low level effects are undefined, but are potentially serious. Level specified is lowest level at which violation can be reliably detected by the method specified. Ambient concentrations at or above the standard constitute an endangerment to the health of the public.

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

Apply only to projects with construction emissions above the CEQA Threshold of Significance.

Revised December 1, 2008

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

The project shall provide a plan, for approval by the lead agency and SMAQMD, demonstrating that the heavy-duty (> 50 horsepower) self-propelled off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction[1] compared to the most recent CARB fleet average at time of construction; and

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

and:

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

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

and/or:

If at the time of construction, the SMAQMD has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation. Consultation with SMAQMD prior to construction will be necessary to make this determination.

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

Attachment 2

SMAQMD Rules & Regulations Statement (revised 1/07)

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

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

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

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

Rule 417: Wood Burning Appliances. Effective October 26, 2007, this rule prohibits the installation of any new, permanently installed, indoor or outdoor, uncontrolled fireplaces in new or existing developments.

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

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

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

BASIC CONSTRUCTION EMISSION CONTROL PRACTICES

The following practices are considered feasible for controlling fugitive dust from a construction site. Control of fugitive dust is required by District Rule 403 and enforced by District staff.

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

The following practices describe exhaust emission control from diesel powered fleets working at a construction site. California regulations limit idling from both on-road and off-road diesel powered equipment. The California Air Resources Board enforces the idling limitations.

- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.

Although not required by local or state regulation, many construction companies have equipment inspection and maintenance programs to ensure work and fuel efficiencies.

- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

Lead agencies may add these emission control practices as Conditions of Approval (COA) or include in a Mitigation Monitoring and Reporting Program (MMRP).

GUIDANCE FOR CONSTRUCTION GHG EMISSIONS REDUCTIONS

These measures are considered best management practices providing options for reducing greenhouse gas emissions from construction projects. Emission reductions must be quantified and documented on a case-by-case basis.

- Improve fuel efficiency from construction equipment:
    - Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 3 minutes (5 minute limit is required by the state airborne toxics control measure [Title 13, sections 2449(d)(3) and 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site.
    - Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.
    - Train equipment operators in proper use of equipment.
    - Use the proper size of equipment for the job.
    - Use equipment with new technologies (repowered engines, electric drive trains).
- Perform on-site material hauling with trucks equipped with on-road engines (if determined to be less emissive than the off-road engines).
- Use alternative fuels for generators at construction sites such as propane or solar, or use electrical power.
- Use an ARB approved low carbon fuel for construction equipment. *(NOx emissions from the use of low carbon fuel must be reviewed and increases mitigated.)*
- Encourage and provide carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.
- Reduce electricity use in the construction office by using compact fluorescent bulbs, powering off computers every day, and replacing heating and cooling units with more efficient ones.
- Recycle or salvage non-hazardous construction and demolition debris (goal of at least 75% by weight).

- Use locally sourced or recycled materials for construction materials (goal of at least 20% based on costs for building materials, and based on volume for roadway, parking lot, sidewalk and curb materials). Wood products utilized should be certified through a sustainable forestry program.

- Minimize the amount of concrete for paved surfaces or utilize a low carbon concrete option.

- Produce concrete on-site if determined to be less emissive than transporting ready mix.

- Use SmartWay certified trucks for deliveries and equipment transport.

- Develop a plan to efficiently use water for adequate dust control.

References:

1. California Green Building Standards Code. http://www.bsc.ca.gov
2. US EPA. *Potential for Reducing Greenhouse Gas Emissions in the Construction Sector*, February 2009. http://www.epa.gov/sectors/pdf/construction-sector-report.pdf
3. US EPA SmartWay Program. http://www.epa.gov/smartway/index.htm
4. US Green Building Council. LEED Green Building Rating System. http://www.usgbc.org/

Appendix C

Draft U.S. Fish and Wildlife Coordination Act Report

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In Reply Refer To:
08ESMF00-2014-CPA-0006

Alicia E. Kirchner
Chief, Planning Division
Corps of Engineers, Sacramento District
1325 J Street
Sacramento, California 95825-2922

FEB 11 2014

Dear Ms. Kirchner:

The U.S. Army Corps of Engineers (Corps) has requested supplemental coordination under the Fish and Wildlife Coordination Act (FWCA) for the American River Watershed Investigation Common Features Project Natomas East Main Drain Canal North Extension. The proposed levee improvements would occur on the east levee of the Natomas East Main Drain Canal, Sacramento County, California. This letter transmits the U.S. Fish and Wildlife Service's (Service) draft supplemental FWCA report for the proposed project (enclosed).

By copy of this letter, we are requesting the agencies listed below to provide any review comments to the Service so that they can be incorporated into a final report for inclusion in the Corps' environmental documents.

If you have any questions regarding this report on the proposed project, please contact Amber Aguilera, Fish and Wildlife Biologist, at (916) 414-6577.

Sincerely,

Daniel Welsh
Acting Field Supervisor

Enclosure
cc: w/ enclosure
Robin Rosenau, COE, Sacramento, CA
Regional Manager, CDFW, Rancho Cordova, CA
Howard Brown, NOAA Fisheries, Sacramento, CA

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DRAFT SUPPLEMENTAL FISH AND WILDLIFE COORDINATION ACT REPORT
WRDA 99-AMERICAN RIVER COMMON FEATURES PROJECT
NATOMAS EAST MAIN DRAIN CANAL NORTH EXTENSION

February 2014

BACKGROUND

The American River Watershed Investigation Common Features Project (Common Features Project) is a cooperative effort among local, State of California, and Federal agencies to increase the level of flood protection for the city of Sacramento and surrounding areas. The Common Features Project encompasses several actions under two Water Resources Development Act (WRDA) authorizations (WRDA 96 and WRDA 99) located along both banks of the lower American River within the American River Parkway, as well as sections along the Sacramento River. The major features of this project have been constructed by the Army Corps of Engineers (Corps) and the Central Valley Flood Protection Board (CVFPB) of the State of California, and are currently maintained by the American River Flood Control District.

In August 2012, the Corps completed the Environmental Assessment for the Common Features Natomas East Main Drain Canal (NEMDC) project. The NEMDC project involved levee improvements to two segments of the American River north levee, referred to as the upstream segment and downstream segment. Construction of the upstream segment was completed in 2013. Construction of the downstream segment is anticipated to begin in the summer of 2014.

After the August 2012 document was finalized, an additional 1,350 feet of levee immediately north of the NEMDC project footprint was evaluated for compliance with the current Corps flood protection criteria. The evaluation determined that the segment of levee downstream of the NEMDC project required improvements to address seepage and stability issues.

The U.S. Fish and Wildlife Service (Service) previously coordinated with the Corps on the various aspects of the Common Features Project. The proposed work addressed in this report is specific to the repairs at the NEMDC North Extension site.

PROJECT DESCRIPTION

The Corps, CVFPB, and Sacramento Area Flood Control Agency (SAFCA) propose to strengthen 1,350 feet of levee within a 6,150 linear foot reach along the lower American River in the American River Parkway. The purpose of the project is to reduce flood risk by installing seepage remediation features to comply with Corps requirements being implemented throughout the lower American River levee system. Current levee standards require that levees on the American River be capable of safely conveying an emergency release of 160,000 cubic feet per second (cfs). The levees in the NEMDC North Extension project area currently do not meet the Corps criteria for seepage and slope stability. In order to reduce the risk of through-seepage or under-seepage in the levee, a conventional slot trench seepage cutoff wall would be installed along 1,350 feet of levee (see Figure 1), at a depth of 30 feet below the levee crown.

Figure 1. Proposed cut-off wall location for the Natomas East Main Drain Canal North Extension, Sacramento County, California.

Seepage Cutoff Wall Construction

Conventional slot trench seepage cutoff wall construction typically involves the excavation of a 36 inch wide trench to a depth of 30 feet. In order to prevent trench collapse during the excavation, the trench would be filled with a slurry mixture of water and clay fill. All water associated with slurry wall construction would be acquired from the Municipal Water Supply and not pumped from the river.

After the reach has been prepared, the levee would be degraded 4 feet. It is estimated that 4,050 cubic yards (cy) of material would be removed from the levee through degrading and excavation. Although the removed material would likely be stored in one of the staging areas for reuse, it is assumed that all soils removed would be disposed of as spoils. It is also assumed that an equal amount of material would be imported for the reconstruction of the levee.

Once the levee has been degraded, the slurry wall would be constructed. The conventional "slot trench" method would be used which requires a long reach, or "long stick" excavator to dig the trench 30 feet deep in order for the wall to tie into an impervious layer of soil. The wall would be constructed of cement and bentonite (CB). The CB method would result in a greater amount of soil to be disposed and generally takes longer to construct; however, the process is less expensive. Slurry batch plants would be located at one of the landside staging areas, most likely the one adjacent to the Union Pacific Railroad (UPRR) tracks.

Access and Staging

A combination of existing and temporary access ramps would be used during the construction of the project. One temporary waterside ramp and one temporary landside ramp would be built

during the construction of the project, in addition to the existing access ramp that connects the project area to the American River Bike Trail.

There are three proposed staging areas for the construction of the project. They are described below and shown on Figure 2:

1. Between the northernmost reach of the project levee and the UPRR tracks.

2. On the waterside toe of the levee between the Arden-Garden Connector and the Sacramento Northern Bike Trail.

3. On the west side of Railroad Drive from Del Paso Boulevard north for about 500 feet. The staging area would narrow Railroad Drive to one lane in the area near Del Paso Boulevard and would require a flagger and signage to safely manage traffic entering and exiting Railroad Drive.

Haul trucks would utilize a haul route to transfer soil excavated from the levee to the staging areas. The haul routes would be used to import suitable material as well as transport spoils for disposition. The same haul route would be used when the levees are being reconstructed.

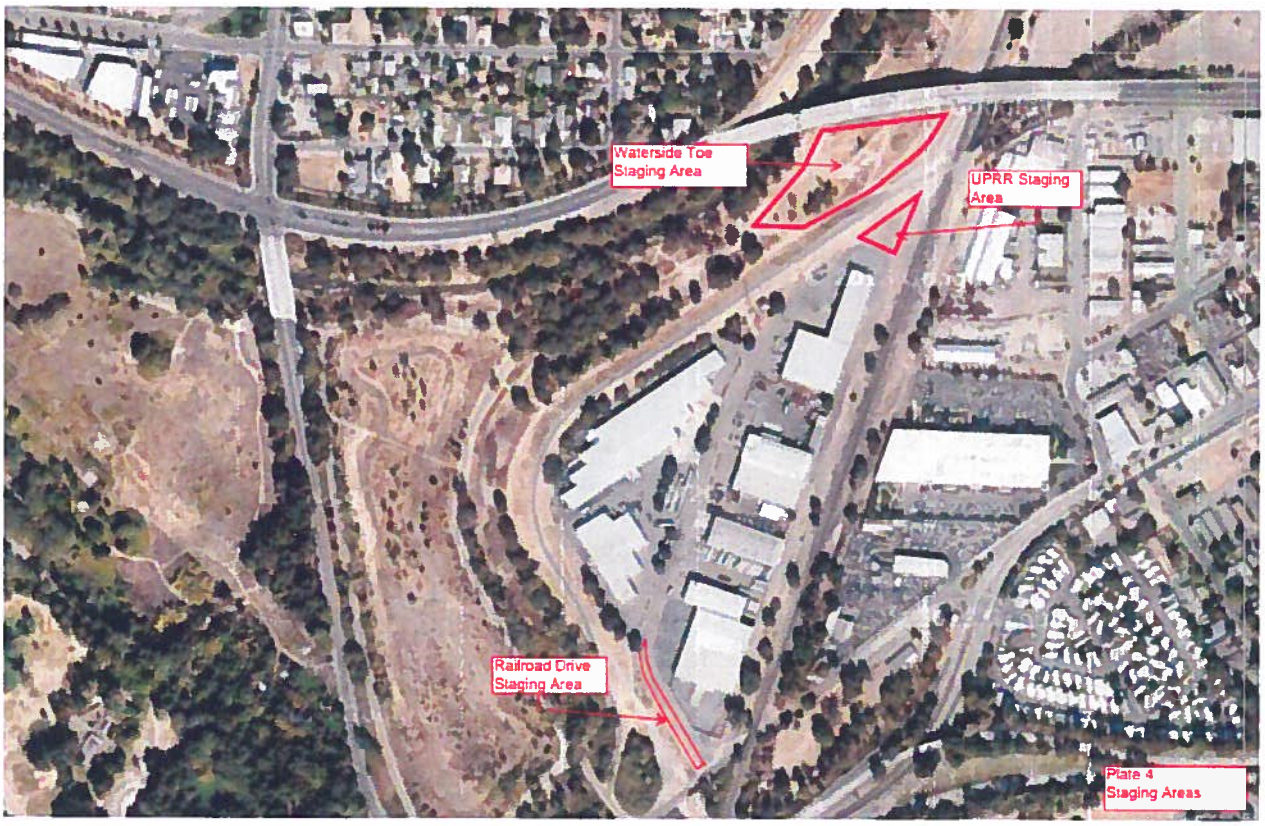

Figure 2. Proposed staging areas for the Natomas East Main Drain Canal North Extension, Sacramento County, California.

Trucks would use the maintenance road located along the waterside toe to load excavated material from the levee and would then travel to the proposed waterside staging area to deposit the soil. Empty trucks would then travel up the temporary ramp leading to the top of the levee

and exit the construction area where Railroad Drive meets the levee. Trucks would continue down Railroad Drive, exiting the project area onto Del Paso Boulevard and returning to the project area using the existing ramp leading from the American River Bike Trail. During the reconstruction of the levee, the directional haul route would be reversed.

The American River Bike Trail would remain open during the entire project, but the existing ramp leading from the American River Bike Trail to the Sacramento Northern Bike Trail would be used by construction trucks entering and exiting the project area. Flaggers would be present during construction hours to safely direct construction and recreational traffic without conflict. The Sacramento Northern Bike Trail would be closed from the existing Del Paso Boulevard access ramp north to the confluence of Railroad Drive and the levee. This closure is necessary due to the fact that the bike trail is on top of the levee in the project area. Access to the Sacramento Northern Bike Trail would be detoured east along Del Paso Boulevard to Acoma Street, then north to the bike trail. This closure would be required during the entire time of construction, which is anticipated to last 4 months. Construction is currently scheduled for the summer of 2014.

Site Preparation
Before the start of construction, all construction areas would be fenced off to limit access, including the staging areas. Construction fencing would be installed on the landside of the project site, adjacent to commercial property lines, and along the boundary of the access/haul road at the waterside toe. In any areas where the bike trail is in the vicinity of the project footprint, barriers would be installed along the edge of the trail in order to separate recreationists from the construction area.

Construction of the slurry wall would require that the levee crown and the levee slopes be cleared and grubbed of all vegetation and surface material. This would total about 600 cy of removed material. Additionally, preparation of the waterside toe staging area would require clearing and grubbing of the top 4 to 6 inches of soil and vegetation, which would require the removal of 2,420 cy of material. All removed material would be disposed of by the contractor at an approved, licensed, and permitted facility. Slurry batch plants would most likely be located in the landside triangle staging area.

Restoration and Cleanup
Once the levee work is completed, all equipment and excess materials would be transported off-site via neighborhood streets and highways. The barren earthen and levee slopes would be reseeded with native grasses to promote re-vegetation and minimize soil erosion. The levee crown and access ramps would be restored to pre-project conditions and the staging areas would be reseeded. Any damage to residential streets or bike trails from construction activities would be repaired. Finally, all work sites and staging areas would be cleaned of all garbage and would be left in a condition suitable to the setting of the area.

Borrow and Disposal Sites
Construction of the proposed project would require 4,050 cy of borrow material. Based on the availability of borrow sites within 15 to 20 miles of the project site, it is reasonable to assume the material would be acquired from sites within this distance. Similarly, it is assumed that the disposal sites for excess materials or spoils would be located within 20 miles of the project site since there are at least two different landfills within this distance. The contractor is responsible

for determining the location of borrow and disposal sites; however, they must be approved, licensed and permitted. It is assumed that haul trucks would use the haul routes and neighborhood streets and highways to transport material to the project site and to transport spoils off-site.

Operations and Maintenance
After construction is completed, responsibility for the project would be turned over to CVFPB, the non-Federal sponsor for the project. This would include operation, maintenance, repair, rehabilitation, and replacement of all project features. CVFPB would transfer these responsibilities to SAFCA, who would contract with the American River Flood Control District to operate and maintain the levee. Regular maintenance activities include mowing and herbicide treatments of the levee slopes, controlling rodents, clearing the maintenance road, and inspecting the levee. An amendment to the Operations and Maintenance (O&M) manual would include the constructed slurry wall; however, the O&M requirements would remain the same.

BIOLOGICAL RESOURCES

The lower American River, although highly modified from conditions of 150 years ago, supports a diverse and highly valuable area for biological resources. The 23-mile-long reach of the American River Parkway encompasses about 4,000 acres, the majority of which are in a State designated floodway and contains large areas of annual grasslands, riparian forest and scrub-shrub, oak-woodlands, bare sand and gravel, and surface waters of the river and its associated sloughs and dredge ponds (USFWS 2003).

Vegetation
The project area supports annual grassland, riparian woodland, oak woodland, and ornamental landscaping. The annual grassland is characterized by species such as ripgut brome, wild oat, and various forbs. The annual grassland is predominantly limited to the levee slopes and in the undeveloped properties on the landside of the levee. The grasses on the levee occur as a result of restoration from previous levee projects and they are mowed as part of the maintenance program to reduce wildfire danger.

Riparian woodland occurs as narrow bands along the American River and adjacent slough, as well as expanses in the area between the two bodies of water.

The oak woodland within the project area occurs as single trees to small patches. Typically the understory is dominated by annual grass and other forbs and shrubs, such as elderberry. Dominant trees include valley and live oaks.

The ornamental landscaping occurs around the commercial buildings on the landside toe of the levee.

Wildlife
The lower American River corridor provides a mosaic of riparian, riverine, grassland, and oak woodland habitat. These diverse habitats support a corresponding diversity of wildlife.
The lower American River provides feeding, resting, and/or nesting habitat for many bird species, many of which require the aquatic areas of the river and backwaters, or the riparian vegetation of the ecosystem. Riparian areas are known to support a species-rich songbird

community (Gaines 1977), and the lower American River also provides habitat for many raptors, including Swainson's hawks, red-shouldered hawks, Cooper's hawks, and great-horned owls, all of which require or are closely associated with riparian vegetation. Bald eagles, which are more common around Folsom Reservoir, occasionally use the lower river, which provides roosting and foraging habitat. Waterfowl, particularly mallards and Canada geese, also use the area extensively.

More than 50 species of mammals have been recorded for the area (USFWS 1986). Common species include beaver, black-tailed jackrabbit, striped skunk, Virginia opossum, raccoon, coyote, California ground squirrel, gophers, and many small rodents and insectivores including several voles, moles, shrews, deer mice, and pocket gophers. Uncommon species include several carnivores, such as badger, long-tailed weasel, river otter, gray fox, bobcat, and mink.

Reptile species of the lower American River include common kingsnake, western rattlesnake, Gilbert and western skinks, southern alligator lizard, western fence lizard, gopher snake, and several garter snakes. Common amphibians include Pacific treefrog, California newt, California slender salamander, western toad, and the introduced bullfrog.

Relatively little is known about invertebrates of the lower American River, but elderberry plants are fairly common in areas, and provide habitat for the endangered valley elderberry longhorn beetle.

Fish

The lower American River supports a diverse and abundant fish community; altogether, at least 41 species of fish are known to inhabit the river (USFWS 1986). In recognition of its "outstanding and remarkable" fishery resources, the entire lower American River was included in the Wild and Scenic Rivers System in 1981, which provides some protection for these resources (USFWS 1991). Four anadromous species are important from a commercial and recreational perspective. The lower river supports a large run of fall-run Chinook salmon, a species with both commercial and recreational values. The salmon run is sustained by natural reproduction in the river, and by hatchery production at the Nimbus Salmon and Steelhead Hatchery, operated by the California Department of Fish and Wildlife (CDFW). The average annual production of fall-run Chinook salmon in the American River from 1992-2009 is 109,574 (USFWS 2013).

Steelhead, a popular sport fish, are largely sustained in the river by production from the Nimbus Hatchery, because summer water temperatures often exceed the tolerances of juvenile steelhead, which typically spend about 1 year in the river. American shad and striped bass enter the river to spawn; these two species, introduced into the Sacramento River system in the late 1800s, now support popular sport fisheries. In addition to species of economic interest, the lower American River supports many nongame species, including Sacramento pikeminnow, Sacramento sucker, tule perch, and hardhead (USFWS 1994).

Endangered Species

Based on a search of the Sacramento East USGS quadrangle map there are several listed species which could occur within or near the project area. The species under the jurisdiction of the Service which may be affected by the project includes the valley elderberry longhorn beetle, but a survey completed on April 3, 2013, did not detect any elderberry shrubs, the sole host plant for

the beetle, within the project footprint. Additional surveys would be conducted prior to construction activities to confirm the April 2013 survey result. The other species (anadromous fish) are under the jurisdiction of National Marine Fisheries Service (NOAA Fisheries). The complete list is included in Enclosure 1 as well as a summary of Federal agencies responsibilities under the Endangered Species Act of 1973, as amended.

DISCUSSION

Service Mitigation Policy

The recommendations provided herein for the protection of fish and wildlife resources are in accordance with the Service's Mitigation Policy as published in the Federal Register (46:15; January 23, 1981).

The Mitigation Policy provides Service personnel with guidance in making recommendations to protect or conserve fish and wildlife resources. The policy helps ensure consistent and effective Service recommendations, while allowing agencies and developers to anticipate Service recommendations and plan early for mitigation needs. The intent of the policy is to ensure protection and conservation of the most important and valuable fish and wildlife resources, while allowing reasonable and balanced use of the Nation's natural resources.

Under the Mitigation Policy, resources are assigned to one of four distinct Resource Categories, each having a mitigation planning goal which is consistent with the fish and wildlife values involved. The Resource Categories cover a range of habitat values from those considered to be unique and irreplaceable to those believed to be much more common and of relatively lesser value to fish and wildlife. However, the Mitigation Policy does not apply to threatened and endangered species, Service recommendations for completed Federal projects or projects permitted or licensed prior to enactment of Service authorities, or Service recommendations related to the enhancement of fish and wildlife resources.

In applying the Mitigation Policy during an impact assessment, the Service first identifies each specific habitat or cover-type that may be impacted by the project. Evaluation species[1] which utilize each habitat or cover-type are then selected for Resource Category analysis. Selection of evaluation species can be based on several criteria, as follows: (1) species known to be sensitive to specific land- and water-use actions; (2) species that play a key role in nutrient cycling or energy flow; (3) species that utilize a common environmental resource; or (4) species that are associated with Important Resource Problems, such as anadromous fish and migratory birds, as designated by the Director or Regional Directors of the Fish and Wildlife Service. Based on the relative importance of each specific habitat to its selected evaluation species, and the habitat's relative abundance, the appropriate Resource Category and associated mitigation planning goal are determined.

Mitigation planning goals range from "no loss of existing habitat value" (i.e., Resource Category 1) to "minimize loss of habitat value" (i.e., Resource Category 4). The planning goal of Resource Category 2 is "no net loss of in-kind habitat value." To achieve this goal, any unavoidable losses would need to be replaced in-kind. "In-kind replacement" means providing

1 Note: Evaluation species used for Resource Category determinations may or may not be the same evaluation species used in a HEP application, if one is conducted.

or managing substitute resources to replace the habitat value of the resources lost, where such substitute resources are physically and biologically the same or closely approximate those lost. The planning goal of Resource Category 3 is "no net loss of habitat while minimizing loss of in-kind value." To achieve this goal any unavoidable losses will be replaced in-kind or if it is not desirable or possible out-of-kind mitigation would be allowed. The planning goal of Resource Category 4 is "minimize loss of habitat value." To achieve this goal the Service will recommend ways to rectify, reduce, or minimize loss of habitat value.

In addition to mitigation planning goals based on habitat values, Region 8 of the Service, which includes California, has a mitigation planning goal of no net loss of acreage and value for wetland habitat. This goal is applied in all impact analyses.

In recommending mitigation for adverse impacts to fish and wildlife habitat, the Service uses the same sequential mitigation steps recommended in the Council on Environmental Quality's regulations. These mitigation steps (in order of preference) are: avoidance, minimization, rectifying, reducing or eliminating impacts over time, and compensation.

Five fish and/or wildlife habitats were identified in the project area which had potential for impacts from the project: riparian woodland, oak woodland, annual grassland, ornamental landscaping, and "other." The resource categories, evaluation species, and mitigation planning goal for the habitats impacted by the project are summarized in Table 1.

Table 1. Resource categories, evaluation species, and mitigation planning goal for the habitats possibly impacted by the proposed Natomas East Main Drain Canal North Extension, Sacramento

COVER-TYPE	EVALUATION SPECIES	RESOURCE CATEGORY	MITIGATION GOAL
Riparian Woodland	Acorn woodpecker Turkey Deer	2	No net loss of in-kind habitat value or acreage.
Oak Woodland	Acorn woodpecker Turkey Deer	2	No net loss of in-kind habitat value or acreage.
Annual Grassland	Red-tailed hawk	3	No net loss of habitat value while minimizing loss of in-kind habitat value.
Ornamental Landscaping	None	4	Minimize loss of habitat value
Other	None	4	Minimize loss of habitat value

The evaluation species selected for the riparian woodland and oak woodland that may be impacted are acorn woodpecker, turkey, and mule deer. Acorn woodpeckers utilize these woodlands for nearly all their life requisites; 50-60 percent of the acorn woodpecker's annual diet consists of acorns. Acorn woodpeckers can also represent impacts to other canopy-dwelling species. Turkeys forage and breed in riparian and oak woodlands and are abundant in the project area. Mule deer also heavily depend on acorns as a dietary item in the fall and spring; the abundance of acorns and other browse influence the seasonal pattern of habitat use by deer. These latter species represent species which utilize the ground component of the habitat and both

have important consumptive and non-consumptive human uses (i.e., hunting and bird watching). Based on the high value of riparian and oak woodlands to the evaluation species, and their declining abundance, the Service has determined the riparian and oak woodlands which may be affected by the project should be placed in Resource Category 2, with an associated mitigation planning goal of "no net loss of in-kind habitat value."

The evaluation species selected for the annual grassland cover-type is the red-tailed hawk, which utilizes these areas for foraging. This species was selected because of the Service's responsibility for their protection and management under the Migratory Bird Treaty Act, and their overall high non-consumptive values to humans. Annual grassland areas potentially impacted by the project vary in their relative values to the evaluation species, depending on the degree of human disturbance, plant species composition, and juxtaposition to other foraging and nesting areas. Therefore, the Service designates the annual grassland cover-type in the project area as Resource Category 3. Our associated mitigation planning goal for these areas is "no net loss of habitat value while minimizing loss of in-kind habitat value."

No evaluation species were identified for the ornamental landscape or "other" cover-types. The ornamental landscape is typically vegetation which occurs along the fence line of adjacent private properties and is maintained by individual landowners. The "other" cover-type encompasses those areas which do not fall within the other cover-types such as gravel and paved roads, parking areas, buildings, bare ground, riprap, etc. Generally these cover-types would not provide any significant habitat value for wildlife species. Therefore, the Service designates the ornamental landscape and "other" cover-types in the project area as Resource Category 4. Our associated mitigation planning goal for these areas is "minimize loss of habitat value."

Based on our review of the proposed project, most of the impacts would be temporary losses of habitat value for species utilizing annual grasslands during construction on the affected levees and proposed staging areas. Wildlife species utilizing this area are already highly disturbed due to ongoing maintenance and recreation activities (hiking, running, dog walking, etc.). All ground disturbed areas would be restored back to pre-project conditions at the completion of construction. In addition, there could potentially be some tree trimming in and adjacent to the project area. Wildlife species utilizing these areas would be displaced and there would be a temporary loss of habitat values during construction activities.

The proposed project would take place in reaches of the river where mature riparian and oak woodland occurs adjacent to the project area. Measures are included in the project to avoid impacts to migratory birds which may be nesting in affected vegetation and nearby areas throughout the riparian corridor. Pre-construction surveys are planned to determine if there are migratory birds nesting in the area. If nests are located, work should be deferred until any young have fledged the nest.

Project construction would take place on the levee crown and the 20 foot area adjacent to the waterside toe of the NEMDC levee. The closest the American River channel gets to the project area is 1,700 feet and thus no direct impacts are anticipated for fish species. In addition, although there is ornamental vegetation adjacent to the project site, none is expected to be impacted.

RECOMMENDATIONS

The Service recommends:

1. Avoid impacts to native trees, shrubs, and aquatic vegetation. Any native trees or shrubs removed with a diameter at breast height of 2 inches or greater should be replaced on-site, in-kind with container plantings so that the combined diameter of the container plantings is equal to the combined diameter of the trees removed. These replacement plantings should be monitored for 5 years or until they are determined to be established and self-sustaining. The planting site(s) should be protected in perpetuity.

2. Avoid future impacts to the site by ensuring all fill material is free of contaminants.

3. Avoid impacts to migratory birds nesting in trees along the access routes and adjacent to the proposed repair sites by conducting pre-construction surveys for active nests along proposed haul roads, staging areas, and construction sites. This would especially apply if construction begins in the early summer of 2014. Work activity around active nests should be avoided until the young have fledged. The following protocol from the CDFW for Swainson's hawk would suffice for the pre-construction survey for raptors.

   A focused survey for Swainson's hawk nests will be conducted by a qualified biologist during the nesting season (February 1 to August 31) to identify active nests within 0.25 mile of the project area. The survey will be conducted no less than 14 days and no more than 30 days prior to the beginning of construction. If nesting Swainson's hawks are found within 0.25 mile of the project area, no construction will occur during the active nesting season of February 1 to August 31, or until the young have fledged (as determined by a qualified biologist), unless otherwise negotiated with the California Department of Fish and Wildlife. If work is begun and completed between September 1 and February 28, a survey is not required.

4. Minimize project impacts by reseeding all disturbed areas at the completion of construction with forbs and grasses.

5. Minimize the impact of removal and trimming of all trees and shrubs by having these activities supervised and/or completed by a certified arborist.

6. Consult with the Service for possible project effects on the valley elderberry longhorn beetle.

7. Contact the NOAA Fisheries for possible effects of the project on federally-listed species under their jurisdiction.

8. Contact the CDFW regarding possible effects of the project on State listed species.

REFERENCES

Gaines, D.A. 1977. The valley riparian forests of California: their importance to bird populations. Pages 57-85 *in* Riparian Forests in California: their ecology and conservation. A. Sands, ed. University of California, Davis, Inst of Ecology Publ. no. 15.

USFWS (U.S. Fish and Wildlife Service). 1986. Potential impacts to fish and wildlife from alternative actions for increasing flood control along the lower American River, California. U.S. Fish and Wildlife Service, Sacramento, California.

_____. 1991. American River Watershed Investigation, Auburn Area, Substantiating Report. U.S. Fish and Wildlife Service, Sacramento, California.

_____. 1994. Planning Aid Report for the American River Watershed Investigation, Raising of Folsom Dam Alternative. U.S. Fish and Wildlife Service, Sacramento, California.

_____. 2003. Fish and Wildlife Coordination Act Report for the American River Watershed Investigation Long-Term Evaluation. U.S. Fish and Wildlife Service, Sacramento, California.

_____. 2013. American River Watershed Information (Online), Available: http://www.fws.gov/stockton/afrp/ws_projects.cfm?code=AMERR, April 5, 2013.

ENCLOSURE 1

FEDERAL ENDANGERED AND THREATENED SPECIES LIST

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the SACRAMENTO EAST (512C) U.S.G.S. 7 1/2 Minute Quad

Database last updated: September 18, 2011
Report Date: January 31, 2014

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
Critical habitat, valley elderberry longhorn beetle (X)
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Hypomesus transpacificus
Critical habitat, delta smelt (X)
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Key:

- (E) *Endangered* - Listed as being in danger of extinction.
- (T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
- (P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- *Critical Habitat* - Area essential to the conservation of a species.
- (PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
- (C) *Candidate* - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) *Critical Habitat* designated for this species.

Appendix D

Correspondence Regarding Cultural Resources

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DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

REPLY TO
ATTENTION OF

Environmental Resources Branch

MAR 0 4 2014

Carol Roland-Nawi, PhD
State Historic Preservation Officer
Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

Dear Dr. Roland-Nawi:

We are writing you with regard to an environmental assessment the U.S. Army Corps of Engineers, Sacramento District (Corps), is preparing for the proposed extension of approximately 1,750 feet of slag-cement-bentonite slurry wall along the American River for the American River Common Features Project in Sacramento County. This 1,750-foot slurry wall extension is an addition to the 1,380 linear feet described in the Final Environmental Assessment/Initial Study for the American River Watershed Common Features Lower American River Features as Modified by WRDA 1999 Natomas East Main Drainage Canal dated August 2012. Two additional staging areas are also proposed for the extension segment of the project: one in the small triangle area between the northernmost reach of the project levee and the Union Pacific Railroad tracks, and the other on the waterside toe of the levee between the Arden-Garden Connector and the Sacramento Northern Bike Trail. This work is authorized by the Water Resources Development Act of 1999 (WRDA 99). Your file number for the Common Features Project is COE900711G.

We are initiating consultation under Section 106 of the National Historic Preservation Act by notifying you of the proposed undertaking pursuant to 36 CFR 800.3; that we have determined and documented the area of potential effects (APE) pursuant to 36 CFR 800.4(a)(1); and that we have determined that the project qualifies for a finding of no adverse effects pursuant to 36 CFR 800.5 (d)(1).

Enclosed is a memorandum in which we define and describe the APE and discuss our efforts to locate and evaluate any potential historic properties (enclosure). The record search and archaeological survey resulted in the location of three cultural resources within the APE. These resources are the American River right bank levee (CA-SAC-481H), Del Paso Boulevard, an historic road (CA-SAC-570H), and a segment of the Northern Electric/Sacramento Northern Railroad alignment (CA-SAC-571H). The site forms for these three resources are appended to the enclosed memorandum. CA-SAC-481H was recorded as a historical site during the 1995 Dames & Moore American

River Survey. During a subsequent survey, Herbert and Blosser updated the CA-SAC-481H site report and provided a very detailed and thorough history of the levee; they determined that the levee was ineligible for inclusion to the National Register of Historic Places (NRHP). Corps staff formally re-evaluated the levee in September 2013 and after consultation with your office, in a letter dated October 15, 2013, it was found ineligible as an individual resource but determined to have potential significance as part of an unevaluated historic district because of its association with Folsom Dam and the Central Valley Project and due to the fact that although maintenance and improvement of the levee since its construction have altered the materials and size of the levee, its character-defining features of setting, function, and general form have remained constant and will not be altered by the proposed project.

Both Del Paso Boulevard (CA-SAC-570H), and the segment of the Northern Electric/Sacramento Northern Railroad alignment (CA-SAC-571H) have previously been determined ineligible for listing in the NRHP due to their lack of integrity.

As a result of these evaluations, we find that the proposed work would result in no adverse effects to historic properties (36 CFR 800.5[d][1]) as the project will have no effect on the one potentially significant resource in the area, the existing Federal levee (CA-SAC-481H).

A copy of the enclosed memorandum was also sent to all the potentially interested Native American groups and individuals identified by the Native American Heritage Commission. The Corps is sensitive to the interests of Native groups and is continuing consultation with individual tribes on the Common Features Project as a whole.

We request that you concur with our determinations of the APE and finding of no adverse effects to historic properties for the proposed work. Please review the enclosed information and provide your comments if any, and concurrence with our determinations. We are looking forward to your reply.

If you have any questions or comments please contact Ms. Stefanie Adams at (916) 557-7283 or by email at stefanie.l.adams@usace.army.mil. Please contact Mr. John Hoge, Project Manager at (916) 557-5304 with any project specific questions.

Sincerely,

Alicia E. Kirchner
Chief, Planning Division

Enclosure