

# **Mitigation Monitoring and Reporting Program**

**American River Watershed Common Features, Water  
Resources Development Act of 2016 Project,  
Sacramento River East Levee Contract 4**

**SCH# 2005072046**

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# Abbreviations and Acronyms

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APE	Area of Potential Effects
ARCF	American River Watershed Common Features
ARCF 2016 Project	American River Watershed Common Features Water Resources Development Act of 2016 Project
BMP	Best Management Practice
BSLMS	Beach/Stone Lakes Mitigation Site
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCR	Code of California Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CRHR	California Register of Historic Resources
CVFPB	Central Valley Flood Protection Board
EA	Environmental Assessment
EIS	Environmental Impact Statement
EIR	Environmental Impact Report
ESA	Environmental Site Assessment
GHG	Greenhouse Gas
GRR	General Reevaluation Report
HPMP	Historic Properties Management Plan
HPTP	Historic Properties Treatment Plan
MLD	Most Likely Descendent
MMRP	Mitigation Monitoring and Reporting Program
NAHC	Native American Heritage Center
NOI	Notice of Intent
NOx	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
OHWM	Ordinary High Water Mark
PA	Programmatic Agreement
PM	Particulate matter
PM10	Particulate matter 10 microns or less in diameter
PPV	Peak particle velocity
PRC	Public Resources Code
RWQCB	Regional Water Quality Control Board
SHPO	State Historic Preservation Office
SMAQMD	Sacramento Metropolitan Air Quality Management District
SPCCP	Spill Prevention Control and Countermeasures Plan
SR	State Route
SRCS	Sacramento Regional County Sanitation District
SREL C4	Sacramento River East Levee Contract 4 Project

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SWPPP	Stormwater Pollution Prevention Plan
SMAQMD	Sacramento Metropolitan Air Quality Management
SPCCP	District
SR	Spill Prevention Control and Countermeasures Plan
SRCS	State Route
SWPPP	Sacramento Regional County Sanitation District
SWRCB	Stormwater Pollution Prevention Plan
USACE	State Water Resources Control Board
USFWS	U.S. Army Corps of Engineers
VdB	U.S. Fish and Wildlife Service
	Velocity decibels

**MITIGATION MONITORING AND REPORTING PROGRAM  
AMERICAN RIVER WATERSHED COMMON FEATURES,  
WATER RESOURCES DEVELOPMENT ACT OF 2016 PROJECT,  
SACRAMENTO RIVER EAST LEVEE CONTRACT 4,  
SACRAMENTO COUNTY, CALIFORNIA**

This mitigation monitoring and reporting program (MMRP) is designed to fulfill Section 21081.6(a) of the California Public Resources Code (PRC) and Section 15097 of the California environmental Quality Act (CEQA) Guidelines. PRC Section 21081.6 (a) and CEQA Section 15097 require that public agencies adopt a reporting or monitoring program whenever a project or program is approved that includes mitigation measures to be imposed to mitigate or avoid significant environmental impacts on the physical environment. The mitigation measures and strategies are described below.

The MMRP includes the following, organized by impact topic:

- Mitigation Number – lists the adopted mitigation measures by number as designated in the Final Supplemental Environmental Impact Report/ Environmental Assessment (Supplemental EIR/EA).
- Mitigation Measure – Provides the text of the mitigation measures, each of which has been adopted and incorporated into the Sacramento River East Levee Contract 4.
- Implementation Timing – identifies the timing of implementation of the action described in the mitigation measures. \*See Notes below.
- Responsible for Mitigation – identifies the agency/party responsible for implementing the actions described in the mitigation measures.
- Responsible for Monitoring/Reporting Action– identifies the agency/party responsible for monitoring and/or reporting on the implementation of the actions described in the mitigation measures.

\*Notes:

D: To be implemented or included as part of project design.

P: To be implemented prior to construction being initiated (pre-construction).

C: To be implemented during project construction.

M: To be implemented as ongoing maintenance after construction is complete.

## Air Quality

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### AIR-1

**Implement the Sacramento Metropolitan Air Quality Management District's Basic Construction Emission Control Practices:** Sacramento Metropolitan Air Quality Management District (SMAQMD) requires that all projects, regardless of their significance, implement the following measures to minimize the generation of fugitive PM dust. The Basic Construction Emission Control Practices shall include measures to control fugitive PM dust pursuant to SMAQMD Rule 403, as well as measures to reduce construction-related exhaust emissions. The Project Partners (USACE, CVFPB, and SAFCA) shall require contractors to comply with the basic construction emission control practices listed below for all construction-related activities occurring in SMAQMD jurisdiction.

- Water all exposed surfaces two times daily or more, as needed. Exposed surfaces include, but are not limited to levee crowns, soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover, or suitably wet soils and other materials on, haul trucks transporting soil, sand, or other loose material on the site. Cover any haul trucks that travel along freeways or major roadways.
- 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 speed on unpaved roads to 15 miles per hour.
- Complete pavement of all roadways, driveways, sidewalks, and parking lots to be paved as soon as possible. In addition, lay building pads as soon as possible after grading unless seeding or soil binders are used.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes (required by CCR, Title 13, Sections 2449[d][3] and 2485). 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. Have the equipment checked by a certified mechanic and determined to be running in proper condition before it is operated.

**Implementation Timing:** C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

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## AIR-2

### **Implement the Sacramento Metropolitan Air Quality Management District's Enhanced Fugitive PM Dust Control Practices:**

SMAQMD recommends that construction projects that would exceed or contribute to the mass emissions threshold for particulate matter equal to or less than 10 micrometers in diameter (PM10) implement the Enhanced Fugitive particulate matter (PM) Dust Control Practices, as applicable to the project. Because the construction activities would involve substantial material movement activities and would be located in proximity of residential receptors, The Project Partners shall require construction contractors to implement the Enhanced Fugitive PM Dust Control Practices listed below, when feasible, to help reduce potential fugitive PM dust emissions.

- Soil Disturbance Areas
  - Water exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site.
  - Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 miles per hour.
  - Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas.
  - Plant vegetative ground cover (fast germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established.
- Unpaved Roads (Entrained Road Dust)
  - Install wheel washers for all exiting trucks or wash off all trucks and equipment leaving the site.
  - Treat site accesses to a distance of 100 feet from the paved road with a 6- to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.
  - Post a publicly visible sign with the telephone number and person to contact at USACE regarding dust complaints. This person will respond and take corrective action within 48 hours. The phone number of SMAQMD also will be visible to ensure compliance.

**Implementation Timing: C**

**Responsible for Mitigation: USACE**

**Responsible for Monitoring/Reporting Action: CVFPB, USACE**

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### AIR-3

**Require Lower Exhaust Emissions for Construction Equipment:** The Project Partners shall require contractors to use a fleet-wide average of 90 percent Tier 4 emissions vehicles for off-road construction equipment, and on-road haul trucks must be equipped with 2010 or newer engines. Tier 0 and uncontrolled engines are prohibited for use in the project. To demonstrate compliance with this requirement:

- The construction 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 8 or more hours during any portion of the construction project.
- The inventory shall include the horsepower rating, engine model year, and projected hours of use for each piece of equipment. The construction contractor shall provide the anticipated construction timeline including start date, and name and phone number of the project manager, and on-site foreman. This information shall be submitted at least 4 business days prior to the use of subject heavy-duty off-road equipment. The SMAQMD Construction Mitigation Tool can be used to submit this information. 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.
- The construction contractor shall provide a plan for approval by USACE and SMAQMD demonstrating that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project-wide fleet average of 90 percent Tier 4 emissions vehicles. This plan shall be submitted in conjunction with the equipment inventory. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.
- SMAQMD's Construction Mitigation Tool can be used to identify an equipment fleet that achieves this reduction. The construction contractor shall ensure that emissions from all off-road diesel-powered equipment used in the project area do not exceed 40 percent opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately. Non-compliant equipment will be documented, and a summary provided monthly to USACE and SMAQMD. A visual survey of all in-operation equipment shall be made at least weekly. 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.

- Use the Construction Mitigation Tool to track PM10 emissions and mileage traveled by on-road trucks, reporting results to USACE and SMAQMD on a monthly basis.

**Implementation Timing:** D, P, C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

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#### AIR-4

#### **Use the Sacramento Metropolitan Air Quality Management District's Off-Site**

**Mitigation Fee to Reduce NOx Emissions:** The Project Partners shall implement the measure listed below to reduce oxides of nitrogen (NOx) construction-related emissions.

- Pursuant to air district thresholds of significance, if the projected construction-related emissions exceed the NOx threshold of significance, based on the equipment inventory and use, USACE shall contribute to SMAQMD's off-site mitigation fee program sufficiently to offset the amount by which the project's NOx emissions exceed the threshold. If emissions for the ARCF 2016 Project in any given year would exceed the de minimis threshold of 25 tons per year, USACE would enter into an agreement with SMAQMD to purchase offsets for all NOx emissions in any year that projected emissions would exceed the threshold. The determination of the estimated mitigation fees shall be conducted in coordination with SMAQMD before any ground disturbance occurs for any phase of project construction. (USACE anticipates purchasing offsets for NOx emissions in 2022 because the ARCF 2016 Project is forecast to exceed the de minimis threshold.) All mitigation fees shall be paid prior to the start of construction activity to allow SMAQMD to obtain emissions reductions for the proposed project. If there are changes to construction activities (e.g., equipment lists, increased equipment usage or schedules), USACE shall work with SMAQMD to ensure emission calculations and fees are adjusted appropriately.

**Implementation Timing:** P, C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

## Vegetation and Wildlife

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### VEG-1

**Compensate for Riparian Habitat Removal:** To compensate for riparian habitat removal, replacement habitat will be created in accordance with the 2013 ARCF GRR Fish and Wildlife Coordination Act Report. The mitigation will be implemented at the Beach/Stone Lakes Mitigation Site (BSLMS) or other U.S. Fish and Wildlife Service (USFWS)-approved location.

**Implementation Timing:** D, P, C, M

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

## Special Status Species

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### PLANT-1

The Project Partners will implement the following measures, to avoid and minimize effects on special-status plants:

- Preconstruction surveys will be conducted by a qualified botanist in suitable habitat to determine the presence of any special status plants. Surveys would be conducted at an appropriate time of year during which the species are likely to be detected, which would likely be during the blooming period.
- If special status plant species are found during preconstruction surveys, the habitat will be marked or fenced as an avoidance area during construction. A buffer of 25 feet will be established. If a buffer of 25 feet is not possible, the next maximum possible distance will be fenced off as a buffer.
- If special-status plant species cannot be avoided during construction, USACE and CVFPB will coordinate with the resource agencies to determine additional appropriate mitigation measures.

**Implementation Timing:** P, C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

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## VELB-1

The Project Partners would implement the following measures in accordance with the Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (USFWS 2017) to reduce effects on valley elderberry longhorn beetle:

- Fencing. All areas to be avoided during construction activities would be fenced and/or flagged as close to construction limits as feasible.
- Avoidance area. To the extent feasible, activities that may damage or kill an elderberry shrub (e.g., trenching, paving, etc.) would be avoided within 20 feet from the drip-line of the shrub.
- Worker education. A qualified biologist would provide training for all contractors, work crews, and any onsite personnel on the status of valley elderberry longhorn beetle, its host plant and habitat, the need to avoid damaging elderberry shrubs, and the possible penalties for noncompliance.
- Construction monitoring. A qualified biologist would monitor the work area at appropriate intervals to assure that all avoidance and minimization measures are implemented
- Timing. To the extent feasible, activities within 165 feet of an elderberry shrub would be conducted outside of the valley elderberry longhorn beetle flight season (March to July).
- Trimming. To the extent feasible, elderberry shrub trimming would occur between November and February and avoid the removal of any branches or stems greater than or equal to 1-inch in diameter.
- Chemical Usage. Herbicides would not be used within the drip-line, and insecticides would not be used within 100 feet of an elderberry shrub. All chemicals would be applied using a backpack sprayer or similar direct application method.
- Mowing. Mechanical weed removal within the drip-line of elderberry shrubs would be limited to the season when adults are not active (August to February) and would avoid damaging the shrub.
- Transplanting. To the extent feasible, elderberry shrubs would be transplanted when the shrubs are dormant (November through the first 2 weeks in February) and after they have lost their leaves. Exit-hole surveys will be completed immediately before transplanting. A qualified biologist would be on-site for the duration of transplanting activities to assure compliance with avoidance and minimization measures and other conservation measures.
- Compensation. Effects would be compensated at ratios ranging from 1:1 to 3:1, depending on the compensation approach and circumstances of the affected shrubs. Affected area would be re-vegetated with appropriate native plants.

**Implementation Timing:** D, P, C, M

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

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#### BUOW-1

The Project Partners would implement the following measures to reduce effects on burrowing owl:

- Prior to the implementation of construction, surveys would be conducted to determine the presence of burrows or signs of burrowing owl at the Sacramento Regional County Sanitation District (SRCSD) borrow site. A habitat assessment and any proceeding surveys would be conducted in accordance with Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFG 2012).
- If burrowing owls are observed, coordination with the California Department of Fish and Wildlife (CDFW) would be initiated to determine the appropriate actions to take or any additional avoidance and minimization measures that may need to occur. These measures may include creating a protective buffer around occupied burrows during the duration of the breeding/juvenile rearing season and biological monitoring of active burrows to ensure that construction activities do not result in adverse effects on nesting burrowing owls.
- If potential burrows are present, all on-site construction personnel would be instructed on the potential presence of burrowing owls, identification of these owls and their habitat, and the importance of minimizing impacts on burrowing owls and their habitat.

**Implementation Timing:** P, C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

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#### BIRD-1

USACE would implement the following measures to minimize potential effects on active nests of Swainson's hawk, white-tailed kite, purple martin, and other migratory birds:

- Before on-site project activities begin, all construction personnel would participate in a worker environmental awareness program. A qualified biologist would inform all construction personnel about the life history of Swainson's hawk and the importance of nest sites.
- For Swainson's hawk, follow the survey guidelines for the Swainson's Hawk

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Technical Advisory Committee 2000. If active nests are found within 0.5 miles of construction activities, consult with CDFW on further action including buffer areas, mitigation and monitoring.

- For purple martin and white-tailed kite, a survey would also be conducted for active nests within 500 feet of construction activities. For all other migratory birds, the survey would cover active nests within 100 feet of construction activities. These surveys could be conducted concurrent with Swainson's hawk surveys, so long as one survey is conducted no more than 48 hours from the initiation of project activities. If the biologist determines that the area surveyed does not contain any active nests, construction activities, including removing or pruning trees and shrubs, the project can commence.
- For any active migratory bird nest found, a protective buffer would be established and implemented until the nest is no longer active. The size of the buffer would be determined based on the species, nest stage, type, and intensity of project disturbance in the nest vicinity, presence of visual buffers, and other variables that may affect susceptibility of the nest to disturbance. A qualified biologist would monitor the nest during project activities to confirm effectiveness of the buffer and adjust the buffer as needed to ensure project activities do not adversely affect behavior of adults or young.
- Tree and shrub removal and other clearing, grading, and construction activities that remove vegetation would not be conducted during the nesting season (generally February 15 to August 31, depending on the species and environmental conditions for any given year). If construction activities that require tree and shrub removal occur during the nesting season, USACE and CVFPB would consult with USFWS and CDFW to determine the appropriate measures to implement to avoid adverse effects.

**Implementation Timing:** P, C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

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#### BAT-1

The Project Partners will implement the following measures to avoid and minimize effects on special-status bats:

- Wherever feasible, USACE will conduct construction activities outside of the pupping season for bats (generally April 1 to August 31).
- USACE or its designated environmental personnel will specify which trees slated for removal contain suitable bat roosting habitat. Trees indicated for removal that

- are not identified as suitable bat habitat can be removed using normal methods.
- Live trees that are indicated to contain roosting habitat shall be removed in a two-phase process. The first day, under the supervision of the biological monitor, remove limbs and branches that do not contain cavities, cracks, crevices, or deep bark fissures that can provide roosting habitat. On the second day remove the remainder of tree by gently lowering the tree to the ground, under the supervision of the biological monitor and leave material undisturbed for 48-hours. If it is not feasible to remove a tree using the two-phased approach, limbs containing habitat features should be removed and gently lowered to the ground in a location where they are not likely to be crushed or disturbed by the felling of the tree and left undisturbed for the next 48-hours.
  - Standing dead trees or snags with habitat features should be removed over a single day by gently lowering the tree or snag to the ground. The tree or snag should be left undisturbed on the site for the next 48-hours.
  - For trees containing suitable bat roosting habitat that will be trimmed, trimming shall be conducted in the presence of a biological monitor. If trimming results in the removal of vegetation that contains potential bat habitat, vegetation should be gently lowered to the ground and left near the tree for 48-hours prior to removal, if feasible. If the vegetation cannot be left for 48-hours, the biological monitor shall survey the vegetation for presence of bats. If any bats are found within the vegetation, the vegetation must be left for 48-hours (or CDFW should be called for guidance regarding relocation of the bat dependent on urgency for removal).
  - If removal of trees must occur during the bat pupping season, within 30 days of tree removal activities, all trees to be removed will be surveyed by a qualified biological monitor for the presence of features that may function as special-status bat maternity roosting habitat. Trees that do not contain potential special-status maternity roosting habitat may be removed. For trees that contain suitable special-status bat maternity roosting habitat, surveys for active maternity roosts shall be conducted by the designated biological monitor in trees designated for removal. The surveys shall be conducted from dusk until dark.
  - If any special-status species bat maternity roost is located, appropriate buffers must be established by clearly marking the buffer area. The buffer area must be a minimum of 100 feet outside the tree containing the maternity roost. No contract activities shall commence within the buffer areas until the end of pupping season (September 1st) or the biological monitor confirms that the maternity roost is no longer active.
  - If construction activities must occur within the buffer, the biological monitor must monitor activities either continuously or periodically during the work, which will be determined by the biological monitor. The biological monitor would be empowered

to stop activities that, in their opinion, would cause unanticipated adverse effects on special status bats. If construction activities are stopped, the biological monitor would inform USACE, and CDFW would be consulted to determine appropriate measures to implement to avoid adverse effects.

**Implementation Timing:** P, C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

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### FISH-1

The Project Partners would implement the following measure to reduce effects on special-status fish:

- In-water construction activities (i.e., work below the Ordinary High Water Mark [OHWM]) will be limited to the work window of July 1 to October 31. The in-water work window could be extended with NMFS approval.

**Implementation Timing:** P, C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

## Climate Change

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### GHG-1

Measures that would be implemented to reduce the project's contribution from generation of greenhouse gas emissions (GHGs) are as follows:

- Encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking for construction worker commutes.
- Recycle at least 75 percent of construction waste and demolition debris.
- Purchase at least 20 percent of the building materials and imported soil from sources within 100 miles of the project site.
- 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's 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.

- 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 a California Air and Resource Board (CARB)-approved low carbon fuel for construction equipment. (NOx emissions from the use of low carbon fuel must be reviewed and increases mitigated.)
- Purchase GHG offset for program-wide GHG emissions (direct emissions plus indirect emissions from on-road haul trucks plus commute vehicles) that meet the criteria of being real, quantifiable, permanent, verifiable, enforceable, and additional, consistent with the standards set forth in Health and Safety Code section 38562, subdivisions (d)(1) and (d)(2). Such credits shall be based on protocols approved by the California Air Resources Board (CARB), consistent with Section 95972 of Title 17 of the California Code of Regulations, and shall not allow the use of offset projects originating outside of California, except to the extent that the quality of the offsets, and their sufficiency under the standards set forth herein, can be verified by USACE or SMAQMD. Such credits must be purchased through one of the following: (i) a CARB-approved registry, such as the Climate Action Reserve, the American Carbon Registry, and the Verified Carbon Standard; (ii) any registry approved by CARB to act as a registry under the California Cap and Trade program; or (iii) through the California Air Pollution Control Officers Association's (CAPCOA's) GHG Rx and SMAQMD. Purchase of carbon offsets shall be sufficient to reduce the project's GHG emissions to below SMAQMD's significance thresholds applicable through a one-time purchase of credits, based on the emissions estimates in this Supplemental EIR or on an ongoing basis based on monthly emissions estimates that would be prepared in accordance with procedures established by Measure AQ-3.

**Implementation Timing:** C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

## Cultural and Tribal Cultural Resources

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### CR-1

For Historic Properties which would be adversely affected by implementation of the project (pending concurrence of eligibility and finding of effect in the ARCF PA

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Programmatic Agreement (PA) consultation process), USACE shall consult with the State Historic Preservation Officer (SHPO) and interested Native American Tribes in accordance with the ARCF PA and associated Historic Properties Management Plan (HPMP) to develop a Historic Properties Treatment Plan (HPTP). The HPTP shall specify measures that will be implemented to resolve the adverse effects to the Historic Properties and shall constitute mitigation for the effects to these resources. USACE shall implement the terms described in the HPTP.

**Implementation Timing:** D, P, C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

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### CR-2

In accordance with the procedures described in Section 9.2 of the ARCF HPMP, a discovery plan shall be prepared and included in the construction contractor's specifications. The discovery plan shall specify what actions are required to be taken by the contractor in the event of an archaeological discovery and describe what actions the Project Partners may take in the event of a discovery.

In accordance with the procedures described in Section 9.3.9 of the ARCF HPMP, an archaeological monitoring plan shall be developed for the project. This plan shall identify the locations of known Historic Properties as well as sensitive areas designated for archaeological monitoring and shall include methods and procedures for monitoring and the procedures to be followed in the event of a discovery of archaeological materials.

**Implementation Timing:** P, C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

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### CR-3

In accordance with the procedures described in Section 9.1 of the ARCF HPMP, the Project Partners shall require the contractor to provide a cultural resources and tribal cultural resources sensitivity and awareness training program for all personnel involved in project construction, including field consultants and construction workers. The training shall be developed in coordination with an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archaeology (36 CFR Part 61), as well as culturally affiliated Native American tribes. The Project Partners may invite Native American representatives from interested culturally affiliated Native American tribes to participate. The training shall be conducted before any project-related

construction activities begin in the Area of Potential Effect (APE) and shall include relevant information regarding sensitive cultural resources and Tribal Cultural Resources, including applicable regulations, protocols for avoidance, and consequences of violating Federal and State laws and regulations.

The training shall also describe appropriate avoidance and impact minimization measures for cultural resources and Tribal Cultural Resources that could be located in the APE and shall outline what to do and who to contact if any potential cultural resources or Tribal Cultural Resources are encountered. The training shall emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans and shall discuss appropriate behaviors and responsive actions, consistent with Native American tribal values.

**Implementation Timing:** P, C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

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#### CR-4

If an inadvertent discovery of cultural materials (e.g., unusual amounts of shell, animal bone, any human remains, bottle glass, ceramics, and building remains); Tribal Cultural Resources; sacred sites; or landscapes is made at any time during project-related construction activities, USACE in consultation with CVFPB and other interested parties, shall develop appropriate protection and avoidance measures where feasible. These procedures shall be developed in accordance with the ARCF PA and HPMP, which specifies procedures for post-review discoveries. Additional measures, such as development of HPTPs prepared in accordance with the PA and HPMP, may be necessary if avoidance or protection is not possible.

**Implementation Timing:** C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

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#### CR-5

California Native American Tribes that are traditionally and culturally affiliated with the geographic area in which the project is located may have expertise concerning their Tribal Cultural Resources (California PRC Section 21080.3.1). As was done during Supplemental EIR preparation, culturally affiliated Tribes shall be further consulted concerning Tribal Cultural Resources that may be impacted, if these types of resources are discovered prior to or during construction. Further consultation with culturally affiliated Tribes shall be required for the ARCF 2016 Project, Sacramento River East Levee Contract 4

affiliated Tribes shall focus on identifying measures to avoid or minimize impacts on any such resources discovered during construction. If Tribal Cultural Resources are identified in the APE prior to or during construction, the following performance standards shall be met before proceeding with construction and associated activities that may result in damage to or destruction of Tribal Cultural Resources:

- Each identified Tribal Cultural Resource will be evaluated for California Register of Historical Resources (CRHR) eligibility through application of established eligibility criteria (CCR 15064.636), in consultation with interested Native American Tribes.
- If a Tribal Cultural Resource is determined to be eligible for listing on the CRHR, USACE, in consultation with CVFPB, will avoid damaging the Tribal Cultural Resource in accordance with California PRC Section 21084.3, if feasible. If CVFPB determines that the project may cause a substantial adverse change to a Tribal Cultural Resource, and measures are not otherwise identified in the consultation process, the following are examples of mitigation steps capable of avoiding or substantially lessening potential significant impacts to a Tribal Cultural Resource or alternatives that would avoid significant impacts to a Tribal Cultural Resource. These measures may be considered to avoid or minimize significant impacts and constitute the standard by which an impact specifically address inadvertent discovery of human remains may be reached:
- Avoid and preserve resources in place, including, but not limited to, planning construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
- Treat the resource with culturally appropriate dignity, taking into account the Tribal cultural values and meaning of the resource, including, but not limited to, the following:
  - Protect the cultural character and integrity of the resource.
  - Protect the traditional use of the resource.
  - Protect the confidentiality of the resource.
  - Establish permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or using the resources or places.
  - Protect the resource.

**Implementation Timing:** C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

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## CR-6

To minimize adverse effects from encountering human remains during construction, the Project Partners shall implement the following measures.

- In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, CVFPB shall consult with USACE, and USACE shall immediately halt potentially damaging excavation in the area of the burial and notify the Sacramento County Coroner and a professional archaeologist to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48-hours of receiving notice of a discovery on private or State lands (California Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (California Health and Safety Code Section 7050[c]). After the coroner's findings have been made, the archaeologist and the NAHC-designated Most Likely Descendant (MLD), in consultation with the landowner, shall determine the ultimate treatment and disposition of the remains.
- Upon the discovery of Native American human remains, the Project Partners shall require that all construction work must stop within 100 feet of the discovery until consultation with the MLD has taken place. The MLD shall have 48-hours to complete a site inspection and make recommendations to the landowner after being granted access to the site. A range of possible treatments for the remains, including nondestructive removal and analysis, preservation in place, relinquishment of the remains and associated items to the descendants, or other culturally appropriate treatment may be discussed. California PRC Section 5097.98(b)(2) suggests that the concerned parties may mutually agree to extend discussions beyond the initial 48-hours to allow for the discovery of additional remains. The following is a list of site protection measures that CVFPB shall employ:
  - Record the site with the NAHC or the appropriate Information Center
  - Record a document with the county in which the property is located
  - If agreed to by the MLD and the landowner, CVFPB or CVFPB's authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance, if the NAHC is unable to identify an MLD, or if the MLD fails to make a recommendation within 48-hours after being granted access to the site. CVFPB or CVFPB's authorized representative may also reinter the remains in a location not subject to further disturbance, if CVFPB rejects the

recommendation of the MLD and mediation by the NAHC fails to provide measures acceptable to CVFPB. CVFPB shall implement mitigation for the protection of the burial remains. Construction work in the vicinity of the burials shall not resume until the mitigation is completed.

**Implementation Timing:** C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

## Geological Resources

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### GEO-1

- Prior to the start of earth-moving activities, the Project Partners will obtain coverage under the State Water Resources Control Board (SWRCB) NPDES stormwater permit for general construction activity (Order 2009-0009-DWQ), including preparation and submittal of a project-specific SWPPP at the time the Notice of Intent (NOI) to discharge is filed. The Stormwater Pollution Prevention Plan (SWPPP) would identify and specify the following:
- The use of an effective combination of robust erosion and sediment control BMPs and construction techniques that would reduce the potential for runoff and the release, mobilization, and exposure of pollutants, including legacy sources of mercury from project-related construction sites. These may include but would not be limited to temporary erosion control and soil stabilization measures, sedimentation ponds, inlet protection, perforated riser pipes, check dams, and silt fences.
- The implementation of approved local plans, non-stormwater management controls, permanent post-construction Best Management Practices (BMPs), and inspection and maintenance responsibilities.
- The pollutants that are likely to be used during construction that could be present in stormwater drainage and non-stormwater discharges, including fuels, lubricants, and other types of materials used for equipment operation.
- The means of waste disposal.
- Spill prevention and contingency measures, including measures to prevent or clean up spills of hazardous waste and of hazardous materials used for equipment operation, and emergency procedures for responding to spills.
- Personnel training requirements and procedures that would be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP.

- The appropriate personnel responsible for supervisory duties related to implementation of the SWPPP.
- Where applicable, BMPs identified in the SWPPP would be in place throughout all site work and construction/demolition activities and would be used in all subsequent site development activities. BMPs may include, but are not limited to, such measures as those listed below:
  - Conduct earthwork during low-flow periods (July 1 to November 30).
  - To the extent possible, stage construction equipment and materials on the landside of the levee in areas that have already been disturbed.
  - Minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations.
  - Stockpile soil on the landside of the levee reaches, and install sediment barriers (e.g., silt fences, fiber rolls, and straw bales) around the base of stockpiles to intercept runoff and sediment during storm events. If necessary, cover stockpiles with geotextile fabric to provide further protection against wind and water erosion.
  - Install sediment barriers on graded or otherwise disturbed slopes as needed to prevent sediment from leaving the project site and entering nearby surface waters.
  - Install plant materials to stabilize cut and fill slopes and other disturbed areas once construction is complete. Plant materials could include an erosion control seed mixture or shrub and tree container stock. Temporary structural BMPs, such as sediment barriers, erosion control blankets, mulch, and mulch tackifier, could be installed as needed to stabilize disturbed areas until vegetation becomes established.
- Conduct water quality tests specifically for increases in turbidity and sedimentation caused by construction activities.
- A copy of the approved SWPPP will be maintained and available at all times on the construction site.
- The Project Partners will also prepare and implement an Spill Prevention Control and Countermeasures Plan (SPCCP). An SPCCP is intended to prevent any discharge of oil into navigable water or adjoining shorelines. The contractor would develop and implement an SPCCP to minimize the potential for adverse effects from spills of hazardous, toxic, or petroleum substances during construction and operation activities. The SPCCP would be completed before any construction activities begin. Implementation of this measure would comply with State and Federal water quality regulations. The SPCCP would describe spill sources and spill pathways in addition to the actions that would be taken in the event of a spill (e.g., an oil spill from engine refueling would be immediately cleaned up with oil

absorbents). The SPCCP would outline descriptions of containments facilities and practices such as double walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures, and spill response kits. It would also describe how and when employees are trained in proper handling procedure and spill prevention and response procedures.

**Implementation Timing:** D, P, C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

## Hazardous Waste and Materials

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### HAZ-1

The Project Partners would require that Project Areas be tested for contaminants prior to construction. Any hazardous materials found would be disposed of in accordance with all Federal, State, and local regulations at an approved disposal site. Where construction activities would occur in close proximity to sites identified as Recognized Environmental Conditions in the Phase I Environmental Site Assessment (ESA) (HDR 2019), a Phase II site investigation should also be conducted.

**Implementation Timing:** C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

## Water Quality and Groundwater Resources

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### HWQ-1

Before discharging any dewatered effluent to surface water, the Project Partners will obtain a Low Threat Discharge and Dewatering NPDES permit or an Individual Permit from the Central Valley RWQCB if the dewatering is not covered under the RWQCB's NPDES Construction General Permit. The dewatering permit will include water quality monitoring to adhere to the effluent and receiving water quality criteria outlined in the permit. As part of the permit, the permittee will design and implement measures as necessary to meet the discharge limits identified in the relevant permit. For example, if dewatering is needed during the construction of a cutoff wall, the dewatering permit would require treatment or proper disposal of the water prior to discharge if it is contaminated. These measures will represent the best available technology that is economically achievable to achieve maximum sediment removal.

Measures could include retaining dewatering effluent until particulate matter has settled before it is discharged, use of infiltration areas, and other BMPs. Final selection of water quality control measures will be subject to approval by the Central Valley RWQCB. USACE will verify that coverage under the appropriate NPDES permit has been obtained before allowing dewatering activities to begin. USACE or its authorized agent will perform routine inspections of the construction area to verify that the water quality control measures are properly implemented and maintained. USACE will notify its contractors immediately if there is a non-compliance issue and will require compliance.

**Implementation Timing:** D, P, C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

## Noise

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### NOI-1

The Project Partners would require construction contractors to implement measures at each work site to avoid and minimize construction noise and vibration effects on sensitive receptors. Prior to the start of construction, the construction contractor will prepare a noise control plan to identify feasible measures to reduce construction noise, when necessary. The measures in the plan would apply to construction activities within 500 feet of a sensitive receptor, including, but not limited to, residences. These measures may include, but are not limited to, the following:

- Provide written notice to residents within 1,000 feet of the construction zone, advising them of the estimated construction schedule. This written notice would be provided within 1 week to 1 month of the start of construction at that location.
- Display notices with information including, but not limited to, contractor contact telephone number(s) and proposed construction dates and times in a conspicuous manner, such as on construction site fences.
- Schedule the loudest and most intrusive construction activities during daytime hours (7:00 a.m. to 7:00 p.m.) Monday through Friday, when feasible.
- Require that construction equipment be equipped with factory-installed muffling devices, and that all equipment be operated and maintained in good working order to minimize noise generation.
- Locate stationary noise-generating equipment as far as practicable from sensitive receptors.
- Limit unnecessary engine idling (i.e., more than 5 minutes) as required by State air

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quality regulations.

- Employ equipment that is specifically designed for low noise emission levels, when feasible.
- Employ equipment that is powered by electric or natural gas engines, as opposed to those powered by gasoline fuel or diesel, when feasible.
- If the construction zone is within 500 feet of a sensitive receptor, place temporary barriers between stationary noise equipment and noise sensitive receptors to block noise transmission, when feasible, or take advantage of existing barrier features, such as existing terrain or structures, when feasible.
- If the construction zone is within 500 feet of a sensitive receptor, prohibit use of backup alarms and provide an alternate warning system, such as a flagman or radar-based alarm that is compliant with State and Federal worker safety regulations.
- Locate construction staging areas as far as practicable from sensitive receptors.
- Design haul routes to avoid sensitive receptors, to the extent practical.
- To the extent feasible and practicable, the primary construction contractors would employ vibration-reducing construction practices such that vibration from construction complies with applicable noise-level rules and regulations that apply to the work, including the vibration standards established for construction vibration-sources by the applicable agencies (City of Sacramento and Sacramento County), depending on the jurisdictional location of the affected receptor(s), and the California Department of Transportation's (Caltrans) Transportation and Construction Vibration Guidance Manual, which identifies maximum vibration levels of 0.2 to 0.5-inch per second Peak Particle Velocity (PPV) for minimizing damage to structures. Project construction specifications would require the contractor to limit vibrations to less than 0.2-inch per second PPV, and less than 72 vibration decibels (VdB) within 50 feet at any building. If construction would occur within 50 feet of any occupied building, the contractor would prepare a vibration control plan prior to construction. The plan would include measures to limit vibration, including but not limited to the following:
  - Numerical thresholds above which the contractor would be required to document vibration sources and implement measures to reduce vibration, and above which work would be required to stop for consideration of alternative construction methods.
  - Avoid vibratory rollers and packers near sensitive areas to the maximum extent practicable.
  - Route heavily loaded trucks away from residential streets, if possible. If no alternatives are available, select streets with the fewest homes.
  - A voluntary pre- and post-construction survey would be conducted to assess

the existing condition of structures prior to construction and potential architectural/structural damage induced by levee construction vibration at each structure within 100 feet of construction activities, including staging areas. The survey would include visual inspection of the structures that could be affected and documentation of structures by means of photographs and video. This documentation would be reviewed with the individual owners prior to any construction activities. Post-construction monitoring of structures would be performed to identify (and repair, if necessary) damage, if any, from construction activities. Any construction-related damage would be documented with photographs and video. This documentation would be reviewed with the individual property owners.

- Place vibration monitoring equipment in lines approximately parallel to the levee alignment at intervals not to exceed 200 feet along the construction limits, including active staging areas. Vibration monitors will be operational at all times during the performance of construction activities. The contractor will monitor and record vibrations continuously.

**Implementation Timing:** P, C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

## Recreation

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### REC-1

The Project Partners will implement the following measures to reduce temporary, short-term construction effects on recreation facilities in the Project Area:

- Provide marked detours for all bike trails and on-street bicycle routes that are temporarily closed during construction. Detours should be developed in consultation with the City of Sacramento Bicycle and Pedestrian Coordinator at least 10 days before the start of construction activities, as applicable. Post signs that clearly indicate closure routes at major entry points for bicycle trails, post information signs to notify motorists to share the road with bicyclists where necessary and provide a contact number to call for questions or concerns.
- Post signs at major entry points for parks and recreation facilities, and boat ramps clearly indicating closures and estimated duration of closures. Information signs would notify the public of alternate parks and recreation sites, including boat launch ramps, and provide a contact number to call for questions or concerns.
- Upon completion of levee improvements, coordinate with the City of Sacramento to

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restore access and repair any construction-related damage to recreational facilities to pre-project conditions.

**Implementation Timing:** C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

## Transportation and Circulation

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### TR-1

Before the start of project-related construction activities, the Project Partners would require the contractor to prepare a Traffic Control and Road Maintenance Plan. This plan would describe the methods of traffic control to be used during construction. All on-street construction traffic would be required to comply with the local jurisdiction's standard construction specifications. The items listed below would be included in the plan and as terms of the construction contracts:

- Follow the standard construction specifications of affected jurisdictions and obtain the appropriate encroachment permits, if required. Incorporate the conditions of the encroachment permit into the construction contract. Encroachment permit conditions would be enforced by the agency that issues the encroachment permit.
- Provide adequate parking for construction trucks, equipment, and construction workers within the designated staging areas throughout the construction period. If inadequate space for parking is available at a given work site, the construction contractor would provide an off-site staging area and as needed, coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site.
- Proposed lane closures would be coordinated with the appropriate jurisdiction and be minimized to the extent possible during the morning and evening peak traffic periods. Construction specifications would limit lane closures during commuting hours where feasible, and lane closures would be kept as short as possible. If a road must be closed, detour routes and/or temporary roads would be made to accommodate traffic flows. Signs would be provided to direct traffic through detours.
- Post signs providing advance notice of upcoming construction activities at least 1 week in advance so that motorists are able to avoid traveling through affected areas during these times.
- Provide bicycle detours to allow for continued use by bicycle commuters. Maintain

safe pedestrian and bicyclist access around the construction areas at all times. Construction areas would be secured as required by the applicable jurisdiction to prevent pedestrians and bicyclists from entering the work site, and all stationary equipment should be located as far away as possible from areas where bicyclists and pedestrians are present.

- Notify (by means such as physical signage, internet postings, letters, or telephone calls) and consult with emergency service providers to inform them of construction activities, maintain emergency access, and facilitate the passage of emergency vehicles on city streets during construction activities. Emergency vehicle access would be made available at all times.
- The construction contractor would document pre- and post- construction conditions on roadways used during construction. This information would be used to assess damage to roadways used during construction. The contractor would repair all potholes, fractures, or other damages.
- Comply with Caltrans requirements by submitting this Traffic Control and Road Maintenance Plan to California Department of Transportation (Caltrans) for review to traffic controls and cover points of access from the State highway system (State Route [SR] 160 and I-5) for haul trucks and other construction equipment.

**Implementation Timing:** P, C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE

## Public Utility Service Systems

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### UTL-1

The Project Partners will implement the measures listed below before construction begins to avoid and minimize potential damage to utilities, infrastructure, and service disruptions during construction.

- Coordinate with applicable utility and service providers to implement orderly relocation of utilities that need to be removed or relocated.
- Provide notification of any potential interruptions in service to the appropriate agencies and affected landowners.
- Verify through field surveys and the use of the Underground Service Alert services the locations of buried utilities in the Project Area, including natural gas, petroleum, and sewer pipelines. Any buried utility lines would be clearly marked in the area of construction (e.g., in the field) and on the construction specifications in advance of

any earthmoving activities.

- Before the start of construction, prepare and implement a response plan that addresses potential accidental damage to a utility line. The plan would identify chain-of-command rules for notification of authorities and appropriate actions and responsibilities regarding the safety of the public and workers. A component of the response plan would include worker education training in response to such situations.
- Stage utility relocations during project construction to minimize interruptions in service.
- Communicate construction activities with first responders to avoid response delays due to construction detours.

**Implementation Timing:** P, C

**Responsible for Mitigation:** USACE

**Responsible for Monitoring/Reporting Action:** CVFPB, USACE