

Final

**American River Common Features Project
Sacramento, California
Sacramento River Erosion Contract 4
Supplemental Environmental Assessment XII**



September 2023



**US Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, CA 95814**

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Abbreviations and Acronyms

AALWSE	Average Annual Low Water Surface Elevation
APE	Area of Potential Effects
ARCF	American River Common Features
BAAQMD	Bay Area Air Quality Management District
BMPs	Best Management Practices
BiOp	Biological Opinion
CalEEMod	California Emissions Estimator Model
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CVFPB	Central Valley Flood Protection Board
CY	Cubic Yards
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	Executive Order
FONSI	Finding of No Significant Impact
ft	Feet (or foot)
GRR	General Reevaluation Report
HPMP	Historic Properties Management Plan
HPTP	Historic Property Treatment Plan
IWM	Instream Woody Material
lbs	Pounds
NAVD	North American Vertical Datum
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NMFS	National Marine Fisheries Service
NOx	Nitrous Oxides
OHWM	Ordinary High Water Mark
PA	Programmatic Agreement
PM	Particulate Matter
SAFCA	Sacramento Area Flood Control Agency
SEA	Supplemental Environmental Assessment
SEIR	Supplemental Environmental Impact Report
SHPO	State Historic Preservation Officer
SMAQMD	Sacramento Air Quality Management Districts
SR	Sacramento River
SREL	Sacramento River East Levee
SWPPP	Stormwater Pollution Prevention Plan
USACE	US Army Corps of Engineers
USC	United States Code
USFWS	US Fish and Wildlife Service
WOTUS	Waters of the United States
WRDA	Water Resources Development Act
WSE	Water surface elevation
YBCU	Western Yellow-billed Cuckoo

1 Introduction

1.1 Summary

Due to its location at the confluence of the American and Sacramento Rivers, the Sacramento, California metropolitan area is one of the most at-risk areas for flooding in the United States. To address this, Congress first authorized the American River Common Features (ARCF) project in the Water Resources Development Act (WRDA) of 1996 to remedy levee seepage and instability along the American and Sacramento Rivers in Sacramento and surrounding areas. High water in 1997 stressed the flood risk management system and revealed additional issues to be addressed. The U.S. Army Corps of Engineers (USACE) completed a General Reevaluation Report (GRR) in 2015 and an associated Final Environmental Impact Statement / Environmental Impact Report in 2016 (2016 ARCF FEIS/EIR). The GRR determined that seepage, stability, and overtopping protection measures were needed along the Sacramento River, the east bank of the Natomas East Main Drainage Canal, and Arcade Creek. It also determined that overtopping protection measures were needed along the Magpie Creek Diversion Channel and erosion protection measures were needed along the American and Sacramento Rivers. Section 1401(2)(7) of the WRDA of 2016 (Public Law 114-322) authorized construction of the recommended plan described in the GRR. The 2016 ARCF FEIS/EIR analyzed the alternatives for flood risk reduction and identified the 2015 GRR Recommended Plan as the National Environmental Policy Act (NEPA) preferred alternative.

The ARCF project is being implemented through a series of construction contracts: North Area Streams Reach I (Magpie Creek Contract); Lower American River Erosion Protection Contracts 1, 2, 3A, 3B, and 4; Sacramento River East Levee (SREL) Seepage, Stability, and Overtopping Contracts 1, 2, 3, and 4; Sacramento River Erosion Protection Contracts (SR Erosion Contracts) 1, 2, 3, and 4; and a contract to widen the Sacramento Weir and Bypass. This Supplemental Environmental Assessment (SEA) is focused on SR Erosion Contract 4. An overview of the contracts awarded under the ARCF project and their associated supplemental NEPA documents is in Appendix A.

Sacramento River Erosion Contract 4 is one of four contracts within the overall ARCF project intended to address erosion along the Sacramento River east levee between the confluence of the Sacramento and American Rivers to Freeport, California. A Supplemental Environmental Assessment / Supplemental Environmental Impact Report (SEA/SEIR) was completed in June 2021 for SR Erosion Contract 1, which was constructed in Summer 2022. An SEA/SEIR for SR Erosion Contract 2 was completed in October 2022, and construction is anticipated for 2023 and 2024. SR Erosion Contract 3 encompasses the remaining work authorized along the Sacramento River and will be included in a Supplemental Environmental Impact Statement / Subsequent Environmental Impact Report (SEIS/SEIR) along with the remaining ARCF work along the American River, Magpie Creek, and potential mitigation sites along the Sacramento and American Rivers. The Notice of Intent for the upcoming SEIS/SEIR was published

in the Federal Register on October 7, 2022. The remainder of the SR erosion construction is planned for 2025 and 2026.

This SEA is based on 65 percent (%) designs and tiers off the 2016 ARCF FEIS/EIR and the SEAs for SR Erosion Contracts 1 and 2. The No Action Alternative in this SEA consists of the Recommended Plan analyzed in the 2016 ARCF FEIS/EIR. The Action in this SEA comprises two proposed alternatives, which consist of design refinements or elements not analyzed in the original 2016 ARCF FEIS/EIR. Both alternatives include the following elements: a staging area and access route, and a modified bank revetment design. Alternative 1 differs from Alternative 2 in the erosion protection method it would employ above the average annual low water surface elevation (AALWSE). Above this elevation, Alternative 1 features the placement of quarry stone, while Alternative 2 features a biotechnical alternative to stone. Since publication of the Draft SEA, Alternative 2 has been refined. Alternative 2 is the preferred alternative. The Alternatives are described in more detail in Section 2.

This document analyzes the effects of the Proposed Action Alternatives on the following affected resources: Water Quality, Vegetation and Wildlife, Fisheries, Special Status Species, Cultural Resources, Air Quality, and Recreation. A Finding of No Significant Impact (FONSI) may be prepared when an action would not have a significant effect on the human environment and for which an environmental impact statement will not be prepared. The analysis in this document indicates that neither proposed alternative results in greater impacts than those already described in the 2016 ARCF FEIS/EIR, and that a FONSI is merited.

This document refers to various water surface elevations. Sometimes different terms are used to identify the same water surface elevation. Below is a list of the water surface elevation terms used in this SEA. Note that all elevations presented are consistent with the North American Vertical Datum of 1988 (NAVD 88).

Water surface elevation (WSE)	7 ft
Summer water surface elevation	7 ft
Average annual low water surface elevation (AALWSE)	7 ft
Ordinary high water mark (OHWM)	23.25 ft
Mean high tide line (MHTL)	7.66 ft

1.2 Project Area

Sacramento River Erosion Contract 4 (Figure 1) footprint is adjacent to the Little Pocket neighborhood in the city of Sacramento, CA, along the east bank of the Sacramento River. The construction zone is approximately five miles downstream from the confluence of the Sacramento and American Rivers, and just upstream from Chicory Bend. It includes 0.3 miles of the 10 miles of the Sacramento River east levee identified for erosion protection in the 2016 ARCF FEIS/EIR. Figure 4 contains a detailed map of the project footprint and surrounding area.

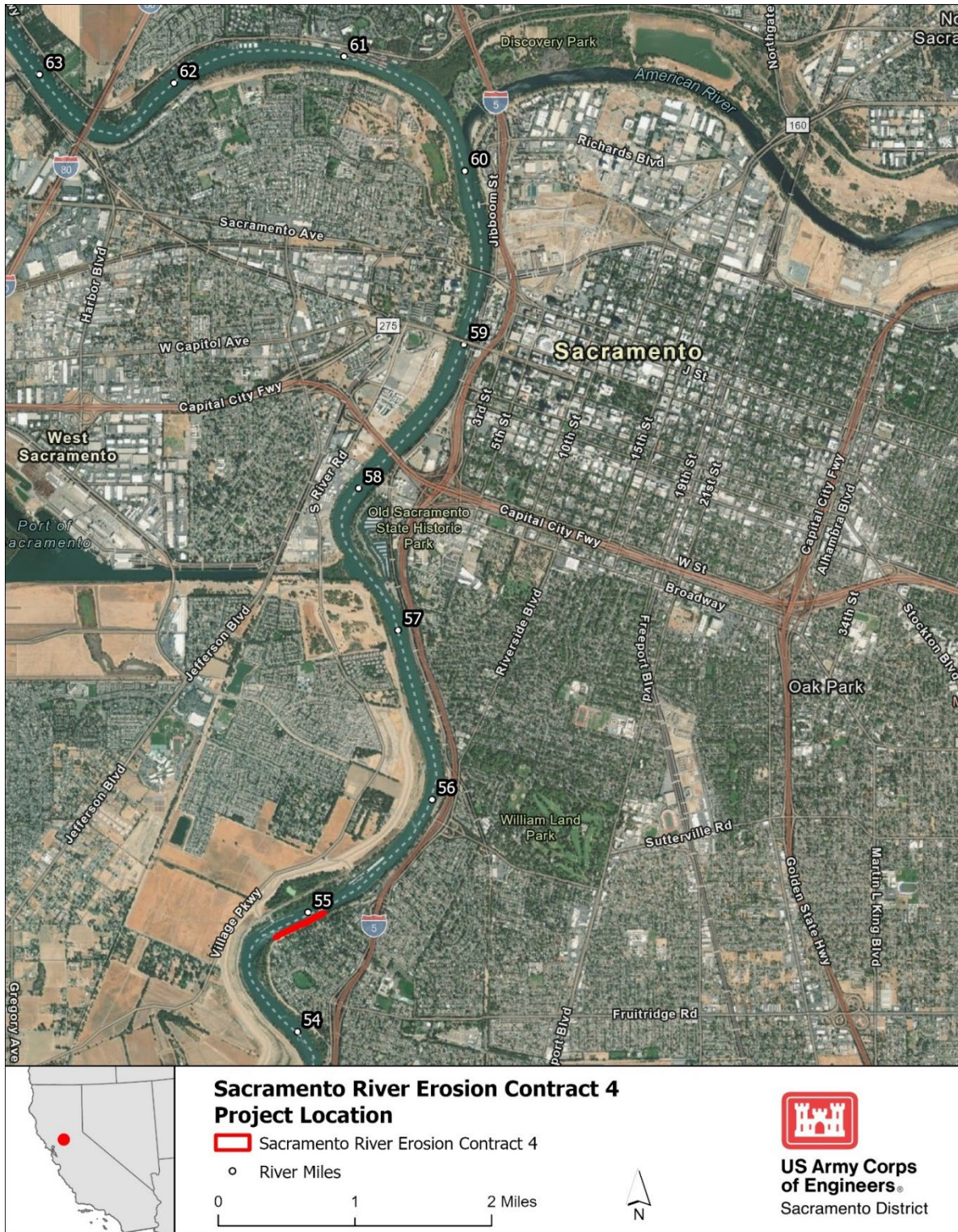


Figure 1. Location of SR Erosion Contract 4.

1.3 Background

The 2016 ARCF FEIS/EIR identified the locations of proposed improvements to the flood risk infrastructure in the Sacramento area and analyzed anticipated impacts of those improvements. However, some project details were not known prior to the design phases for each individual contract or portion of the authorized work. As projects reached their 65% design milestones, numerous supplemental NEPA assessments have been prepared to describe and analyze project details not previously described in the original FEIS/EIR. The proposed Alternatives in this SEA identify new and updated design elements being considered for SR Erosion Contract 4 to ensure full project compliance with NEPA.

1.4 Authority

The American River Watershed Common Features Project was authorized by WRDA 2016, Pub. L. No. 114-322 § 1322, also known as the Water Infrastructure Improvements for the Nation Act (WIIN Act), and related authorities. In July 2018, Congress granted USACE full funding to complete urgent flood control projects under the Bipartisan Budget Act of 2018 (Public Law 115-123).

1.5 Project Need and Purpose

The purpose of SR Erosion Contract 4 is to decrease flood risk to people and property in the Little Pocket neighborhood of Sacramento by increasing resiliency to high river flows and boat wake erosion along a 0.3 mile stretch (approximately 1,500 linear feet) of the Sacramento River's east levee. Sacramento River Erosion Contract 4 work will focus on a straight section of the Sacramento River beginning about a quarter mile downriver from Scotts Seafood Restaurant and extending to the northernmost part of Chicory Bend Park in the Little Pocket Neighborhood of Sacramento (see Figure 1). The riverbanks toe and mid-bank within the project area were identified as having the greatest erosion potential due to both fluvial processes and boat wake. These processes have led to exposed rootballs and bank erosion in this portion of the river, which has an extremely narrow floodplain.

1.6 Purpose of the Supplemental Environmental Assessment

Two alternatives are described for addressing riverbed scour and for preventing boat wake erosion above the summer water surface. This SEA evaluates the anticipated environmental effects of these two Alternatives as well as the No Action Alternative (described in Section 2, below) on affected resources. It also identifies measures to avoid or reduce adverse effects of the Alternatives to a less-than-significant level, where practicable. This SEA has been prepared in accordance with the requirements of NEPA and fully discloses the reasonably foreseeable environmental effects of the Alternatives to the public.

1.7 Related Documents

The ARCF 2016 project is designed to reduce flood risk within the Sacramento Metropolitan Area. An overview of the elements within ARCF, the individual contracts

and their associated supplemental NEPA documents, is included in Appendix A. The following is a list of NEPA studies focused on the Sacramento River projects:

- December 2015 (revised May 2016), American River Watershed Common Features General Reevaluation Report, Final Environmental Impact Statement/Environmental Impact Report (2016 FEIS/EIR).
- July 2016, Final Environmental Impact Report, North Sacramento Streams, Sacramento River East Levee, Lower American River, and Related Flood Improvements Project. Prepared for the Sacramento Area Flood Control Agency (SAFCA) by GEI Consultants.
- August 2016, Record of Decision on ARCF GRR 2015 FEIS/EIR signed by Assistant Secretary of the Army (Civil Works), Jo-Ellen Darcy.
- February 2019, Final Supplemental Environmental Assessment/Initial Study, ARCF Seepage Stability Berm, Reach D Contract 1.
- June 2019, Final Supplemental Environmental Assessment/Initial Study, ARCF 2016 Project Beach Stone Lakes Mitigation Site.
- November 2019, Supplemental Environmental Assessment/Environmental Impact Report American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee (SREL) Contract 1. Prepared by GEI Consultants.
- October 2020, Supplemental Environmental Assessment/Environmental Impact Report American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee (SREL) Contract 2.
- May 2021, Final Supplemental Environmental Impact Statement/ Environmental Impact Report, American River Watershed Common Features, Water Resources Development Act of 2016 Project Sacramento Weir Widening. (State Clearinghouse Number 2020070575).
- June 2021, Final Supplemental Environmental Assessment/ Supplemental Environmental Impact Report, American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River Erosion Contract 1.
- August 2021, Supplemental Environmental Assessment/Environmental Impact Report American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee (SREL) Contract 3.

- September 2022, Supplemental Environmental Assessment, American River Common Features, Water resources Development Act of 2016 Project, Sacramento River East Levee (SREL) Contract 4.
- October 2022, Supplemental Environmental Assessment, American River Common Features, Water Resources Development Act of 2016 Project, Sacramento River Erosion Contract 2.

1.8 Decision Needed

The District Engineer, Commander of the Sacramento District, USACE, must decide whether the Proposed Action qualifies for a FONSI under NEPA guidelines, or whether potentially significant effects that were not considered in the 2016 ARCF FEIS/EIR are anticipated to occur as a consequence of the construction of Alternative 1 or Alternative 2, and therefore a Supplemental EIS must be prepared.

2 Alternatives

2.1 No Action Alternative

The No Action Alternative includes all of the Sacramento River bank protection measures described in Alternative 2 in the 2016 ARCF FEIS/EIR, along with the Proposed Actions planned for SREL Seepage, Stability, and Overtopping Contracts 1 through 4, the Sacramento Weir Widening, and SR Erosion Contracts 1 and 2, to the extent those Proposed Actions are expected to affect the SR Contract 4 project area and were considered in the various Supplemental Environmental Assessments identified in Paragraph 1.7, above.

The design objectives analyzed in the 2016 ARCF FEIS/EIR address bank erosion and scour caused by high river flows, boat wake, and wave wash, using either the launchable rock trench or standard bank protection method (Figure 2). A launchable rock trench involves excavating a trench outside the river channel, filling the trench with rock down to the summer mean water surface elevation, then covering with a minimum of 3 ft of soil to allow for revegetation of the site. The rock is intended to deploy once the surrounding material is eroded away, preventing further erosion.

The standard bank protection method involves placement of rock revetment on the bank to prevent erosion. Rock would be placed from the riverbed up to the required bank elevation by an excavator on a barge, supplied by another barge holding the stockpile of rock. Once a portion of the rock is placed, providing a platform, the excavator may work from the platform. The revetment would be placed at a slope varying from 2V:1H to 3V:1H. If possible, a small planting berm would be constructed to allow for revegetation of the site. Instream woody material would be anchored into place along the shoreline to replace impacted fish habitat.

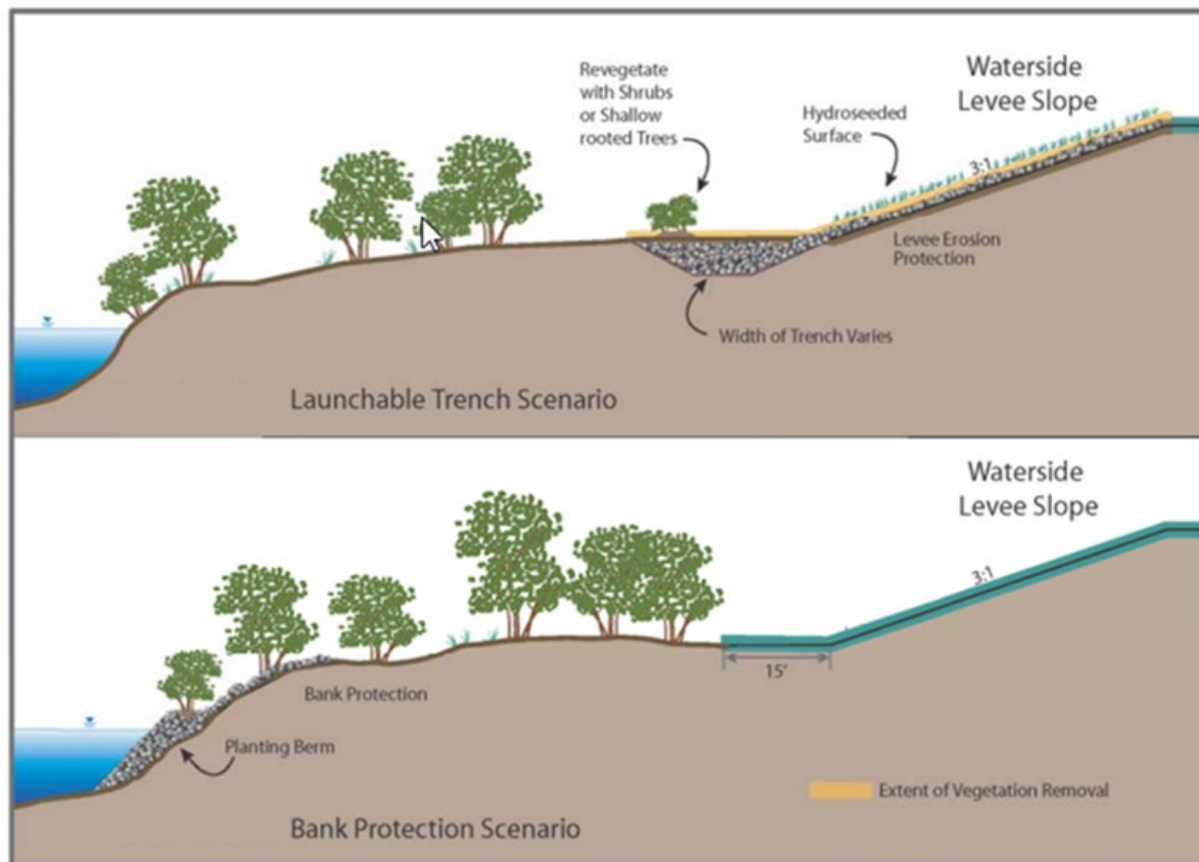


Figure 2. Launchable Rock Trench and Standard Rock Bank Protection. Typical designs for launchable rock trench and standard bank protection, the two methods analyzed in the 2016 ARCF FEIS/EIR.

2.2 Alternative 1

Alternative 1 consists of a launchable rock toe erosion protection design, which is described below and in the SR Erosion Contracts 1 and 2 SEAs and is a different erosion protection design than the design described in the 2016 ARCF FEIS/EIR. Alternative 1 also consists of project details not known at the time of that document's publication: the access route and staging area. A large part of the work would be undertaken from a barge or from equipment accessing the project footprint from the barge. The locations of the project, access route, and staging area are depicted in Figure 4. Details of Alternative 1 are described below:

Access route and staging area – The exact locations of access routes and staging areas were not identified in the 2016 ARCF FEIS/EIR. The SR Erosion Contract 4 staging area (Figure 4) would be located on the top of the levee immediately upslope from the erosion work location. The staging area would be used for personal vehicle parking, restrooms, and construction offices. The access route to the levee top (Figure 4) would be used during the vegetation removal and for employee parking during construction. From I-5, the route utilizes Seamas Avenue west to Piedmont Drive. The

access ramp to the levee top staging area is located off Piedmont Drive. Material for constructing the erosion protection would be stockpiled on barges, as all work would be completed from the river. Construction equipment would access the project footprint from the barge by utilizing a ramp. For resource protection, construction equipment would not be permitted to access the project from the land side and would not use the staging area for parking. When not in use, construction equipment will be parked on barges. Small construction equipment operating along the shoreline at or above 7 ft will be used to construct the soil bioengineering lifts.

Launchable toe erosion protection – The SR Contract 4 erosion protection would consist of 5 foot (ft) thick quarry stone riprap placed on the riverbank below the late summer/early fall water surface elevation of 7 ft (NAVD 88) along 0.3 miles of the river's left bank. On the upper riverbank between elevation 7 and 13 ft, the quarry stone would be 2.5 ft thick with an 8-inch layer of small crushed stone (i.e., choke stone) placed on top to fill gaps in the rock and aid recreational access. A launchable rock toe would be placed between the river bottom and elevation -7.9 ft to protect against toe scour. If scour occurs at the launchable toe, the rock will cover the eroded area and prevent further erosion. This is a change from the method described in the 2016 ARCF FEIS/EIR (No Action Alternative), which described standard bank protection without the added launchable toe. This method adds approximately 5 ft (measured in the horizontal direction) of rock / 0.2 acres of impact to the riverbed. Figure 5 shows an example cross section with the approximate depths and thicknesses of the rock placement. To minimize habitat impacts, in-stream woody material (IWM) would be installed into the rock to create cover and shade for fish. The IWM would consist of trees covering at least 40% of the shoreline and would maintain a 50 ft buffer around boat docks.

Tiebacks – This method for redirecting high flows was not included in the 2016 ARCF FEIS/EIR analysis. Five tiebacks would be installed on the downstream end of the SR Erosion Contract 4 riverbank and oriented slightly upstream from a line perpendicular to the bank. The purpose of the tiebacks is to deflect river flows from the riverbank. They tiebacks would address erosion caused by historic man-made rock groins in the river channel during high flow events. They would be constructed out of quarry stone and approximate dimensions are 2.5 ft in height, 5 ft wide at the top, and 13 ft wide at the bottom. The tiebacks would be placed on-grade up the bank slope to elevations ranging from 15 ft to 20 ft. Figure 3 shows an example photograph of a tieback.

Boat Dock Removal – Eight private boat docks are located in the area where the erosion protection would be constructed, and their removal is required in order for construction to occur. Permit agreements between the Central Valley Flood Protection Board (CVFPB) and owners require owners to remove the docks and ramps, and related encumbrances from the project footprint in advance of flood control projects. If an owner fails to comply with the terms of its permit, the CVFPB has indicated its intent to pursue possession through a legal condemnation process. Once complete, the CVFPB would legally possess the boat docks and related encumbrances. As a courtesy to the CVFPB and in the interest of efficiency, USACE agreed to include in its

construction contract an option line item for the USACE contractor to remove and dispose of the dock and related encumbrances. For USACE to exercise the option, the CVFPB must first submit to USACE a written request for USACE to remove and dispose of the property and provide evidence that the CVFPB has completed a legal condemnation process and thus legally possesses the property. Because movement or replacement of dock pilings would require new permits and analysis under NEPA and the California Environmental Quality Act (CEQA), if USACE, through its contract, removes and disposes of any boat dock on the CVFPB's behalf, pilings will remain in place. Following construction, the clearance between the riverbed and the water surface would change and may result in owners choosing to relocate pilings to deeper locations.



Figure 3. Photo depicting a tieback similar to those designed for SR Erosion Contract 4 (USACE 1997).

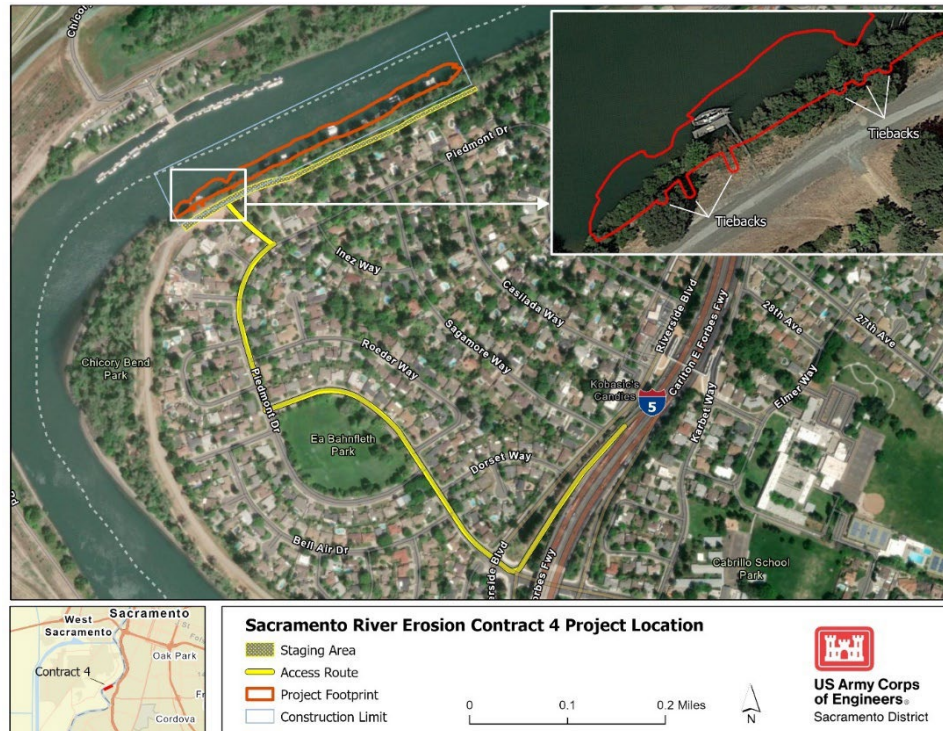


Figure 4. SR Erosion Contract 4 project location, showing access route, construction limits, project footprint, and staging area.

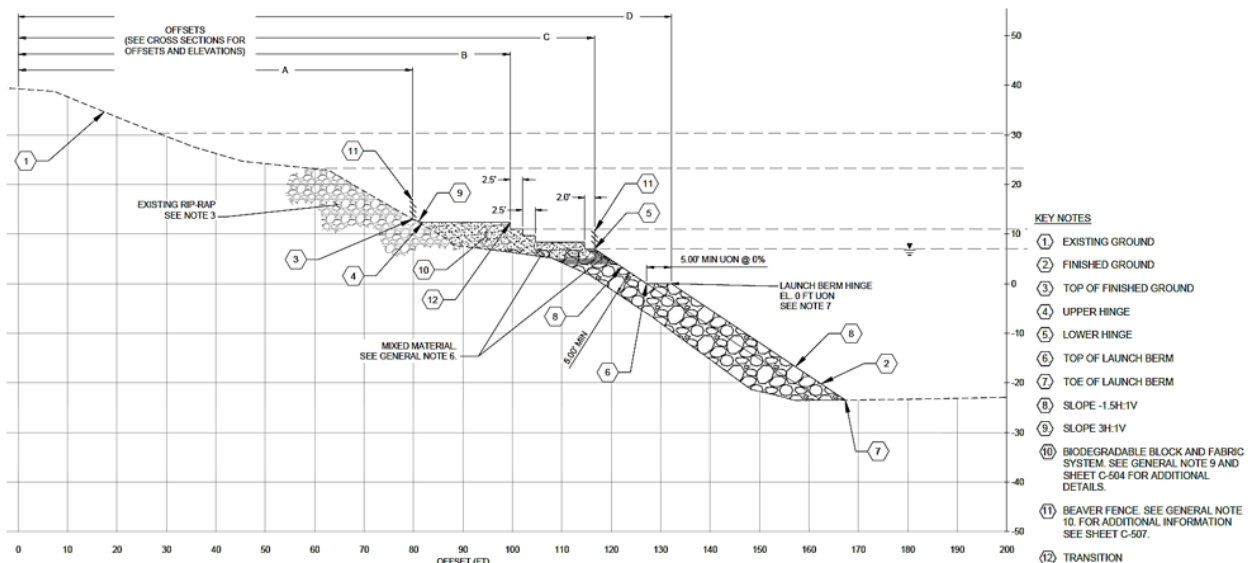


Figure 5. Example Cross Section. Figure shows show the approximate depth and thickness of rock revetment and launchable toe below 7 ft elevation (WSE). Above 7 ft, there would be either rock revetment with small crushed stone (choke stone) fill (Alternative 1), or a biotechnical erosion treatment (Alternative 2).

2.3 Alternative 2

Alternative 2 contains most elements of Alternative 1 (the launchable rock toe, staging area, access route, tiebacks, and boat dock removal remain the same), but the method of erosion control above the 7 ft summer water surface elevation would feature a biotechnical alternative to riprap. The biotechnical approach would incorporate shrub and tree plantings for bank stabilization between 7 and 13 ft (NAVD 88) in elevation. This method would utilize biodegradable coconut coir blocks secured by wooden stakes and biodegradable fabric (Figure 6) to create lifts. The lifts would be arranged in a step-pattern, starting on top of the riprap base and following the grade of the natural riverbank until approximately 13 ft elevation. Beneath the biodegradable fabric would be soil fill. Native riparian trees and shrubs would be planted into the soil and block system. Installation would require small construction equipment operating along the shoreline above 7 ft elevation to move soil and create the lifts. Over time, root growth is expected to be sufficient to control erosion on this portion of the riverbank. Each block would prevent leakage of the soil fill while providing erosion protection. This method avoids permanent vegetation, fish, and wildlife impacts above the 7 ft summer water surface elevation by avoiding the placement of rock.

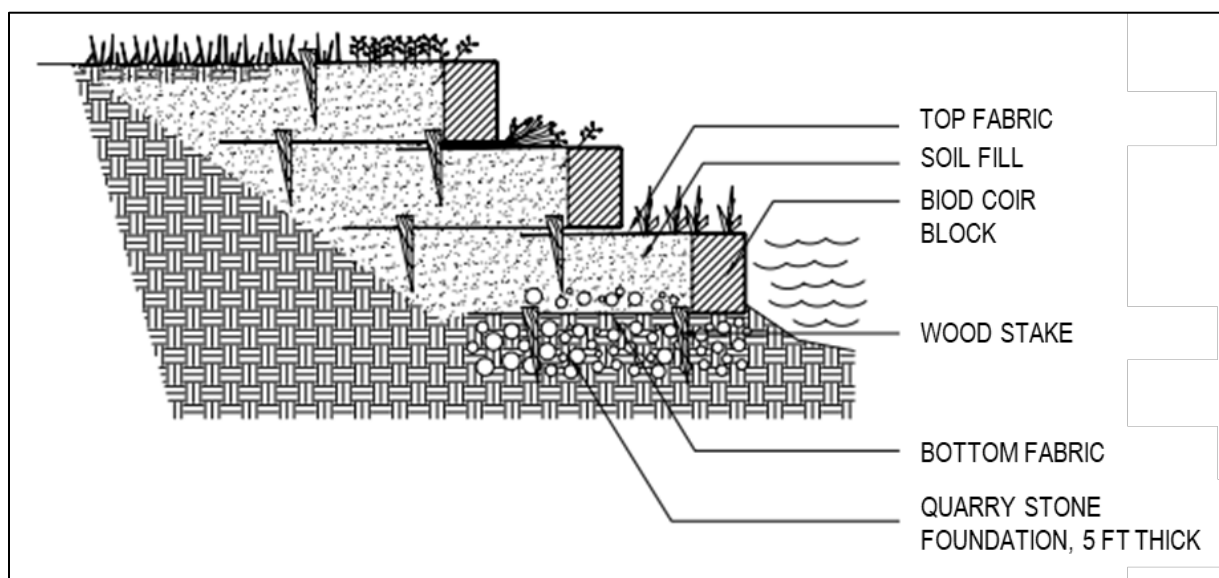


Figure 6. Diagram of the biotechnical approach of Alternative 2. Figure shows coconut coir blocks, soil fill, wooden stakes, and plantings on top of quarry stone riprap base, which extends 5 ft into the river. The dimension of each block is approximately 9 inches wide x 16 inches tall x 10 ft long.

Alternative 2 With Refinements (Preferred Alternative)

Since the draft SEA was published, additional engineering analysis has refined the design for Alternative 2. Specifically, the toe rock has increased from a top elevation of -7 ft to 0 ft. Also, the need to trim trees to enable construction equipment clearance was inadvertently omitted from the draft SEA. The increase in the launchable toe rock from

the original design elevation of -7 ft to 0 ft was required to provide satisfactory geotechnical slope stability (factor of safety of 1.2) for the worst case scenario when the launchable material would mobilize to fill in the maximum scour depth during the design flood event. Alternative 2 With Refinements is the Preferred Alternative.

3 Affected Environment and Environmental Effects

3.1 Approach to Analysis

The No Action Alternative was presented as Alternative 2 in the 2016 ARCF FEIS/EIR, and as the Action Alternatives in SREL Seepage, Stability, and Overtopping Contracts 1, 2, 3, and 4 SEA/SEIRs, the Sacramento Weir SEIS/SEIR, and the SR Erosion Contracts 1 and 2 SEA/SEIRs. The environment effects of the No Action Alternative are fully described in the above documents, as well as existing conditions, regulatory setting, and avoidance, minimization, and mitigation measures. As a supplemental NEPA document, this SEA focuses its analysis on changes to the No Action Alternative specific to SR Erosion Contract 4 that would arise if Alternative 1 or Alternative 2 were selected. The following resources are likely to be affected by Alternatives 1 and 2 and are discussed in detail below: Water Quality, Vegetation and Wildlife, Fisheries, Special Status Species, Cultural Resources, Air Quality, and Recreation. Since publication of the draft SEA refinements to Alternative 2 make it the Preferred Alternative, now called Alternative 2 With Refinements. The refinements consist of an increase in toe rock and the addition of tree trimming to enable access for construction equipment.

A table summarizing resource impacts anticipated from construction of Alternative 1 or Alternative 2 and respective mitigation measures is presented on page 30 of this document (Table 6).

3.2 Regulatory Setting

The Affected Environment and Environmental Consequences sections of the 2016 ARCF FEIS/EIR and SREL Seepage, Stability, and Overtopping Contracts 1, 2, 3, and 4 SEA/EIRs and SR Erosion Contracts 1 and 2 SEA/SEIRs sufficiently characterize the regulatory setting for the resources impacted by the proposed alternatives and require no supplemental discussion here.

3.3 Resources Not Discussed in Detail

The following resources are omitted from further discussion in this SEA because the Alternatives would not affect these resources, or the effects would be negligible or would not cause additional impacts beyond those already analyzed in the 2016 ARCF FEIS/EIR and the supplemental NEPA documents listed in Section 3.1 above: Geological Resources, Land Use, Hydrology & Hydraulics, Transportation & Circulation, Climate Change, Noise, Visual Resources, Public Utilities & Service Systems, Hazardous Wastes and Materials.

The subjects of Socioeconomics, Population, and Environmental Justice were also excluded from detailed discussion. The neighborhood adjacent to SR Erosion Contract

4 is known as the Little Pocket and is not a disadvantaged community per the Council of Environmental Quality Climate and Economic Justice Screening Tool (Figure 7; <https://screeningtool.geoplatform.gov/en/#12.98/38.5325/-121.51874>). Additionally, the area adjacent to the levee does not currently contain an unhoused community, and a city ordinance prohibits camping with 25 ft of public safety infrastructure, including levees. The levee in the Little Pocket neighborhood has historically been inaccessible to the public due to the presence of locked gates across the levee, and more recently due to ongoing construction of other phases of the ARCF 2016 project.

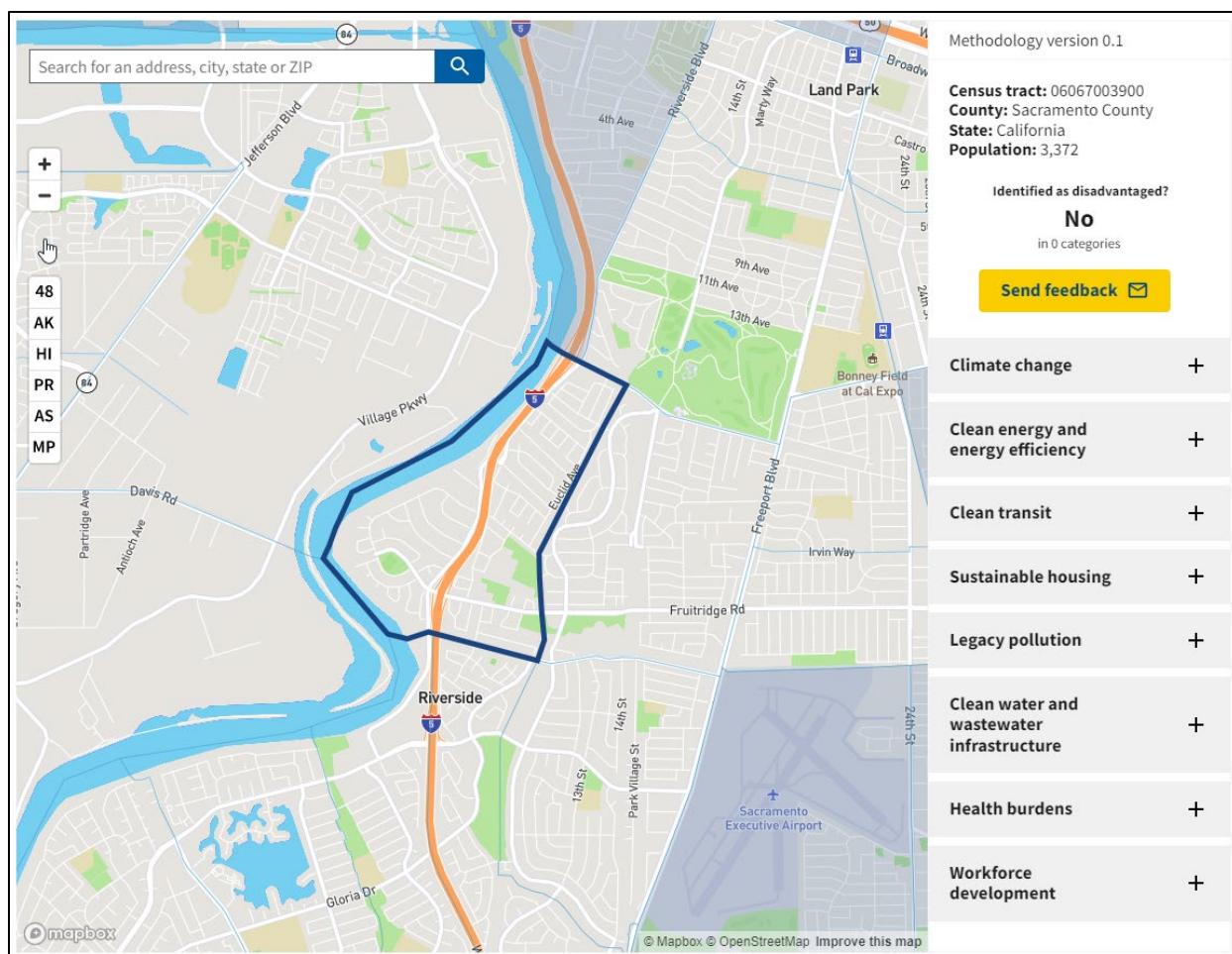


Figure 7. Map of disadvantaged communities (shaded areas) near SR Erosion Contract 4. The census tract surrounding SR Erosion Contract 4 is outlined in dark blue. (Source: Council on Environmental Quality (CEQ) Climate and Economic Justice Screening Tool).

3.4 Water Quality and Groundwater Resources

3.4.1 Existing Conditions

The environmental and regulatory framework described in Section 3.5, Water Quality and Groundwater Resources, of the 2016 ARCF FEIS/EIR are generally applicable to the analysis in this SEA and therefore are not repeated here.

3.4.2 Environmental Effects

No Action Alternative

The 2016 ARCF FEIS/EIR evaluated the effects of construction activities to ground water quality and found there was minimal risk to groundwater. Effects to surface water were analyzed in the 2016 ARCF FEIS/EIR and in the proposed actions discussed in SR Erosion Contracts 1 and 2 SEAs. The surface water quality constituents most likely to be affected by construction activities are turbidity and water temperature, due to barge movement and anchoring, placement of rock, runoff, and vegetation removal. It was anticipated that shrubs and grasses, which do not contribute significantly to shade, would be removed. Trees, the primary contributors to shade, were assumed to be protected in place. By implementing the avoidance and minimization measures identified in Section 3.5.6 of the ARCF 2016 FEIS/EIR and in the related SEAs, effects to water quality would be reduced to less than significant.

Alternative 1

Water Quality effects anticipated from Alternative 1 would result from all the actions discussed in the No Action Alternative and the following project details. The staging area would be located on the levee top and would be used for personal vehicle parking, temporary offices, a restroom, and large truck access during tree removal. To avoid disturbance of soil and vegetation, construction vehicles will not be permitted to drive from the staging area to the work site. No materials would be stored at the staging area, which would also be subject to the same temporary stormwater pollution protection measures as the construction site.

The launchable toe and tiebacks would be constructed by equipment operating on the barge or by accessing the project footprint from the barge. Rock placement would be at grade, would not require excavation, and would be undertaken from the waterside to minimize ground disturbance. Impacts to turbidity, as well as avoidance and minimization measures, would be similar to those analyzed in the 2016 ARCF FEIS/EIR.

Removal of boat docks would decrease shading during the construction season and may result in slight increases in water temperature along the shoreline, but the effects would be local and temporary. The rock placement on the riverbank would require the removal of approximately 31 trees, resulting in some decrease in shade near the shoreline, but it is not likely this would result in significant water temperature impacts.

As shown in the habitat impact map in Appendix B, the overall proportion of canopy to be removed is small compared to the length of the site. Most of the trees planned for removal are surrounded by other trees whose canopies would grow to fill the gaps in sunlight. The overhanging canopy is small when compared to the width of the river, which is approximately 450 ft wide. Tree removal would impact approximately 0.4 acres of canopy, which would be compensated for by establishing riparian habitat at an off-site mitigation area or by purchasing mitigation bank credits. For these reasons, direct and indirect impacts to water quality due to Alternative 1 would be short-term (occurring in one construction season) and minor (may cause increased turbidity but unlikely to exceed water quality standards continuously) making the impact overall less than significant.

Alternative 2

Alternative 2 would cause the same impacts to water quality below the river's summer water surface elevation. Above this elevation, the installation of the biotechnical riprap alternative would require the import and utilization of soil fill beneath and between biodegradable coir blocks and would avoid rock placement in this area. Like Alternative 1, water quality effects from construction are considered short-term (occurring in one construction season) and moderate (causing increased turbidity but unlikely to exceed water quality standards continuously) making the impact overall less than significant.

This erosion control method avoids tree removal, preserving the majority of the tree canopy and avoiding water temperature impacts caused by loss of shade. Refinements to Alternative 2 include trimming the trees within the project footprint during construction. This enables safe operation of construction equipment and avoids unplanned damage to trees that could adversely affect tree health. The overall effect of trimming on the tree canopy and shading would be minimal. Native shrubs and trees would be planted in the coir blocks and imported soil. Once established, these plants would develop a network of roots that would provide bank stabilization and would benefit water quality by increasing shade and decreasing turbidity. The decrease in turbidity would be achieved through the increased vegetation coverage which would slow surface water velocities during high flows and allow suspended sediment to settle out.

3.4.3 Avoidance, Minimization, and Mitigation Measures

As stated in Section 3.5.6 of the 2016 ARCF FEIS/EIR, the contractor would prepare a Stormwater Pollution Prevention Plan (SWPPP) and a Spill Prevention Control and Countermeasures Plan (SPCCP) to prevent discharges into the river and adjacent shoreline. A 404(b)(1) consistency evaluation for SR Erosion Contract 4 is included as Appendix D ensure the placement of rock revetment below the OHWM would not have significant adverse effects on the chemical, physical, and biological integrity of a Waters of the United States (WOTUS). While the USACE Civil Works program does not permit itself, it must abide by Clean Water Act Section 404(b)(1) Guidelines (40 Code of

Federal Regulations (CFR) 230). A Notice of Intent would be filed under an existing programmatic 401 Water Quality Certification from The Regional Water Quality Control Board prior to construction. In addition to the measures described in Section 3.5.6 in the 2016 ARCF FEIS/EIR, the following measures would be implemented to reduce water quality impacts from Alternatives 1 and 2 to less than significant:

- Water temperature impacts under Alternative 1 would be minimized by selective removal of trees, only removing those necessary to complete the rock placement. Compensation for any tree removal would be accomplished by purchasing mitigation bank credits as they become available, or by establishing riparian habitat at an off-site mitigation area on the Sacramento River. The upcoming ARCF SEIS/SEIR includes potential mitigation sites for the Sacramento River.
- Alternative 2 would avoid the water quality impacts that arise from the more conventional soil or stone-filled riprap, as the soil or stone can wash away from between gaps in the rock. The fabric and coir blocks would stabilize the soil until root growth is sufficient to prevent erosion.
- Equipment would access the project site from barges to minimize ground and vegetation disturbance. Equipment would not be permitted to access the project site from the levee top.
- Materials such as rock and soil would be stockpiled on barges with containment measures to prevent material spillage into the river.

3.5 Vegetation and Wildlife

3.5.1 Existing Conditions

The environmental and regulatory framework discussed in Section 3.6 of the 2016 ARCF FEIS/EIR is applicable to the analysis in this SEA and is not repeated here. Detailed habitat maps are included in Appendix C of the 2016 ARCF FEIS/EIR.

The Fish and Wildlife Coordination Act of 1958 (16 United States Code (USC) 661 *et seq.*), as amended, requires that recommendations from the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) be considered when evaluating effects and mitigation needs for habitat under the jurisdiction of these services. The 2015 USFWS Final Coordination Act Report (CAR) was included as Appendix A in the 2016 ARCF FEIS/EIR. Updated Biological Opinions from NMFS and USFWS were completed in 2021 to address impacts to listed species habitats.

The ARCF project, including SR Erosion Contract 4, will comply with the recommendations of the CAR and with the NMFS and USFWS Biological Opinions. The vegetation within the project footprint consists largely of non-native trident maple trees (*Acer buergerianum*), with several valley oak trees (*Quercus lobata*). Much of the understory is manicured grass with shrubs growing closer to the river. The downstream riverbank is much steeper, dominated by shrub and herbaceous vegetation, and lacks significant tree cover. Wildlife is limited to small mammals and various avian species.

3.5.2 Environmental Effects

No Action Alternative

The 2016 ARCF FEIS/EIR determined that the project would have significant impacts to vegetation and wildlife because of the temporal lag between tree removal and the time required to re-establish habitat values. The document stated that birds would be the primary type of wildlife affected due to the urban environment along the Sacramento River. For the portion of the Sacramento River containing SR Erosion Contract 4, an estimated 13.2 acres of riparian habitat would be impacted. Section 3.6.4 stated that approximately 930 large trees would be left in place on the lower one-half waterside slope, with rock placed around the base of the trees. The understory vegetation would be removed to provide a clean surface for rock placement. The 2016 FEIS/EIR concluded that effects on vegetation and wildlife would be significant in the short term and less than significant in the long term with implementation of compensatory mitigation.

Alternative 1

The access routes and levee top staging area would use developed surfaces without vegetation and would not impact vegetation or wildlife. Removal of boat docks and associated infrastructure would occur from the river and would not affect vegetation or wildlife.

Removal of understory vegetation was discussed in the 2016 ARCF FEIS/EIR. Under Alternative 1, approximately 31 trees would also be removed within the construction footprint to facilitate rock placement by barge. This would result in approximately 0.4 acres of riparian canopy removal, which overlaps with western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) habitat, discussed in the Special Status Species section (3.7) of this document. Canopy removal would indirectly affect wildlife by reducing perching and nesting opportunities for birds and reduce cover for mammals living and moving along the river's shoreline. Because tree removal involves selected trees, growth from the surrounding trees would fill in some of the gaps in canopy over time.

The launchable rock toe would be placed on the riverbed from a barge and its construction would not affect vegetation and non-aquatic wildlife. However, this design refinement would directly impact the benthic habitat in the footprint of the rock toe. Construction of the tiebacks at the downstream end of the project slightly expands the project footprint, but placement of these features can be finessed to avoid removing large numbers of trees. Vegetation impacts would be limited to shrub removal in the small footprint of the tiebacks. Tieback construction would not lead to increased vegetation and wildlife effects beyond those discussed in the 2016 ARCF FEIS/EIR. With mitigation for the tree removal described below, the effects of Alternative 1 to vegetation and wildlife would be mid-term (approximately 10 years) and moderate (affecting a small number of trees), making the effect to vegetation less than significant.

Alternative 2

The effects to vegetation and wildlife caused by the location of the access route, staging area, and tiebacks remain the same as for Alternative 1 because these details do not differ. The primary difference between the two alternatives is that the erosion protection measures for the elevation between 7 and 13 ft (NAVD 88) result in permanent vegetation impacts under Alternative 1, while Alternative 2 would cause only temporary impacts to shrub cover and would allow trees to remain. Refinements to Alternative 2 since publication of the Draft SEA include trimming the trees within the project footprint. This enables safe operation of construction equipment and avoids unplanned branch breakage that could adversely affect tree health. Alternative 2 avoids adverse impacts to 0.4 acres of riparian canopy.

The biotechnical treatment under Alternative 2 would require removal of the existing understory to provide a clear surface to construct, but trees would be protected in place. Therefore, the short-term effects to vegetation would be similar to those analyzed in the 2016 ARCF FEIS/EIR. This method relies on planted native shrubs and trees to provide the bank stabilization. Once established, denser native vegetation is anticipated, and increased tree coverage would eventually yield a more complex habitat than the present. The effects of Alternative 2 would be beneficial to vegetation and wildlife in the long term, but would cause mid-term, moderate adverse effects from vegetation removal similar to the No Action Alternative.

3.5.3 Avoidance, Minimization, and Mitigation Measures

The design of SR Erosion Contract 4 underwent refinements to achieve as small a project footprint as possible to minimize the acreage of impacted habitat. Compensation for vegetation removal required under Alternative 1 would be achieved by the construction of off-site mitigation at potential mitigation sites currently being considered, or by purchasing credits at a mitigation bank at the recommended ratios specified in the USFWS and NMFS Biological Opinions and USFWS Coordination Act Report. Alternative 2 utilizes a technique that would avoid tree removal associated with standard rock placement, while also improving vegetation coverage in the long-term. Alternative 2 would not require mitigation for permanent impacts to vegetation.

For both Alternatives 1 and 2, the placement of rock would be accomplished by waterside barge or by equipment accessing the project site directly from the barge, minimizing ground and vegetation disturbance to the project area. Tree removal would require dragging trees to the levee top to be hauled away by truck, utilizing city streets. For Alternative 1, tree removal would occur during the winter months immediately prior to the summer construction season, minimizing the amount of time the construction area is unvegetated. Winter tree removal also avoids effects to bats and nesting birds by avoiding the time of year when they are present. Work windows will be discussed further in Section 3.7.3. For both Alternatives, the remaining vegetation would be removed during site preparation by grubbing the area immediately prior to construction.

A biologist will be present to prevent impacts to nesting birds, which may be present at the time of the vegetation removal. Material removed during grubbing would be transported off-site by barge.

3.6 Fisheries

3.6.1 Existing Conditions

The environmental and regulatory framework described in Section 3.7 of the 2016 ARCF FEIS/EIR is applicable to the analysis in this SEA and is not repeated here. The Sacramento River, including the construction footprint of SR Erosion Contract 4, is designated as essential fish habitat (EFH) for Pacific coast salmon. A Magnuson-Stevens Act consultation with NMFS for EFH conservation was completed on May 12, 2021.

3.6.2 Environmental Effects

No Action Alternative

The No Action Alternative includes the work and fisheries impacts described in Alternative 2 of the 2016 ARCF FEIS/EIR, the SREL Seepage, Stability, and Overtopping Contracts 1 through 4 SEAs, and the SR Erosion Contracts 1 and 2 SEAs. These documents determined that the ARCF project's environmental effects to fisheries would be less than significant with the mitigation measures outlined in Section 3.3.6, the water quality measures in Section 3.5.6, and the vegetation and wildlife measures in Section 3.6.6 of the ARCF FEIS/EIR.

Alternative 1

The location of the levee top staging area is on a developed surface above the OHWM, and the access route to this area uses existing developed roads. The use of the staging area and the access route would not cause impacts to fisheries.

The addition of the launchable rock toe expands the footprint of rock placed on the riverbed laterally by approximately 5 ft, as compared to the standard bank protection method analyzed in the 2016 ARCF FEIS/EIR which did not describe thicker rock placement along the riverbank's toe. The installation of the rock toe would involve the same equipment and methods as the standard bank protection. This portion of the Sacramento River is highly altered; the banks are steep due to channelization and erosion, and the entire shoreline contains existing, older riprap. The benthic habitat contains fine sediment with aquatic plant growth. The launchable rock toe would cover an additional 0.2 acres of this habitat with rock, indirectly affecting fisheries by impacting their food sources and shelter. If riverbed scour were to occur, the launchable rock toe is designed to deploy and cover the eroded area with rock. This could cause direct impacts to fish as a result of rock physically hitting fish; however, this could also occur if the river eroded into the riverbank and caused a collapse of the bank material. The five tiebacks impact the riparian zone, an important component of fish habitat, through the

addition of rock on the riverbank above 13 ft elevation (NAVD 88) and outside of the footprint of the standard bank protection. The effects of the launchable rock toe and tiebacks to fisheries would be short term and moderate and will be offset in the same manner as the special-status species mitigation, by purchasing mitigation bank credits or by establishing an off-site mitigation area on the Sacramento River, such as potential mitigation sites under consideration in the ARCF SEIS/SEIR now in preparation.

The 2016 ARCF FEIS/EIR had determined that indirect effects to native fish were less than significant because it was assumed that trees would remain in place. Riparian vegetation, particularly trees, provide numerous benefits to fish by providing shade and organic material to the river. It provides leaf litter, which is a food source for prey species, and instream woody material, which provides shelter, shade, and trapping of organic material from upstream. Under Alternative 1, up to 31 trees near the river channel would be removed, and vegetation within the footprint of the tiebacks would also be removed. Additionally, boat docks are minor sources of shade and shelter. However, the shade produced by the boat docks provides little habitat value to native fish. This is primarily because the boat docks do not provide natural organic food inputs and do provide habitat for non-native predator species. Removing shaded fish habitat would have short-term moderate adverse effects on fish habitat due to decreased shading of the channel and decreased input of organic material. Installing IWM along the shoreline and the mitigation measures discussed in Section 3.6.3 would reduce the fisheries impacts to less than significant.

Alternative 2

Like Alternative 1, no fisheries impacts from the staging area or access route is anticipated from Alternative 2. The underwater rock placement, including the launchable toe, would have the same fisheries impacts as Alternative 1 because the footprint of disturbance below 7 ft elevation are the same. The footprint of disturbance for the tiebacks are also the same. Both Alternatives incorporate IWM into the riprap along the shoreline.

Alternative 2 would not include placement of rock between 7 and 13 ft elevation and the 31 trees planned for removal in Alternative 1 would remain. Some tree trimming will occur to allow equipment access. Trimming will be accomplished from the land using hand tools, from a barge, and/or from a rock platform. The shrub understory would require removal to install the biotechnical erosion treatment; however, this effect is temporary (5 to 10 years) until the new shrub growth can reestablish. In areas which currently lack trees, the biotechnical treatment would incorporate new tree plantings to overall increase shaded riverine aquatic (SRA) habitat in the long-term. Alternative 2 would have short-term to mid-term, minor effects to fish habitat, and long-term would improve fisheries habitat by establishing long-term sources of shade, wood, and leaf litter into the river.

3.6.3 Avoidance, Minimization, and Mitigation Measures

To avoid, minimize and mitigate impacts to fisheries, USACE will implement the measures listed in the Water Quality and Vegetation and Wildlife Sections (3.5.6 and 3.6.6, respectively) of the 2016 ARCF FEIS/EIR.

Boat docks are anticipated to be replaced after construction is completed. For both alternatives, any fisheries impacts due to their removal would be temporary.

Alternative 2 is an avoidance measure in itself, as the new shrub and tree plantings would provide erosion protection while avoiding indirect fisheries impacts above the summer water elevation. For both Alternatives, the fisheries impacts due to rock placement and any removal of SRA would be compensated for under the required special-status species mitigation, along with on-site installation of IWM. With mitigation, the impacts of both alternatives would be less than significant.

3.7 Special Status Species

3.7.1 Existing Conditions

The environmental and regulatory framework described in Section 3.8 of the 2016 ARCF FEIS/EIR is applicable to the analysis in this document and is not repeated here. Federal special-status species that occur in the project area and could be impacted by construction of SR Erosion Contract 4 are the Sacramento River winter-run and Central Valley (CV) spring- and fall-runs of Chinook salmon (*Oncorhynchus tshawytscha*), CV distinct population segment steelhead (*Oncorhynchus mykiss*), southern distinct population segment green sturgeon (*Acipenser medirostris*), delta smelt (*Hypomesus transpacificus*), and Western yellow-billed cuckoo (YBCU; *Coccyzus americanus occidentalis*).

3.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the projects and impacts described in Alternative 2 of the 2016 ARCF FEIS/EIR, as well as the work performed through SREL Seepage, Stability, and Overtopping Contracts 1 through 4 and SR Erosion Contracts 1 and 2 SEAs are assumed to be complete. These documents determined that the projects' effects to federal special status species would be less than significant with the avoidance, minimization, and mitigation measures outlined in those documents and in the USFWS and NMFS biological opinions (BiOps). Table 1 summarizes the special-status species impacts under Alternatives 1 and 2.

Alternative 1

The location of the levee top staging area is on a developed surface above the OHWM, and the access route to this area uses existing developed roads. The staging area and access route would not impact federal special-status species.

Under Alternative 1, rock would be placed on the left riverbank from the riverbed to 13 ft in elevation (NAVD 88), incorporating a launchable rock toe. Five tiebacks would be added above 13-foot elevation. The tiebacks would extend upslope to elevations ranging from 15 ft to 20 ft. Under this alternative, the rock footprint would be slightly greater than the footprint analyzed in the 2016 ARCF FEIS/EIR, which described the effects of standard bank protection but not the launchable rock toe or tiebacks. The launchable rock toe method adds approximately 5 ft of rock thickness near the river bottom in a lateral direction (Figure 5), increasing the footprint of riverbed disturbance compared to the standard erosion protection analyzed in the 2016 ARCF FEIS/EIR, using the same equipment and placement method.

The estimated area of salmonid and green sturgeon impacts due to rock placement below the OHWM is approximately 3.2 acres. The area of delta smelt impacts due to rock placement between mean low-low water and mean high water is approximately 0.8 acres. To facilitate the rock placement, up to 31 trees within the project footprint may need to be removed, impacting both shaded riverine aquatic (SRA) and YBCU habitat. Effects to special status listed fish are considered to be short-term and moderate if impacts are compensated through the purchase of mitigation bank credits. If impacts are offset through the creation of an offsite aquatic habitat mitigation area, the effect would be mid-term and moderate due to temporal losses caused by the delay of constructing the mitigation area. Effects to YBCU riparian habitat are considered to be short-term and moderate and the effect will be offset through the purchase of mitigation bank credits or through creation of offsite mitigation habitat.

Alternative 2

There would be no impacts to federal special-status species from the staging area or access route. The underwater rock placement, including the launchable toe, would have the same impacts as Alternative 1.

Under Alternative 2, soil fill, biodegradable coconut coir blocks, biodegradable fabric, and native shrub and tree plantings would be used instead of rock between 7 and 13 ft elevation. The existing shrub understory would require removal, but trees would be allowed to remain in place. A refinement to Alternative 2 since publication of the Draft SEA is the inclusion of tree trimming within the project footprint. This is necessary both for the safe access of construction equipment and to avoid damaging the trees through inadvertent breakage of branches and stems. Effects to listed species at this elevation would be temporary, as the newly planted shrubs would quickly grow to replace those removed. The shrub stems and saplings would slow high water flows and encourage aggradation of sediment and the return to a natural riverbank. Native trees would be established in areas currently dominated by shrubs, increasing shade, IWM inputs, and other habitat values for special-status species.

The estimated surface area of salmonid and sturgeon habitat impacts due to rock placement below the OHWM is reduced to 2.1 acres, as compared with Alternative 1.

Delta smelt habitat impacts would be reduced slightly to 0.7 acres. Listed fish habitat impacts would be smaller under Alternative 2 than Alternative 1, but still result in short-term to mid-term moderate effects depending on the mitigation strategy adopted. Up to 31 trees would be retained, likely eliminating permanent impacts to YBCU habitat. or at most cause only negligible adverse effects to riparian habitat.

Table 1. Summary of Estimated Special-Status Species Impacts under Alternatives 1 and 2

Special-Status Species	Cause of Impact	Alternative 1 Impacts	Alternative 2 Impacts
Salmonids / Sturgeon	Rock placement below OHWM, SRA removal	3.2 acres	2.1 acres
Delta Smelt	Shallow water rock placement	0.8 acres	0.7 acres
YBCU	Canopy removal (up to 31 trees)	0.4 acres	As low as 0

3.7.3 Avoidance, Minimization, and Mitigation Measures

In addition to the avoidance and minimization measures discussed in the 2016 ARCF FEIS/EIR, the SR Erosion Contract 4 project would conform to the work windows in Table 2 to comply with the USFWS and NMFS Biological Opinions. Construction of the erosion protection features would occur during the July 1 – October 31 construction window for work below the OHWM to avoid the time of year when listed fish species could be in the area. However, to avoid impacts to bats and nesting birds, tree removal would occur between November 1 – February 15. While this work would occur outside the wetted channel, it is still below the OHWM and conflicts with the work window for special-status fish. A Memorandum for Record was written (USACE 2021) and circulated to USFWS and NMFS for comment that listed specific best management practices (BMPs) covered in the 2016 ARCF FEIS/EIR, the 2020 Biological Assessment, the 2021 Biological Opinions, and several additional measures that will be taken to avoid impacts to listed fish which may be in the area during the tree removal work.

Table 2. Wildlife Work Windows¹

Shaded cells indicate months when work can occur; blank cells indicate months where work should be avoided.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Bird		15th							1st			
Fish							1st			31st		

¹ Work windows specified in the ARCF 2016 USFWS and NMFS BiOps.

Mitigation for impacts to special-status species habitat is required by the USFWS and NMFS BiOps. These impacts must be compensated for at different ratios, depending upon the species, habitat, and timing. USACE will compensate for the impacted acreages listed in Table 1 at the required ratios by creating off-site mitigation at a

potential Sacramento River site, or by purchasing credits at an approved mitigation bank as they become available.

Both Alternatives incorporate installation of IWM to minimize project effects to fish. The IWM is intended to provide structural diversity to the shoreline, provide refugia, SRA, and rearing habitat for juvenile fish. The IWM will consist of cut trees anchored into the riprap in bunches of 3-4 trees, at 5 to 10-foot spacing along the entire length, with a 50 ft buffer around boat docks.

3.8 Cultural Resources

3.8.1 Existing Conditions

The cultural resources setting and regulatory framework described in Section 3.9 of the 2016 ARCF FEIS/EIR is applicable to the analysis in this SEA and is not repeated here.

3.8.2 Environmental Effects

No Action Alternative

Under the No Action/No Project Alternative, the Authorized action from the 2016 ARCF FEIS/FEIR (Alternative 2) would be implemented. That document concluded that mitigation measures would reduce potential impacts of the project to cultural resources under NEPA to a less-than-significant level as any adverse effects would be resolved through compliance with Section 106 of the National Historic Preservation Act, specifically through the implementation of requirements contained in the ARCF Section 106 Programmatic Agreement (PA).

Alternatives 1 and 2

Erosion protection measures would involve minimal ground disturbance and include rock placement with some staging areas. Any earthmoving activities could damage or destroy unknown subsurface historic-period sites, prehistoric-period archaeological sites, and properties with significance to Native American tribes (Tribes). If offsite stockpiling is needed, all proposed stockpile areas will be inventoried for cultural resources and assessed for effects to historic properties under the PA and ARCF GRR Historic Properties Management Plan (HPMP).

Two potential historic properties are located within the area of potential effects (APE) for these alternatives that were not discussed in the 2016 ARCF FEIS/FEIR: P-34-005225, the Sacramento River Traditional Cultural Landscape, and P-34-002143, Levee Unit 115. In accordance with the ARCF PA, confirmation of National Register of Historic Places eligibility for these cultural resources, findings of effect for the alternatives, and appropriate mitigation (if required) would be made through consultation between USACE, the California State Historic Preservation Officer (SHPO), and ARCF PA Parties, as appropriate, prior to initiating construction of the selected alternative. USACE has initiated consultation with the SHPO and Tribes regarding the APE for the two alternatives, determinations of eligibility for these two potential historic properties,

and a finding of no adverse effect for either alternative. Consultation with the SHPO and Tribes regarding these efforts will be ongoing in the coming months and will be completed prior to project construction in accordance with the ARCF PA requirements.

3.8.3 Avoidance, Minimization, and Mitigation Measures

The following mitigation measures augment the cultural resources mitigation identified in the 2016 ARCF FEIS/FEIR, including actions to address adverse effects to historic properties and discovery of archaeological resources. If these alternatives are implemented, USACE and the CVFPB would implement the measures as described.

- Resolve Adverse Effects through a PA and (HPTP): A PA has been executed for the ARCF Project. An HPTP would be developed if the selected alternative is found to result in adverse effects to historic properties.
- Prepare an Archaeological Discovery Plan and an Archaeological Monitoring Plan: In accordance with the procedures described in Section 9.2 of the ARCF HPMP, an archaeological discovery plan would be developed for the selected alternative. The discovery plan would specify what actions must be taken by the contractor in the event of an archaeological discovery and describe what actions USACE 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 would be developed for the selected alternative. This plan would identify the locations of known Historic Properties as well as sensitive areas designated for archaeological monitoring and would include methods and procedures for monitoring and the procedures to be followed in the event of a discovery of archaeological materials.
- Conduct Cultural Resources Awareness Training: In accordance with the procedures described in Section 9.1 of the ARCF HPMP, USACE would require the contractor to provide a cultural resource sensitivity and awareness training program for all personnel involved in project construction, including field consultants and construction workers. The training would be developed in coordination with an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archaeology, as well as culturally affiliated Tribes. USACE may invite Native American representatives from interested culturally affiliated Tribes to participate in this training.
- Implement Procedures for Discovery of Cultural Materials: If the discovery of cultural materials (e.g., unusual amounts of shell, animal bone, any human remains, bottle glass, ceramics, building remains), sacred sites, or landscapes is made at any time during project-related construction activities, USACE in consultation with the CVFPB and other interested parties would develop appropriate protection and avoidance measures where feasible. These procedures would be developed in accordance with the ARCF PA and ARCF 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. With implementation of the requirements of the PA, including any needed HPMP and HPTP, the effects of SR Erosion Contract 4 on cultural resources would remain less than significant.

3.9 Air Quality

3.9.1 Existing Conditions

The environmental and regulatory framework described in Section 3.11 of the 2016 ARCF FEIS/EIR and the existing conditions in Section 3.2.3 of the SR Erosion Contract 1 SEA/SEIR is applicable to the analysis in this SEA and is incorporated by reference, with some updated information provided below.

Sacramento River Erosion Contract 4 will be performed in the Sacramento Valley Air Basin, which is under the jurisdiction of the Sacramento Metropolitan Air Quality Management District. The air quality emissions that were estimated in 2015 and included in the 2016 ARCF FEIS/EIR in Appendix D have been determined to be inadequate because the construction window in that document (assumed to be 14 years) has been condensed to 8 years, and multiple ARCF contracts are being constructed simultaneously. An updated emissions analysis is documented in *The Final General Conformity Determination, American River Watershed Common Features 2016 Project* (USACE 2021). The analyzed emission sources considered a wide range of construction activities and equipment, including those associated with Alternatives 1 and 2.

3.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the project work described in Alternative 2 in the 2016 ARCF FEIS/EIR, as well as the work performed through SREL Seepage, Stability, and Overtopping Contracts 1 through 4 and SR Erosion Contracts 1 and 2 SEAs is assumed to be complete. This includes the equipment used to transport materials by road and by barge, degrade the levee, install jet grouting, rebuild the levee, and construct the bank erosion protection measures. As discussed in Section 3.11.5 in the 2016 ARCF FEIS/EIR and the air quality sections in the supplemental documents listed above, the effect to air quality from the No Action Alternative is less than significant with mitigation.

Alternatives 1 and 2

Air quality emissions would be generated by equipment used to construct the project, hauling of material, and by construction worker trips to the project area and would impact two air districts: the Bay Area Air Quality Management District (BAAQMD) and the Sacramento Metropolitan Air Quality Management District (SMAQMD). Barges and tugboats would be used to transport equipment, rock, trees, and other materials to and

from the project area. The barges are expected to originate from the Bay Area and transport materials to and from Rio Vista. Tug and push boats would be used to transport the barges and maneuver them into place. Underwater rock placement would be accomplished by a crane and excavator. The crane will be stationed on a barge, while excavator will be parked either on a barge or on a finished rock platform built to elevation 7 ft (NAVD 88) and located adjacent to the active rock placement location. The excavator would transport rock and place it on the shoreline. Equipment would access the shoreline from the barge by a ramp. Air emissions from the barges and tugboats were modeled using the SMAQMD Harborcraft, Dredge and Barge Emission Factor Calculator. Emissions from other equipment were modeled using the California Emissions Estimator Model (CalEEMod) version 2020.4.0.

The estimated quantities of materials to be placed under Alternatives 1 and 2 are listed in Table 3. The estimated air emissions are shown in Table 4 for the Sacramento Valley Air Basin and Table 5 for the San Francisco Bay Area Air Basin. Because both Alternatives require approximately the same amount of material, only one set of emissions estimates is presented below. All phases of construction, from vegetation removal to material placement, are assumed to occur in 2024. As shown in Tables 4 and 5, nitrous oxides (NO_x) emissions are anticipated to exceed the daily local air district thresholds.

Air quality effects for SR Erosion Contract 4 Alternatives 1 and 2 would be short-term and moderate. However, these emissions would be additive to those of the ARCF Project construction as a whole, which, in any case, is expected to exceed general conformity thresholds in 2024.

Table 3. Comparison of material amounts for each Alternative.

Material	Alternative 1 – Conventional Riprap	Alternative 2 – Biotechnical (With Refinements)
Quarry stone Type C	22,950 CY	20,898 CY
Small stone (Choke Stone)	1,051 CY	79 CY
Soil	none	3,859 CY
IWM	113 trees	113 trees
Biotechnical materials	none	1 barge

Table 4. Emissions Estimates for the Alternatives in the SMAQMD

Pollutant	Unmitigated/Mitigated (lbs/day)	Unmitigated/Mitigated (tons/year)	Significance Threshold
ROG	26.1 / 25.2	0.27 / 0.23	N/A
NO _x	335 / 328	3.16 / 2.88	85 lbs/day
PM ₁₀	18.4 / 18.1	0.18 / 0.18	80 lbs/day and 14.6 tons/year
PM _{2.5}	15.8 / 15.6	0.14 / 0.13	82 lbs/day and 15 tons/year

Notes: ROG = reactive organic gases; NO_x = nitrogen oxides; PM₁₀ or PM_{2.5} = particulate matter with aerodynamic diameter less than 10 or 2.5 microns. Bold numbers indicate concentrations above the local air district thresholds. lbs = pounds. CY = cubic yards.

Table 5. Emissions Estimates for the Alternatives in the BAAQMD

Pollutant	Barge Emissions (lbs/day)	Barge Emissions (tons/year)	Significance Threshold (lbs/day)
ROG	23.8	0.01	54
NO _x	408	0.20	54
PM ₁₀	18.4	0.01	82
PM _{2.5}	16.4	0.01	84

Notes: ROG = reactive organic gases; NO_x = nitrogen oxides; PM₁₀ or PM_{2.5} = particulate matter with aerodynamic diameter less than 10 or 2.5 microns. Bold numbers indicate concentrations above the local air district thresholds.

3.9.3 Avoidance, Minimization, and Mitigation Measures

USACE would minimize emissions through the BMPs listed in Section 3.11.6 of the 2016 ARCF FEIS/EIR to reduce pollutant emissions, diesel particulate emissions, and fugitive dust associated with construction of the project. Funding of emission offset credits from SMAQMD and BAAQMD as mitigation would address the exceedances from the ARCF Project construction in 2024 to meet the USACE commitments in the General Conformity Report and would reduce effects to air quality to less than significant. SEIR Mitigation Measure AIR-3 is incorporated by reference into this SEA.

3.10 Recreation

3.10.1 Existing Conditions

Recreational impacts were discussed in Section 3.14 of the 2016 ARCF FEIS/EIR. The levee adjacent to SR Erosion C4 is gated and not open for access to the public. The area is used recreationally by local residents who own the land on both the landside and waterside of the levee. Eight private boat docks are located within the project footprint; seven docks are under permits authorized by the CVFPB and one dock is unpermitted.

3.10.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the project as described in the 2016 ARCF FEIS/EIR is considered to have been constructed. The document primarily addressed bike trail and park access rather than impacts related to private land. It concluded that recreation impacts along the Sacramento River would be short-term and significant. The area would be returned to pre-existing conditions once construction is completed.

Alternative 1

The staging area would be on the levee top (i.e., crown), requiring the area to be fenced and access restricted during the July – October construction season. The fencing would also restrict homeowners' access to the river while the project is under construction.

In order to construct the project, the dock owners would be required to remove the docks and staircases from the construction footprint per the terms of their permits with the CVFPB. The owners have the option to remove the dock pilings or leave them in place for the contractor to work around. Any docks not removed by the owners would be removed and disposed of by the construction contractor. After construction is completed, the docks, ramps, and staircases may be returned to their original locations. However, due to the thickness of rock being placed along the riverbank, the clearance between the water surface and riverbed will decrease. Pilings may need to be moved into deeper areas before the docks can be re-installed. Relocation of pilings would require new permits and environmental analysis under CEQA and/or NEPA. For this reason, some docks may not be replaced after construction.

Alternative 2

Recreation impacts under Alternative 2 would be the same as Alternative 1, with the exception that the bioengineered shoreline would be fenced off to allow for plant establishment. This portion of the riverbank is approximately 1.1 acres and lies between 7 ft and 13 ft elevation. It is surrounded by very steep, well-vegetated terrain, is covered with broken concrete and riprap, and is difficult to access. Due the likely infrequent use of this area, recreation impacts under Alternative 2 would be temporary (occurring in one construction season, or until docks and ramps can be replaced), limited (affecting adjacent homeowners, but not the general public), making the overall recreation impact less than significant.

3.10.3 Avoidance, Minimization, and Mitigation Measures

Recreation impacts due to a lack of access would be temporary and limited to a single July – October construction season. Public parks, trails, and boat ramps are nearby and may be used during project construction. Impacts due to boat dock removal are a condition to owners' permits, which state that permittees may be required to remove their docks and associated structures at their own expense, upon request from the CVFPB. The CVFPB has mailed letters to dock owners giving advance notice of this request. SEIR Mitigation Measure REC-1 is incorporated by reference into this SEA.

The 2016 SEIS/EIR identified significant adverse effects on recreation with implementation of the preferred alternative. Alternatives 1 and 2 of the current SEA would not result in any new significant effects or any significant effects that would be greater in magnitude than those described in the 2016 SEIS/EIR.

Accordingly, the adverse effects of Alternatives 1 and 2 to recreation are estimated to be less than significant.

Table 6, below, summarizes the anticipated effects of Alternatives 1 and 2 on the potentially affected resources:

Table 6. Summary of Effects and Mitigation

Resource¹	No Action (2016 ARCF FEIS/EIR)	Alternative 1	Alternative 2	Approximate Numerical Impact (if any)	Mitigation (2016 ARCF FEIS/EIR)	Mitigation – Alternative 1	Mitigation – Alternative 2
Water Quality	Less than significant with mitigation	Significant cumulative effects, less than significant with mitigation	Significant cumulative effect, less than significant with mitigation	Alt 1: up to 3.2 acres Alt 2: up to 2.1 acres	Preparation of a Stormwater Pollution Protection Plan, Spill Prevention Control and Countermeasures Plan, and implementation of BMPs listed in Section 3.5.6.	Establishing off-site mitigation or purchasing mitigation bank credits	Establishing off-site mitigation or purchasing mitigation bank credits
Vegetation and Wildlife	Significant short-term, less than significant long term with mitigation	Same as FEIS/EIR short-term; less than significant with mitigation long-term	Same as FEIS/EIR short-term; beneficial long-term	Alt 1: 0.4 acres of tree canopy removed, all shrubs within footprint Alt 2: little to no tree canopy removal, shrub impacts temporary	When possible, compensation would be planted on planting berms or on launchable rock trenches. A hydraulic evaluation will be conducted to determine whether mitigation could occur in the Sacramento Bypass. Additional mitigation sites are identified in Section 3.6.6.	Establishing off-site mitigation or purchasing mitigation bank credits per the CAR ratios	Likely none required
Fisheries	Less than significant with mitigation	New indirect effects due to riparian vegetation loss and slightly increased rock footprint;	No new significant effect; launchable rock toe balanced out by lack of rock above AALWSE	Alt 1: 0.4 acres of SRA removed. 3.2 acre rock footprint. Alt 2: little to no permanent SRA removal. 2.1 acre rock footprint.	Vegetation variance would allow waterside vegetation to remain on the Sacramento River. Bank protection sites and launchable rock trenches would be revegetated following construction. BMPs would be implemented to address turbidity, discussed in Section 3.5.6.	Establishing off-site mitigation or purchasing mitigation credits per the CAR ratios; installing IWM	Establishing off-site mitigation or purchasing mitigation credits per the CAR ratios; installing IWM

Resource¹	No Action (2016 ARCF FEIS/EIR)	Alternative 1	Alternative 2	Approximate Numerical Impact (if any)	Mitigation (2016 ARCF FEIS/EIR)	Mitigation – Alternative 1	Mitigation – Alternative 2
		less than significant with mitigation					
Special Status Species	Less than significant with mitigation	New indirect effects due to riparian vegetation loss and slightly increased rock footprint; less than significant with mitigation	No new significant effect; launchable rock toe balanced out by lack of rock above AALWSE	Alt 1: YBCU: 0.4 acres Delta Smelt: 0.8 acres Salmonids/Green Sturgeon: 3.2 acres Alt 2: SRA/YBCU: little to none. Delta Smelt: 0.7 acres Salmonids/Green Sturgeon: 2.1 acres.	Mitigation per the terms of the USFWS and NMFS BiOps. Replace habitat either on-site or in close proximity to lost habitat. Implement BMPs discussed in Section 3.5.6 and conservation measures in the BiOps during construction to prevent mortality. Implement green sturgeon modeling and monitoring to improve effects assessment, minimize construction impacts, and mitigate for lost benthic habitat per the terms of the BiOps. Implement fish passage at the Sacramento Bypass, and grade the widened bypass to reduce stranding potential.	Establishing off-site mitigation or purchasing mitigation credits per the ratios in the BiOps; installing IWM	Establishing off-site mitigation or purchasing mitigation credits per the ratios in the BiOps; installing IWM
Cultural Resources	Less than significant with mitigation	No new significant effect	No new significant effect		Implementation of a PA, HPMP, and HPTP		

Resource¹	No Action (2016 ARCF FEIS/EIR)	Alternative 1	Alternative 2	Approximate Numerical Impact (if any)	Mitigation (2016 ARCF FEIS/EIR)	Mitigation – Alternative 1	Mitigation – Alternative 2
Air Quality	Less than Significant with mitigation	No new significant effect	No new significant effect	NOx: 335 lbs/day (unmitigated) in SMAQMD; 408 lbs/day in BAAQMD	Implementation of SMAQMD's Basic Construction Emission Control Practices and other BMPs, as listed in Section 3.11.6	Fund emissions offsets through SMAQMD	Fund emissions offsets through SMAQMD
Recreation	Significant	No new significant effect	No new significant effect	Removal of 8 private boat docks	Notification and coordination with recreation users and bike groups. Flaggers, signage, and fencing to notify and control recreation access and traffic around construction sites	N/A; dock removal is per the terms of the permits with the CVFPB. Recreational access impacts are temporary and nearby public locations are available.	N/A; dock removal is per the terms of the permits with the CVFPB. Recreational access impacts are temporary and nearby public locations are available.

4 Cumulative Impacts

4.1 Cumulative Effects

4.1.1 Methodology and Geographic Scope of Analysis

The Council for Environmental Quality (CEQ) defines environmental effects to include cumulative effects, which are those resulting from the proposed alternatives added to effects from other past, present, and reasonably foreseeable actions (40 C.F.R. § 1508.1), regardless of which entity undertakes the action. Section 4.1.2 of the 2016 ARCF FEIS/EIR described other projects in the Sacramento area and the cumulative impacts of these projects were described in Section 4.2. The cumulative impacts analysis below considers effects due to the updates to the SR Erosion Contract 4 design combined with other projects in the area. The projects included within this section will affect similar habitats or resources as SR Erosion Contract 4 both temporally and geographically. If the projects are not expected to contribute to a cumulative effect on a resource, then that resource is not included in the analysis. Table 7 lists resources considered in this cumulative effects analysis and the geographic scope of analysis.

Table 7. Resources and Geographic Areas Considered in the SR Contract 4 Cumulative Effects Analyses

Resource	Geographic Area
Water Quality and Groundwater	Sacramento River
Vegetation and Wildlife	Sacramento River
Fisheries	Sacramento River
Special Status Species	Sacramento River and regional species implications
Cultural Resources	Individual sites and regional implications
Air Quality	Sacramento Metropolitan Air Quality Management District (SMAQMD); Bay Area Air Quality Management District (BAAQMD)

4.1.2 Past, Present, and Reasonably Foreseeable Future Projects

American River Common Features 2016

The ARCF project has been under construction since 2019 and is scheduled through 2026. Sacramento River Erosion Contract 4 will be constructed in 2024. The project elements include improvements of levees along the American and Sacramento Rivers, the east bank of the Natomas East Main Drainage Canal (NEMDC), Arcade Creek, the Magpie Creek Diversion Channel, and the Sacramento Weir and Bypass. The levee improvements include construction of cutoff walls, erosion protection, seepage and stability berms, levee raises, relief wells, and new levee. The Sacramento Weir and Bypass would be widened in order to increase conveyance of flood waters and reduce flood stages downstream from the confluence of the Sacramento and American Rivers.

The ARCF project also includes construction of mitigation sites in the Sacramento area. Specifically, the 2016 ARCF FEIS/EIR included the following construction projects:

- Construction of a seepage and stability berm along Front Street (completed in 2019)
- Seepage and stability improvements to the Sacramento River east levee between the American River confluence and Freeport (construction 2020 – 2023)
- Erosion protection on the American River (construction 2022 – 2025)
- Erosion protection on the Sacramento River (construction 2021 – 2026)
 - o Contract 2 will be constructed in 2023 and 2024
 - o Contract 4 will be constructed in 2024
 - o Contract 3 will be constructed in 2025 and 2026
- Improvements to the Magpie Creek Diversion Channel, east bank of the NEDMC, Pleasant Grove Creek Canal, and Dry, Robla, and Arcade Creeks (planned for 2024 - 2025)
- Widening of the Sacramento Weir and Bypass (planned for 2021 – 2024)

Dredging at Miller Park

The City of Sacramento performs annual maintenance dredging between July and October at the Sacramento Marina and Miller Park Boat Ramp, located 2.5 miles upstream from SR Erosion Contract 4.

Sacramento River Bank Protection Project

The Sacramento River Bank Protection Project (SRBPP) was authorized to protect existing levees and flood control facilities of the Sacramento River Flood Control Project. The SRBPP directs USACE to provide bank protection along the Sacramento River and its tributaries bordered by Federal flood control project levees. WRDA 2007 authorized an additional 80,000 linear ft of bank protection, to be implemented under the SRBPP Post Authorization Change Report, which received approval in June 2020. The specific locations and dates of the work are unknown at this time.

West Sacramento Project

The purpose of the West Sacramento GRR is to bring the 50 miles of levees surrounding West Sacramento into compliance with Federal and State standards. The proposed levee improvements would be similar to those being implemented for the ARCF 2016 project and would address seepage, stability, height, and erosion concerns in the same geographic area and will include work along the Sacramento River's west levee. Construction of the West Sacramento Project will begin in 2024 with construction of the Yolo Bypass east levee.

4.2 Cumulative Impact Analysis

Of the projects mentioned above, the construction of SR Erosion Contract 2 and the annual Miller Park dredging would occur during the same year as SR Erosion Contract 4 construction.

4.2.1 Water Quality and Groundwater Resources

Simultaneous temporary construction activities may result in adverse cumulative impacts to water quality. The primary water quality constituent that may be affected is turbidity, due to the projects' placement of rock or dredging activities. All projects involving work below the OHWM require coordination with the Central Valley Regional Water Quality Control Board and compliance with their 401 water quality permits. No significant cumulative water quality effects are anticipated due to the implementation of these multiple projects.

The original 404(b)(1) evaluation in the 2016 ARCF FEIS/EIR stated that up to 15 acres of rock would be placed below the OHWM in the Sacramento River over a length of 10 miles. While the Alternatives under the SR Erosion Contract 4 proposed action entail up to 3.15 acres of rock placement, the combined revetment designs of SR Erosion Contracts 1 through 4 total approximately 60 acres of rock over 6 miles. A 404(b)(1) consistency evaluation for SR Erosion Contract 4 is included as Appendix D to this document to ensure the chemical, physical, and biological integrity of a WOTUS is adequately assessed in light of the additional amount of rock revetment being placed below the OHWM.

The rock placement required by these projects will not affect the chemical or physical integrity of a WOTUS. Avoidance and minimization measures will be implemented to ensure that effects on turbidity are unlikely to exceed water quality standards and will remain less than significant. For all SR Erosion projects, effects to the biological integrity of this WOTUS will be reduced or offset by the mitigation for Endangered Species Act listed fish species required under the USFWS and NMFS Biological Opinions, which typically require creation of habitat at acreages higher than those affected by the project. The projects considered in this cumulative effects analysis (see Section 4.1.2) cover portions of the Sacramento River system that already have a degraded biotic environment due to existing concrete and riprap armoring, the lack of floodplain, and channelization. With mitigation, the impacts to this WOTUS would be reduced to less than significant.

4.2.2 Vegetation and Wildlife

The 2016 ARCF FEIS/EIR determined there would be significant vegetation impacts in its cumulative effects analysis. Sacramento River Erosion Contract 1, the Seepage Stability and Overtopping Contracts 1 through 3 and the West Sacramento projects all required vegetation removal. Sacramento River Erosion Contracts 2 and 3 will also require vegetation removal, as will Seepage Stability and Overtopping Contract 4, which is scheduled for 2023 and partially overlaps SR Erosion Contract 4. Construction of the West Sacramento Project would significantly affect vegetation along the west levee, and a variety of options will be considered to reduce effects to less than significant, such as planting berms, plantings within levee setbacks, or mitigation bank credits. The SRBPP project will not commence in the ARCF footprint in the foreseeable future, and the Miller Park dredging will not require vegetation removal. While the ARCF project would follow

the recommendations of the Coordination Act Report, the determination of significant impacts was based on the amount of habitat being removed to construct the projects and the time lapse before the mitigation plantings could mature to replace the habitat value of those removed. Once the plantings have matured, the new habitat would be similar to the habitat removed and the effects to vegetation and wildlife would be less than significant. Because the surrounding projects incorporate on-site plantings, there would be no significant cumulative impacts to vegetation and wildlife.

4.2.3 Fisheries

The 2016 ARCF FEIS/EIR evaluated cumulative effects of projects occurring upstream and downstream of the project area on the Sacramento River and found short term significant cumulative effects from the construction of the SRBPP, West Sacramento Project, and ARCF projects. The onsite mitigation created at these project areas is small compared to the loss of fisheries habitat. The balance of the required compensatory mitigation will be provided through purchase of mitigation bank credits and off-site mitigation. This will be addressed in the forthcoming ARCF SEIS/EIR. The SR Erosion projects are all incorporating a launchable rock toe in their bank protection designs, which slightly expands the rock footprint over the scope of the footprint analyzed in the 2016 ARCF FEIS/EIR and was discussed in their supplemental NEPA documents. With mitigation, the cumulative impacts will not be greater than the cumulative effects analyzed in the 2016 ARCF FEIS/EIR.

4.2.4 Special Status Species

Yellow-billed Cuckoo

The 2016 ARCF FEIS/EIR found short-term significant cumulative impacts to yellow-billed cuckoo due to the removal of riparian habitat, however designated critical habitat would not be affected. The surrounding SR Erosion projects are compensating for loss of riparian trees by reestablishing native habitat onsite through planting benches installed along the shoreline. Alternative 1 would require selective tree removal that would leave most of the existing canopy intact and able to fill in canopy gaps over time. Alternative 2 would not contribute to cumulative impacts to this species. Because of the on-site mitigation requirement of the surrounding projects, the cumulative long-term effects to yellow-billed cuckoo habitat remain less than significant.

Federally Listed Fish Species

The 2016 ARCF FEIS/EIR fully analyzed the effects of proposed erosion protection measures along approximately 10 miles of the Sacramento River's east bank and areas downstream, in combination with the SRBPP, the West Sacramento Project, and the Miller Park dredging projects. The projects would contribute to adverse habitat effects due to the rock placement on benthic habitat, while lands available for riparian habitat compensation could be difficult to locate along the Sacramento River. The nearby erosion projects incorporate planting benches into their designs in order to create on-site mitigation for impacts to federally listed fish habitat. Off-site mitigation is being

pursued along the Sacramento and American Rivers to create habitat to compensate for the remaining unavoidable impacts.

4.2.5 Cultural Resources

Cumulative impacts to cultural resources could result from multiple construction projects in the vicinity of the Sacramento River East Levee and the surrounding area if they cause adverse effects on important cultural resources. The Sacramento River East Levee area continues to experience growth, with new residential, commercial, and recreation-related construction, and there have been other recent Federal projects associated with the Sacramento River East Levee. Future Sacramento River construction projects could result in significant adverse impacts to cultural resources; however, Alternative 2, which will result in No Adverse Effects to cultural resources, would not add to this significant cumulative impact.

4.2.6 Air Quality

In 2021 USACE published an updated General Conformity Determination for the ARCF project to assess the possible emissions for the entire project, considering the updated and consolidated construction schedule. The 2024 construction of SR Erosion Contract 4 is expected to coincide with construction of SR Erosion Contract 2, the Sacramento Weir, and the Yolo Bypass East Levee projects (West Sacramento Project), resulting in simultaneous sources of emissions within the SMAQMD and BAAQMD air districts. All projects within the SMAQMD are required to offset emissions that have the potential to negatively affect air quality in the Sacramento Valley Air Basin through implementation of SMAQMD emissions reductions practices. In addition, many offset projects create long-term, permanent emissions reductions (which result in a benefit). Furthermore, the SR Erosion Contract 4 proposed action is part of the larger ARCF 2016 Project, which was found to meet the requirements of general conformity with the provisions of the Clean Air Act (CAA) through payment of fees to offset NO_x emissions. Although the ARCF 2016 Project as a whole will exceed General Conformity *de minimis* thresholds in some years the impact will be reduced to a less than significant level after implementing mitigation in either air basin. Therefore, the ARCF 2016 Project, including SR Erosion Contract 4, would not cause a cumulatively considerable incremental contribution to significant cumulative effects related to air quality.

The combined estimated emissions for ARCF 2016 project components expected to be constructed in 2024 are shown in Tables 8 and 9, along with the General Conformity *de minimis* standards. The ARCF project is anticipated to exceed the *de minimis* thresholds for NO_x and credits will be purchased to offset these emissions.

Table 8. Estimated emissions (tons) for the ARCF 2016 project for construction year 2024 in the SMAQMD air basin.

Project Component	ROG Unmitigated	NOx Unmitigated	PM ₁₀ Unmitigated	PM _{2.5} Unmitigated	ROG Mitigated	NOx Mitigated
SR Erosion Contract 2	1.16	13.0	1.72	0.82	0.91	9.17
SR Erosion Contract 4	0.27	3.16	0.18	0.14	0.23	2.88
Sacramento Weir	1.51	14.2	44.7	9.78	1.10	6.28
Total ARCF 16 Project Emissions	2.94	30.3	46.6	10.7	2.24	18.3
General Conformity de minimis Thresholds	25	25	100	100	25	25

Notes: Bold numbers indicate concentrations above thresholds.

CO = carbon monoxide; NOx = oxides of nitrogen; PM₁₀ = particulate matter with aerodynamic diameter less than 10 microns; PM_{2.5} = particulate matter with aerodynamic diameter less than 2.5 microns;

ROG = reactive organic gases. Unmitigated and Mitigated data is presented in tons per year.

Table 9. Estimated emissions (tons) for the ARCF 2016 project for construction year 2024 in the BAAQMD air basin.

Project Component	ROG Unmitigated	NOx Unmitigated	PM ₁₀ Unmitigated	PM _{2.5} Unmitigated	ROG Mitigated	NOx Mitigated
SR Erosion Contract 2	0.53	9.02	0.41	0.36	0.53	9.02
SR Erosion Contract 4	0.17	2.85	0.13	0.11	0.17	2.85
Sacramento Weir	0.21	3.64	0.16	0.15	0.21	3.64
Total ARCF 16 Project Emissions	0.91	15.5	0.70	0.62	0.91	15.5
General Conformity de minimis Thresholds	100	100	100	100	100	100

4.2.7 Recreation

Other projects in the area may impact public recreational access through closures, detours, or diverted recreational use. Sacramento River Erosion Contract 4 would affect recreation on private land used by a limited number of landowners which is not accessible to the public and therefore is not anticipated to contribute to cumulative recreational impacts.

5 Compliance with Federal Laws and Regulations

This section discusses the project's compliance with applicable federal laws and regulations. Each of the federal laws and regulations were also discussed in the 2016 ARCF FEIS/EIR and other supplemental documents. Certain Federal laws and regulations require issuance of permits before project implementation; others require agency consultation but may not require issuance of any authorization or entitlements before project implementation.

5.1 Endangered Species Act of 1973, as amended, 16 USC 1531, *et seq*

Under Section 7(a)(2) of the Endangered Species Act, federal agencies must consult with USFWS and NMFS to ensure that agency actions do not jeopardize the continued existence of any threatened or endangered species or their habitats. Biological Opinions (BiOps) were received for the ARCF 2016 project from USFWS on March 31, 2021 (08ESMF00-2014-F-0518-R003) and from NMFS on May 12, 2021 (WCRO-2020-03082). The NMFS BiOp concluded that the ARCF 2016 project would not jeopardize the continued existence of Sacramento River winter-run Chinook Salmon, Central Valley spring-run Chinook Salmon, the North American green sturgeon DPS, and California Central Valley steelhead DPS, and is not likely to destroy or adversely modify their designated critical habitats. The USFWS BiOp concluded that the ARCF 2016 project would not jeopardize the continued existence of the valley elderberry longhorn beetle, delta smelt, giant garter snake, or yellow-billed cuckoo. The project is also not likely to destroy or adversely modify delta smelt critical habitat. These findings were based on conservation measures detailed in both biological opinions, which will be followed throughout all phases of the SR Erosion Contract 4 project.

5.2 Fish and Wildlife Coordination Act of 1958, as amended, 16 USC 661, *et seq*

The Fish and Wildlife Coordination Act directs the USFWS to provide recommendations to minimize impacts to fish and wildlife resources anticipated from a proposed federal action on or near a body of water. The USFWS Coordination Act Report (CAR; 08ESMF00-2013-CPA-0020) was prepared in 2015 and was included as Appendix 1 of the 2016 ARCF FEIS/EIR. The project footprint for SR Erosion Contract 4 contains riparian forest, riparian scrub-shrub, and shallow open water habitats. These habitats are designated in the CAR as Resource Category 2, with a mitigation goal of “no net loss of in-kind habitat value or acreage”. The CAR recommends that USACE compensate for impacts to these habitats at a ratio of 2:1. Depending upon the chosen Alternative, up to 0.4 acres of riparian forest canopy will be impacted as a result of tree trimming or removal and clearing of scrub-shrub required for installation of the erosion protection. The riparian forest and riparian scrub-shrub habitat impacts will be addressed as part of compensation for impacts to yellow-billed cuckoo habitat, as discussed in the Federal Special-Status Species section of this SEA. Similarly, impacts of up to 1 acre of shallow-water habitat are discussed in Federal Special-Status Species section, as this habitat type overlaps with delta smelt critical habitat.

5.3 Magnuson-Stevens Fishery Conservation and Management Act

The Sacramento River is designated as essential fish habitat (EFH) for Pacific Coast salmon. Section 305(b) of the Magnuson-Stevens Act requires federal agencies to consult with NMFS whenever a federal action occurs in an area that may adversely affect EFH. These consultations require NMFS to make recommendations to conserve EFH, such as avoiding, minimizing, or mitigating adverse impacts. NMFS’s review of potential effects of the ARCF 2016 project to EFH was received on May 12, 2021. It was determined that the project would adversely affect the EFH of Pacific Coast salmon through the placement of rock armoring, removal of riparian vegetation, and maintain

the continued disconnection of the river from its floodplain. The conservation recommendations include several actions being considered in this SEA, such as placement of IWM, minimizing tree loss, and utilizing vegetative plantings as an alternative to riprap.

5.4 Migratory Bird Treaty Act of 1936, as amended, 16 USC 703 *et seq*

The Migratory Bird Treaty Act (MTBA) implements a series of international treaties that provide for migratory bird protection within the United States. Under the MBTA, it is unlawful, except as permitted by regulations, “to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird...” (USC Title 16, Section 703), including both direct and indirect actions. Both proposed Alternatives will incorporate the measures listed in the 2016 ARCF FEIS/EIR to minimize the potential for the take of migratory birds through all project phases.

5.5 Executive Order 13112, Invasive Species

Executive Order (EO) 13112 directs Federal agencies to take actions to prevent the introduction of invasive species, provide for control of invasive species, and minimize the economic, ecological, and human health impacts that these species cause. This EO also calls for the use of native plants for site stabilization and restoration. Any disturbed areas under Alternative 1 would be hydroseeded with a native seed mix. Alternative 2 would also use a native hydroseed mix to establish initial cover and woody vegetation would also be planted as the central part of the bioengineered design for erosion control. Under Alternative 2, native riparian species would be planted to create a vegetated riverbank.

5.6 Clean Water Act of 1972, as amended, 33 USC 1251 *et seq.*

Both Alternatives would place fill material below the OHWM within a Water of the United States and requires compliance with Sections 401 and 404 of the Federal Clean Water Act. For Section 401 compliance, USACE obtained a programmatic Water Quality Certification from the Central Valley Regional Water Quality Control Board on July 13, 2021. Authorization will be requested from the Central Valley Regional Water Quality Control Board under the Programmatic General Permit, Report Type 3 Commencement of Construction, for the selected alternative prior to construction. To demonstrate compliance with Section 404, a 404(b)(1) evaluation was completed for the entire ARCF project and included as Appendix E in the 2016 ARCF FEIS/EIR. A consistency review of the 404(b)(1) evaluation will be completed and included as an Appendix in the final version of this SEA. Additionally, the contractor will be required to obtain a Construction General Permit and the preparation of a SWPPP for potential effects related to stormwater discharge.

5.7 Executive Order 11988, Floodplain Management

The Alternatives do not involve floodplain modifications, floodplain development, or alterations to the environmental values provided by floodplains. These alternatives reinforce an existing levee protecting life and property on an already developed

floodplain. Full compliance with EO 11988 is ensured because the Alternatives do not alter the floodplain.

5.8 Executive Order 1990, Protection of Wetlands

The project area does not contain wetlands.

5.9 Clean Air Act of 1963, as amended, 42 USC 7401, *et seq*

The daily and cumulative NO_x emissions of the ARCF 2016 project in 2024 will likely exceed the General Conformity *de minimis* Thresholds in the SMAQMD. The contractor will be responsible for monitoring and reporting monthly emissions to SMAQMD, and the ARCF 2016 project will purchase credits to compensate for the exceedances.

5.10 Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

EO 12898 directs federal agencies to address disproportionate environmental and human health effects of federal actions on minority and low-income populations. Both Alternatives will reduce flood risk to the Sacramento Area by preventing erosion of the Sacramento River east levee. The neighborhoods adjacent to the project area are not considered to be minority or low-income communities. The material haul route utilizes the river and does not involve trucks traveling through neighborhoods. Compliance with EO 12898 is ensured because there are no disproportionate adverse effects, and the flood risk reduction benefits apply to the entire Sacramento area.

5.11 National Historic Preservation Act of 1966, as amended, 54 USC 300101 *et seq*.

Pursuant to Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, USACE has consulted with the SHPO and other parties and, as a result, has executed the *Programmatic Agreement among USACE and the California SHPO regarding the American River Common Features Project, Sacramento and Yolo Counties, California* (PA). The PA establishes the process USACE shall follow for compliance with Section 106 of the NHPA, taking into consideration the views of the signatory and concurring parties and interested Native American Tribes. All terms and conditions resulting from the agreement shall be implemented in order to minimize adverse impacts to historic properties.

In accordance with the PA and the HPMP for the ARCF 2016 Project, USACE initiated ongoing consultation with Native American Tribes who attach religious or cultural significance to potential historic properties that may be affected by the proposed undertaking on November 8, 2021. A response was received from United Auburn Indian community (UAIC) regarding the culturally sensitive nature of the area. No further responses from Native American tribes were received regarding potential resources within the APE.

In accordance with the PA, USACE consulted with the California SHPO, requesting comments on the delineation of the APE on November 8, 2021. In a letter dated

December 6, 2021, USACE received a response stating SHPO had no comment on the project's APE.

On June 23, 2022, USACE provided the California SHPO and Native American tribes with a draft Identification, Evaluation, and Finding of Effect Cultural Report requesting comments on these efforts. Consultation is ongoing regarding identification and evaluation of historic properties, and a finding of effect for this Project phase would be completed prior to award of SR Erosion Contract 4. Accordingly, pursuant to the PA, the Proposed Action is in full compliance with Section 106 of the NHPA.

5.12 Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, 42 USC 4601, *et seq*

The project footprint falls within easements and real estate acquisition is not anticipated to construct the project. Sacramento Area Flood Control Agency (SAFCA) is USACE's partner and is responsible for the Lands, Easements, Rights-of-Way, Relocations, and Disposal processes including any property acquisitions in order to comply with the Act.

6 Coordination of the Supplemental EA

The draft SEA was published along with a CEQA Draft Supplemental Environmental Impact Report for a 45-day public comment period (March 1 through April 14, 2023). Copies of both documents were posted on the USACE and CVFPB websites (www.sacleveeupgrades.com and <https://cvfpb.ca.gov/public-notice>) and were available by mail upon request. A virtual meeting was held during the public review period to address questions and elicit comments from the public.

Eight comment letters were received during the public review period with a total of 21 comments provided. Letters were received from the Yocha Dehe Wintun Nation, U.S. Environmental Protection Agency, California State Lands Commission, Central Valley Regional Water Quality Control Board, Sacramento Metropolitan Air Quality Management District, City of Sacramento, and two private citizens. Comment letters together with USACE and Partner Agency responses to substantive comments are provided in Appendix E. Some text was revised in response to comments; however, no new analyses were conducted, and no changes were made to the conclusions or findings in this SEA.

6.1 List of Agencies and Persons Consulted, 40 CFR § 1501.5(c)(2)

The proposed action has been coordinated with all appropriate Federal, State, and local governmental agencies, including:

- National Marine Fisheries Service
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- California Department of Fish and Wildlife
- California Department of Water Resources
- California State Lands Commission

- State Historic Preservation Office
- Central Valley Regional Water Quality Control Board
- Sacramento Metropolitan Air Quality Management District
- Central Valley Flood Protection Board
- Sacramento Area Flood Protection Agency
- City of Sacramento
- Residents adjacent to the SR Erosion Contract 4 project site

7 Findings

The anticipated environmental effects to seven resource areas were evaluated for the two alternatives proposed for SR Erosion Contract 4 SEA. Since publication of the draft SEA, Alternative 2 has been refined and is now the Preferred Alternative, called Alternative 2 With Refinements. The analysis of Alternatives 1 and 2 indicates that, with mitigation, these alternatives would not cause any new significant impacts beyond the scope of impacts already described in the 2016 ARCF FEIS/EIR and in the subsequent supplemental documents SREL Seepage, Stability, and Overtopping Contracts 1, 2, 3, and 4 SEA/SEIRS, Sacramento Weir SEIS/SEIR, and SR Erosion Contracts 1 and 2 SEA/SEIR. The effects of Alternative 2 with Refinements (Preferred Alternative) are similar in type and much less in magnitude than the anticipated effects of Alternative 1.

A draft FONSI for the Preferred Alternative (Alternative 2) was circulated with the draft SEA. A revised FONSI for the Preferred Alternative (Alternative 2 with Refinements) accompanies the final SEA.

8 Report Preparers and Contributors

This Supplemental Environmental Assessment was prepared by Sacramento District, USACE.

Table 10. List of Preparers and Contributors

Preparers and Contributors	Title, Agency, or Consultant
Melissa Dyer	Environmental Manager
Andrea Meier	Chief, Environmental Analysis Section
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Tatum Clinton-Selin	Historian
Chi Bui	Lead Engineer
Doreen Kiruja	California Department of Water Resources Scientist
Susanna Real	California Department of Water Resources Environmental Scientist
Drew Sutton	GEI Consultants
Greg Treible	Project Manager

9 References

National Marine Fisheries Service. 2021. Endangered Species Act Section 7(a)(2) Biological Opinion, Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the American River Watershed Common Features General Reevaluation Report Reinitiation 2020. Accessed 8/8/22 at www.sacleveeupgrades.com

U.S. Army Corps of Engineers. 1997. The WES Stream Investigation and Streambank Stabilization Handbook. U.S. Army Engineer Waterways Experiment Station (WES), Vicksburg, Mississippi.

U.S. Army Corps of Engineers. 2015. American River Watershed Common Features General Reevaluation Report. Accessed 8/8/22 at www.sacleveeupgrades.com

U.S. Army Corps of Engineers. 2016. Final Environmental Impact Statement / Environmental Impact Report. American River Watershed Common Features General Reevaluation Report. (State Clearing House Number 2005072046). Accessed 8/8/22 at www.sacleveeupgrades.com

U.S. Army Corps of Engineers. 2019. Final Supplemental Environmental Assessment/Initial Study, ARCF 2016 Project Beach Stone Lakes Mitigation Site. Accessed 8/8/22 at www.sacleveeupgrades.com

U.S. Army Corps of Engineers and Central Valley Flood Protection Board. 2020. Final Supplemental Environmental Assessment / Environmental Impact Report, American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee Contract 2. Accessed 8/8/22 at www.sacleveeupgrades.com

U.S. Army Corps of Engineers, Moore Noise, LLC; and GEI Consultants, Inc. 2021. Final General Conformity Determination, American River Watershed Common Features 2016 Project. Accessed 8/8/22 at www.sacleveeupgrades.com

U.S. Army Corps of Engineers. 2021. Final Supplemental Environmental Assessment/ Supplemental Environmental Impact Report, American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River Erosion Contract 1. Accessed 8/8/22 at www.sacleveeupgrades.com

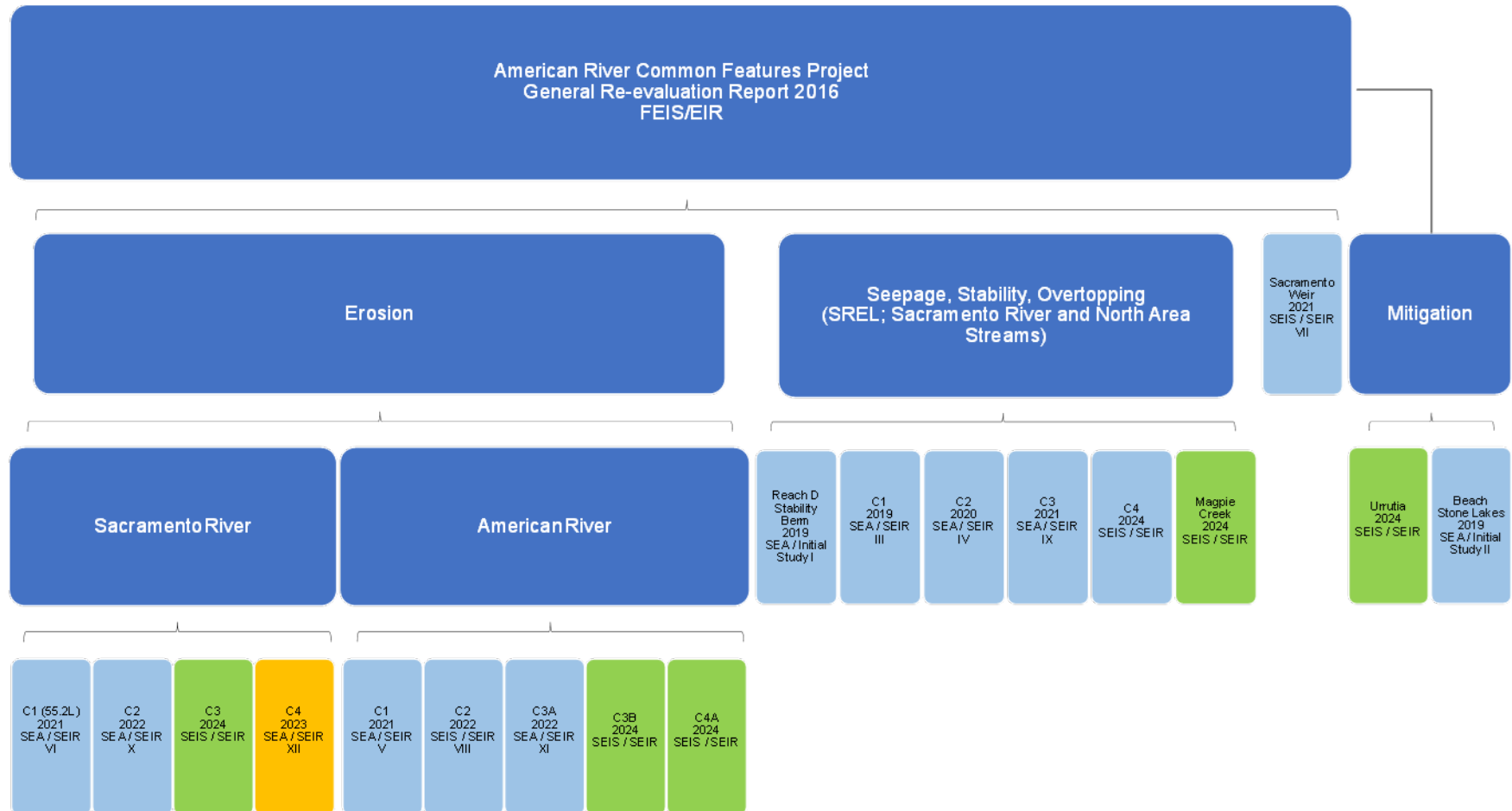
U.S. Army Corps of Engineers. 2021. Final Supplemental Environmental Assessment, American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee Contract 3. Accessed 8/8/22 at www.sacleveeupgrades.com

U.S. Army Corps of Engineers. 2021. Final General Conformity Determination, American River Watershed Common Features (ARCF) 2016 Project. Accessed 8/24/22 at www.sacleveeupgrades.com

U.S. Fish and Wildlife Service. 2015. Fish and Wildlife Coordination Act Report, American River Common Features, General Re-evaluation Report Project. Accessed 8/8/22 at www.sacleveeupgrades.com

U.S. Fish and Wildlife Service. 2021. Reinitiation of Formal Consultation on the American River Common Features (ARCF) 2016 Project, Sacramento and Yolo Counties, California. Accessed 8/8/22 at www.sacleveeupgrades.com

Appendix A - Overview of all ARCF elements, contracts, associated NEPA/CEQA documents

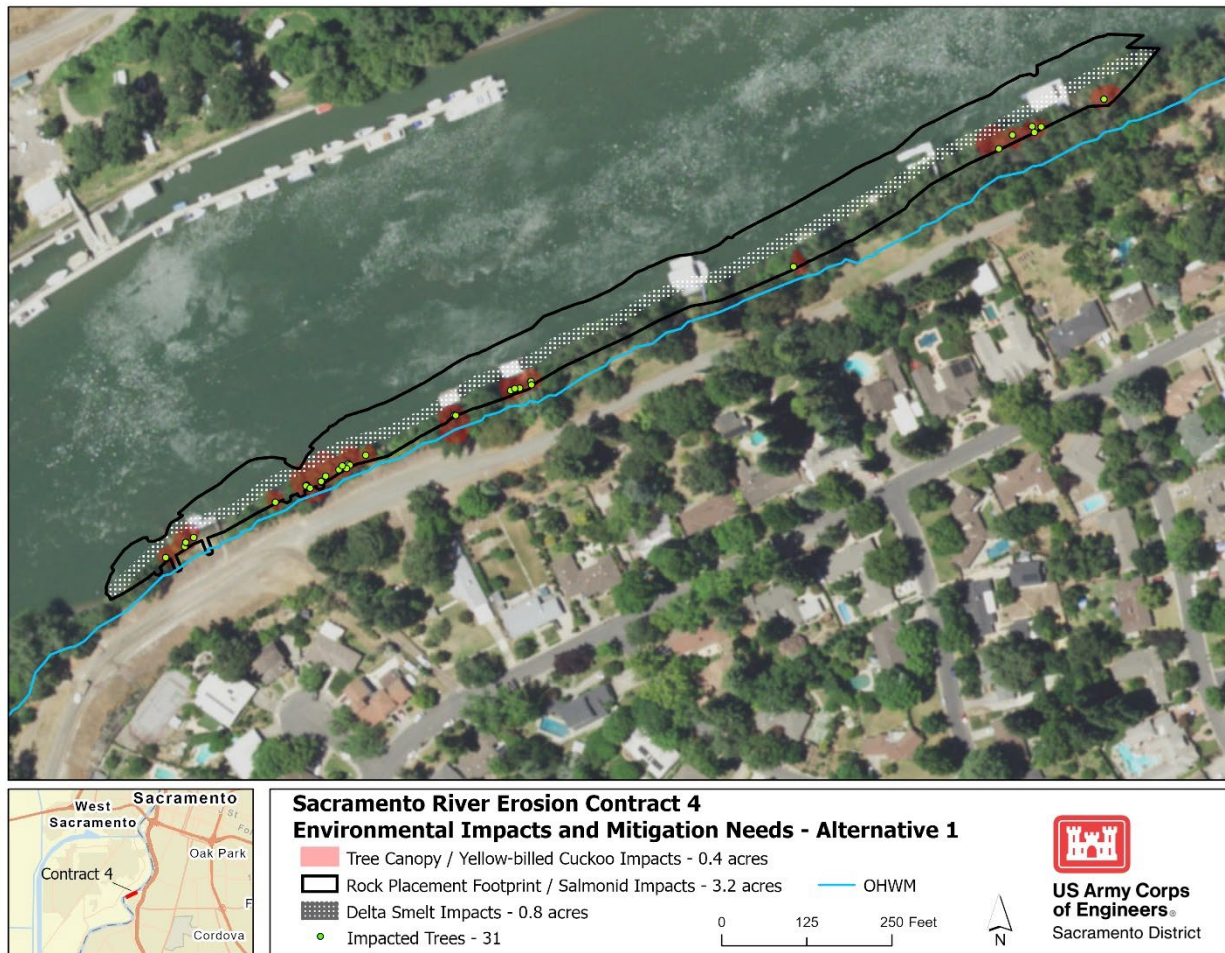


This supplemental EA is highlighted in orange. Remaining ARCF contracts to be included in a 2024 comprehensive SEIS/SEIR are in green.

Appendix B – Protected Species Habitat Impact Maps

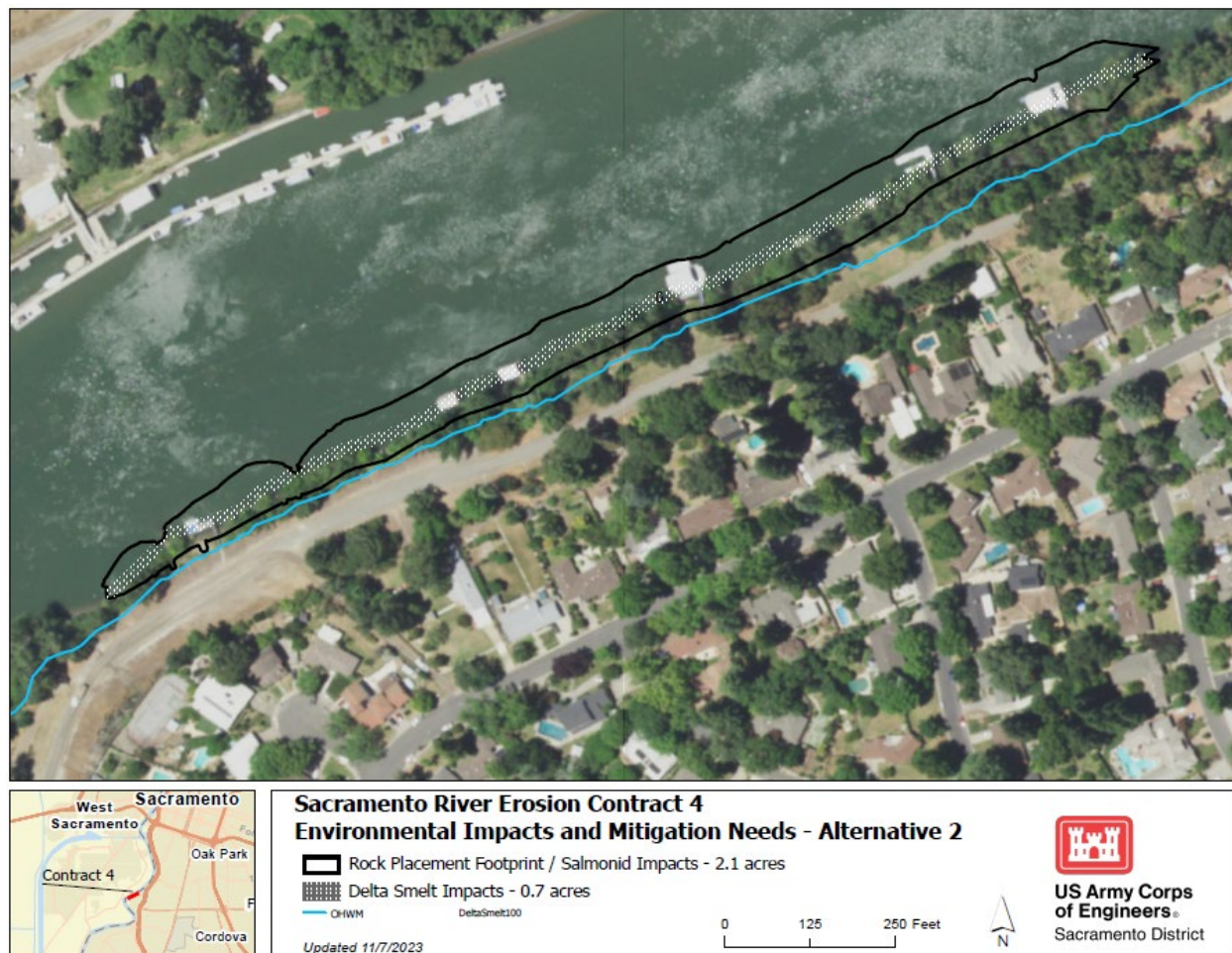
Alternative 1 – Conventional Riprap above the Summer Water Elevation.

Note: The summer water elevation (WSE) is 7 feet. The Ordinary High Water Mark (OHWM) is at 23.25 ft. The Mean High Tide Line (not depicted in Figure 1) is 7.66 ft. All elevations are in North American Vertical Datum of 1988 (NAVD 88).



Alternative 2 – Biotechnical Alternative above the Summer Water Elevation

Note: The summer water elevation (WSE) is 7 feet. The Ordinary High Water Mark (OHWM) is at 23.25 ft. The Mean High Tide Line (not depicted in Figure 2) is 7.66 ft. All elevations are in North American Vertical Datum of 1988 (NAVD 88).



Appendix C – Public Comments and Agency Responses

During the DSEA/EIR public review, eight comment letters were received. Those letters are provided in Part II of this appendix. Part I provides USACE, DWR and the project partners' responses to those comments.

Part I - Responses to Comments

Introduction

This appendix provides responses to public and agency comments on the Sacramento River Erosion Contract 4 Project draft Supplemental Environmental Assessment and Environmental Impact Report (Supplemental EA/EIR) received during the public comment period (March 1, 2023, through April 14, 2023).

Public Comment Summary

The draft Supplemental EA/EIR was posted with the State Clearinghouse (SCH # 2005072046) on March 1, 2023. The draft Supplemental EA/EIR was circulated for 45 days (March 1 through April 14, 2023) for review by Federal, State, and local agencies; organizations; and members of the public. The draft Supplemental EA/EIR was made available on the Sacramento District, U.S. Army Corps of Engineers (USACE) and Central Valley Flood Protection Board (CVFPB) websites. A digital copy was made available for review at the Sacramento Central Library at 828 I Street, Sacramento, CA 95814. Hard copies are also available by request.

A virtual public meeting was held on March 22, 2023, to provide the public with information and an opportunity to ask questions on the draft Supplemental EA/EIR. All comments received during the public review period were considered by CVFPB and USACE and incorporated into the final Supplemental EA/EIR as appropriate.

During the virtual meeting, the chat function was available for the public to send questions to the meeting moderator. Attendees were also given an opportunity to voice questions at the end of the presentation, but attendees were requested to provide official comments on the contents of the environmental document in writing via mail or electronic mail.

Eight comment letters were received during the public review period, providing a total of 21 comments as follows:

- (2) U.S. Environmental Protection Agency (EPA)
- (2) California State Lands Commission
- (1) Central Valley Regional Water Quality Control Board (CVRWQCB)
- (5) Sacramento Metropolitan Air Quality Management District (SMAQMD)
- (2) City of Sacramento, Transportation Division
- (1) Yocha Dehe Wintun Nation
- (6) Private Individual #1

- (3) Private Individual #2

Comments and Responses

The following pages include all public comments received and the responses to those comments. The responses are annotated to refer back to the corresponding letters and comments that precede them.

Comment Letter 1: U.S. Environmental Protection Agency

- 1-1 The American River Common Features (ARCF) General Reevaluation Report (GRR) Habitat Mitigation, Monitoring, and Adaptive Management Plan (HMMAMP) can be found here:
https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/W/ RDA16/Documents/ARCF_GRR_Final-EIS-EIR_Appl_May2016.pdf. The Vegetation Management Plan is currently in development and will be drafted prior to the start of construction activities. The Vegetation Management Plan will contain all mitigation and monitoring requirements, performance standards, and success criteria found in the NMFS and USFWS 2021 Biological Opinions as well any other requirements developed in consultation with NMFS and the USFWS. No change to the Draft SEA or SEIR is proposed in response to this comment.
- 1-2 USACE's design team determined that dredged material is not suitable for use at the Sacramento River Erosion Contract 4 project. Materials must meet specific engineering standards to ensure the slope and erosion protection perform as intended. The biotechnical element of Contract 4 requires soils suitable for riparian rather than wetland planting, establishment, and long term success. The plants will be a functional part of erosion protection in this area so soils will be chosen to optimize the successful establishment and long term performance of the vegetation. Currently USACE and the Project Partners anticipate that dredged material will be beneficially reused for much of the off-site compensatory habitat mitigation required for the Project .

Comment Letter 2: California State Lands Commission

- 2-1 As requested by the commenter, Figure 2-1 has been edited to include the mean high tide line (MHTL). Figure 2-2 currently illustrates the water surface elevation (WSE) used in design at 7 feet elevation, and the MHTL is 7.66 feet. Because of the similar elevations of these lines, the MHTL was not added to Figure 2-2 to preserve visual clarity and to avoid confusion. However, a note has been added to the figure to identify the elevation of the MHTL a short distance above the WSE.
- 2-2 The comment requests additional text be added to the description of the archaeological discovery plan in Mitigation Measure CR-2. Because the suggested text clarifies State law requirements which would apply to historic or cultural resources discovered on State lands rather than imposing a project-specific mitigation requirement, USACE and CVFPB do not propose to modify the text of Mitigation Measure CR-2. No change to the SEA/EIR is necessary.

Comment Letter 3: Central Valley Regional Water Quality Control Board

- 3-1 The comment provides general information on permit processes and does not identify specific comments or concerns related to the Sacramento River Erosion Contract 4 project. USACE and the Project Partners will obtain all permits as required by the Clean Water Act prior to the start of construction.

Comment Letter 4: Sacramento Metropolitan Air Quality Management District

- 4-1 The Sacramento Metropolitan Air Quality Management District (SMAQMD) Enhanced Exhaust Control Practices are included in Mitigation Measure AIR-3 “Require Lower Exhaust Emissions for Construction Equipment.” Mitigation Measure AIR-3 includes additional measures not identified in SMAQMD’s Enhanced Exhaust Control Practices to further reduce emissions. However, in response to this comment, language has been added to Mitigation Measure AIR-3 to more clearly identify SMAQMD’s requirements, as shown below. Mitigation Measure AIR-3 has been incorporated by reference into Section 3.9.3 of the SEA (i.e., Part II of the document).

Mitigation Measure AIR-3: Implement SMAQMD’s Enhanced Exhaust Control Practices and 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. In order 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 would 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, and the CARB equipment identification number for each piece of equipment. This will include all owned, leased, and subcontracted equipment to be used. The construction contractor shall provide the anticipated construction timeline including start date, and the name and phone numbers of the project manager and the 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, or as pre-arranged with SMAQMD, except for any 30-day period in which no construction activity occurs.

- 4-2 No change is proposed in response to this comment. Minimization measures included in Mitigation Measure AIR-1 “Implement the Sacramento Metropolitan Air Quality Management District’s Basic Construction Emission Control Practices” and AIR-2 “Implement the Sacramento Metropolitan Air Quality Management District’s Enhanced Fugitive PM Dust Control Practices” would reduce impacts from generating fugitive PM

dust to a less-than-significant level. The use of barges for most material transportation and construction staging project would further limit the production of fugitive dust given. Therefore, dust modeling will not be required for this project.

- 4-3 In response to this comment, the construction timeline presented in the EIR on page 59 has been updated to 8 years to match the construction timeline in the EA, as shown below:

Local air district (SMAQMD and BAAQMD) significance thresholds used in this analysis are presented in Tables 3.8-2 and 3.8-3, respectively, and General Conformity de minimis thresholds that apply to the project are presented in Table 3.8-4. The ARCF GRR Final EIS/EIR identified construction of the ARCF project over a longer timeline (14 years compared to 8 years as currently proposed). As a result, the reduced project timeline will increase annual air emissions for the ARCF Project as a whole. This document therefore includes a revised comparison to the General Conformity de minimis standards.

- 4-4 In response to this comment, language has been added to Mitigation Measure AIR-3 to clarify that a letter would be sent to SMAQMD even if no work occurs for a 30-day period.

In the event that no construction occurs for any 30-day period, a notification will be sent to SMAQMD stating that no construction occurred.

- 4-5 No change is proposed in response to this comment. The Mitigation Measure referenced by the commenter (GHG-1 “Implement GHG Reduction Measures”) includes the use of shuttle vans or carpools to help minimize the generation of GHG and USACE and Project Partners will purchase credits to offset actual GHG emissions, reducing the impact to a less-than-significant level.

Comment Letter 5: City of Sacramento

- 5-1 Postcards will be mailed to residents in the neighborhoods that would be affected by project construction. Pedestrian and bicycle detours are included in Mitigation Measure REC-1. This mitigation measure requires clear signage, notification at least 14 days in advance of detours, and coordination with the City’s and/or County’s Bicycle and Pedestrian Coordinator at least 60 days before the start of construction activities requiring detours in order for the Contractor to prepare the Pedestrian and Bicycle Traffic Control Plan. The Plan will include posted signs at major entry points for bicycle trails clearly indicating route closures, detour routes, roadway markings to designate temporary bike lanes, information signs to notify motorists to share the road with bicyclists, and a contact number to call for questions or concerns. The proposed project will not impact driveway access at any stage of construction and only a small number of vehicles will access the project site from the landside; most construction activities and material movement would occur via barge. Mitigation Measure REC-1 has been incorporated by reference into section 3.10.3 of the SEA.

- 5-2 The Contractor will prepare a Traffic Control Plan as described in Mitigation Measure TR-1 in accordance with City Code 12.20.030 and to the satisfaction of the City Traffic Engineer. A Haul Route Plan will be developed with access routes from project sites to major highways, as well as alternate routes for emergencies. Heavy truck traffic, unloading and hauling will be scheduled during non-peak periods. The Traffic Control Plan will generally include construction hours and vehicle types need for construction and hauling of levee import and degrade materials. Transportation and Circulation mitigation measures are described in section 3.10.6 of the American River Common Features, General Reevaluation Report Final EIS/EIR, dated December 2015 (updated May 2016). A Traffic Control Plan consistent with the local jurisdiction's standard construction specifications is required.

Comment Letter 6: Yocha Dehe Wintun Nation – Yvonne Perkins, Tribal Historic Preservation Officer

- 6-1 As requested by the commenter, USACE and the Project Partners will continue to provide updates regarding the project.

Comment Letter 7: Private Individual #1

- 7-1 In response to this comment, text has been revised to reflect current zoning of the project site:

The project site is currently zoned for flood zone and residential.

The update to reflect the correct zoning designations of the project site does not affect the impacts of constructing the project; impacts would not differ from those already described in the SEIR. After construction is complete, USACE and the Project Partners will reseed and restore the project site as described in Section 2.2.4, "Demobilization and Cleanup," in the SEIR.

- 7-2 As mentioned in SEIR Section 2.1.3 "Boat Docks," The USACE does not have the legal authority or funding to provide legal advice concerning California law, engineering advice concerning the feasibility of boat dock replacement or business advice concerning (1) contractors that perform boat dock removal, storage or disposal services or (2) the costs or benefits of relying on the State of California or the USACE acting on the State's behalf to remove/dispose of boat docks rather than the owner. The recreation analysis in Section 3.11 of the SEIR addresses public boating facilities along the Sacramento River in the vicinity of the project site. Private boat docks are not considered a recreational resource available to the public. Although boat docks do provide shade in some areas, the impact analysis in the SEIR identifies shaded riverine aquatic (SRA) habitat impacts and other impacts to fish. The principal attributes of SRA habitats include (1) adjacent bank being composed of natural, eroding substrates which supports riparian vegetation that either overhangs or protrudes into the water; and (2) water containing variable amounts of woody debris such as leaves, logs, branches, and roots; as well as variable depths, velocities, and currents. The installation of instream woody material (IWM) will compensate for some loss of SRA by fish species by providing in-stream shaded/protected habitat. After construction is complete, under Alternative 1, natural plant recruitment will be allowed and under Alternative 2 the biotechnical slope

protection native riparian plantings are integral to the design. Under both alternatives, once construction is complete disturbed areas will be seeded with native grasses and forbs. Additionally, Mitigation Measures VEG-1 “Retain, Protect, and Plant Trees On-Site,” and VEG-2 “Compensate for Riparian Habitat Removal” will reduce significant impacts from the loss of SRA to less than significant. The potential status of the docks as historic resources is addressed in the response to Comment 7-3.

- 7-3 No change is proposed in response to this comment. USACE has determined that the boat docks are not eligible for listing as historic resources on the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) and are not considered historic resources. USACE is seeking concurrence with the State Historic Preservation Officer (SHPO) on this determination.
- 7-4 No change is proposed in response to this comment. Although removal of the dock’s existing stabilizing system (for example, pilings) is not required for the erosion protection construction project. At the end of the erosion protection work, boat dock owners may or may not be able to replace the docks to the existing stabilizing system..
- 7-5 No change is proposed in response to this comment. Most material movement and construction activities would occur via barge, which greatly limits the amount of fugitive dust the project would generate. Additionally, Mitigation Measure AIR-1 and AIR-2 include measures to minimize the generation of fugitive PM dust.
- 7-6 The language referenced by the commenter is in Mitigation Measure TR-1, which applies general requirements for the entire ARCF 2016 project. In the case of the project site, because no existing bicycle facilities are present that would require detours, the text cited by the commenter will not apply.

Comment Letter 8: Private Individual #2.

- 8-1 Please see response to comment 7-3.
- 8-2 Please see response to comment 7-2.
- 8-3 USACE and Project Partners are not legally authorized or funded to provide recommendations regarding licensed contractors to use to perform dock removals nor are they able to provide cost estimates for this work.

Part II – Letters of Comment Received on the Draft SEA/EIR Comments

Letters and emails received commenting on the Draft SEA-SEIR:

1. U.S. Environmental Protection Agency
2. California State Lands Commission
3. Central Valley Regional Water Quality Control Board
4. Sacramento Metropolitan Air Quality Management District
5. City of Sacramento Department of Public Works
6. Yocha Dehe Wintun Nation, Tribal Historic Preservation Officer
7. Private Citizen #1
8. Private Citizen #2



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

April 13, 2023

Joe Griffin, Chief
Environmental Resources Branch
U.S. Army Corps of Engineers
1325 J Street, Room 1513
Sacramento, California 95814

Subject: Sacramento River Erosion Contract 4 Draft Supplemental Environmental Assessment/Environmental Impact Report, part of the American River Watershed Common Features General Evaluation Report, Sacramento County, California

Dear Joe Griffin:

The U.S. Environmental Protection Agency has reviewed the Sacramento River Erosion Contract 4 Supplemental Draft Environmental Assessment/Environmental Impact Report pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508) and our NEPA review authority under Section 309 of the Clean Air Act.

The design for Sacramento River Erosion Contract 4 includes two options for bank protection. In Option 1, USACE would construct traditional bank protection comprised of riprap. Option 2, the preferred alternative, uses vegetative plantings with bioengineered materials instead of riprap along the bank. This SEA on Contract 4 states that both action alternatives would employ launchable rock trenches¹ to protect the bank from erosion (SEA pgs. 15, 18). We note that the 2021 Biological Opinions of National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS)² required the Corps to address the potential for permanent loss of riparian vegetation, native habitat function, reduced fish habitat and food availability if normal erosion or flood scouring events would launch the rock trenches leaving only exposed riprap.

Subsequent to the EPA's review of environmental documents on other erosion control and mitigation projects related to the 2016 American River Watershed Common Features (ARCF) projects, the Corps studied the erosion potential of launchable rock features under various river level scenarios and agreed to provide additional mitigation. Through continued consultation with the resource agencies, the Corps would also apply several new conservation actions to project activities including

- 1) waiving its requirement to remove vegetation on levees to allow riparian trees and shrubs to remain in place,

¹ A launchable rock trench involves excavating a trench outside the river channel, filling the trench with rock down to the summer mean water surface elevation, and then covering with a minimum of 3 feet of soil to allow for revegetation of the site. The rock is intended to deploy once the surrounding material is eroded away, preventing further erosion.

² 2021 NMFS Biological Opinion p. 108; 2021 USFWS Biological Opinion p.26

- 2) emplacement of instream woody materials, and
- 3) utilizing vegetative plantings as an alternative to riprap (SEA p. 47).

The following comments and recommendations address conservation measures and management actions attendant to the continued use of launchable rock trenches for levee/bank protection and consideration of the beneficial re-use of dredged materials for required mitigation.

Mitigation Measures, Vegetation Management and Habitat Mitigation, Monitoring, and Adaptive Management Plans

The Draft SEA states that mitigation measures and vegetation management plans would be consistent with the Habitat Mitigation, Monitoring, and Adaptive Management Plan (HMMAMP) developed for the 2016 ARCF GRR Final EIS/EIR (SEA p. 15), but it is not clear that an HMMAMP was ever developed. To compensate for riparian habitat degradation, removal or loss, the SEA states that on-site habitat will be created in accordance with the ARCF GRR HMMAMP and include mitigation ratios for replacement habitat and compensation for temporal losses (Mitigation Measures VEG-1 and VEG-2, EIR pgs. 31-32). The SEA states that a Vegetation Management Plan will be developed in coordination with USFWS and NMFS to ensure that native riparian plantings installed within the planting benches are protected, watered, and monitored for a period of 5-10 years following installation to ensure that they are on an ecologically sustainable trajectory (EIR pgs. 32-33, 37). Adaptive management will commence upon completion of the plantings and continue as necessary to ensure the success of the on-site plantings. The adaptive management process provides a mechanism by which remedial actions can be implemented if success criteria are not met or fail to persist once the criteria have been met (EIR pgs. 15-16)

Recommendations: Prepare a detailed Vegetation Management Plan and a HMMAMP that ensures conservation measures and compensatory mitigation adequately off-set lost functions and values. Include all mitigation and monitoring requirements, performance standards, and success criteria found in the NMFS and USFWS 2021 Biological Opinions and all subsequent remedial actions or adaptive management tasks, monitoring timeframes, and long-term maintenance obligations developed in consultation with NMFS and the USFWS. Provide a copy of these documents to the local sponsor and contractors who may be involved in implementing the plans.

Incorporate by reference the Mitigation Measures, Vegetation Management Plan and HMMAMP into the Finding of No Significant Impact (FONSI), should such a determination be made.

Beneficial Use of Dredged Materials

Both the EPA and the Corps agree that most dredged materials represent a valuable resource and should be considered for beneficial uses. Beneficial use is the placement or use of dredged material for some productive purpose from which economic, social, or ecological benefits may be derived. Dredged sediments can be used to mimic degraded or lost habitats and restore

regional patterns of ecosystem functions and outputs. Examples of beneficial use include wetlands restoration, beach nourishment, shoreline construction, and habitat creation.³

The EPA is aware that the Corps places dredged material at a disposal site within the Sacramento/San Joaquin delta which may be suitable for use as planting medium or serve as a future site to meet the Corps' compensatory mitigation obligations.

Recommendations: In the FONSI, commit to beneficially re-using suitable dredged materials to the fullest extent practicable. Consider opportunities to reduce material costs by employing these sediments at mitigation sites to enhance existing habitat or to create compensatory habitat (constructing or raising marshes, channels or planting benches). Review prior testing of previously dredged materials to determine its suitability for ecological use and conduct additional testing as needed.

1-2
continued

The EPA appreciates the opportunity to review this Draft SEA and requests an opportunity to review draft environmental documentation of future ARCF-related projects. When the Final SEA/FONSI or ROD are issued, please send an electronic copy to Robin Truitt, the lead reviewer for these projects, at truitt.rob@epa.gov. If you have any questions, please contact me at (415) 972-3308, or Robin at (415) 972-3742.

Sincerely,

JANICE
CHAN

Digitally signed by
JANICE CHAN
Date: 2023.04.13
11:47:49 -07'00'

Janice Chan

Acting Manager, Environmental Review Branch

Cc: Guy Romine, U.S. Army Corps of Engineers
Nate Martin, U.S. Army Corps of Engineers
Allison Bosworth, National Marine Fisheries Service
Jennifer Norris, U.S. Fish and Wildlife Service

³ [Beneficial Uses of Dredged Materials Case Study: San Francisco Bay Region \(epa.gov\)](#), discusses regional planning programs for dredged material in the Sacramento/San Joaquin River Delta.

CALIFORNIA STATE LANDS COMMISSION

100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202



Established in 1938

April 10, 2023

JENNIFER LUCCHESI, Executive Officer
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from Voice Phone 800.735.2929
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File Ref: SCH #2005072046

Flood Projects Branch
Department of Water Resources
3464 El Camino Avenue Room 200
Sacramento, CA 95821

VIA ELECTRONIC MAIL ONLY: PublicCommentARCF16@water.ca.gov

Subject: Draft Supplemental Environmental Assessment/Environmental Impact Report (SEA/EIR) for the American River Common Features, Water Resources Development Act of 2016, Sacramento River Erosion Contract 4, Sacramento County

To whom it may concern:

The California State Lands Commission (Commission) staff has reviewed the Draft SEA/EIR for the American River Common Features Development Act of 2016, Sacramento River Erosion Contract 4 (Project), which is being prepared by the Central Valley Flood Protection Board (CVFPB), as the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.), and the U.S. Army Corps of Engineers (USACE) as the lead agency under the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.). The Commission is a trustee agency for projects that could directly or indirectly affect State sovereign land and their accompanying Public Trust resources or uses. Additionally, because the Project involves work on State sovereign land, the Commission will act as a responsible agency.

Commission Jurisdiction and Public Trust Lands

The Commission has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The Commission also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6009, subd. (c); 6009.1; 6301; 6306). All tidelands and submerged lands granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the common law Public Trust Doctrine.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line (MHTL), except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court.

The Sacramento River, at the location of the proposed Project, is tidal State sovereign land under the jurisdiction of the Commission. Based upon the information provided and a preliminary review of Commission records, Commission staff has determined that the Project will require submission of a lease application for issuance of a lease. The application can be found at our website at www.slc.ca.gov. As the Project proceeds, please submit additional information, including but not limited to MHTL and boundary surveys, for a determination of the extent of the Commission's jurisdiction. Please contact Sandra Avila, Public Land Management Specialist, for jurisdiction and leasing requirements for the Project (see contact information at end of letter). Additionally, please ensure that Ms. Avila is included on any future distribution mailing list for the Project.

Proposed Project Description

The USACE, CVFPB, and Sacramento Area Flood Control Agency propose to construct levee improvements to address erosion concerns along approximately 1,700 linear feet of the east levee of the Sacramento River near River Mile 55. Project objectives include the following:

- Reduce the chance of flooding and damages, once flooding occurs, and improve public safety preparedness and emergency response.
- Reduce maintenance and repair requirements by modifying the flood management system in ways that are compatible with natural processes.
- Integrate the recovery and restoration of key physical processes, self-sustaining ecological functions, native habitat, and species.
- Ensure that technically feasible and cost-effective solutions are implemented to maximize the flood risk reduction benefits given the practical limitations of applicable funding sources.

Commission staff understand that the proposed Project includes erosion protection work, including bank protection, construction access and staging within the levee prism, and the channel and bank of the Sacramento River at a single site in the Little Pocket neighborhood.

The Project design includes two options for bank protection, both of which will likely be located within the jurisdiction of the Commission. In Option 1, USACE would construct traditional bank protection comprised of riprap. In Option 2, USACE would construct a bioengineered improvement instead of riprap from 7 to 13 feet in

elevation. The design for both options includes instream woody material. Prior to construction, trees, shrubs, and other vegetation will be removed from the work area during the appropriate work window. A river barge equipped with a clamshell will be used to place rock and shape the bank protection feature, and an excavator will be used to trench keys if necessary.

Environmental Review

Commission staff request that the lead agencies consider the following comments on the Draft SEA/EIR.

General Comments

1. Commission staff request that the Project figures (Figures 2-1 and 2-2) include a line indicating the MHTL so staff can better assess impacts to areas within Commission jurisdiction (e.g., impacts to riparian habitat and associated species). 2-1

Cultural Resources

2. Title to Resources: Commission staff request the Archaeological Discovery Plan (Mitigation Measure CR-2) include a statement that the title to all archaeological sites and historic or cultural resources on or in the tide and submerged lands of California are vested in the State and under the jurisdiction of the Commission (Pub. Resources Code, § 6313), as follows: "The final disposition of archaeological, historical, and paleontological resources recovered on State lands under the jurisdiction of the California State Lands Commission must be approved by the Commission." Finally, Commission staff request that the lead agencies consult with Staff Attorney Jamie Garrett (see contact information below) should any cultural resources on State lands be discovered during construction of the Project. 2-2

Thank you for the opportunity to comment on the Draft SEA/EIR for the Project. As a responsible and trustee agency, the Commission will need to rely on the certified SEIR for the issuance of any lease as specified above and, therefore, we request that you consider our comments prior to certification of the SEIR.

Please send copies of future project-related documents, including electronic copies of the certified SEA/EIR, an accessible version of the final Mitigation Monitoring and Reporting Program, Notice of Determination, Findings, Statement of Overriding Considerations (if applicable), and approving resolution when they become available. Please refer questions concerning environmental review to Cynthia Herzog, Senior Environmental Scientist, at (916) 574-1310 or cynthia.herzog@slc.ca.gov. For questions concerning archaeological or historic resources under Commission jurisdiction, please contact Staff Attorney Jamie Garrett, at (916) 574-0398 or jamie.garrett@slc.ca.gov.

For questions concerning Commission leasing jurisdiction, please contact Sandra Avila, Public Land Management Specialist, at (916) 574-0282 or sandra.avila@slc.ca.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Nicole Dobroski". The signature is fluid and cursive, with the first name "Nicole" and last name "Dobroski" clearly distinguishable.

Nicole Dobroski, Chief
Division of Environmental Science, Planning,
and Management

cc: Office of Planning and Research
C. Herzog, Commission
J. Garrett, Commission
S. Avila, Commission



Central Valley Regional Water Quality Control Board

13 April 2023

Susie Real
California Department of Water Resources
3310 El Camino Avenue, Suite 170
Sacramento, CA 95821
susanna.real@water.ca.gov

COMMENTS TO REQUEST FOR REVIEW FOR THE SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT, AMERICAN RIVER WATERSHED COMMON FEATURES, WATER RESOURCES DEVELOPMENT ACT OF 2016 PROJECT, SACRAMENTO RIVER EROSION CONTRACT 4 PROJECT, SCH#2005072046, SACRAMENTO COUNTY

Pursuant to the State Clearinghouse's 1 March 2023 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Supplemental Environmental Impact Report* for the American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River Erosion Contract 4 Project, located in Sacramento County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore, our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin

3-1

Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:

http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:

https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_2018_05.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or

excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality/certification/

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., “non-federal” waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at:

https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at:

https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:

https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: <https://www.waterboards.ca.gov/centralvalley/help/permit/>

3-1

If you have questions regarding these comments, please contact me at (916) 464-4684 or Peter.Minkel2@waterboards.ca.gov.

Peter Minkel

Peter Minkel
Engineering Geologist

cc: State Clearinghouse unit, Governor's Office of Planning and Research,
Sacramento



April 14, 2023

Public Affairs Office
 US Army Corps of Engineers, Sacramento District
 1325 J Street
 Sacramento, CA 95814
 Email: PublicCommentARCF16@water.ca.gov

Subject: Draft Supplemental EA/EIR for American River Common Features Erosion Contract 4

To Whom It May Concern:

Thank you for providing the Draft Supplemental Environmental Assessment/Environmental Impact Report (EA/EIR Report) for the American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River Erosion Contract 4 (Project) to the Sacramento Metropolitan Air Quality Management District (Sac Metro Air District) for review. This project includes levee improvements to address erosion concern along approximately 1,700 linear feet of the east levee of the Sacramento River near River Mile 55. Most of the levee improvements in this reach of the Sacramento River were analyzed in the 2016 American River Watershed Common Features General Reevaluation Report (ARCF GRR) Environmental Impact Statement/Environmental Impact Report (EIS/EIR). Our comment letter (dated July 19, 2022) on that project is attached (Attachment A) and comments on the Draft Supplemental EA/EIR are provided below.

Air Quality Impacts

Part I (Draft Supplemental EIR) of the EA/EIR Report (see pg. 58) assumes a 20% reduction in NO_x from implementing Sac Metro Air District Enhanced Exhaust Control Practices. However, the project mitigation does not appear to include the Sac Metro Air District Enhanced Exhaust Control Practices but other air quality mitigation.

Recommendation: Add Sac Metro Air District's Enhanced Exhaust Control Practices to the MMRP or reevaluate the assumed NO_x reductions based on the proposed mitigation.

Part I (Draft Supplemental EIR) of the EA/EIR Report (see pg. 59) states that nearby sensitive receptors, especially residences and schools could be exposed to dust during construction activities and that measures will be implemented to control fugitive dust emissions if the project exceeds the Sac Metro Air District thresholds. These mitigation measures included PM dust modeling. However, there is no mitigation measure in the report that discusses dust modeling (i.e. AIR 1 – AIR 5 do not discuss dust modeling). Also, potential PM mitigation measures included measures to control fugitive dust emissions

4-1

4-2

but it is not clear what measures those would be (i.e. is this a reference to AIR-1 and AIR-2 which is already required for the project because of NOx).

Recommendation: Include a mitigation measure for dust modeling and clarify what the mitigation measures would be for controlling fugitive dust.

4-2
continued

Project Timeline

The Draft Supplemental EIR (see pg. 59) states that the ACRF GRR Final EIS/EIR identified construction over a 10-year period, but 5 years is now currently proposed. However, the Draft Supplemental EA (see pg. 32) states that the construction window in the ACRF GRR Final EIS/EIR was assumed to be 14 years but has been condensed to 8 years. These statements appear to be inconsistent.

Recommendation: Please explain why the construction timeline stated for the ACRF Final EIS/EIR is different between the EIR and EA.

4-3

Mitigation Measure AIR-3

We appreciate the monthly submittals of work progress throughout the project. Please also let us know if there is no construction that month so we do not expect a monthly submittal. This helps us track the project activity.

Recommendation: Include language stating that an email will be sent if there was no construction during that 30-day period.

4-4

GHG-1 Mitigation Measures: Implement GHG Reduction Measures

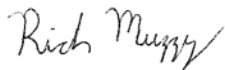
The Corps commitment to achieve net zero greenhouse gas emissions from project construction is commendable. It is also important to use zero emission carpools and shuttle vans.

Recommendation: The Corps should use zero emissions carpools and shuttle vans (see first bullet, pg. 68) to transport employees.

4-5

Please contact me at 279-207-1139 or at rmuzzy@airquality.org if you have any questions regarding these comments.

Sincerely,



Rich Muzzy Associate Air Quality Planner/Analyst

cc: Paul Philley, AICP, Program Supervisor
JJ Hurley, Associate Air Quality Planner/Analyst



Attachment A

July 19, 2022

Flood Projects Branch
Department of Water Resources
3464 El Camino Avenue Room 200
Sacramento, CA 95821
PublicCommentARCF16@water.ca.gov

Public Affairs Office
U.S. Army Corps of Engineers
1325 J Street Room 1513
Sacramento, CA 95814
ARCF_SRELC4@usace.army.mil

Subject: Draft Supplemental Environmental Assessment/Environmental Impact Report for American River Watershed Common Features, Sacramento River East Levee Contract 4 Project (SAC201301442)

To Whom It May Concern:

Thank you for providing the Draft Supplemental Environmental Assessment/Environmental Impact Report (DSEA/DSEIR) for American River Watershed Common Features, Sacramento River East Levee Contract 4 project to the Sacramento Metropolitan Air Quality Management District (Sac Metro Air District) for review. The project includes the construction of levee improvements consisting of approximately 12,880 cumulative feet of levee raises, cut off walls, seepage berm, and other levee improvements along the Sacramento River East Levee. The Sac Metro Air District is required by the California Health and Safety Code to represent the residents of Sacramento County in influencing the decisions of other agencies whose actions may have an adverse impact on air quality. In that spirit, Sac Metro Air District staff provides the following comments on the DSEA/DSEIR.

Air Quality Analyses

Table 3-1 in the DSEIR (page 34) incorrectly lists the Sacramento Valley Air Basin as “non-attainment” for the Annual PM_{2.5} State Attainment Status. Sacramento County is currently designated attainment.

Table 3-2 in the DSEIR (page 35) should include the Sac Metro Air District’s annual thresholds for PM₁₀ (14.6 tons) and PM_{2.5} (15 tons) in addition to the daily thresholds listed. Additionally, a footnote to the table should describe that the thresholds for PM₁₀ and PM_{2.5} are zero unless BACT/BMPs are implemented as part of the project.

The air quality section of the DSEIR (page 36) includes the following statement regarding the project: “Implementing avoidance and minimization measures described in Mitigation Measures AIR-1, AIR-2, and AIR-3 will reduce emissions below the de minimis standards during the 2023 construction season, resulting in a less-than-significant impact after mitigation.” Since the emissions levels shown in Table 3-5 exceed the de minimis standards, this statement should be updated to also include reference to mitigation measure AIR-4, which is the purchase of offsets for NO_x emissions exceeding the de minimis standards.

¹ Sac Metro Air District Air Quality Pollutants and Standards: <https://www.airquality.org/air-quality-health/air-quality-pollutants-and-standards>

Sac Metro Air District appreciates that mitigation measure AIR-3 (DSEIR page 39) incorporates the requirement to use construction equipment with Tier 4 off-road engines and haul trucks with 2010 or newer engines from the American River Common Features General Conformity Determination². Sac Metro Air District recommends AIR-3 include the following revisions:

1. Add the prohibition of the use of tier 0 and uncontrolled engines (General Conformity Determination mitigation commitment, page 8).
2. Modify the hours of equipment usage reporting requirement, from 40 hours or more on the project, to 8 hours or more on the project, so that it is consistent with Sac Metro Air District's current mitigation language³.

Mitigation measure AIR-4 (DSEIR page 40) indicates the Army Corps anticipates purchasing offsets for NOx emissions in 2022 for the American River Common Features project for general conformity compliance. This statement should be updated to also include the purchase of offsets in 2023, which would mitigate the emissions from this project and the other American River Common Features projects anticipated to occur in 2023 (included in Table 3-5) for general conformity compliance.

Also related to mitigation measure AIR-4, Table ES-1 should include the purchase of offsets for years when NOx emissions exceed the general conformity de minimis level as part of AIR-4 (DSEIR page xii).

Sac Metro Air District recommends the DSEA (pages 33-34) reference the air quality analysis conducted for the project that is presented in the air quality section of the DSEIR (pages 33-40) since emissions for the project are not reported in the DSEA.

Currently the DSEA references the mitigation measures in both the American River Common Features General Reevaluation Report EIS/EIR and the Sacramento River East Levee Contracts 1-3 Supplemental EA/EIRs. For full public disclosure and to avoid confusion, the mitigation measures applicable to this project should be included in the DSEA so the public will not have to search for the mitigation measures in four other environmental documents. At a minimum, the mitigation measures included in the DSEIR (pages 37-40) could be referenced.

Appendix A includes Road Construction Emission Model emissions summaries for six model runs (three for berm and relief wells, and three for vegetation and cutoff walls) and two complete data input pages (one for berm and relief wells, and one for vegetation and cutoff walls). Currently, it is not clear how the emissions in Table 3-4 in the DSEIR (page 36) are derived from the emissions summaries and data input pages in Appendix A. Please describe what activities are covered with each model run and how the model runs are used to calculate the emissions estimates. Additional explanation and summary tables identifying mitigated and unmitigated scenarios and how model runs are combined to calculate the project emissions would be helpful.

² ARCF Final General Conformity Determination:

https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/WRDA16/Documents/ARC_F16_Final-GenConform_Determination-w-AppendixA_Jun2021.pdf?ver=56b3EYmyrsKSWSzYI5ncsQ%3d%3d

³ Sac Metro Air District On-Site Enhanced Exhaust Control Mitigation:

<https://www.airquality.org/LandUseTransportation/Documents/Ch3On-SiteEnhancedExhaustMitigationFinal4-2019.pdf>

Bicycle and Pedestrian Considerations

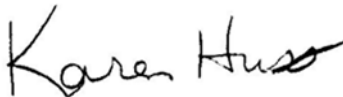
As part of recreation mitigation measure REC-1 and transportation measure TR-1, Sac Metro Air District encourages the Army Corps to consult with Civic Thread (formerly WalkSacramento)⁴, Sacramento Area Bicycle Advocates⁵, and neighborhood associations⁶ in the impacted areas, in addition to the City of Sacramento Bicycle and Pedestrian Coordinator, to ensure safe and convenient bicycle and pedestrian detour routes are established during construction and the community is well informed of the changes in advance of construction starting (DSEIR pages 91 and 96).

Implementing Mitigation and Environmental Commitments

Sac Metro Air District recommends that all air quality and greenhouse gas mitigation measures from the DSEA/DSEIR and environmental commitments from the General Conformity Determination be clearly stated in construction specifications and contracts. This will help to ensure the measures will be implemented. It is especially important to disclose the General Conformity Determination commitments to use tier 4 engines, prohibit the use of tier 0 engines, and use of 2010 and newer haul trucks during construction.

Thank you for considering these comments. You may contact me at khuss@airquality.org or 279-207-1131 if you have any questions.

Sincerely,



Karen Huss
Associate Air Quality Planner/Analyst

cc: Paul Philley, AICP, Program Supervisor, Sac Metro Air District
Brad Anderson, Army Corps of Engineers
Timothy Murphy, Army Corps of Engineers
Kathryn Canepa, Civic Thread
Deb Banks, Sacramento Area Bicycle Advocates

⁴ Civic Thread: <https://civicthread.org/>

⁵ Sacramento Area Bicycle Advocates: <https://sacbike.org/>

⁶ City of Sacramento Neighborhood Directory: <https://www.cityofsacramento.org/economic-development/community-engagement/neighborhood-directory>

Transportation Division

**City Hall
915 I Street, 2nd Floor
Sacramento, CA 95814-2604
(916) 808-5307**

April 14, 2023

Public Affairs Office
U.S. Army Corps of Engineers
1325 J Street, Room 1513
Sacramento, CA 95814
Email: ARCF_SREroC4@usace.army.mil; PublicCommentARCF16@water.ca.gov

SUBJECT: Sacramento River Erosion Contract 4 Supplemental EA/EIR Sacramento River Erosion Contract 4 Supplemental EA/EIR

Thank you for including the City of Sacramento in the environmental review process for the project referenced above.

The ARCF GRR EIS/EIR analyzed options to reduce risk of levee failure due to erosion and increase slope stability, concluding waterside rock berm protection would be constructed to prevent bank erosion. This draft supplemental EA/EIR is looking at refined, or new, elements for that bank protection, including three main construction features: (1) the refined location and design of the underwater rock bank protection, (2) different alternatives for the shoreline erosion protection, (3) installation of in-stream woody material, and (4) differing construction methods. Transportation mitigation measure TR-1 contained in this draft supplemental duplicates that from the August 2022 document, thus, our prior comments apply to this supplemental too.

The City of Sacramento Department of Public Works has the following comments on the project:

1. The proposed mitigation includes the requirement that safe pedestrian and bicyclist access be maintained around construction areas. As part of Mitigation Measure TR-1, the proposed project would provide detours to maintain safe pedestrian and bicyclist access around the construction areas at all times. Bicycle and pedestrian paths affected by the proposed project would be primarily west of I-5, in the vicinity of the construction activities and along potential haul routes. The mitigation should ensure access for pedestrians and bicycle trails is maintained and include:
 - a. Provision of driveway access control between levees and City roadways so that pedestrian, and bicycle movements are maintained.
 - b. Clear rerouting of pedestrian and bicycle trails and installation of signage for traffic and alternative transportation routes.

5-1

- c. Early notification to affected neighborhoods.
- d. Early coordination with the City's Active Transportation Commission. Please contact Jennifer Donlon Wyant, Transportation Planning Manager, City of Sacramento, Department of Public Works, Transportation Division, JDonlonWyant@cityofsacramento.org

5-1
continued

2. The construction Contractor must provide a construction traffic control plan per City Code 12.20.030 to the satisfaction of the City Traffic Engineer.

The plan shall ensure that acceptable operating conditions on local roadways and freeway facilities are maintained. At a minimum, the plan shall include:

- The number of truck trips, time, and day of street closures.
- Time of day of arrival and departure of trucks.
- Limitations on the size and type of trucks, provision of a staging area with a limitation on the number of trucks that can be waiting.
- Provision of a truck circulation pattern.
- Maintain safe and efficient access routes for emergency vehicles.
- Manual traffic control when necessary.
- Proper advance warning and posted signage concerning street closures.
- Provisions for pedestrian safety.

5-2

A copy of the construction traffic management plan shall be submitted to local emergency response agencies and these agencies shall be notified at least 14 days before the commencement of construction that would partially or fully obstruct roadways

Please provide our office with copies of any further actions regarding this project.

If you have any questions regarding these comments, please contact me at (916) 808-8930 or by email at pclarke@cityofsacramento.org

Sincerely,

Pelle Clarke, PE
Senior Engineer
City of Sacramento
Department of Public Works, Traffic Engineering



YOCHA DEHE
CULTURAL RESOURCES

March 22, 2023

Flood Projects Branch
Department of Water Resources
3464 El Camino Avenue, Room 200
Sacramento, CA 95821

RE: American River Common Features Project YD-11232018-06

To whom it may concern:

Thank you for your project notification letter regarding cultural information on or near the proposed American River Common Features Project. We appreciate your effort to contact us and wish to respond.


The Cultural Resources Department has reviewed the project and concluded that it is within the aboriginal territories of the Yocha Dehe Wintun Nation. Therefore, we have a cultural interest and authority in the proposed project area and would like to continue to receive updates on the project. However, based on the information provided, please defer correspondence to the following:

United Auburn Indian Community
Attn: Tribal Historic Preservation Officer
10720 Indian Hill Road
Auburn, CA 95603

Please refer to identification number YD – 11232018-06 in any correspondence concerning this project.

Thank you for providing us the opportunity to comment.

Sincerely,

DocuSigned by:

8DD0BD089ED6438...

Tribal Historic Preservation Officer

6-1

From: [REDACTED]
To: [DWR Public Comment ARCF 16](#); ARCF_SREroC4@usace.army.mil
Subject: Sacramento River Erosion Contract 4 Supplemental EA/EIR
Date: Friday, April 14, 2023 7:32:08 AM

You don't often get email from [REDACTED] [Learn why this is important](#)

Good morning,

I provide the following comments regarding the draft supplemental EA/EIR for Erosion contract 4 and request my comments be addressed and added to the public record regarding this erosion control contract.

1) Page 19 states "The entire Sacramento River east bank and levee are currently zoned for parks and recreation and are encompassed within the overall ARCF 2016 project area," however every parcel the USACOE and the CVFPB plan bank improvements upon for Erosion 4 are neither zoned recreational nor parks. Sacramento county assessor's website lists these parcels as residential and agricultural. Please update the record to reflect their accurate zoning status. In addition, please examine the impact of the project on parcels zoned residential and agricultural and consider that private owners lack the financial and technical resources to revegetate the land in a manner consistent with state and federal standards. Land previously recognized as recreational or park would have local and state governmental resources to address blight.

7-1

2) Several statements throughout the EA/EIR state boat docks are likely to be returned to their original locations and that returning the boat docks to their original locations may be difficult or impossible due to the placement of bank protection. In the event these docks can not be returned to their original locations, please provide an analysis of river shading loss, fish habitat impact, cultural feature removal and recreational loss for each dock.

7-2

3) The second and third boat docks from the downriver border of the project were built in the late 1940's. Please provide an analysis of the likelihood their structures may be moved/repared without loss of the historical nature of their construction. Please examine the impact on the historical features of the Little Pocket neighborhood, the City of Sacramento, the Sacramento River and the State of California should these or other existing boat docks not be reinstalled. (See page 77 for impact on historical buildings).

7-3

4) The southernmost boat dock has a tieback planned for installation within the operating footprint of the dock's stabilizing system. The tieback will likely impede the safe anchoring/operation of the dock. This has a significant impact on the viability of the dock.

7-4

5) Many houses adjacent to the project site utilize roof mounted solar panels. Does the EA/EIR consider the impact on the solar facilities with respect to airborne dust leaving the project site and depositing on the panels? How will the decrease in production be mitigated?

7-5

6) "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." (Page 21) - The project area, specifically the land upland of the public trust land is not public. Please update

7-6

the EA/EIR to remove access to pedestrian and bicyclist access around the construction area.

7-6
continued

Thank you for your attention to these items.



From: [REDACTED]
To: [DWR Public Comment ARCF 16](#); ARCF_SREroC4@usace.army.mil
Subject: Sacramento River Erosion Contract 4 Supplemental EA/EIR
Date: Friday, April 14, 2023 3:05:32 PM

You don't often get email from [REDACTED]. [Learn why this is important](#)

The following are comments regarding the draft supplemental EA/EIR for Erosion contract 4 and request my comments be addressed and added to the public record regarding this erosion control contract. **PLEASE KEEP MY IDENTITY AND HOME ADDRESS OUT OF THE PUBLIC RECORD.**

1. Do any of the boat docks identified for removal qualify as historic buildings?

PDF pg 99/Doc Pg 77 "Significance Criteria The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. The proposed project refinements would result in a potentially significant impact to visual resources if they would: have a substantial adverse effect on a scenic vista; substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings"

8-1

2. Several statements throughout the EA/EIR state boat docks are likely to be returned to their original locations and that returning the boat docks to their original locations may be difficult or impossible due to the placement of bank protection. In the event these docks cannot be returned to their original locations, please provide an analysis of river shading loss, fish habitat impact, cultural feature removal and recreational loss for each dock.

8-2

3. Boat dock owners were notified to remove boat dock and encroachments by August 15, 2023, and some were granted extensions to April 15, 2024. The CVFPB sent letters requiring a plan and schedule to be submitted complying with Board regulations prior to starting any such work. Requests for guidance on appropriate contractors to perform the work were denied. Both CVFPB and USACE responded that they could not provide a list of contractors to share with homeowners, nor would they be able to provide an estimate of the cost that would be billed to homeowners if USACE ended up removing the encroachments, and replied regrettably they could not answer our questions.

8-3

We ask that someone be available to assist homeowners on how to obtain licensed contractors to perform the work. We have been diligently trying to get estimates to do the work and we have not been able to get anyone to come out to give us an estimate. Is it not in the interest of the EIR that the work to remove the encroachments be performed by experienced and qualified contractors?

PDF pg 142/Doc Pg 17 "Boat Dock Removal – Eight private boat docks are located in the area where the erosion protection would be constructed, and their removal is required in order for construction to occur. The CVFPB has requested that the owners remove the docks and ramps from the project footprint in accordance with their permit agreements. The docks may be

returned once construction is complete. Any docks not removed by the owners would be removed and disposed of by the construction contractor. The dock owners were given the option to either remove the dock pilings or leave them in place for the contractor to work around. Because movement or replacement of dock pilings would require new permits and analysis under NEPA and CEQA, it is anticipated that most pilings will remain in place. However, the clearance between the riverbed and the water surface would change after the project is constructed and may result in owners choosing to relocate pilings to deeper locations."

8-3
continued



PLEASE KEEP MY IDENTITY AND HOME ADDRESS OUT OF THE PUBLIC RECORD.

APPENDIX D
SECTION 404(b)(1) WATER QUALITY EVALUATION
AMERICAN RIVER COMMON FEATURES
SACRAMENTO RIVER EAST LEVEE EROSION CONTRACT 4
SACRAMENTO, CALIFORNIA

This document constitutes the Statement of Findings, and review and compliance determination according to the Section 404(b)(1) Guidelines for the proposed described in the American River Common Features Environmental Impact Statement/Environmental Impact Report (EIS/EIR), dated December 2015 (updated May 2016), issued by the Sacramento District, U.S. Army Corps of Engineers (USACE). This analysis was prepared in accordance with the Section 404(b)(1) Guidelines, 40 CFR Part 230 and the U.S. Army Corps of Engineers (USACE) Planning Guidance Notebook, Engineer Regulation (ER) 1105-2-100.

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List of Acronyms

%	Percent
ARCF	American River Common Features
BMPs	Best Management Practices
BiOp	Biological Opinion
CDEC	California Data Exchange Center
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CVFPB	Central Valley Flood Protection Board
CVRWQCB	Central Valley Regional Water Control Board
CWA	Clean Water Act of 1972
CY	Cubic yards
DDR	Design Documentation Report
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FEIR	Final Environmental Impact Report
GRR	General Reevaluation Report
HTRW	Hazardous, Toxic and Radioactive Waste
IWM	Instream Woody Material
LEDPA	Least Environmentally Damaging Proposed Alternative
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOA	Naturally occurring asbestos
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric turbidity units
OHWM	Ordinary High Water Mark (23.25 feet NAVD 88 on the Sacramento River)
pH	potential Hydrogen
PL	Public law
SAFCA	Sacramento Area Flood Control Agency
SR	Sacramento River
SRA	Shaded Riverine Aquatic
SREL	Sacramento River East Levee
Stat.	Statute
SWPPP	Stormwater pollution Prevention Plan
TSS	Total suspended solids
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
WIIN Act	Water Infrastructure Improvements for the Nation Act
WRDA	Water Resources Development Act
WOTUS	Waters of the United States

I. Introduction

Background

The Sacramento metropolitan area is one of the most at risk areas for flooding in the United States. The American River Common Features (ARCF) General Reevaluation Study and resulting General Reevaluation Report (GRR) were a cooperative effort by the U.S. Army Corps of Engineers (USACE), the Central Valley Flood Protection Board (CVFPB), the non-federal sponsor, and the Sacramento Area Flood Control Agency (SAFCA), the local sponsor. The preferred alternative was authorized by Congress in 2016 and these partners continue to cooperate in implementing the project. USACE is the federal lead agency, the CVFPB is the non-federal project partner, and SAFCA is the local sponsor. The purpose of ARCF Project is to improve the existing infrastructure to reduce flood risk along the American and Sacramento Rivers. USACE completed the ARCF GRR in December 2015 and the joint final Environmental Impact Assessment and Environmental Impact Report (FEIS/EIR) in 2016.

The 2016 ARCF FEIS/EIR identified a number of problems associated with the flood risk management system protecting the city of Sacramento and surrounding areas. There is a high probability that flood flows in the American River and Sacramento River will stress the network of levees protecting Sacramento to the point that levees could fail. The consequences of such a levee failure would be catastrophic, since the area inundated by flood waters is highly urbanized and the flood depths could reach 20 feet in some locations.

The 2016 ARCF FEIS/EIR and its 404(b)(1) evaluation analyzed the No Action Alternative and two action alternatives, including the Preferred Alternative. The 404(b)(1) evaluation is included in Appendix E of the 2016 FEIS/EIR. The Preferred Alternative was authorized by Congress through the Water Resources Development Act (WRDA) 2016 (Public Law (PL) 114-322 § 1322), also known as the Water Infrastructure Improvements for the Nation Act (WIIN Act), and related authorities. The Sacramento River East Levee Erosion Contract 4 (SR Erosion Contract 4) is a component of the 2016 Preferred Alternative and will be discussed herein.

Amendment to the 2015 ARCF 404(B)(1) Alternatives Analysis

The basis of this amended analysis is an evaluation of the consistencies and differences between the SR Erosion Contract 4 with the determinations made in the 404(b)(1) evaluation (dated September 2015) included as Appendix E to the 2016 ARCF FEIS/EIR, and the applicability of the findings of the 2015 404(b)(1) evaluation to the updated Proposed Action for SR Erosion Contract 4.

This Clean Water Act Section 404(b)(1) evaluation first describes the alternatives considered, including the No Action and the Proposed Action. The differences between the alternatives are associated with the type of erosion protection, whether it be through construction of a launchable rock filled trench, bank protection, biotechnical slope protection, or a combination of the two. The alternatives description section also provides information on why certain

alternatives were not selected, based on impacts to waters of the United States (WOTUS) and practicability factors. Lastly, the Proposed Action is compared to the determinations and findings 2015 404(b)(1) to demonstrate how the Proposed Action is consistent with those findings and is the Least Environmentally Damaging Practicable Alternative (LEDPA).

The source materials are:

- USACE (2015) *Draft Section 404(b)(1) Water Quality Evaluation American River Common Features General Reevaluation Report*. Appendix E in USACE (2016).
- USACE. 2016. *American River Watershed General Reevaluation Report, Final Environmental Impact Statement / Environmental Impact Report*. May. Sacramento, California. State Clearing House Number 2005072046.
- USACE 2023 (April) *Draft American River Common Features Erosion Countermeasures, Sacramento River Contracts 2 and 3 Design Documentation Report (DDR)*. This DDR describes the engineering analyses supporting the proposed bank protection designs for Sacramento River Contract 2 and 3. The report includes a description of site conditions, repair measure selections, design criteria, assumptions, and methods used for the project design. After presenting the project design, the DDR follows with descriptions of construction procedures, construction materials, site access, operation manuals, and security to implement the design.

Summary

The main differences between the ARCF GRR's 2015 404(b)(1) evaluation and the SR Erosion Contract 4 impacts to (WOTUS) primarily consists of the location of the ordinary high water mark (OHWM) and construction methods. In 2015 an OHWM delineation had not been conducted, so its location was assumed. No elevation for the OHWM was cited in the prior documentation. In 2022, an ordinary high water mark delineation was completed that covers the SR Erosion contract 4 site. On the Sacramento River in the project area, the OHWM is 23.25 feet NAVD 88. Also, as the construction designs were conceptual in 2015 and it was assumed that launchable trenches would be the primary bank protection method. This is no longer the case, as the east levee of the Sacramento River is also the riverbank in many areas, which does not allow enough room to place a launchable trench between the river and the levee without impacting the levee prism. The 95 percent (%) designs for SR Erosion Contract 4 are comprised of launchable rock toe erosion protection between the river bottom and elevation 0 feet; five rock tiebacks at the downstream end of the site which will extend from elevation 7 feet, up the natural grade of the riverbank to elevation 15 to 20 feet; and biotechnical erosion (instead of riprap) above the 7 foot summer water surface elevation. In comparison with the plan analyzed in the 2015 ARCF 404(b)(1) evaluation, the launchable toe rock adds about 5 feet (measured in the horizontal direction) of rock and affects an additional 0.2 acres of riverbed. Instead of the conventional rock riprap analyzed in the 2015 404(b)(1) evaluation, the proposed action would use biotechnical methods including biodegradable coconut coir blocks secured by

wooden stakes and biodegradable fabric to create lifts. The lifts would be arranged in a step pattern, starting on top of the riprap base and following the grade of the natural riverbank to about 13 feet elevation. Beneath the biodegradable fabric would be soil fill. Native riparian trees and shrubs would be planted into the soil and block system. Installation would require small construction equipment operating along the shoreline above the 7 foot elevation to move soil and create the lifts. Over time, root growth is expected to be sufficient to control erosion on this portion of the riverbank. Each block would prevent leakage of the soil fill while providing erosion protection. This method avoids permanent vegetation, fish, and wildlife impacts above the 7 foot summer water surface elevation by avoiding the placement of rock.

Conclusion

The impacts resulting from the change in construction methods between the 2015 ARCF GRR's 404B1 for all contracts leading up to SR Erosion Contract 4 will lead to an increase in discharge of fill material into navigable WOTUS. Therefore, SR Erosion Contract 4 is not consistent with the 2015 ARCF GRR's 404B1 and additional evaluation is required. USACE 2022 Draft American River Common Features Erosion Countermeasures, Sacramento River Contracts 2 and 3 Design Documentation Report (DDR).

II. Proposed Action and Alternatives

a. Location

The SR Erosion Contract 4 project area is in the City of Sacramento, California, along a straight section of the east bank of the Sacramento River between meanders at Chicory Bend in the Little Pocket Neighborhood of Sacramento. It is across the river from the Sherwood Harbor Marina and Recreational Vehicle Park. The SR Erosion Contract 4 project area extends for 0.3 miles (1,500 linear feet) along the river. Ten miles of bank protection was authorized in the 2016 FEIS/EIR. Figure 1 shows the SR Erosion Contract 4 location, access route, construction limits, project footprint, and staging area.

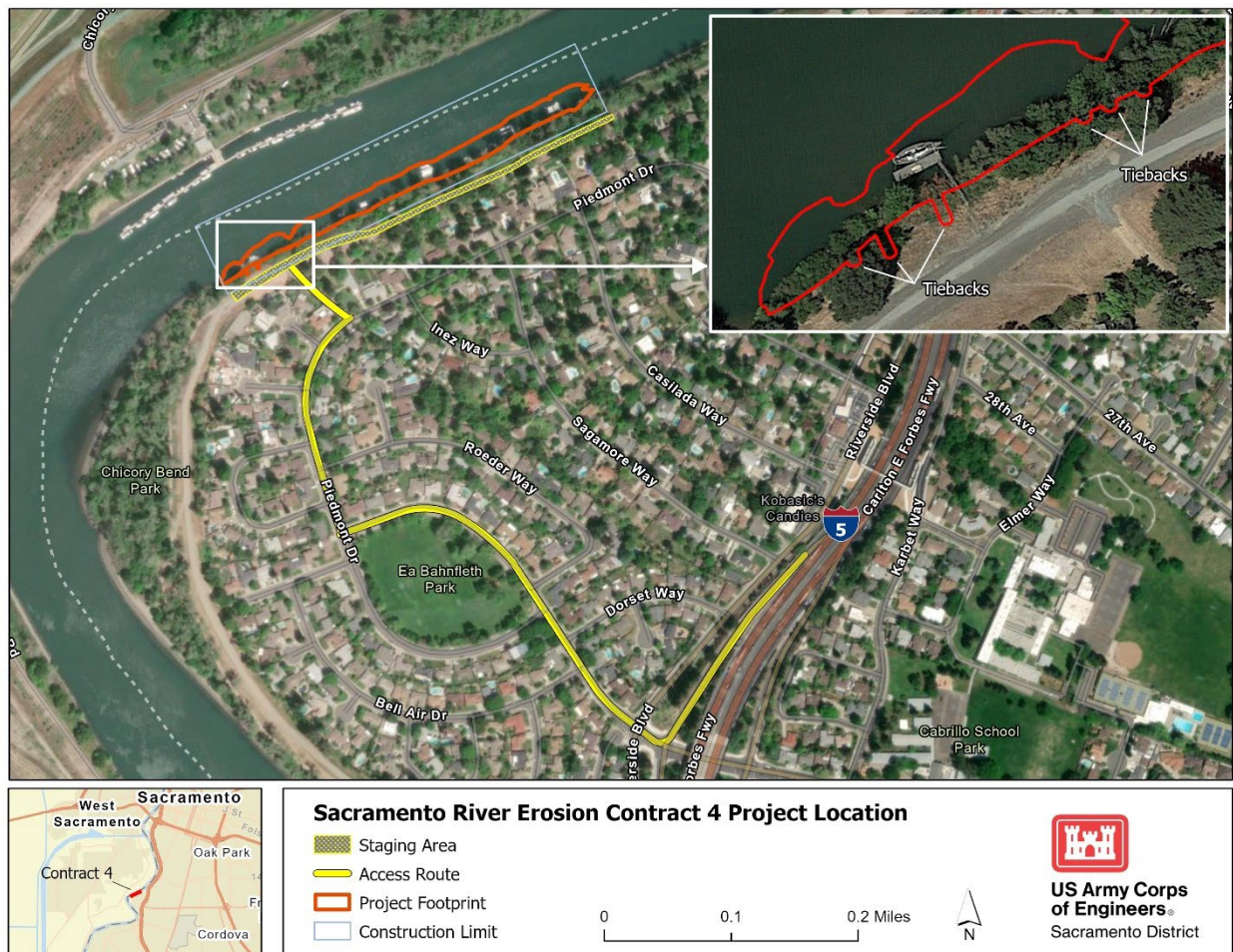


Figure 1: Location Map. Sacramento River Erosion Contract 4 project location, showing access route, construction limits, project footprint and staging areas.

b. Proposed Project

No Action Alternative

Under the National Environmental Policy Act (NEPA) the No Action Alternative assumes that the erosion work identified as Alternative 2 in the 2016 ARCF FEIS/EIR, along with the Proposed Actions planned for Sacramento River East Levee Seepage, Stability and Overtopping (SREL) Contracts 1 through 4, the Sacramento Weir Widening, and Sacramento River Erosion Contracts 1 and 2 have been constructed.

Under the Clean Water Act (CWA) the No Action Alternative, assumes that there is no discharge of fill material into WOTUS as a result of the project. For SR Erosion Contract 4, the no action is the same as the no project alternative.

Proposed Action (Alternative 2 With Refinements)

Alternative 2 With Refinements consists of a launchable rock toe, staging area, access route, tiebacks, boat dock removal (not specifically part of the project), biotechnical slope protection (instead of riprap) above the 7 foot summer water surface elevation. The biotechnical approach incorporates shrub and tree plantings to accomplish bank stabilization between elevations 7 feet and 13 feet (NAVD 88). This method will use biodegradable coconut coir blocks secured by wooden stakes and biodegradable fabric (Figure 6) to create lifts. The lifts will be arranged in a step-pattern, starting on top of the riprap base and following the grade of the natural riverbank until approximately elevation 13 feet. Beneath the biodegradable fabric will be soil fill. Native riparian trees and shrubs will be planted into the soil and block system. Installation will require small construction equipment operating along the shoreline above the 7 foot elevation to move soil and create the lifts. Over time, root growth is expected to be sufficient to control erosion on this portion of the riverbank. Each block will prevent leakage of the soil fill while providing erosion protection. This method avoids permanent vegetation, fish, and wildlife impacts above the summer water surface elevation (i.e., 7 feet) by avoiding the placement of rock. The 95% designs for SR Erosion Contract 4 include:

- **Lower Bank.** Quarry stone below an elevation of 7 feet. A minimum thickness of 5 feet (perpendicular to the bank slope). An additional launchable berm with a width of 5 feet (horizontal dimension) to 2.8 feet thickness to provide launching material for toe scour protection. The top of the lower quarry stone slope begins at elevation 7 feet and extends to the riverbed.
- **Mid Bank Slope.** Between vertical elevation 5-7 feet NAVD 88, Soil Filled Quarry Stone will be placed. This will consist of 30% Soil Fill and 70% Quarry Stone by volume. The minimum thickness will be 5 feet (perpendicular to the bank slope). The thickness will vary throughout the length of erosion protection treatment. To reduce the opportunity for the soil fill to wash away from the quarry stone, layers and sections of choke stone will be placed adjacent to the Soil Filled Quarry Stone. Choke stone will also be used at the transition from the biodegradable block and fabric system to the tiebacks to protect exposed soil fill from erosion.

- Upper Bank Slope. Planting topsoil material will be placed between elevation 7-13 feet. The planting topsoil material will be protected in place by placement of a system of biodegradable coir fabric and coir blocks. The biodegradable coir blocks each with thickness of 16 inches and varying widths will be placed in a step like geometry to create benches throughout the length of the erosion protection treatment. A total of 4 benches, starting from WSE 7 feet NAVD 88 moving higher toward top of the slope protection, will be constructed. The biodegradable coir blocks will be kept in place by placement of wooden stakes. The biodegradable coir fabric and coir block system will degrade over time, typically after 5 years, which is when the vegetation is expected to become self-sustaining.
- Launchable Berm. A launchable rock berm will be placed on top of the lower bank quarry stone revetment, with the base width of 5 feet and side length of 20 feet to address scour concerns. The launchable rock toe includes an adequate volume to provide toe protection up to a maximum scour depth of 15 feet.
- In-Stream Woody Material (IWM). In-stream Woody Material will be placed below the biotechnical slope protection and along the rock revetment, where practical, to create in-stream cover for fisheries year-round. The designs include IWM at a rate between 40% to 80% of the impacted length in accordance with the GRR and the 2021 National Marine Fisheries Service. The material consists of full trees with root balls and canopies. Both large and medium size trees will be used, depending on the site. The trees will be anchored into the quarry stone toe at minimum 6 feet underneath the planting bench by the root ball and one half of the tree length. They will be placed with the tree canopy in a downstream direction along the waterside edge of the riparian bench and angled towards elevation of 7 feet from beneath the riparian bench. The IWM will be placed at 5- to 10-foot spacing in alternating groups of 3 and 4 trees, but not within 50 feet of any boat dock.
- Upstream and Downstream Transition Ends. Riprap will be placed on top of the SR Erosion Contract 1 revetment constructed in previous construction contract. The downstream end of SR Erosion Contract 4 will grade into the existing ground at an 8:1 slope.

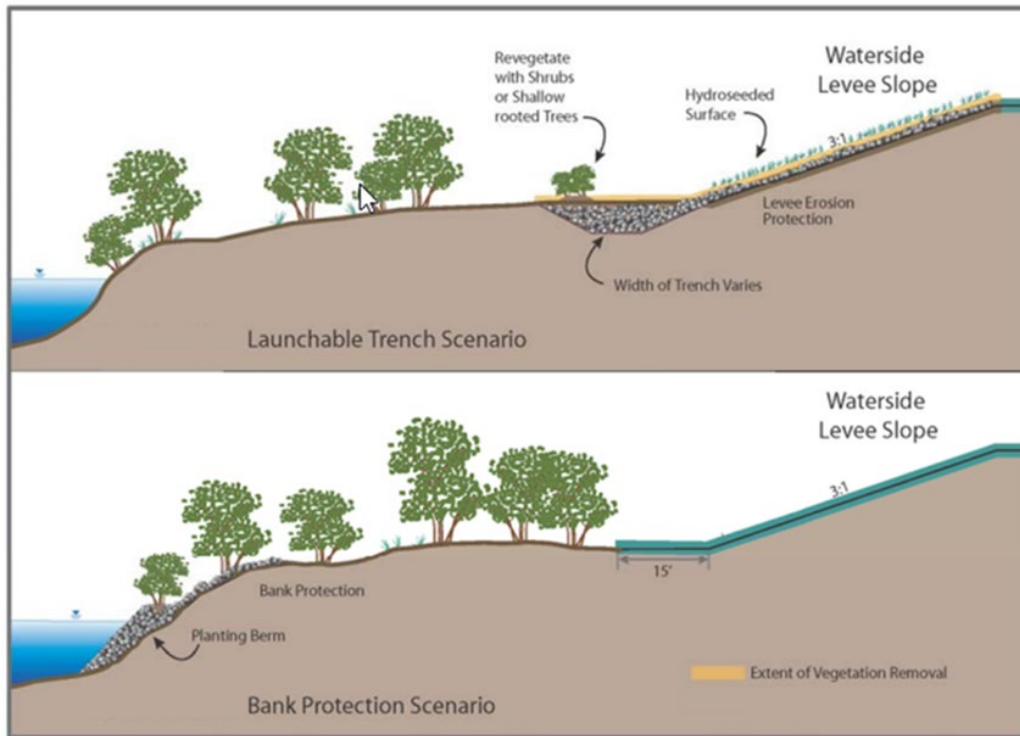


Figure 2. Bank Protection Designs Analyzed in 2016 SEIS/EIR. Typical designs for launchable rock trench and standard bank protection, the two methods analyzed in the 2016 ARCF FEIS/EIR.

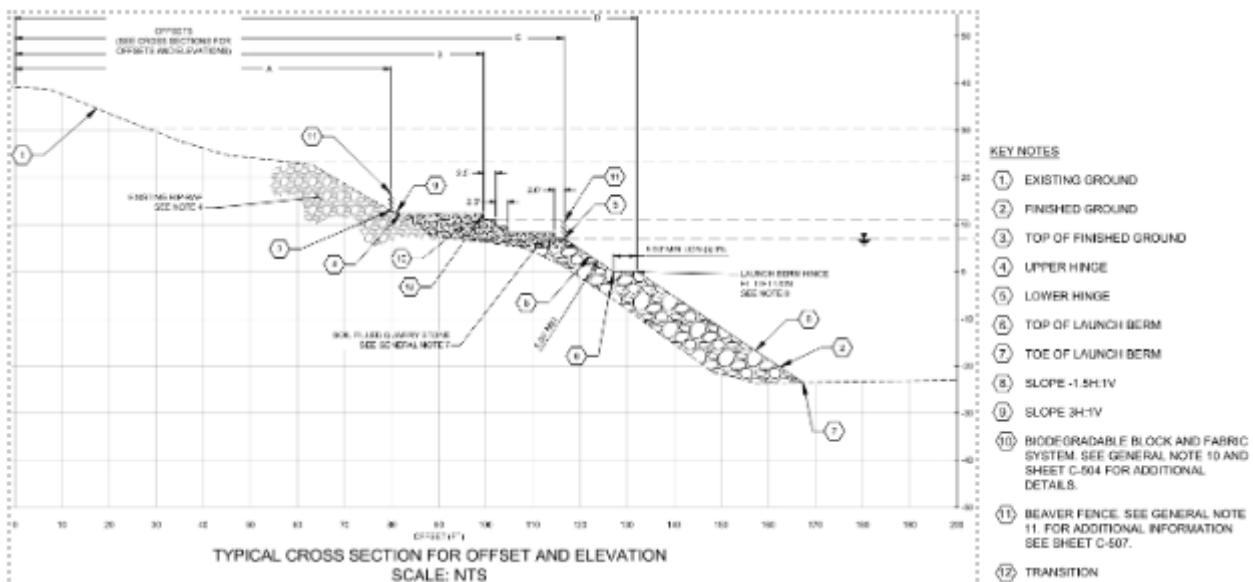


Figure 3. Bank Protection Designs. Example cross section showing approximate depth and thickness of rock revetment and launchable toe below 7 feet elevation (WSE). Above 7 feet,

there would be either rock revetment with choke stone fill (Alternative 1), or a biotechnical erosion treatment (Alternative 2). The Proposed Alternative is Alternative 2 With Refinements.

c. Purpose and Need

The purpose of this project is to construct bank protection along the Sacramento River East Levee. The need for this project is to reduce the risk to life and safety caused by levee failure.

Authority

The authority for the USACE to study water resource related issues in the American and Sacramento Rivers is Section 209 of the Flood Control Act of 1962, PL No.87-875, § 209, 76 Statute (Stat.) 1180, 1196-98 (1962). The 2016 ARCF FEIS/EIR was prepared as part of the interim general reevaluation study of the ARCF Project, which was authorized by Section 130 of the Energy and Water Development and Related Agencies Appropriations Act of 2008, PL No. 110-161, § 130, 121 Stat. 1844, 1947 (2007). Additional authority was provided in Section 366 of WRDA of 1999. WRDA 1999, PL No. 106-53, § 366, 113 Stat. 269, 319-320 (1999). Significant changes to the project cost were recommended in the Second Addendum to the Supplemental Information Report of March 2002. This report was submitted to the Assistant Secretary of the Army for Civil Works, but before it could be forwarded to Congress, authorized total cost of the project was increased to \$205,000,000 by Section 129 of the Energy and Water Development Appropriations Act of 2004, PL No. 108-137, § 129, 117 Stat. 269, 1839 (2003).

e. Alternatives [40 Code of Federal Regulations (CFR 230.10)]

(1) No action:

The No-Action Alternative is also the no fill alternative. The No Action Alternative assumes that SR Erosion Contract 4 would not be completed. As a result, the identified erosion problem would not be addressed, and the study area would continue to be at a high risk of levee failure and subsequent flooding of the Sacramento Metropolitan area. Although the No Action Alternative would have no impacts on WOTUS, it does not meet the project purpose since it does not address the flood risk in the study area, and is, therefore, not considered to be the LEDPA.

(2) Other project alternatives:

The Proposed Action and two other action alternatives were evaluated. All three action alternatives involves construction of fix-in-place levee remediation measures to address erosion. Alternative 1 includes rock toe and erosion protection. Alternative 2 includes rock toe protection and biotechnical measures to address erosion. The Proposed Action is Alternative 2 With Refinements. These refinements are the result of engineering analyses indicating that some additional rock protection is needed to meet the project purpose. A complete summary of the measures proposed under the Proposed Project can be found above in section II (a.). The fix in place nature of the work makes the action alternatives site-specific. Additionally, the fixes proposed address erosion in the wake zone making the action alternatives analyzed water dependent. The project area for Proposed Action is shown above in Figure 1. This action is

considered a practicable alternative and will be retained and evaluated in determining the LEDPA.

f. General Description of Dredged or Fill Material

(i) General Characteristics of Material

Erosion protection measures will involve the discharge of fill into WOTUS. Fill materials will consist of large stone riprap, ranging from 18 inches to 36 inches. This will be used to armor the waterside slope or to construct a launchable rock toe and support biotechnical slope protection above the elevation of the toe rock. Between elevations 5 feet to 7 feet NAVD 88, soil filled quarry stone will be placed (i.e., 30% soil fill and 70% quarry stone by volume). A biodegradable coir fabric and block system will be held in place with wooden stakes will be placed above the 7 foot elevation and will including planting soils and riparian trees and shrub seedlings and/or cuttings. Choke stone will also be used at the transition from the biodegradable block and fabric system to the tiebacks. planting bench, with a soil, fine sand or silt fill over the top to allow for vegetation planting. The proposed soil, sand or silt for the erosion protection measures would come from clean, imported fill material.

(ii) (2) Quantity of Material

The 0.33 miles of bank protection will require approximately 44,661 cubic yards of material to be placed below the OHWM of the Sacramento River. The breakdown of quantities and types of fill material is included in Table 1.

Table 1: Sacramento River Erosion Contract 4 Material Quantities

Material	Alternative 2 – Biotechnical With Refinements	Alternative 2 – Biotechnical With Refinements (All in Cubic Yards ²)
Quarry Stone Type C	21,033 cubic yards	20,898
Soil-filled Riprap	3,859 cubic yards	3,859
Wooden Stakes (2 in X 4 inches X 18 ft)	12,034 units	443 ²
Choke Stone	79 cubic yards	79
Biodegradable Block and Fabric System	643 units	238 ²
Additional Biodegradable fabric	22,373 square feet	9 ²
4 ft Galvanized welded wire mesh	6,900 linear feet	0.4 ²
6 ft T-Posts	1,725 units	11 ²
T-Post Safety Caps	1,725 units	10 ²
Topsoil	3,786 cubic yards	3,786
Hydroseed	41,054 square feet	63 ²
Seeding	40,175 square feet	62 ²
Plantings	36,095 square feet	1
Instream Woody Material	113 trees	15,067 ²
Biotechnical materials	1 barge	1
TOTAL		44,661

¹Unable to calculate cubic yards. ² Cubic yards are approximate.

(3) Source of Material

Riprap for bank protection will be imported from a licensed, permitted facility that meets all Federal and State standards and requirements. The material will be transported to the site via barge.

g. Description of the Proposed Discharge Site

(iii) (1) Location

Erosion protection measures will be constructed along approximately 0.3 miles of the east bank of the Sacramento River downstream (and on the opposite bank) from the Sacramento Yacht Club to Chicory Bend. Fill material will be placed on the levee slope / riverbank, below the OHWM.

(iv) (2) Size

Approximately 46,213 acres of fill will be placed into the Sacramento River.

(v) (3) Type of Site

To construct the erosion protection measures, riprap would be placed in the Sacramento River along the waterside slope of the levee, below the OHWM.

(vi) (4) Type of Habitat

The Sacramento River is a highly manipulated waterway that is constrained on both sides by maintained, man-made levees. The river provides habitat for many species; however, it is not a pristine, unaltered environment. The habitat types along the footprint of the bank protection measures include valley foothill riparian habitat and open water habitat. Non-native plants are common. Habitat types are described below.

Valley Foothill Riparian Habitat. Valley foothill riparian habitat occurs along the Sacramento River levees. The overstory of the riparian habitat consists of mature, well-established trees: Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), valley oak (*Quercus lobata*), black willow (*Salix gooddingii*), and box elder (*Acer negundo* var. *californicum*). During the reconnaissance-level field visits, Oregon ash (*Fraxinus latifolia*), western sycamore (*Platanus racemosa*), and white alder (*Alnus rhombifolia*) were also observed. The shrub layer consists of smaller trees and shrubs; representative species observed were poison oak (*Toxicodendron diversilobum*), sandbar willow (*Salix exigua*), and Himalayan blackberry (*Rubus discolor*). Elderberry shrubs (*Sambucus mexicana*), the host plant of the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), which is Federally listed as threatened, were observed in the riparian habitat along the Sacramento River north and south levees. Riparian habitat is listed as a sensitive natural community by the CNDDB (2009).

Open Water. The Sacramento River is located within the study area and will be impacted by placement of fill into WOTUS. The Sacramento River is a navigable waterway that is jurisdictional under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act.

(vii) (5) *Timing and Duration of Discharge*

The construction schedule for the ARCF project was estimated based on a 4 month construction window, per year, due to seasonal and environmental constraints. Construction will occur during the summer months, between July 1 and October 31 due to special status species work windows and the flood season. SR Erosion Contract 4 work will begin with vegetation removal in late 2023 or early 2024 and bank protection work will occur in 2024 within the regulatory work windows. It is possible that soil placement and planting could extend into the 2025 construction season. Biotechnical erosion protection and general revegetation will occur outside of the high flow season.

h. Description of Disposal Method

The site will be prepared by removal of some trees, shrubs, and herbaceous vegetation, and any old bank protection materials. Remaining trees will be trimmed. Rock above the wetted channel will be moved from the barge to the bank with an excavator, once on land it will be placed by a bulldozer or an excavator. Rock below the wetted channel will be placed by an excavator that is parked either on the barge or on the riverbank. This process is similar for the biotechnical erosion protection materials and the in-water woody materials.

III. Factual Determinations

a. Physical Substrate Determinations (Sections 230.11 (a) and 230.20)

(viii) (1) *Comparison of Existing Substrate and Fill*

The project area generally consists of deep soils derived from alluvial sources, which range from low to high permeability rates and low to high shrink-swell potential. Soils immediately adjacent to the Sacramento River are dominated by deep, nearly level, well-drained loamy and sandy soils. The natural drainage is good, and the soils have slow to moderate subsoil permeability. The river terraces consist of very deep, well drained alluvial soils. The porous nature of the soils underneath the existing levee system is an important consideration for the design of levee improvements within the ARCF GRR study area. The major source of sediments deposited in the ARCF GRR study area is from the erosion of the Sierra Nevada Mountain range and foothills to the east of the Sacramento Valley. Naturally occurring asbestos (NOA) is known to occur in the foothill metamorphic belt. Therefore, NOA may be present; however, the likelihood of project area soils containing significant concentrations of NOA is low due to the long distance from the source rock.

As discussed in Section I(f)(1) above, fill material for bank protection construction would consist of large stone riprap ranging from 18 to 36 inches to armor the waterside slope; biotechnical slope protection with biodegradable coir fabric and blocks, planting soil, and riparian plantings. The fill will be clean imported material.

(2) Changes to Disposal Area Elevation

Due to the placement of rock bank protection along the riverbanks, there would be an increase in elevation of approximately 3 feet in the locations where fill is placed in the WOTUS. Because some areas will need more site preparation than others, this elevation change will vary by site. However, the project required to be designed so as to avoid impacts to the flow, circulation, and capacity of the flood system.

(ix) (3) *Migration of Fill*

The erosion repairs within the project area are likely to somewhat reduce the sediment supply for riverine reaches directly downstream because the riprap will hold the bank or levee in place. However, from a system sediment perspective, the bank material that will be protected in the project reaches is not a major source of sediment compared to the upstream reaches of the Sacramento, Feather, and, especially, the Yuba River systems.

A typical bank protection site has an approximate life span of 50 years. Over that time period, there would be a natural erosion and migration of fill occurring at the site; however, it would occur at a slightly slower rate than natural conditions if no bank protection were to occur. Riprap established along the waterside levee toe is designed to stay in place and prevent further erosion. However, there is a possibility that there may be slight degradation or migration of

riprap material over the years as well. The sites will be designed to avoid significant migration of newly placed fill through the use of geotextiles and the establishment of on-site vegetation.

(x) (4) *Duration and Extent of Substrate Change*

There will be a permanent change of substrate on the riverbanks from alluvial soils to stone riprap, in most locations. Between elevations 7 feet and 13 feet biotechnical slope protection will use biodegradable coir fabric and blocks, planting soil, and plantings. The fabric and blocks will degrade over time, typically 5 years. The biotechnical measure is a more natural alternative to rock riprap. The launchable rock toe measure will change the substrate from undrained hydric soils to buried stone riprap with.

(xi) (5) *Changes to Environmental Quality and Value*

The Proposed Action will in potential impacts to water quality, including increased turbidity during bank protection construction, runoff of exposed soils, and cement, or fuel spills during construction. Emissions from construction equipment, haul trucks, and barges also pose a potential impact to environmental quality and value during the duration of construction activities. Best Management Practices (BMPs) will be implemented during construction to reduce these impacts to less than significant. There will be a permanent change in substrate in the footprint of the erosion protection areas; however, these sites will be designed to be as consistent as feasible with natural riverbanks through the placement of silt over the rock layer and the planting of on-site shrubby vegetation and native grasses. To the extent feasible, large trees on the lower waterside slope will be left in place to maintain shaded riverine aquatic habitat (SRA) for special-status fish species and new vegetation will be established to provide mitigation for vegetation that must be removed in order to construct the project.

(xii) (6) *Actions to Minimize Impacts*

The following mitigation measures will be used during construction of the Proposed Action to reduce impacts to environmental quality:

- The whole project area was originally evaluated for its erosion risk, then it was divided into areas that did not need remediation, areas that needed a minimal repairs and areas required more significant repairs. The sites that did not need work are not being impacted. The sites with minimal repairs have been designed with less impacts and smaller footprints. The sites that need more intense repairs have gone through intense design evaluations to allow for the smallest, most efficient footprint but continue to provide maxim flood risk reduction.
- Prior to construction, the USACE or its contractor will be required to acquire all applicable permits for construction.
- Prior to construction, a Stormwater Pollution Protection Plan (SWPPP), Spill Prevention Control and Countermeasures Plan, and a bentonite slurry spill contingency plan will be

prepared, and BMPs will be proposed to reduce potential erosion and runoff during rain events.

- 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.
- Direct effects to federally listed species habitats will be compensated on site to the extent feasible in accordance with the Biological Opinions (BiOps) and once construction of flood risk management features is complete. Any off-site mitigation or bank credit purchase will be completed as close to the time of impact as feasible. Mitigation plantings will be monitored during the plant establishment period for success. Successful habitat mitigation will compensate for significant effects to vegetation, wildlife, special status species, and aesthetic resources.
- BMPs, including the Sacramento Metropolitan Air Quality Management District's Basic Construction Emission Control Practices, will be implemented to reduce emissions of criteria pollutants and greenhouse gases and to reduce potential effects to air quality and associated with climate change.
- During construction, noise-reducing measures will be employed in order to ensure that construction noise complies with local ordinances. Prior to the start of construction, a noise control plan will be prepared that will identify feasible measures to reduce construction noise, when necessary.
- Coordination with recreation user groups will occur prior to and during construction for input into mitigation measures to reduce affects to the maximum extent practicable. Advance notice will be given to recreation users informing them of anticipated activities and detours to reduce the affects. To ensure public safety, flaggers, warning signs, and signs restricting access will be posted before and during construction, as necessary. In the event that bike trails would be disrupted; detours would be provided. Detour routes would be clearly marked, and fences would be erected in order to prevent access to the project area. In areas where recreational traffic intersects with construction vehicles, traffic control will be utilized in order to maintain public safety.

b. Water Circulation, Fluctuation, and Salinity Determinations

(xiii) (1) *Alternation of Current Patterns and Water Circulation*

Since the Proposed Action consists of fix-in-place levee improvements, implementation of these measures will have no effect on current patterns and water circulation.

(xiv) (2) *Interference with Water Level Fluctuation*

Because the Sacramento River system is regulated by upstream dams which allow a specific amount of water to be released into the system, the Proposed Action and the No Action/No Project Alternative will not change water level fluctuation patterns.

(xv) (3) *Salinity Gradients Alteration*

Salinity gradients will not be affected, as salinity normally only increases in the river system during low flow events when there is a higher than average tidal influx from the Delta. With-project conditions in the system will remain consistent with existing conditions during normal and low flow periods. Flows will increase during high water events, however the flood flows during these events will push any salinity intrusion back down into the Bay-Delta system and will not result in any salinity increases in the riverine system.

(xvi) (4) *Effects on Water Quality*

The Sacramento and San Joaquin River Basin Plan states that where ambient turbidity is between 5 and 50 nephelometric turbidity units (NTUs), projects shall not increase turbidity on by more than 20 percent above the ambient conditions. Furthermore, if the ambient diurnal variation in turbidity fluctuates in and out of the 5 and 50 NTUs threshold, the Basin Plan states that averaging periods can be applied to data to determine compliance. For example, during the summer months, the Sacramento River turbidity could be less than 50 NTUs, and during the winter months, the turbidity could be more than 50 NTUs because of the higher flow rate causing more river scouring. Thus, the monthly average was calculated using hourly California Data Exchange Center (CDEC) data and is presented in Table 2 below. Specific construction activities that are part of the potential alternatives will comply with the above-stated thresholds for turbidity.

Water quality impacts that could result from project construction activities and project operations were evaluated based on the construction practices and materials that would be used, the location and duration of the activities, and the potential for degradation of water quality or beneficial uses of project area waterways.

The placement of riprap along the riverbanks will temporarily generate increased turbidity in the immediate vicinity of the construction area. Additionally, placement of riprap in the water could result in a sediment plume, generated from the channel bottom and levee side, becoming suspended in the water and could generate turbidity levels above those identified as acceptable by the Basin Plan. Turbidity effects from landside construction (e.g., vehicle, staging, placement of construction equipment) will be limited to stormwater runoff carrying loose soil from staging areas and construction vehicle access areas. Best management practices will be implemented to reduce the effect of runoff into the stormwater system to less than significant. BMPs include such things as coir mats or hay bales to prevent runoff, rock groins to retain sediment, sandbags to prevent erosion, and drain screens to prevent sediment from traveling outside the construction area footprint and into the storm drains system.

Table 2. Monthly Average Total Suspended Sediment (TSS) and Turbidity for the Sacramento River at Freeport from 1997 to 2007.

Month	Discharge (cfs ¹)	TSS (mg ² /L ³)	TSS Load (tons)	Turbidity (NTU ⁴)
January	41,414	104	11,670	64
February	44,084	83	9,839	68
March	39,586	70	7,476	15
April	28,552	51	3,946	11
May	25,152	48	3,279	12
June	21,461	30	1,741	17
July	20,432	37	2,019	21
August	18,235	27	1,332	9
September	16,121	29	1,266	10
October	11,950	29	940	6
November	13,612	24	868	8
December	25,105	81	5,463	12

¹ cubic feet per second; ² milligram; ³ Liter; ⁴ Nephelometric turbidity units

Note: Flow and TSS data are from the U.S. Geological Survey (USGS) and are presented as monthly average from 1997 to 2007. Turbidity data are from CDEC from March 2007 to January 2009 and also are presented as a monthly average. Turbidity data are from the Sacramento River at Hood, a few river miles downstream from the USGS station.

Source: USGS 2013; DWR 2012b.

As rock riprap is placed in the open water, significant indirect effects will result as the sediment and turbidity plume drift further downstream and affect water quality downstream from the project area. By implementing the BMPs contained within the SWPPP, impacts will be reduced to less than significant.

(xvii) (a) Water Chemistry

The potential of hydrogen (pH) is a unit for measuring the concentration of hydrogen ion activity in water and is reported on a scale from 0 to 14. If a solution measures less than 7, it is considered acidic. If a solution measures more than 7, it is considered basic, or alkaline. If a solution measures 7, it is considered neutral. Many biological functions occur only within a narrow range of pH values. The Basin Plan objective for pH is between 6.5 and 8.5. Furthermore, discharges cannot result in changes of pH that exceed 0.5. The monthly average pH of the Sacramento River from 2003 to 2009 remained stable throughout the year (Table 2). Construction materials such as concrete or other chemicals could affect the pH of the Sacramento River if a discharge were to occur. The proposed materials and construction activities have the potential to affect water chemistry during the duration of construction. Construction contractors will be required to prepare and implement a SWPPP and comply with the conditions of the National Pollution Discharge Elimination System (NPDES) general stormwater permit for construction activity. The contractor will be required to obtain a permit from the Central Valley Regional Water Control Board (CVRWQCB) detailing a plan to control any spills that could occur during construction. The plan will describe construction activities, BMPs that will be implemented to prevent discharges of contaminated stormwater into waterways, and required inspections and monitoring.

(xviii) (b) Salinity

The proposed materials and construction activities are not expected to affect salinity.

(xix) (c) Clarity

Placement of fill materials will temporarily reduce clarity due to an increase in total suspended solids within the project area. Clarity is not expected to be substantially affected outside the immediate project area. However, the reduction of clarity caused by construction activities will be of short duration. Clarity will return to pre-construction levels upon project completion.

(xx) (d) Color

The proposed project will affect color only during fill activities. Placement of fill materials will temporarily induce a color change due to an increase in turbidity. These effects are consistent with those discussed above for clarity. The change in color caused by construction activities will be short of short duration and color will return to pre-construction levels upon project completion.

(xxi) (e) Odor

The proposed project will not result in any major sources of odor. The project will not involve operation of any of the common types of facilities that are known to produce odors (e.g., landfill, wastewater treatment facility). Odors associated with diesel exhaust emissions from the use of onsite construction equipment may be noticeable from time to time by adjacent receptors. However, the odors will be intermittent and temporary and will dissipate rapidly from the source with an increase in distance. Furthermore, as required by CARB regulation 13 CCR 2449(d)(3), no in-use off-road diesel vehicles may idle for more than 5 consecutive minutes. Therefore, this direct effect will be less than significant. In addition, implementation of mitigation measures, which are required under other air quality effects, will further reduce exhaust emissions, and provide advanced notification of construction activity.

(xxii) (f) Taste

The proposed materials and construction activities are not expected to affect taste.

(xxiii) (g) Dissolved Gas Levels

The proposed materials and construction activities are not expected to affect dissolved gases.

(xxiv) (h) Temperature

Construction activities have the potential to create substantial turbidity affecting water temperature. Implementing the BMPs established in the SWPPP, conducting work during low flow periods, and installing sediment barriers to reduce sediment from entering waterways will be required to control turbidity and the mobilization of pollutants that may be present in sediments. There is the potential for some increases in water temperature, due to the removal of waterside vegetation during construction. However, the vegetation that will be removed

primarily consists of shrubby vegetation and grasses, which do not significantly contribute to shade. The larger trees in the bank protection footprint, which are the primary contributors to shade, will be protected in place. This will help to maintain consistent long-term water temperatures after construction. Additionally, shrubs will be planted as part of the biotechnical slope protection. This will provide riparian vegetative cover over the project live.

(xxv) Nutrients

The proposed materials and construction activities have the potential to affect nutrient levels in the water. Release of suspended sediments during construction could potentially cause turbidity thresholds for metals and nutrients to be exceeded. Turbidity would be controlled outside the working area using a combination of BMPs as appropriate. Development and implementation of an approved SWPPP will also prevent release of excess nutrients. Long-term nutrient levels will not be significantly altered by project construction because existing vegetation on the waterside slopes of the levee will be protected in place, and the SRA corridor will still remain a source of nutrients for the rivers. In addition, nutrients from the upstream watershed will remain in the system.

(xxvi) (j) Eutrophication

The project is not expected to contribute excess nutrients into the stream or promote excessive plant growth due to BMPs and the high content of rock in disposal material.

c. Suspended Particulate/Turbidity Determinations

(xxvii) (1) Alteration of Suspended Particulate Type and Concentration

Where bank protection construction is proposed, riprap will be placed along the riverbank to prevent erosion. The placement of riprap along the riverbank will temporarily generate increased turbidity in the immediate vicinity of the construction area. Additionally, placement of riprap in the water could result in a sediment plume, generated from the channel bottom and levee side, becoming suspended in the water and could generate turbidity levels above those identified as acceptable by the Basin Plan. Turbidity effects from construction (e.g., vehicle, staging, placement of construction equipment) will be limited to stormwater runoff carrying loose soil from staging areas and construction vehicle access areas. BMPs will be implemented to reduce the effect of runoff into the stormwater system to less than significant. BMPs include such things as coir mats or hay bales to prevent runoff, rock groins to retain sediment, sandbags to prevent erosion, and drain screens to prevent sediment from traveling outside the construction area footprint and into the storm drains system.

As rock riprap is placed in the open water, significant indirect effects will result as the sediment and turbidity plume will drift further downstream and later affect the water quality in those areas found further downstream of the project area. By implementing avoidance and minimization measures, discussed in Section 3.5.6 of the 2016 ARCF GRR EIS/EIR, impacts will be reduced to less than significant.

(xxviii) (2) *Particulate Plumes Associated with Discharge*

Placement of riprap in the water could result in a sediment plume, generated from the channel bottom and levee side, becoming suspended in the water and could generate turbidity levels above those identified as acceptable by the Basin Plan. As rock riprap is placed in the open water, significant indirect effects will result as the sediment and turbidity plume will drift further downstream and affect the water quality in those downstream areas. By implementing avoidance and minimization measures, discussed in Section 3.5.6 of the 2016 ARCF GRR EIS/EIR, impacts will be reduced to less than significant.

(xxix) (3) *Changes to Environmental Quality and Value*

There could be significant affects to water quality due to increased turbidity during construction, as discussed above. On the Sacramento River, the use of barges to install the riprap could cause additional turbidity as the barge moves into the site and anchors. With the implementation of the BMPs that will be established in the SWPPP, these effects will be temporary and reduced to less than significant during construction. Once construction is complete there could be reduced turbidity in the direct vicinity of the site because there will be no exposed soil to erode and deposit into the river. Further, the bank protection sites will include the installation of riparian vegetation which could slow the flows down and reduce turbidity during high flows.

Construction contractors will be required to prepare and implement a SWPPP and comply with the conditions of the National Pollution NPDES general stormwater permit for construction activity. The contractor will be required to obtain a permit from the CVRWQCB detailing a plan to control any spills that could occur during construction. The plan will describe the construction activities, BMPs that will be implemented to prevent discharges of contaminated stormwater into waterways, and required inspections and monitoring.

(xxx) (4) *Actions to Minimize Impacts*

Since 2015 the project team has further evaluated the construction sites to reduce the project footprints where possible. Vegetation is being replanted where possible to provide natural bank protection. Trees will be hand selected for removal, rather than clear cutting the levee.

Construction contractors will be required to prepare and implement a SWPPP and comply with the conditions of the NPDES general stormwater permit for construction activity. The contractor will be required to obtain a permit from the CVRWQCB detailing a plan to control any spills that will occur during construction. The plan will describe the construction activities to be conducted, BMPs that will be implemented to prevent discharges of contaminated stormwater into waterways and required inspections and monitoring. Work below the OHWM would only be permitted during low water periods, July 1 to November 30th.

d. Contaminant Determinations

Construction activities will involve the use of potentially hazardous material, such as fuels, oils and lubricants, and cleaners, which are commonly used in construction projects. Construction contractors will be required to use, store, and transport hazardous materials in compliance with

Federal, State, and local regulations during project construction and operation. Testing of borrow sites will occur prior to the use of material and sites which have contaminated soils will not be used for this project. Any hazardous substance encountered during construction will be removed and properly disposed of by a licensed contractor in accordance with Federal, State, and local regulations. Compliance with applicable regulations will reduce the potential for accidental release of hazardous materials during transport and construction activities. The risk of significant hazards associated with the transport, use, and disposal of these materials is low.

Prior to construction, project areas will be tested for Hazardous, Toxic and Radioactive Waste (HTRW) contaminants, as appropriate. Any HTRW found would be disposed of by the non-federal sponsor in accordance with all Federal, State, and local laws and regulations at an approved disposal site. Implementing these mitigation measures would reduce the impacts from hazardous materials at project sites to less than significant. If construction would occur in close proximity to sites listed in the existing conditions section, a Phase II environmental site assessment should also be conducted. This would further reduce the risk of exposure to workers and the public during construction and assist in the remediation planning.

e. Aquatic Ecosystem and Organism Determinations

(xxxix) (1) *Effects on Plankton*

Plankton are drifting organisms that inhabit the pelagic zone of oceans, seas, or bodies of fresh water. Project construction activities will be temporary and short-term. The only short-term effect will be a less abundant supply of plankton for the Delta smelt, and other fish and aquatic organisms. With implementation of mitigation measures and BMPs, this project will not introduce materials that would disrupt the nutrient supply for plankton, and as a result effects to plankton will be temporary and not significant.

(xxxix) (2) *Effects on Benthos*

Benthic organisms will be permanently disturbed as a result of constructing bank protection. However, the rock placed below the water surface will naturally accumulate soil material and plant species. Except where the five tiebacks are located, the bank The bank above the low water elevation protected by a biotechnical slope protection. This will include biodegradable coir fabric and blocks, wooden stakes, planting soil, and riparian plantings. The riparian plants will provide organic material and food sources for fisheries. The native benthic organisms are expected to recolonize the area in time.

(xxxix) (3) *Effects on Nekton*

Nekton are actively swimming aquatic organisms that range in size and complexity from plankton to marine mammals. Native fish present in the project area can be separated into anadromous species and resident species. Native anadromous species include four runs of Chinook salmon, steelhead trout, delta smelt, and green sturgeon. All of these anadromous species are expected to use habitat in parts of the study area.

The Sacramento River is designated critical habitat for winter-run Chinook salmon in the ARCF project area. Critical habitat for spring-run Chinook salmon includes all river channels and sloughs within the ARCF study area on the Sacramento River and on the American River from the confluence to the Watt Avenue bridge (NMFS 2006b). Critical habitat for Central Valley steelhead includes the stream channels and the lateral extent as defined by the ordinary high-waterline or bank-full elevation in the designated stream reaches of the Sacramento and American River, Natomas East Main Drainage Canal and Dry/Robla Creek portions of the ARCF project area. Critical habitat for delta smelt consists of all water and all submerged lands below ordinary high water and the entire water column bounded by and contained in Suisun Bay (including the contiguous Grizzly and Honker bays); the length of Goodyear, Suisun, Cutoff, First Mallard (Spring Branch), and Montezuma sloughs; and the contiguous waters in the Delta (USFWS 1994). Critical habitat for delta smelt is designated in the following California counties: Alameda, Contra Costa, Sacramento, San Joaquin, Solano, and Yolo (USFWS 2003). Designated critical habitat for the southern distinct population segment of green sturgeon includes the Sacramento River downstream of Keswick Dam, the Feather River downstream of Oroville Dam, and the Yuba River downstream of Daguerre Dam; portions of Sutter and Yolo Bypasses; the legal Delta, excluding Five Mile Slough, Seven Mile Slough, Snodgrass Slough, Tom Paine Slough, and Trapper Slough; and San Francisco, San Pablo, and Suisun bays.

Rock placement on the Sacramento River will likely disturb the native resident fish by increasing vibration, water turbulence, and turbidity, causing them to move away from the area of placement. Some pelagic native juvenile species utilizing the near shore habitat for cover, may move away from that cover, which could put them at a slight risk of predation. With implementation of mitigation, direct effects to resident native fish species will be less than significant. The biotechnical slope protection, including with riparian tree and shrub plantings, together with installation of IWM will off-set potential adverse effects on salmonid species. The natural bank element of SRA will be lost with the placement of rock along the levee slope. Over time sediment will settle into the rock voids and provide similar substrate characteristics as a natural bank. The direct effects will also not result in a substantial reduction in population abundance, movement, and distribution for salmonid species.

SR Erosion Contract 4 will result in permanent impacts to 0.7 to 0.8 acres of Delta smelt shallow water habitat, and spawning habitat. Construction-related effects include disruption of spawning activities, disturbance or mortality of eggs and newly hatched larvae, and alteration of spawning and incubation habitat. With the implementation of compensation for the impacts to Delta smelt shallow water habitat and spawning habitat, these effects will be reduced to less than significant.

SR Erosion Contract 4 will result in permanent impacts to 2.1 to 3.2 acres of salmonid habitat through the loss of existing shallow water vegetation along the riverbanks. These areas provide food and shelter for both adults and juvenile salmon as they migrate seasonally up and down the river. Salmon and green sturgeon use the same habitat in the project area. Construction will result in direct effects to green sturgeon through the loss of benthic feeding habitat due to the

change in substrate at the bank protection sites. If larvae or juveniles are present during construction, in-water activities could result in localized displacement and possible injury or mortality to individuals that do not readily move away from the channel or nearshore areas. Project actions associated with bank protection measures may increase sediment, silt, and pollutants, which could adversely affect rearing habitat or reduce food production, such as aquatic invertebrates, for larval and juvenile green sturgeon. Compensation will be implemented in the form of on and off site mitigation, as well as the purchase of mitigation bank credits.

Up to 0.4 acres of Yellow Billed Cuckoo habitat may be affected by SR Erosion Contract 4. Effects are considered short term and moderate. Effects will be offset through purchase of mitigation bank credits.

(xxxiv) (4) *Effects on Aquatic Food Web*

Effects on the aquatic food web, or the plankton, benthic, and nekton communities, will be temporary and less than significant. Indirect effects were not considered significant to resident native fish species because it was determined that existing conditions will not be worsened by project construction and will not result in a substantial reduction in population abundance, movement, and distribution.

(xxxv) (5) *Effects on Special Aquatic Sites*

(a) Sanctuaries and Refuges

No sanctuaries and refuges are within the project area.

(xxxvi) (b) *Wetlands*

No wetlands are within the project area.

(xxxvii) (c) *Mud Flats*

No mud flats are within the project area.

(xxxviii) (d) *Vegetated Shallows*

No vegetated shallows are within the project area.

(xxxix) (e) *Coral Reefs*

No coral reefs are within the project area.

(xl) (f) *Riffle and Pool Complexes*

No riffle pool and complexes are within the project area.

(xli) (6) *Threatened and Endangered Species*

Implementation of Proposed Action will result in direct effects to salmonids, green sturgeon, Delta smelt, and Western yellow-billed cuckoo. Impacts to special status fish species were

addressed above in Section e (3), nekton.

Adverse effects could occur to Western yellow-billed cuckoo and Swainson's hawk due to the removal of riparian vegetation during construction of the Proposed Action on the Sacramento River. Swainson's hawk is known to nest within the study area. Prior to construction, the Project Partners will survey the construction area per the California Department Fish and Wildlife (CDFW) survey protocols and determine if nesting hawks are present. If they are present, buffers will be set up and the nests will be monitored. Additional avoidance and minimization measures will be coordinated with CDFW, as needed. Western yellow-billed cuckoo is not currently known to nest in the project area, but it is within the cuckoo's migratory corridor, and they are likely to be present during their migration period. Up to 0.4 acres of riparian vegetation will be removed as a result of SR Erosion Contract 4 construction. The biotechnical erosion protection includes planting 0.3 acres of native riparian trees and shrubs. This will make SR Erosion Contract 4 self-mitigating up to 0.3 acres of impact. If additional compensatory mitigation is needed, offsite mitigation will occur along the main stem of the Sacramento River, or credits will be purchased at a mitigation bank.

Because avoidance, minimization, and compensation measures will be implemented in accordance with the requirements of the Endangered Species Act (ESA), California Endangered Species Act and other relevant regulatory requirements, and they will protect habitat in place and create habitat, potential adverse effects on special-status species and on sensitive habitats will be reduced to a less than significant level.

(7) Other Wildlife

Wildlife effects associated with the construction are expected to be temporary and no additional measures to minimize effects are needed for fill occurring in the area. Under the Proposed Action, construction of levee improvements and vegetation removal will result in significant loss of vegetation and wildlife habitat on the landside of the Sacramento River

Even though this area is very urbanized effects will still occur to wildlife such as avian species, fox, otter, and other terrestrial and aquatic species. The construction disturbance will be temporary, and the species will be expected to return to the area. Surveys will be conducted to determine if any nesting birds are present prior to construction. If nesting birds are located adjacent to the project area, coordination with the resource agencies will occur. Trees where nesting birds are located will not be removed while they are actively nesting. However, once the young have fledged the trees may be removed to construct the project. Once construction is complete wildlife is expected to return to the area. Both native and non-native fish species, along with some endangered species, use this area of the river and are discussed in Fisheries (Section 3.7) and Special Status Species (Section 3.8).

(xlii) (8) Actions to Minimize Impacts

The proposed project action alternatives are not likely to result in take of federal- or state-protected species as long as the applicable conservation and mitigation measures, as detailed

in Section 3.8.6 of the 2016 ARCF GRR FEIS/EIR are implemented. The ESA non-jeopardy determination for the ARCF project is based on the USACE implementing the conservation and mitigation measures identified in the 2016 EIS/EIR and the following additional commitments to: (1) avoid direct impacts by maintaining buffers around sensitive habitat and/or conducting construction activities outside of sensitive timeframes (e.g. during the salmonid work window or outside of the fledging period of special-status birds); (2) implement a SWPPP and associated BMPs; including the designation of staging areas for stockpiling of construction materials, portable equipment, vehicles, and supplies and (3) appoint onsite biologists to provide worker environmental awareness training to contractors and to monitor, report, and remove and transport special-status species if necessary or suspend construction activities until special-status species leave the project on their own. Concurrent implementation of these conservation measures will adequately avoid, minimize, and mitigate adverse effects on the special-status fish, wildlife and plant species discussed in this document.

f. Proposed Disposal Site Determinations

(xliii) (1) Mixing Zone Size Determination

Not applicable.

(xliv) (2) Determination of Compliance with Applicable Water Quality Standards

Water quality could be affected within the actual construction area and upstream and downstream of the work area. Construction activities such as rock placement, clearing and grubbing, and slope flattening, have the potential to temporarily degrade water quality through the direct release of soil and construction materials into water bodies or the indirect release of contaminants into water bodies through runoff.

The ARCF study area is located within the jurisdiction of the CVRWQCB, within the greater Sacramento Valley watershed. Preparation and adoption of water quality control plans, or Basin Plans, and statewide plans, is the responsibility of the State Water Resources Control Board. State law requires that Basin Plans conform to the policies set forth in the California Water Code beginning with Section 13000 and any State policy for water quality control. These plans are required by the California Water Code (Section 13240) and supported by the Federal CWA. Section 303 of the CWA requires states to adopt water quality standards which "consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses." Section 13050 of the California Water Code requires Basin Plans to designate or establish beneficial uses to be protected and water quality objectives to protect those uses. These designations are specific to individual waterways (or reaches) or water bodies. Adherence to Basin Plan water quality objectives protects continued beneficial uses of those waters. Because beneficial uses, together with their corresponding water quality objectives, can be defined per Federal regulations as water quality standards, the Basin Plans are regulatory references for meeting the State and Federal requirements for water quality control (40 CFR 131.20). The potential effects of the proposed project on water quality have been evaluated and are discussed in Section 3.4 of the SR Erosion Contract 4 Supplemental

Environmental Assessment. Compliance with the California Water Code will be accomplished by obtaining certifications from the CVRWQCB prior to construction.

(xlv) (3) *Potential Effects on Human Use Characteristics*

(xlvi) a) *Municipal and Private Water Supplies*

The Sacramento River waterways were historically used as places to dispose of contaminants. In recent decades, treatment for municipal wastewater, industrial wastewater, and management of urban stormwater runoff have increased and improved greatly. Industries and municipalities now provide at least secondary treatment of wastewater. The American River originates in the high Sierra Nevada just west of Lake Tahoe, in the Tahoe and El Dorado National Forests. Its three main forks – the South, Middle, and North – flow through the Sierra foothills and converge east of Sacramento. The waters of the American River provide recreation, municipal power, and irrigation for the northern California area. The fill material will not violate Environmental Protection Agency or State water quality standards or violate the primary drinking water standards of the Safe Drinking Water Act (42 USC 300f-300j). Project design, compliance with State water quality thresholds and standard construction and erosion practices will preclude the introduction of substances into surrounding waters. The groundwater table is separated from the slurry wall by a non-permeable layer of soil, therefore there will be minimal risk to groundwater supply. Materials removed for disposal off-site will be disposed of in an appropriate landfill or other upland area.

(xlvii) b) *Recreation and Commercial Fisheries*

Under the Proposed Action, there will not be long term or long distance closure of recreation facilities including the bike trails, walking trails, parks, and boat launches. Notification and coordination with recreation users and bike groups will be arranged, as appropriate. Flaggers, signage, detours, and fencing will be present to notify and control recreation access and traffic around construction sites.

The Proposed Action will cause direct effects to fish habitat from the removal of vegetation from the riverbank. Direct effects from the placement of launchable rock toes will cause an increase in turbidity. Native riparian trees and shrubs will be planted as part of the biotechnical erosion protection measure and other disturbed areas will be seeded with native grasses and forbs at the end of construction. BMPs will be implemented to address turbidity.

(xlviii) c) *Water-related recreation*

Recreational boating is one of the primary uses of the Sacramento River. Boat access is located at Discovery Park, Miller Park, and Garcia Bend Park on the Sacramento River. The Sherwood Harbor Marina and Recreational Vehicle Park is located across the river from the SR Erosion Contract 4. There are eight private boat docks along the SR Erosion Contract 4 site. Per the terms of their permits with the CVFPB, the owners will be required to remove them prior to construction initiation on SR Erosion Contract 4.

Construction will occur during the summer months when the river recreation activities are at the peak. There will be short-term term significant effects along the Sacramento River reach of the project, however, there will be no long-term effects because the area will be returned to the pre-construction conditions once completed. The timing of construction cannot be mitigated as it is unsafe to perform construction activities in the floodway during the flood season. The SR Erosion Contract 4 effects on water-related recreation will be temporary (occurring in one construction season, or until the private docks and ramps are replaced), moderate (affecting adjacent homeowners, but not the general public), making the SR Erosion Contract 4 incremental effect less than significant.

(xlix) d) Aesthetics

The Proposed Action will result in vegetation loss and construction activities will disrupt the existing visual conditions along the Sacramento River. Tree Native trees and shrubs will be planted as part of the biotechnical erosion protection measure; however, there will still be a temporal loss of vegetation. Disturbed areas will be reseeded with native grasses.

(l) e) Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves

Many parks are located along the Sacramento River. Following is a description of the parks and their activities:

Miller Park. Adjacent to the Sacramento Marina, off Harborview Drive from Front Street, this 57 acre city park is right on the Sacramento River. The park includes picnic areas, boat trailer parking, and a boat ramp and dock. There is also a store called Rat's Snack Shop.

Garcia Bend Park. Located between Pocket Road and the Sacramento River, this 19-acre community park is a popular place for recreation providing soccer fields, lighted tennis courts, play areas, picnic areas, restrooms, and a public boat ramp providing access to the Sacramento River.

Zacharias Park. Located in the Pocket neighborhood, off Clipper Way. This 6-acre park is right on the Sacramento River. The park amenities include river access, soccer fields and a picnic area.

The Riverfront Promenade. A new addition to Sacramento's riverfront, a couple blocks were opened in 2001. It is located just downstream of Old Sacramento and is still in the early stages of development. When complete, the promenade will be a mile long walking and cycling path that connects Old Sacramento to Miller Park.

To ensure public safety, flaggers, warning signs, and signs restricting access will be posted before and during construction, as necessary. In the event that bike trails would be disrupted; detours would be provided. Detour routes would be clearly marked, and fences would be

erected in order to prevent access to the project area. In areas where recreational traffic intersects with construction vehicles, traffic control will be utilized in order to maintain public safety. Detours would be short duration, only while work is being completed in the immediate vicinity. No access points will be closed during construction of SR Erosion Contract 4.

g. Determination of Cumulative Effects on the Aquatic Ecosystem

Effects of the Proposed Action include reductions in nearshore aquatic and riparian habitats that are used by aquatic and terrestrial species. USACE actions which could create a cumulative effect on WOTUS in the Sacramento area include the other features of ARCF such as Seepage, Stability and Overtopping work and construction of the new Sacramento Weir and Bypass. Other projects occurring in the same area are: Dredging at Miller Park, Sacramento Riverbank Protection Project (SRBP), West Sacramento Project, and the Sacramento River Parkway. Immediately upstream of the project area the I Street Bridge replacement is anticipated to begin construction in the next 5 years and the Broadway Bridge is expected to begin construction in the next 15 years.

Water quality could be affected at the project footprint as well as upstream and downstream of the work area. Construction activities associated with the Proposed Action, West Sacramento Projects and Dredging have the potential to temporarily degrade water quality. All projects occurring simultaneously will be required to coordinate with the Regional Water Quality Control Board and comply with their 401 permits. There are no anticipated long-term waterway effects and no significant cumulative, water quality effects.

h. Determination of Secondary Effects on the Aquatic Ecosystem

The placement of rock will not only reduce the risk of erosion but will also anchor remaining trees in place and reduce the potential for trees falling over during a high flow event. The understory, which provides habitat for small rodents, ground nesting birds and waterfowl, and various reptiles, will be removed in order to provide a clean surface to place the rock. Because the rock tiebacks are hard surfaces, they will not support the growth of large amounts of vegetation. In biotechnical erosion protection areas native plants will be planted and allowed to establish naturally. The rock tiebacks will provide basking areas for some small reptiles such as snakes and lizards. The Proposed Action is expected to be self-mitigating through the biotechnical erosion protection, which includes native plant establishment. Should additional compensatory mitigation be required, it will be accomplished through purchase of mitigation credits or establishment of off-site habitat mitigation. Because the riparian corridor and shaded river aquatic habitat left in place, together with the plant establishment as part of the biotechnical bank erosion measure, will provide value to fish and wildlife species, and compensatory mitigation will be implemented, if needed, impacts are considered less than significant.

Risk exists for the unintentional placement of dredge and/or fill material to be placed outside of the proposed project area. Unintentional placement could result in additional adverse impacts to water quality, erosion and accretion patterns, aquatic and other wildlife habitat, recreation,

aesthetics, and air quality. In order to reduce the risk of such impacts, contract specifications will require the contractor to mark the project boundaries, and that the contractor install erosion control (i.e., silt fencing, silt curtains) where possible within any standing waters.

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

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

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

b. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site

There is no other location where this work can be done to provide the same level of protection. The adjacent community backs up to the levee, therefore no space is available to construct a setback levee in Sacramento metropolitan area. Onsite alternative methods such as rock trenches are not feasible because there is not space (remaining floodplain) between the riverbank and the levee itself. They will also result in the removal of additional vegetation. There are no other practicable alternatives that provide the same level of life and safety protection and sufficiently reduce the risk of levee failure.

c. Compliance with Applicable State Water Quality Standards

The proposed project will implement BMPs to ensure that it does not violate State water quality standards identified in the Central Valley Basin Plan (CVRWQCB 1998). USACE received a 401 Programmatic Order in 2020 for ARCF. Each individual contract is submitting a Notice of Intent under the programmatic and is obligated to follow all BMP's, avoidance, and minimization measures within the order.

d. Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 of the Clean Water Act

The discharges of fill materials will not cause or contribute to, after consideration of disposal site dilution and dispersion, violation of any applicable State water quality standards for waters. The discharge operations will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

e. Compliance with Endangered Species Act of 1973

The placement of fill materials in the project area(s) will not jeopardize the continued existence of any species listed as threatened or endangered or result in the destruction or adverse modification of any designated critical habitat as specified by the Endangered Species Act of 1973. Formal consultation was completed with the regulatory agencies:

- U.S. Fish & Wildlife Service (USFWS; 08ESMF00-2014-F-0518-R003) Dated March 2021
- National Marine Fisheries Service (NMFS; WCRO-2020-03082) Dated May 2021

f. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972
Not applicable.

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

Appropriate and practicable steps to minimize potential adverse effects of discharge and fill on the aquatic ecosystem include: placing fill material only where it is needed to meet the project purpose and confining it to the smallest practicable area; conducting work in the dry to the maximum extent possible, during the low flow season; complying with in water work BMPs; requiring the project to have no hydraulic impact to eliminate impacts to flow and circulation; and, the areas disturbed by construction will be returned as close as possible to pre-project conditions when practicable.

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

V. Summary and Conclusion

A. The discharge represents the least environmentally damaging, practicable alternative (LEDPA).

B. The discharge does not cause or contribute to violation of any applicable state water quality standard, does not violate any applicable toxic effluent standard.

C. The discharge does not cause or contribute to significant degradation of the WOTUS.

D. All appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.