

Final

AMERICAN RIVER WATERSHED COMMON FEATURES WATER RESOURCES DEVELOPMENT ACT OF 2016, AMERICAN RIVER CONTRACT 2

Supplemental Environmental Impact Statement/
Supplemental Environmental Impact Report
State Clearinghouse Number 2005072046

Prepared for
U.S. Army Corps of Engineers
Central Valley Flood Protection Board
Sacramento Area Flood Control Agency

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EXECUTIVE SUMMARY

ES.1 Summary of the Proposed Action

The Proposed Action includes the installation of erosion protection features along the Lower American River in the project area for the American River Watershed Common Features, Water Resources Development Act of (ARCF) 2016 Project, American River Contract 2. The erosion protection features of the Proposed Action were analyzed in the American River Watershed Common Features General Reevaluation Report (ARCF GRR) Environmental Impact Statement/Environmental Impact Report (EIS/EIR). This Supplemental EIS/EIR supplements the ARCF GRR Final EIS/EIR (FEIS/FEIR).

Some elements of the Proposed Action (e.g., staging areas, haul routes, project footprint, vegetation removal, and mitigation site) were not analyzed in the ARCF GRR FEIS/FEIR, because the specific project designs were not available. Through project design and refinement, the U.S. Army Corps of Engineers (USACE) has identified specific erosion protection features and locations, potential staging areas, haul routes, vegetation removal activities, mitigation areas, and transportation effects necessary to complete Proposed Action that were not analyzed in the ARCF GRR FEIS/FEIR. In compliance with federal and state law this supplemental study provides the analysis required by the National Environmental Protection Act (NEPA) and the California Environmental Quality Act (CEQA), respectively, of the newly identified or quantified features of the Proposed Action of the overall 2016 ARCF GRR.

ES.2 Summary of Environmental Consequences

Table ES-1 summarizes the results of the resource effects analysis of the Proposed Action on the environment, provided in detail in Sections 3.2 through 3.14 of this Supplemental EIS/EIR. The table provides a description of resource baselines and effects and significance conclusions before and after implementation of mitigation, and mitigation measures.

ES.3 Areas of Controversy and Issues to Be Resolved

The ARCF GRR FEIS/FEIR identified several areas of controversy based on the comments received during the public scoping period and during past NEPA and CEQA public processes undertaken by USACE, the Central Valley Flood Protection Board, and

the Sacramento Area Flood Control Agency. Several of these areas of controversy are applicable to the Proposed Action:

- Construction-related effects on residents and businesses adjacent to the project levees.
- Construction-related impacts on biological resources.
- Vegetation and tree removal.
- Effects on cultural resources and resources significant to Native American tribes.
- Impacts on recreation facilities.
- Impacts on endangered species and their habitat.

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Resource Topic	Effect	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.2 Visual Resources	Result in Short-Term Impacts on the Visual Character of the American River Parkway During Construction	S	None	SU
	Result in a Loss of Vegetation Due to Removal and Construction of Levee Improvements Resulting in Short-Term Effects on Visual Resources of Mature Vegetation	S	Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site. Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal. Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.	LTS
	Result in Long-Term Adverse Impact on Visual Resources to Users Within the American River Parkway	S	Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site. Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal. Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.	LTS
	Create a New Source of Substantial Light or Glare that Would Adversely Affect Day or Nighttime Views in the Area	S	Mitigation Measure VIS-1: Shield Temporary Nighttime Lighting.	LTS
3.3 Hydrology and Water Quality	Result in Changes to the Levee Footprint, In-Channel Geometry or Characteristics, River Hydraulics, and/or Impede or Redirect Flood Flows	LTS	None	LTS
	Violate Any Water Quality Standards or Waste Discharge Requirements or Otherwise Substantially Degrade Surface or Groundwater Quality, Result in Substantial Erosion or Siltation on- or off-site, or Conflict with or Obstruct Implementation of a Water Quality Control Plan.	S	Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat. Mitigation Measure WQ-1: Prepare and Implement a Storm Water Pollution Prevention Plan, Spill Prevention Control and Countermeasures Plan, and Associated Best Management Practices.	LTS
3.4 Vegetation and Wildlife	Result in Short-Term Adverse Effects on Riparian Habitat and Waters of the United States	S	Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site. Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal. Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.	SU
	Result in Long-Term Adverse Effects on Riparian Habitat and Waters of the United States	S	Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site. Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal. Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.	LTS
3.5 Fisheries	Adverse Effects on Fisheries Resources	S	Mitigation Measure FISH-1: Observe In-Water Work Windows. Mitigation Measure FISH-2: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination.	LTS

LTS = less than significant; S = significant; SU = significant and unavoidable.

TABLE ES-1 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Resource Topic	Effect	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.6 Special Status Species	Adverse Effect on Special Status Species: Valley Elderberry Longhorn Beetle	S	Mitigation Measure VELB-1: Implement Current USFWS Avoidance, Minimization, and Compensation Measures for Valley Elderberry Longhorn Beetle.	LTS
	Adverse Effect on Special Status Species: Western Yellow-Billed Cuckoo	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds. Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site. Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal.	LTS
	Adverse Effect on Special Status Species: Swainson's Hawk	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds. Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site. Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal.	LTS
	Adverse Effect on Special Status Species: Bank Swallow	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.	LTS
	Adverse Effect on Special Status Species: Burrowing Owl	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.	LTS
	Adverse Effect on Special Status Species: White-Tailed Kite	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds. Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site. Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal.	LTS
	Adverse Effect on Special Status Species: Purple Martin	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.	LTS
	Adverse Effect on Special Status Species: Cooper's Hawk	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.	LTS
	Adverse Effect on Special Status Species: Other Breeding and Migratory Birds	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.	LTS
	Adverse Effect on Special Status Species: Western Pond Turtle	S	Mitigation Measure TURTLE-1: Implement Measures to Avoid and Minimize Effects on Western Pond Turtle. Mitigation Measure WQ-1: Prepare and Implement a Storm Water Pollution Prevention Plan, Spill Prevention Control and Countermeasures Plan, and Associated Best Management Practices.	LTS
	Adverse Effect on Special Status Species: Pallid Bat	S	Mitigation Measure BATS-1: Implement Measures to Protect Maternity Roosts of Special Status Bats.	LTS

LTS = less than significant; S = significant; SU = significant and unavoidable.

TABLE ES-1 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Resource Topic	Effect	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.6 Special Status Species (cont.)	Adverse Effect on Special Status Species: Western Red Bat	S	Mitigation Measure BATS-1: Implement Measures to Protect Maternity Roosts of Special Status Bats.	LTS
	Adverse Effect on Special Status Species: American Badger	S	Mitigation Measure BADGER-1: Implement Measures to Avoid and Minimize Effects on American Badger.	LTS
	Adverse Effect on Special Status Species: Sanford's Arrowhead	S	Mitigation Measure PLANT-1: Implement Measures to Avoid and Minimize Effects on Special Status Plants.	LTS
	Adverse Effect on Special Status Species: Winter-Run Chinook Salmon	S	Mitigation Measure FISH-1: Observe In-Water Work Windows. Mitigation Measure FISH-2: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination. Mitigation Measure FISH-3: Implement Measures to Avoid and Minimize Effects on Listed Fish Species. Mitigation Measure FISH-4: Implement Measures to Avoid and Minimize Effects on Listed Fish Species. Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.	LTS
	Adverse Effect on Special Status Species: Spring-Run Chinook Salmon	S	Mitigation Measure FISH-1: Observe In-Water Work Windows. Mitigation Measure FISH-2: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination. Mitigation Measure FISH-3: Implement Measures to Avoid and Minimize Effects on Listed Fish Species. Mitigation Measure FISH-4: Implement Measures to Avoid and Minimize Effects on Listed Fish Species. Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.	LTS
	Adverse Effect on Special Status Species: Central Valley Fall/Late Fall-Run Chinook Salmon	S	Mitigation Measure FISH-1: Observe In-Water Work Windows. Mitigation Measure FISH-2: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination. Mitigation Measure FISH-3: Implement Measures to Avoid and Minimize Effects on Listed Fish Species. Mitigation Measure FISH-4: Implement Measures to Avoid and Minimize Effects on Listed Fish Species. Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.	LTS

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TABLE ES-1 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Resource Topic	Effect	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.6 Special Status Species (cont.)	Adverse Effect on Special Status Species: California Central Valley Steelhead	S	Mitigation Measure FISH-1: Observe In-Water Work Windows. Mitigation Measure FISH-2: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination. Mitigation Measure FISH-3: Implement Measures to Avoid and Minimize Effects on Listed Fish Species. Mitigation Measure FISH-4: Implement Measures to Avoid and Minimize Effects on Listed Fish Species. Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.	LTS
	Adverse Effect on Special Status Species: Green Sturgeon	LTS	None	LTS
3.7 Cultural Resources	Damage to or Destruction of Unknown or Subsurface Historic-Period Sites, Prehistoric-Period Archaeological Sites, and Native American Identified Tribal Cultural Resources	S	Mitigation Measure CR-1: Resolve Adverse Effects through a Programmatic Agreement and Historic Properties Treatment Plan. Mitigation Measure CR-2: Prepare an Archaeological Discovery Plan and an Archaeological Monitoring Plan. Mitigation Measure CR-3: Conduct Cultural Resources Awareness Training. Mitigation Measure CR-4: Implement Procedures for Discovery of Cultural Material. Mitigation Measure CR-5: Evaluate Any Tribal Cultural Resources Discovered and Implement Avoidance and Minimization Measures to Avoid Significant Adverse Effects.	LTS
	Potential Damage to or Destruction of Previously Undocumented Human Remains	S	Mitigation Measure CR-6: Implement Procedures for Discovery of Human Remains.	LTS
3.8 Transportation and Circulation	Temporary Increase in Traffic Load or Temporary Decrease in Capacity along Designated Roadways in the Project Area	S	None	SU
	Increase Exposure of People to Significant Public Safety Hazards Resulting from Construction Activities on or Near the Public Road System	S	Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan.	LTS
	Increase Parking Demand	S	Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan.	LTS
	Increase Hazards Due to a Deterioration of Roadways	S	Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan.	LTS

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TABLE ES-1 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Resource Topic	Effect	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.8 Transportation and Circulation (cont.)	Interfere with Emergency Access	S	Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan.	LTS
	Conflict or be Inconsistent with Vehicle-Miles-Traveled Standards	LTS	None	LTS
	Conflict with a Program, Plan, or Ordinance: Decreased Performance or Safety of Alternative Modes of Transportation	S	Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan. Mitigation Measure TR-2: Provide Bicycle and Pedestrian Access.	LTS
3.9 Air Quality	Potential Conflict with Air Quality Plan or Contribute Substantially to Air Quality Violation	S	Mitigation Measure AQ-1: Implement SMAQMD's Basic Construction Emissions Control Practices. Mitigation Measure AQ-2: Implement Enhanced Fugitive Dust Control Practices. Mitigation Measure AQ-3: Develop and Implement a Plan for Enhanced On-Site Exhaust Controls. Mitigation Measure AQ-4: Use Electric Construction Equipment. Mitigation Measure AQ-5: Pay NOx Mitigation Fee to SMAQMD.	LTS
	Potentially Expose Sensitive Receptors to Short-Term Dust Emissions	S	Mitigation Measure AQ-2: Implement Enhanced Fugitive Dust Control Practices.	LTS
	Potentially Expose Sensitive Receptors to Short-Term Emissions of Toxic Air Contaminants	S	Mitigation Measure AQ-1: Implement SMAQMD's Basic Construction Emissions Control Practices. Mitigation Measure AQ-2: Implement Enhanced Fugitive Dust Control Practices. Mitigation Measure AQ-3: Develop and Implement a Plan for Enhanced On-Site Exhaust Controls. Mitigation Measure AQ-4: Use Electric Construction Equipment.	LTS
	Potentially Expose Sensitive Receptors to Major Source of Odor	LTS	None	LTS
	Operational Emissions of Criteria Air Pollutants and Precursors	LTS	None	LTS

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TABLE ES-1 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Resource Topic	Effect	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.10 Greenhouse Gas Emissions and Energy Consumption	Temporary, Short-term Generation of Greenhouse Gas Emissions or Conflict with an Applicable GHG Emissions Reduction Plan and Effects of Climate Change	S	Mitigation Measure GHG-1: Avoid, Minimize, and Compensate for Greenhouse Gas Emissions Effects.	LTS
	Result in a Potentially Significant Environmental Impact due to Wasteful, Inefficient, or Unnecessary Consumption of Energy Resources, During Project Construction or Operation; and/or Conflict With or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency	LTS	None	LTS
3.11 Noise	Temporary Increase in Ambient Noise Levels or Exposure of Sensitive Receptors to Excessive Noise or Vibration	S	Mitigation Measure NOISE-1: Implement Noise Reduction Practices. Mitigation Measure NOISE-2: Implement Vibration Control Measures.	LTS
3.12 Recreation	Temporary and Short-term Changes in Recreational Opportunities during Project Construction Activities	S	Mitigation Measure REC-1: Avoid and Minimize Effects on Recreational Use.	SU
3.13 Public Utilities and Service Systems	Result in Solid Waste Generation in the Project Area that Would Exceed Landfill Capacity	LTS	None	LTS
	Adversely Affect Emergency Response Services	S	Mitigation Measure UTIL-1: Avoid and Minimize Service Disruptions and Damage to Utilities and Infrastructure.	LTS
3.14 Hazards and Hazardous Materials	Possible Exposure of People and the Environment to Existing Hazardous Materials, Including Cortese-listed Sites	S	Mitigation Measure HAZ-1: Implement Stormwater Pollution Prevention Plan Best Management Practices and Test Site for Contaminants Prior to Construction.	LTS
	Interfere with Emergency Response Plan or Evacuation Plan	LTS	Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan.	LTS

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Acronyms and Other Abbreviations

Acronym	Abbreviation
1987 Manual	<i>1987 Corps of Engineers Wetland Delineation Manual</i>
2017 Scoping Plan	<i>California's 2017 Climate Change Scoping Plan</i>
AB	Assembly Bill
ACE	annual chance exceedance
AFV	alternative fuel vehicle
APE	Area of Potential Effects
ARCF	American River Watershed Common Features
ARCF GRR	American River Watershed Common Features General Reevaluation Report
ARCF GRR FEIS/FEIR	May 2016 American River Watershed Common Features General Reevaluation Report Final Environmental Impact Statement/Environmental Impact Report
Arid West Supplement	<i>Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)</i>
Basin Plan	<i>Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin</i>
BMP	best management practice
BO	biological opinion
BPWG	Bank Protection Working Group
Business Plan	Hazardous Material Release Response Plan
BWFS	Basin-Wide Feasibility Study
CAA	Federal Clean Air Act
CAAQS	California ambient air quality standards
CAFE	Corporate Average Fuel Economy
Cal EPA	California Environmental Protection Agency
Cal/OSHA	California Occupational Safety and Health Administration
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act

Acronym	Abbreviation
CFR	Code of Federal Regulations
cfs	cubic feet per second
CHHSL	California Human Health Screening Level
City	City of Sacramento
CNDDDB	California Natural Diversity Database
CO	carbon monoxide
County	County of Sacramento
CRHR	California Register of Historical Resources
CSUS	California State University, Sacramento
CUPA	Certified Unified Program Agency
CVFPB	Central Valley Flood Protection Board
CVFPP	Central Valley Flood Protection Plan
CWA	Clean Water Act
cy	cubic yards
dBA	A-weighted decibel
DOT	U.S. Department of Transportation
DWR	California Department of Water Resources
EA	Environmental Assessment
EIS/EIR	environmental impact statement/environmental impact report
EO	executive order
EP	Engineering Pamphlet
EPA	U.S. Environmental Protection Agency
EPAct	Energy Policy Act of 1992
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FR	<i>Federal Register</i>
FTA	Federal Transit Administration
GHG	greenhouse gas
GIS	geographic information system
GPS	Global Positioning System
GRR	general reevaluation report
H:V	slope ratio of horizontal to vertical

Acronym	Abbreviation
HMMAMP	Habitat Mitigation, Monitoring, And Adaptive Management Plan
HPMP	Historic Properties Management Plan
HPTP	Historic Properties Treatment Plan
HRA	health risk assessment
HSC	California Health and Safety Code
I-5	Interstate 5
I-80	Interstate 80
IEPR	Integrated Energy Policy Report
in/sec	inches per second
IWM	instream woody material
LAR	Lower American River
LARTF	Lower American River Task Force
lb/day	pounds per day
L_{eq}	average hourly noise level
LMA	local maintaining agency
L_{max}	maximum noise level
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendant
mm	millimeters
MRZ	Mineral Resource Zone
MSAT Protocol	Mobile Source Air Toxics Protocol
MTCO ₂ e/year	metric tons of carbon dioxide equivalent per year
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act of 1966
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
NN	non-native
NO _x	oxides of nitrogen
NO ₂	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System

Acronym	Abbreviation
NRHP	National Register of Historic Places
NTU	nephelometric turbidity unit
NWIC	Northwest Information Center
O&M	operations and maintenance
OHWM	ordinary high-water mark
OSHA	Occupational Safety and Health Administration
PA	<i>Programmatic Agreement Among the U.S. Army Corps of Engineers and the California State Historic Preservation Officer Regarding the American River Common Features Project, Sacramento and Yolo Counties, California</i>
Parkway	American River Parkway
Parkway Plan	American River Parkway Plan
Phase 1 ESA	Phase 1 Environmental Site Assessment
PM _{2.5}	of 2.5 micrometers or less
PM ₁₀	respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
PPV	peak particle velocity
PRC	California Public Resources Code
Project Area	project area for the American River Watershed Common Features, Water Resources Development Act of 2016 Project, American River Contract 1, Subreach 2 and three off-site riparian habitat restoration sites
Proposed Action	ARCF 2016 Project, American River Contract 1
RM	river mile
ROG	reactive organic gases
RPA	Registered Professional Archaeologist
RWQCB	Central Valley Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Control Agency
SAFE Rule	Safer Affordable Fuel-Efficient Vehicles Rule
SAM	Standard Assessment Methodology
SB	Senate Bill
SHPO	State Historic Preservation Officer
SIP	state implementation plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO ₂	sulfur dioxide
SPCCP	Spill Prevention Control and Countermeasures Plan

Acronym	Abbreviation
SRA	shaded riverine aquatic (habitat)
SRBPP	Sacramento River Bank Protection Project
SWPPP	Storm Water Pollution Prevention Plan
TAC	toxic air contaminant
TCR	Tribal Cultural Resource
TRAC	Technical Resource Advisory Committee
UAIC	United Auburn Indian Community
Unified Program	Unified Hazardous Waste and Hazardous Materials Management Regulatory Program
Uniform Act	Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
U.S. 50	U.S. Highway 50
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VdB	vibration decibels
VELB	valley elderberry longhorn beetle
VMT	vehicle miles traveled
WCM	Water Control Manual
WRDA	Water Resources Development Act
WRI	weighted relative response index

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CHAPTER 1

Introduction

1.1 Proposed Action

1.1.1 Development of the Proposed Action

The Lower American River Task Force (LARTF) is a broad stakeholder group that focuses on flood, environmental, and recreational management issues affecting the lower reach of the American River from Folsom Dam to the Sacramento River. In the mid-1990s, LARTF members called for the formation of the Bank Protection Working Group (BPWG) to help plan, design, and implement bank protection features along the Lower American River (LAR). A primary goal of the BPWG is to support Federal, State, and local efforts to provide the highest level of flood protection for the surrounding community and the conservation of irreplaceable resources along the American River Parkway (Parkway). Together with the U.S. Army Corps of Engineers (USACE), the Central Valley Flood Protection Board (CVFPB), the California Department of Water Resources (DWR), and the Sacramento Area Flood Control Agency (SAFCA), the BPWG successfully helped to design and implement five bank protection sites along the LAR that integrated bank protection and habitat. Construction of these sites, referred to as LAR Sites 1–5, was authorized under the Sacramento River Bank Protection Project.

During that same era, the American River Watershed Common Features (ARCF) and the Folsom Dam Modifications projects, which were a part of the 1996 American River Watershed Project, were authorized by Congress in the 1996 Water Resources Development Act (WRDA), with the goal of providing a higher level of flood protection to the Sacramento area. These projects were intended to improve LAR levees to control seepage and increase stability, enlarge the outlet capacity of Folsom Dam, and raise Folsom Dam to increase the level of flood protection for the City and County of Sacramento. In 2002, LARTF participants cooperated in preparing the Lower American River Corridor Management Plan to provide a framework for integrated management of this reach of the river. This management plan served as a catalyst for updating the 1985 American River Parkway Plan in 2008.

Now, with both the Folsom Dam Joint Federal Project and the levee improvements of the American River Common Features WRDA projects completed, the ability to manage large flood events has been improved along the LAR by allowing more water to be safely released from Folsom Dam/Reservoir earlier in a major storm event. There is more flood storage capacity in Folsom Reservoir to control peak inflows and better manage the

releases, up to 160,000 cubic feet per second (cfs) into the LAR during flood emergencies. However, at the time the above-referenced projects were studied, the extent of erosion impacts was not well understood, and none of these projects implemented bank erosion protection measures to address the increased erosion potential from higher and longer releases from Folsom Dam.

As a result, in 2015, LARTF members called for the re-formation of the BPWG to help advise, plan, design, and implement bank erosion protection features along the LAR. The intent was to better understand how the river channel may respond under an extended 160,000 cfs release from Folsom Dam during an extreme flow event. A flow event of this magnitude could have the potential to induce substantial erosion and affect valuable resources in the Parkway and potential lead to flooding in surrounding urban areas. Because of the highly technical issues facing the BPWG under this scenario, a multi-disciplinary committee composed of various agency and interested party stakeholders was developed. The committee initially consisted of flood control technical experts and was referred to as the Technical Advisory Committee. The need for additional expertise, specifically natural resource experts, was identified and formed as the Resource Advisory Committee (RAC). Together, the Technical Advisory Committee and Resource Advisory Committee form the larger Technical Resource Advisory Committee (TRAC) to help consider both existing condition resource impacts and potential short-term and long-term impacts.

The work of the TRAC and its consultant team has focused on technical issues, including use of a more risk based approach and consistency with identifying and evaluating erosion sites to be consistent with USACE and State (DWR, CVFPB, and Urban Levee Design Criteria) requirements. The efforts of these working groups have resulted in identifying the Proposed Action in this document.

1.1.2 Summary of the Proposed Action

The American River Watershed Common Features General Reevaluation Report Final Environmental Impact Statement/Environmental Impact Report (ARCF GRR FEIS/FEIR) analyzed the basic erosion protection measures that underlie the Proposed Action in this Supplemental EIS/EIR. However, some elements of those measures (specifics of designs, staging areas, construction methods, haul routes, disposal of soil, and mitigation sites) were not analyzed in the ARCF GRR FEIS/FEIR because final designs and specs had not been completed. Through project design and refinement, USACE and CVFPB have now identified specific locations and improvements to address erosion concerns, potential staging areas, haul routes, stockpile sites, and off-site mitigation that constitute this Proposed Action. This EIS/EIR supplements the ARCF GRR FEIS/FEIR by analyzing the environmental effects of these previously unquantified or unidentified elements of the erosion protection measures planned for the Proposed Action.

The Proposed Action in this document consists of: (1) the installation of approximately 8,148 linear feet of erosion protection and on-site riparian habitat features along two levee segments of the LAR (Sites 2-2 and 2-3); (2) creation of three off-site riparian

habitat restoration sites (Arden Pond and two areas at Rossmoor Bar) for mitigation; (3) associated staging areas, stockpile sites, and haul routes; and (4) reconstruction of the Campus Commons Golf Course. All activities for the Proposed Action comprise the Project Area.

1.2 Proposed Action Location

The Proposed Action is located in the City of Sacramento and in Sacramento County, California, along the right descending bank of the American River, from the downstream end of the Campus Commons Golf Course upstream to Howe Avenue, at Arden Pond near the existing William B. Pond recreation area, and at Rossmoor Bar in the American River Parkway.

1.3 Purpose of and Need for Proposed Action

The Proposed Action has been formulated to achieve the purpose, needs, and objectives identified in the ARCF GRR. The Proposed Action needs and objectives define the underlying need for the project to which USACE is responding, in conformance with the requirements of the National Environmental Policy Act (NEPA) (40 Code of Federal Regulations [CFR] 1502.13 and 33 CFR Part 325, Appendix B).

1.3.1 Project Purpose

The purpose described in the ARCF GRR is to reduce the overall flood risk within the study area. An unacceptably high risk of flooding from levee failure threatens the public safety of approximately 530,000 people, as well as property and critical infrastructure throughout Sacramento. The purpose of the Proposed Action is to construct multiple erosion control measures within the LAR to allow conveyance of the 200-year (160,000 cfs) flood flow without risk of levee failure.

The Sacramento metropolitan area is one of the most at-risk areas for flooding in the United States and has a high probability of flooding due to its location at the confluence and within the floodplain of two major rivers, the Sacramento and American Rivers. Both of these rivers have large watersheds with very high potential runoff. Past runoff events have overwhelmed the existing flood management system, which was designed and built many years ago, before modern construction methods were employed. High flows in the American River associated with flood flows are eroding critical components of the flood management system. In addition to the high risk of flooding, the consequences of flooding in the study area would be catastrophic in terms of life loss and property damage.

The specific purpose of the Proposed Action is to protect and strengthen LAR levees to reduce riverbank erosion and support the broader purpose of the ARCF GRR to reduce flood risk within the Sacramento metropolitan region. Further, the purpose of the mitigation sites is to mitigate for ARCF GRR impacts on biological resources within the LAR.

1.3.2 Need for the Proposed Action

The Proposed Action is needed to reduce the risk of levee failure associated with erosion, particularly during high-flow events on the LAR. Sites 2-2 and 2-3 are located along a portion of the LAR where the levee is relatively close to the river channel. During high flows, this constrained reach is subjected to extremely high velocities that significantly increase the risk of erosion, possibly leading to levee failure. The Proposed Action would strengthen the levee system within LAR Sites 2-2 and 2-3 and reduce the risk of levee failure from erosion and the risk of a catastrophic flood event within the Sacramento metropolitan area. The need for the proposed mitigation sites is to mitigate for the adverse effects of the Proposed Action and the larger ARCF GRR on biological resources.

1.4 Related Documents

The Proposed Action is a component of a larger effort in the Sacramento region. USACE and the CVFPB jointly published the ARCF GRR Draft EIS/EIR in March 2015, in accordance with the requirements of NEPA and the California Environmental Quality Act (CEQA) (State Clearinghouse No. 2005072046). The Draft EIS/EIR analyzed the impacts of the ARCF GRR to reduce the overall flood risk within the delineated study area. The study area includes the City of Sacramento and surrounding areas. A FEIS/FEIR was issued in January 2016, and comments were received between January 22 and February 22, 2016. A revised FEIS/FEIR was issued in May 2016. The Record of Decision for the ARCF GRR was signed by the Assistant Secretary of the Army (Civil Works) on August 29, 2016. The ARCF GRR was authorized by Congress in December 2016. The following is a list of ARCF 2016 Project documentation, or documentation for related actions, which may be relevant to this Supplemental EIS/EIR:

- May 1988, Sacramento River Flood Control System Evaluation, Initial Appraisal Report—Sacramento Urban Area, Phase I, USACE Sacramento District.
- December 1991, American River Watershed Investigation California Feasibility Report: Part I—Main Report and Part II—EIS/EIR.
- December 1991, American River Watershed Investigation California Feasibility Report, Volume 2, Appendix G: Section 404 Evaluation.
- March 1996, Supplemental Information Report, American River Watershed Project, California: Part I—Main Report and Part II—Final Supplemental EIS/EIR.
- June 27, 1996, Chief's Report on the Final Supplemental EIS, signed by Acting Chief of Engineers, Major General Pat M. Stevens; and July 1, 1997, Record of Decision on the Final Supplemental EIS, signed by Director of Civil Works, Major General Russell L. Furman.
- November 2008, FEIS for 408 Permission and 404 Permit to Sacramento Area Flood Control Agency for the Natomas Levee Improvement Project, Sacramento, CA, prepared by EDAW/AECOM, Sacramento, California.

- October 2010, FEIS on the Natomas Levee Improvement Project Phase 4b Landside Improvement Project, Sacramento, CA, prepared by AECOM, Sacramento, California.
- September 2015, Final Biological Opinion for the American River Common Features General Reevaluation Report, issued by the U.S. Fish and Wildlife Service, Sacramento, California.
- September 2015, Final Fish and Wildlife Coordination Act for the American River Common Features General Reevaluation Report, issued by the U.S. Fish and Wildlife Service, Sacramento, California.
- December 2015 (revised May 2016), American River Watershed Common Features General Reevaluation Report, FEIS/EIR.
- July 2016, FEIR, North Sacramento Streams, Sacramento River East Levee, Lower American River, and Related Flood Improvements Project, prepared for 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.
- June 2017, Reinitiation of the ARCF Project, Sacramento County, California.
- February 2019, Final Supplemental EA/Initial Study, ARCF Seepage Stability Berm, Reach D Contract 1.
- May 2019, Reinitiation of the ARCF Project, Sacramento County, California.
- June 2019, Final Supplemental EA/Initial Study, ARCF 2016 Project Beach Stone Lakes Mitigation Site.
- November 2019, Final Supplemental EA/EIR, ARCF 2016, Sacramento River East Levee Contract 1.
- March 2020, Draft General Conformity Determination.
- June 2020, Reinitiation, with USFWS, of the ARCF Project, Sacramento County, California.
- September 2020, Reinitiation, with NMFS, of the ARCF Project, Sacramento County, California.
- October 2020, Draft Supplemental EIS/EIR, ARCF 2016, Sacramento Weir Widening. November 2020, Final Supplemental EA/EIR, ARCF 2016, Sacramento River East Levee Contract 2
- June 2020, Draft Supplemental EA/EIR, ARCF, Water Resources Development Act of 2016, American River Contract 1.

1.5 Authority

As part of the larger American River Watershed Common Features Project, the Proposed Action is authorized by Section 101(a)(1)(A) of the WRDA of 1996, Public Law No. 104-303 Section 101(a)(1), 110 Stat. 3658, 3662–3663 (1996), as amended by Section 366 of the WRDA of 1999, Public Law No. 106-53, Section 366, 113 Stat. 269, 319-320 (1999). Additional authority was provided following the interim general reevaluation study in Section 1322(b) of the WRDA of 2016, Public Law No. 114-322, Section 1322, 130 Stat. 1707, also known as the Water Resources Infrastructure Improvements for Nation Act, and Public Law 115-123 (Bipartisan Budget Act of 2018).

1.6 Purpose of the Supplemental Environmental Impact Statement/Environmental Impact Report

This Supplemental EIS/EIR fulfills the following purposes: (1) describes the existing environmental resources in the Project Area; (2) evaluates the environmental effects of the alternatives (see Chapter 2, *Alternatives*) on these resources; and (3) identifies measures to avoid, minimize, or reduce any effects to a less-than-significant level. This Supplemental EIS/EIR has been prepared in accordance with NEPA and CEQA. USACE and the CVFPB anticipate that USACE can implement the portion of the authorized ARCF project described in this document as the Proposed Action without additional NEPA or CEQA analysis beyond this Supplemental EIS/EIR.

The Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500–1508) and USACE’s Procedures for Implementing NEPA (ER 200-2-2) specify that supplemental NEPA analyses are required if:

(i) USACE makes substantial changes in the proposed action that are relevant to environment concerns; or (ii) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

Section 15162 of the State CEQA Guidelines (California Code of Regulations [CCR], Title 14, Section 15000 et seq.) provides that when an EIR has been certified for a project, a subsequent EIR need not be prepared unless a substantial change in the project, a substantial change in the surrounding circumstances, or new information of substantial importance comes to light which reveals the project would have one or more new or substantially more severe significant environmental effects not discussed in the certified EIR. A lead agency may choose to prepare a supplement to an EIR, rather than a subsequent EIR, when conditions that require preparation of a subsequent EIR are met, and “only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation” (State CEQA Guidelines, 14 CCR Section 15163).

This Supplemental EIS/EIR supplements (does not replace) the previously certified ARCF GRR FEIS/FEIR and addresses project modifications, changed circumstances, and new information that could not have been known with the exercise of reasonable

diligence at the time the prior document was certified, as required under State CEQA Guidelines (14 CCR Section 15163).

The purpose of this Supplemental EIS/EIR is to provide the additional information necessary to make the previous EIR adequate for the project as modified. Accordingly, pursuant to the State CEQA Guidelines (14 CCR Section 15163), the Supplemental EIS/EIR need contain only the information necessary to analyze the project modifications, changed circumstances, and new information that triggered the need for additional environmental review. This Supplemental EIS/EIR is intended to:

- address new or substantially more severe significant environmental effects related to any project modifications;
- recommend mitigation measures to avoid any new or substantially more severe significant environmental effects or reduce them to a less-than-significant level;
- update impact analysis and mitigation measures where conditions have changed since the publication of the ARCF GRR FEIS/FEIR;
- provide minor additions and changes to the ARCF GRR FEIS/FEIR warranting a Supplemental EIS/EIR for the following reasons:
 - there would be no new potentially significant and unavoidable or significant and unavoidable impacts from the Proposed Action;
 - the few new impacts from the Proposed Action can be mitigated to a less-than-significant level with implementation of measures identified in Chapter 3 of this Supplemental EIS/EIR, *Environmental Setting, Impacts, and Mitigation Measures*; and
 - applicable measures in the existing Mitigation Monitoring and Reporting Program continue to apply to the Proposed Action.

As the CEQA lead agency, the CVFPB will review and consider the information presented in this Supplemental EIS/EIR, evaluate comments received after dissemination of this Supplemental EIS/EIR, respond to those comments, and examine the entire administrative record (including the administrative record for the ARCF GRR FEIS/FEIR), when determining whether to approve the proposed project modifications. The ARCF GRR FEIS/FEIR analyzed many elements of the Proposed Action levee reconstruction work, including bank protection and launchable rock trench features. The analysis in this Supplemental EIS/EIR focuses on project modifications and refinements, and details that were not analyzed in the ARCF GRR FEIS/FEIR, including staging areas, haul routes, borrow sites, stockpile sites, mitigation sites, and more detailed cultural resources information, which constitute the Proposed Action for this Supplemental EIS/EIR. Each topic section includes a discussion of those issues and impacts that were not considered in the ARCF GRR FEIS/FEIR. This Supplemental EIS/EIR has been prepared in accordance with the requirements of NEPA and the guidelines for implementation of CEQA for supplemental environmental documents.

1.7 Decision Needed

The District Engineer, Commander of the Sacramento District, will use this Supplemental EIS/EIR in considering the environmental effects of the Proposed Action and decide to proceed the actions constituting the Proposed Action in a Record of Decision (ROD). The CVFPB must decide whether to certify the Supplemental EIR under CEQA.

CHAPTER 2

Alternatives

2.1 Introduction

The ARCF GRR FEIS/FEIR previously analyzed the following alternatives: the No Action/No Project Alternative and two action alternatives. The action alternatives considered were similar except that one alternative included widening of the Sacramento Weir and Bypass (Alternative 2). The ARCF GRR FEIS/FEIR found Alternative 2 to be the preferred alternative. This chapter describes the No Action/No Project alternative and the Proposed Action, which consists of: (1) previously unanalyzed improvements and related actions to be undertaken within two sections of levee along the right bank¹ of the Lower American River (LAR); and (2) development of three sites to provide for the mitigation of impacts to biological resources within the LAR and other areas of the ARCF GRR. The two levee sections extend from River Mile² (RM) 5.9 to RM 7.2 and from RM 7.45 to RM 7.65 following design details not previously described in the ARCF GRR FEIS/FEIR.

2.2 No Action/No Project Alternative

USACE and the CVFPB are required to consider No Action/No Project as one of the alternatives for consideration to comply with the requirements of NEPA and CEQA, respectively. However, the definition of the No Action/No Project differs between NEPA and CEQA. The NEPA No Action/ Alternative assumes that the project analyzed in the 2015 GRR FEIS/FEIR has been constructed or will be constructed as authorized, while the CEQA No Project Alternative assumes that the project analyzed in the 2015 GRR FEIS/FEIR has not been constructed.

40 CFR §1502.14 states that the alternatives analysis should present the environmental impacts of a proposed action in a comparative form. In addition, 40 CFR §1501.12 encourages federal agencies to incorporate by reference by using the analysis of other environmental documents. Because the NEPA No Action Alternative assumes the project analyzed in the ARCF GRR FEIS/FEIR has been constructed, the NEPA No Action Alternative in this document assumes a smaller range of activities than the corresponding CEQA No Project Alternative analysis. USACE has determined to take the more environmentally conservative approach and incorporate by reference the CEQA No Project Alternative in the ARCF GRR FEIS/FEIR for this comparative analysis.

¹ Riverbanks are designated as left (L) or right (R) when facing downstream.

² River miles are measured from the confluence of the American and Sacramento River at 0 and increase going upstream.

2.3 Proposed Action

The ARCF GRR FEIS/FEIR identified areas within the LAR that require improvements to address erosion to prevent levee failure. There are two erosion protection measures that were proposed and approved for the American River levees in the ARCF GRR FEIS/FEIR: (1) bank protection; and (2) launchable rock³ trenches. Terminology used to describe specific features of the levees is shown on **Figure 2-1**.

The levee reach of the LAR analyzed in the ARCF GRR FEIS/FEIR was subdivided into four subreaches for the purpose of erosion analysis, as shown in **Figure 2-2**. The Proposed Action evaluated in this Supplemental Draft EIS/EIR consists of implementing measures within Subreach 2, between LAR RM 5.9 and 7.2 (Site 2-3) and between LAR RM 7.45 and 7.65 (Site 2-2), to prevent erosion, which, if unaddressed, could potentially undermine the levee foundation causing it to fail. These levee segments were identified by the Technical Resource Advisory Committee (TRAC) and Bank Protection Working Group (BPWG) as having the highest risk of failure within all LAR Subreaches during high-flow events due to erosion. In addition, the Proposed Action would include reconstruction of the Campus Commons Golf Course, due to impacts from construction at Site 2-3, and development of three sites to provide for the mitigation of impacts to biological resources in the LAR; the Arden Pond Mitigation Site, and the Rossmoor West and East Mitigation Sites. The mitigation sites would create riparian, shaded riverine aquatic, and valley elderberry beetle habitats (see Subsection 2.3.3 for more detailed description). The locations of these elements of the Proposed Action are shown on **Figure 2-3**. The Proposed Action is described below in Sections 2.3.2 to 2.3.6, which provide details of proposed design elements, construction considerations, and schedules for each of the components summarized here.

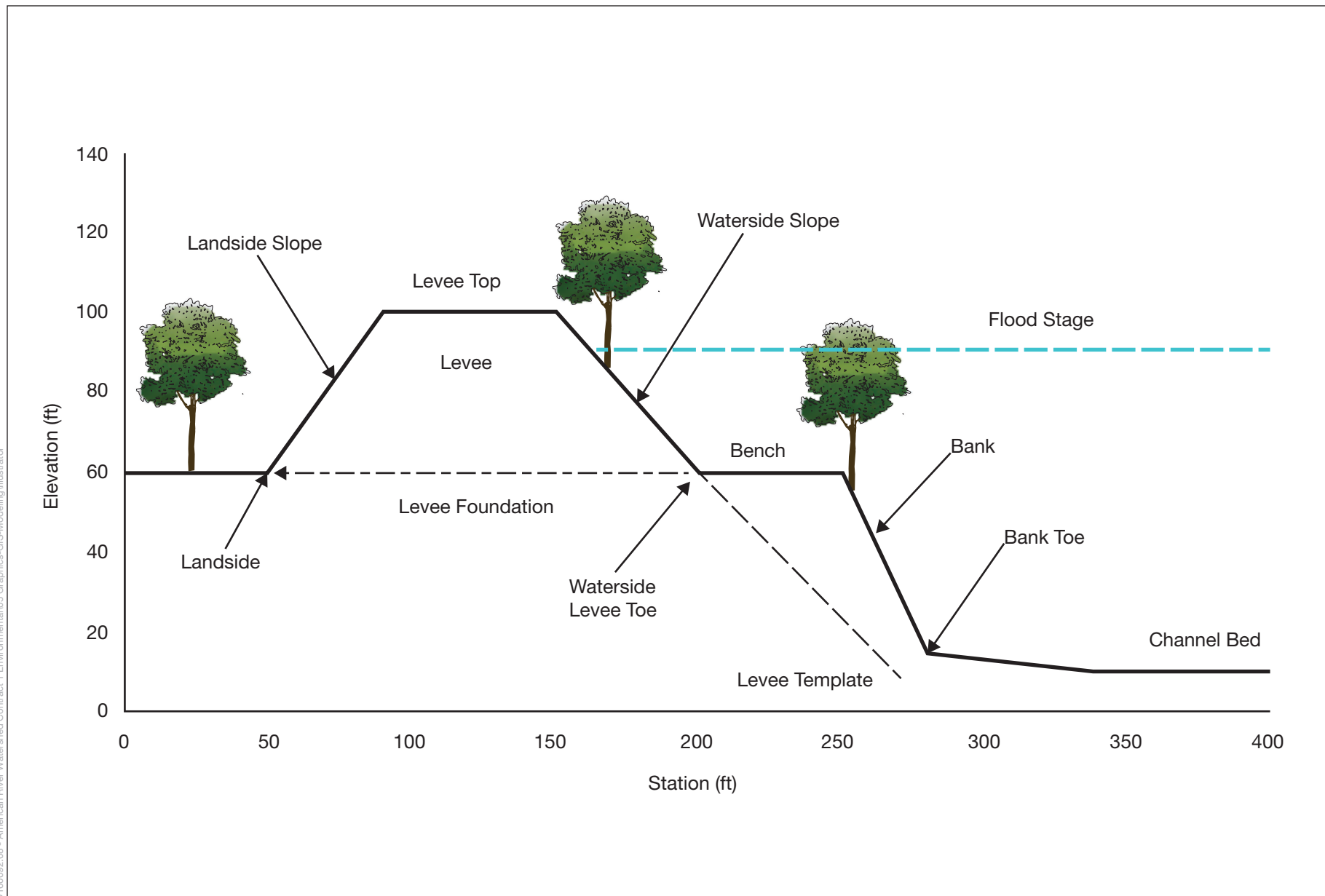
2.3.1 Design Objectives

The design objectives included in the ARCF GRR FEIS/FEIR (pages 7 to 13) are incorporated by reference. Additional design objectives for the Proposed Action include:

Hydraulic Capacity: The Proposed Action must avoid or offset hydraulic impacts in order not to increase the risk of levee overtopping.

Environmental Resource Impacts: Although impacts on resources would be avoided where possible, short-term impacts due to construction are considered unavoidable. To compensate for unavoidable impacts on-site, the elements of the Proposed Action have been designed to improve the overall long-term on-site resource conditions, where feasible.

³ Launchable rock is a term used to describe a type of rock revetment design typically used for locations where it is impractical to install revetment to the maximum predicted scour elevation. The launchable rock is placed as a thick blanket at the toe or bed of the river with adequate volume such that when scour occurs below the blanket, the rock will launch into the eroded area and arrest the progression of bank erosion.

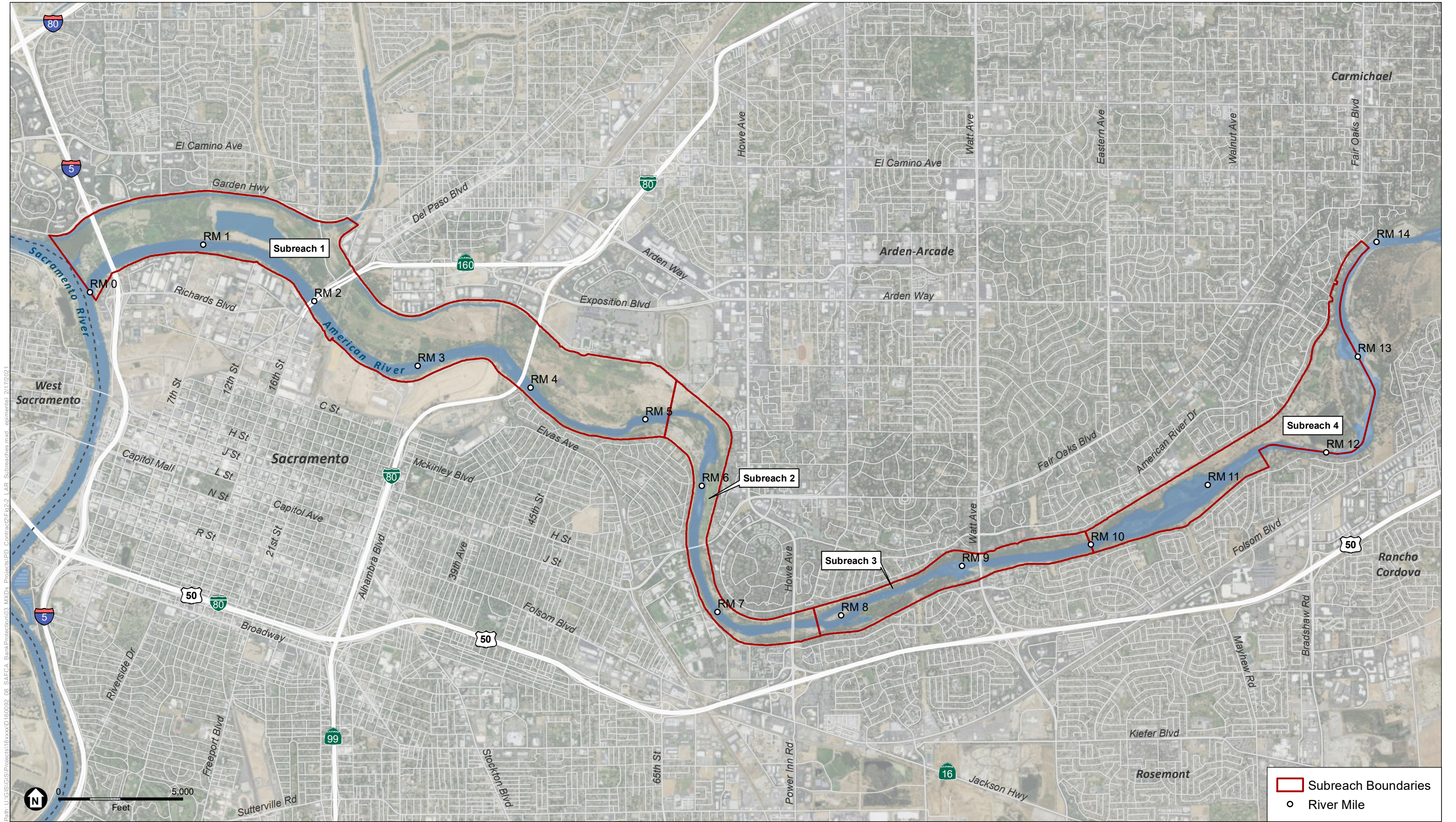


SOURCE: USACE

ARCF 2016 American River Contract 2

Figure 2-1
Levee Terminology

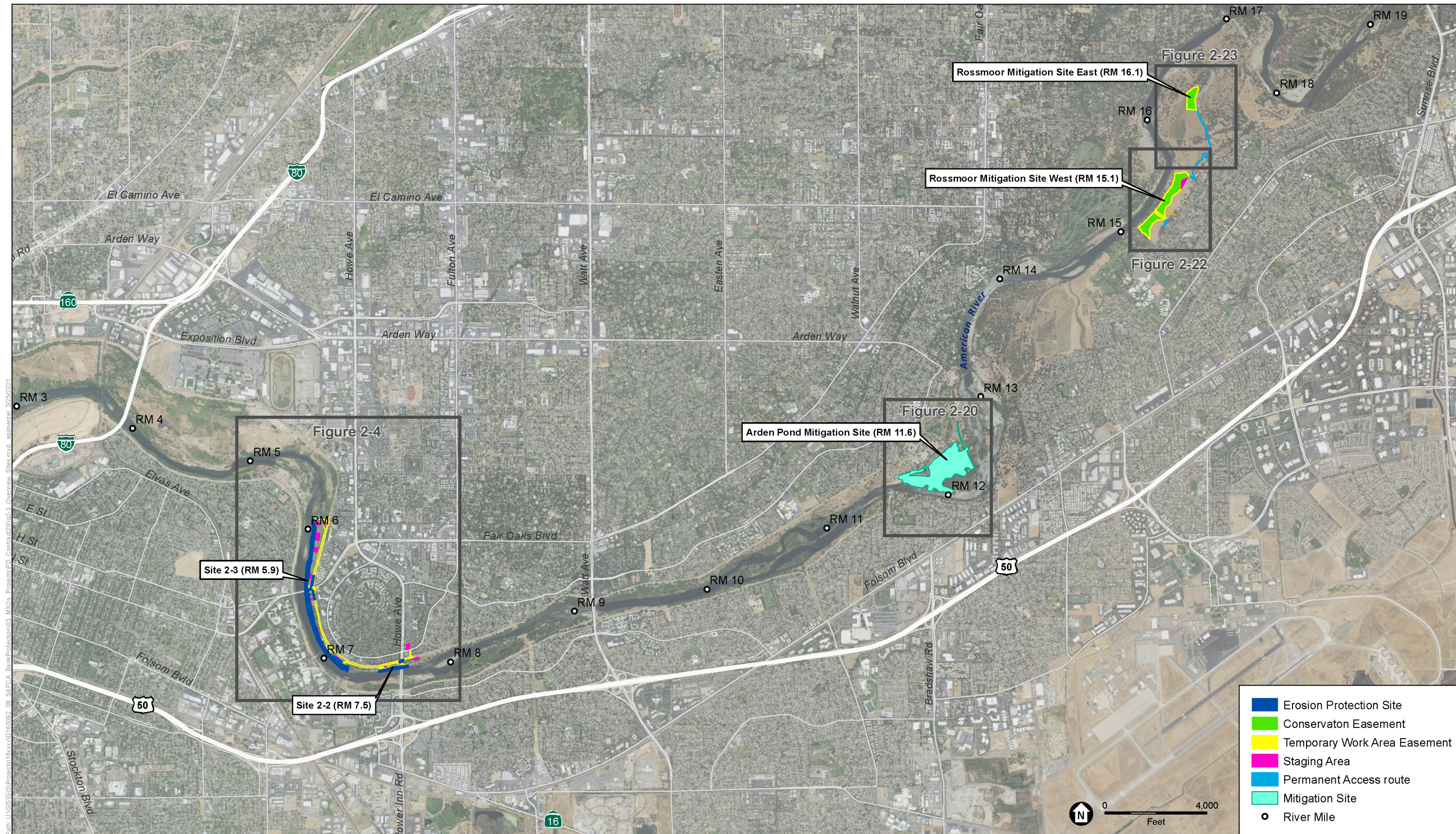
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SOURCE: USDA, 2018; NHC, 2021; ESA, 2021

ARCF 2016 American Rivert Contract 2

Figure 2-2
Lower American River Subreaches



SOURCE: DigitalGlobe, 2018; NHC, 2021; USACE, 2020; ESA, 2021

ARCF 2016 American River Contract 2

Figure 2-3
Project Sites

However, off-site mitigation may still be required and could provide substantial opportunities to improve overall ecosystem values along the LAR.

Aesthetics and Recreation: The American River Parkway Plan, consistent with the State and Federal Wild and Scenic Rivers Acts, specifies that erosion control projects should include a revegetation program that screens the project from public view, provides for a naturalistic appearance of the site, and restores affected habitat values.

Infrastructure: Impacts to roadway and major utility infrastructure would be minimized to the extent practicable. Impacts to parkway infrastructure would also be minimized.

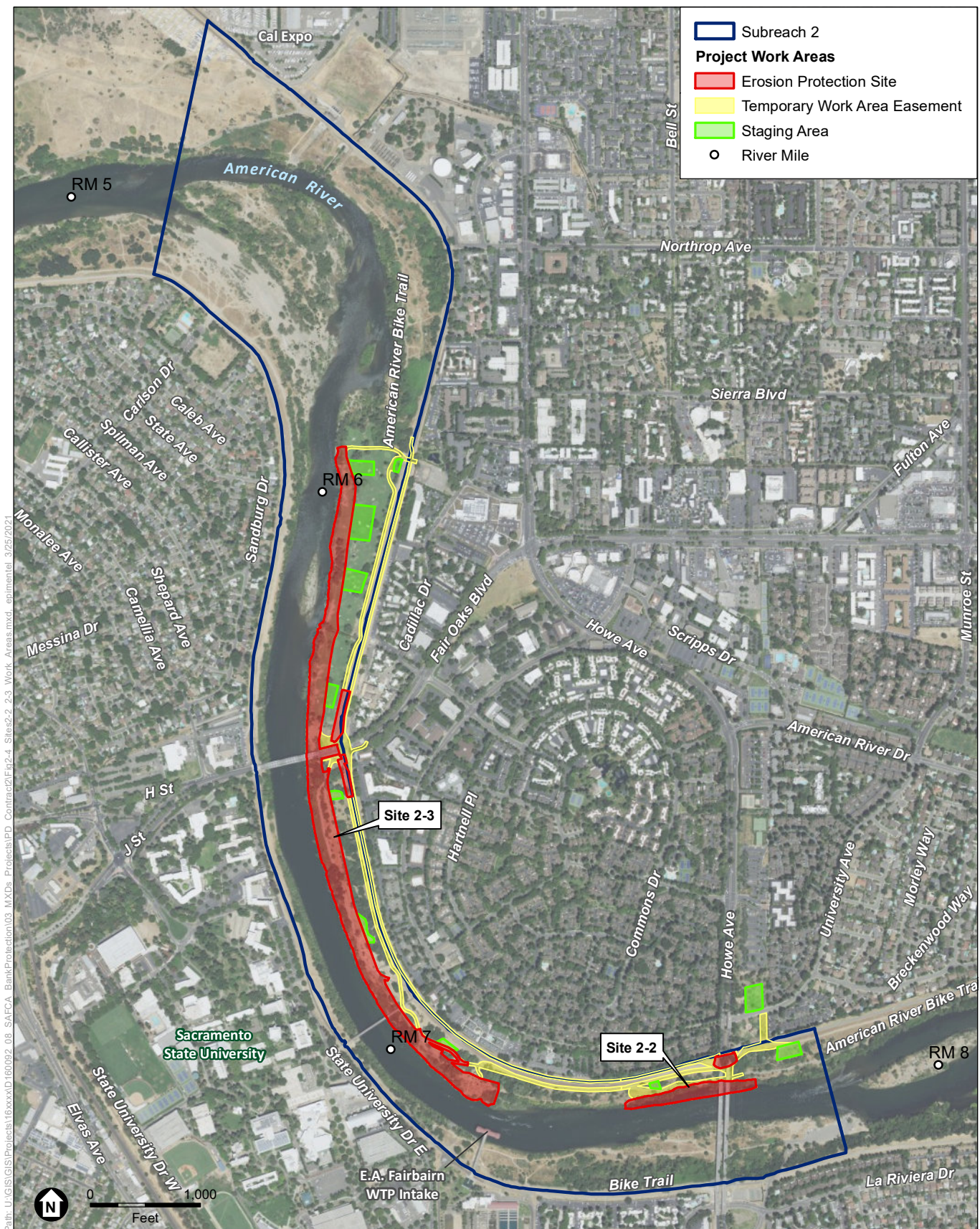
Biological Opinion Requirements: Both the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) issued Biological Opinions (BOs) in 2015 for the ARCF GRR EIS/EIR. Both BOs include Conservation Measures, Reasonable and Prudent Measures, and Terms and Conditions. The potential effects of the Proposed Action on the species and/or their critical habitat originally covered in the BOs have been re-evaluated based on updated designs to ensure all aspects of the Proposed Action would not jeopardize the continued existence of species or adversely modify critical habitat. The USFWS BO was issued in March 2021 and the NMFS BO was issued in May 2021. Both BOs concluded that the Proposed Action would not jeopardize the continued existence of species or adversely modify critical habitat.

2.3.2 Erosion Protection Site Descriptions

2.3.2.1 Site 2-2

Launchable Rock Toe

The primary erosion risk along Site 2-2 is an erodible bank susceptible to toe scour. Site 2-2 extends along the right bank from approximately LAR RM 7.45 upstream to RM 7.65 (approximately 1,259 feet). See **Figure 2-4** and **Figure 2-5** for the location of the work areas and a plan view of a segment of the design, respectively, at Site 2-2. The design of erosion protection at Site 2-2 would include launchable rock toe protection, a series of rock tie-backs connecting the rock toe with the existing bankline, planting benches located between the rock toe and the bankline, and soil-filled rock slope protection upstream and downstream of the planting benches. See **Figure 2-6** for a typical cross section of the launchable rock toe design at Site 2-2. The launchable rock toe protection would protect the toe of the bankline from erosion and scour (lowering of the channel bed and existing ground) that could continue to over-steepen the bank and induce failure of the levee. The alignment of the launchable rock toe protection was designed to allow for fill to be placed along a section of over-steepened bank and buttressing the slope with fill along the toe. The fill would provide both stability to the existing bank, as well as habitat value in the channel of the river. The launchable rock toe would run continuously along the waterside edge of Site 2-2.

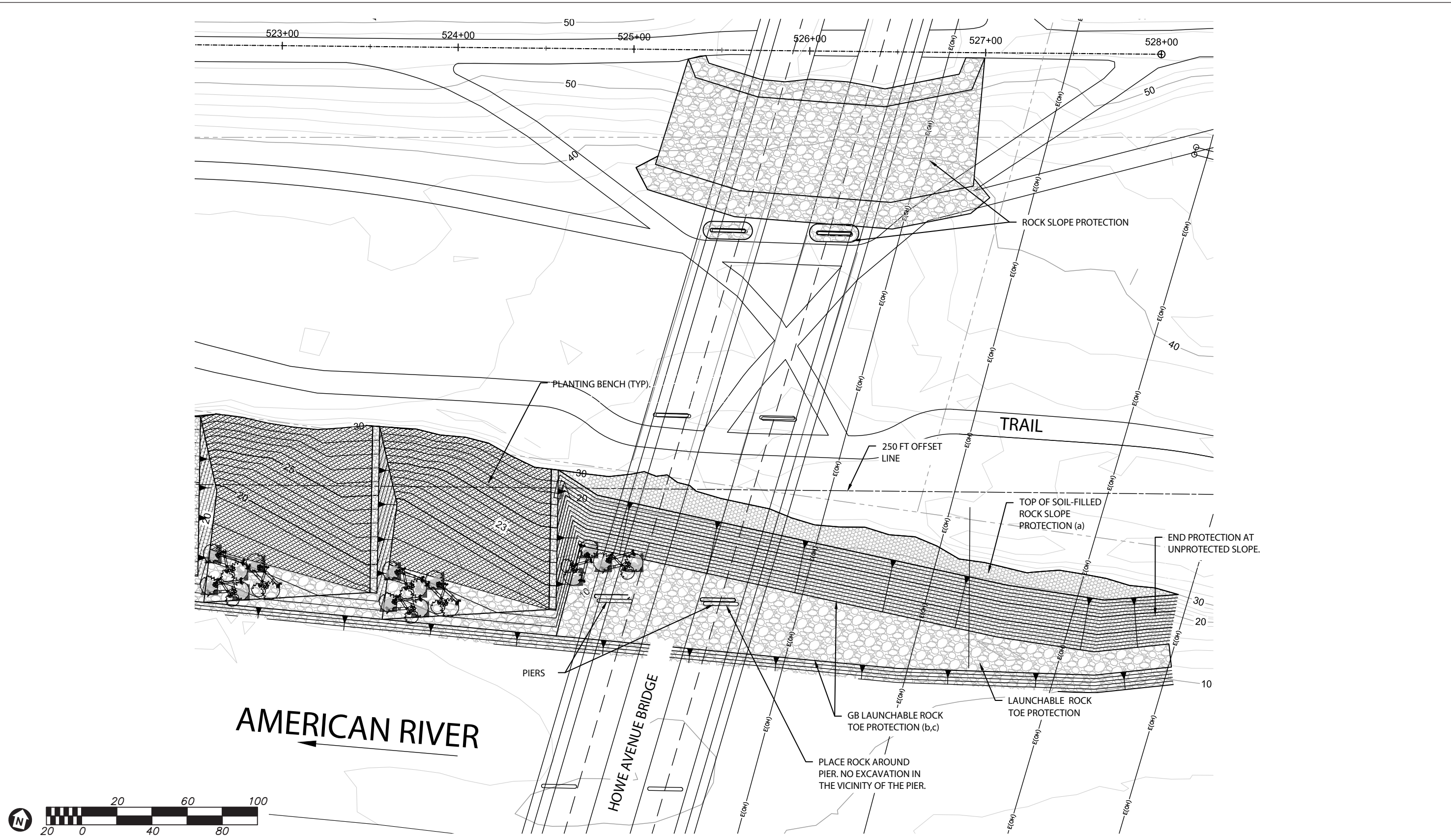


SOURCE: USDA, 2018; NHC, 2021; ESA 2021

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Figure 2-4
Sites 2-2 and 2-3 Work Areas

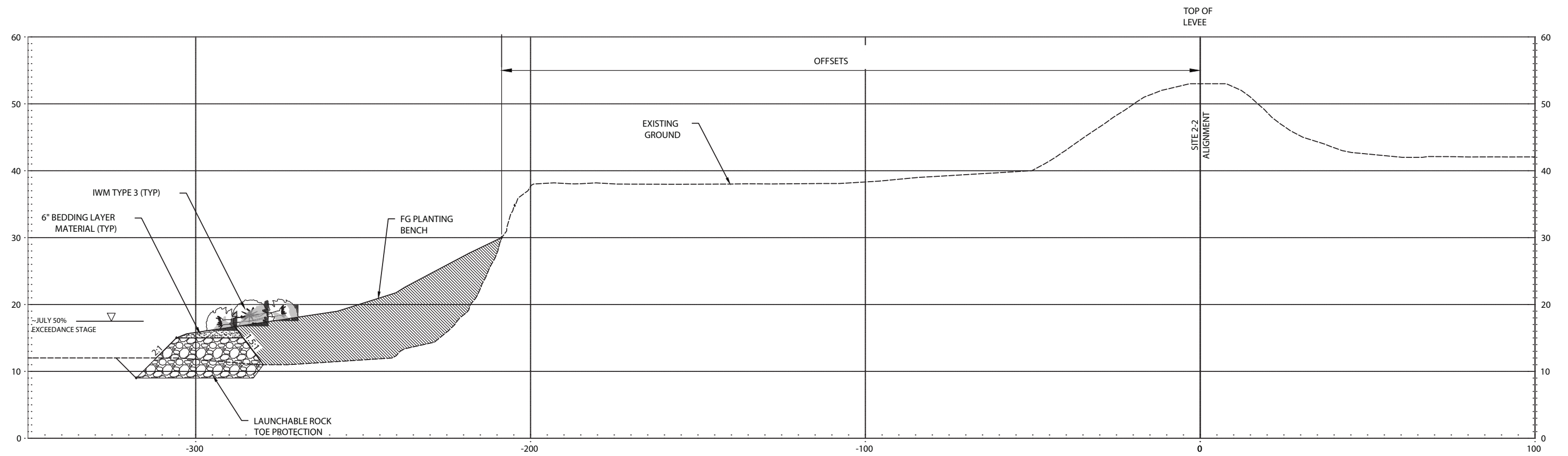
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SOURCE: USACE, 2020

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Figure 2-5
Typical Plan View of Site 2-2 Components



SOURCE: USACE, 2020

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Figure 2-6
Typical Cross Section of Launchable Rock Toe at Site 2-2

The top elevation of the launchable rock toe protection would be approximately 2 feet below the 2,660 cfs summer water levels and would obscure the angular riprap from public view. Bedding material (cobbles and gravels) would be placed along the top elevation of the rock to reduce fisheries impacts. The launchable rock toe protection would be approximately 20 feet wide with 2H:1V side slopes, requiring excavation of approximately 2 to 3 feet to maintain a maximum rock launch height of less than 15 feet. The toe protection would extend along the entire alignment of Site 2-2 in nearly a straight line between the upstream and downstream extents. Instream woody material (IWM) would be installed along the top of the launchable rock toe to provide habitat for juvenile salmonids.

The top of the launchable rock toe protection would be extended north around the two Howe Avenue Bridge piers that intersect Site 2-2, creating a flat bench with sufficient rock depth and extent to protect the piers. The rock would be sized to satisfy the Federal Highway Administration (FHWA) requirements for pier scour protection. The rock would be covered with bedding material to reduce fisheries and recreation impacts. See **Figure 2-7** and **Figure 2-8** for typical cross sections of the design at the Howe Avenue Bridge and of a rock tie-back, respectively.

Rock Tie-back Bank Protection

A series of planting benches separated by rock tie-backs would be graded in the middle third of Site 2-2. The rock tie-backs would extend the full distance between the proposed launchable rock toe protection and the top of the existing bank revetment. The width of the rock tiebacks would be 4 feet to ensure the sides are sloped at a 2H:1V down to existing grade. The tie-backs would be made of rock composed of a 70 percent riprap and 30 percent soil mixture to promote vegetation establishment. See **Figure 2-9** for a typical plan view and cross section of the planting bench design at Site 2-2. The rock tiebacks would allow some erosion of the planting bench to occur, allowing natural dynamic channel bank conditions, while limiting the extent of the erosion to maintain site conditions which meet flood risk objectives. If erosion were to occur between the rock tie-backs, the eroded surfaces would be at appropriate elevations for recruitment and revegetation of riparian species and natural stabilization of the bank.

The planting bench would provide on-site mitigation for terrestrial wildlife species and on-site mitigation for juvenile salmonids contributing to their foraging and refuge requirements within the nearshore aquatic habitat known as shaded riverine aquatic (SRA) habitat. The planting benches would provide adequate soil volume in a soil-filled trench to establish native tree and shrub species as required for on-site mitigation. Each planting bench slopes both waterward to the toe of the planting bench and downstream to an alcove that drains to the river. The planting bench slopes provide shoreline variability to allow for a diverse planting palette and design resiliency to provide habitat and refuge at a range of seasonal flows. Higher elevation areas of the bench would be planted with a mix of native riparian vines, shrubs, and trees. Lower elevation bench areas coincide with more frequently inundated areas where small dead trees with intact root wads, often referred to as instream woody material (IWM), would be placed where a mix of water

dependent herbaceous plants would be planted. The planting bench would terminate at the launchable toe where rows of willow stakes would be planted to help stabilize the planting bench soil and enhance erosion protection. See **Figure 2-10** for a cross section of the planting plan for the benches at Site 2-2.

Soil Fill Rock Bank Protection

Approximately two-thirds of the bank protection along Site 2-2 would be composed of soil-filled rock slope protection located on the upstream and downstream ends. The soil-filled rock slope protection consists of three layers. The first is a 12-inch thick bedding material followed by a minimum 24-inch thick layer of a mix of 70 percent riprap and 30 percent soil, placed over the bedding material, to promote vegetation establishment. The final layer would be 12-inches of topsoil.

Soil for the rock soil mix would be sourced from stockpiled on-site material from Site 2-3, to the extent practicable. Imported soil would be incorporated, as needed. The soil-filled rock slope protection would be seeded with native upland species and planted with a mix of transitional bank zone shrubs. Willows and button bush would be planted where the rock slope protection meets the planting bench and where the depth to groundwater is relatively shallow to support willow growth and enhance erosion protection.

The upstream end of Site 2-2 begins 330 feet upstream of the Howe Avenue Bridge at the site boundary where the risk of levee failure due to erosion of the existing bank is below the USACE threshold for repair. The bank protection downstream of Howe Avenue would transition to the upstream end of the site to a soil-filled rock slope protection placed at a 2H:1V slope against the existing bank, extending from the top of the launchable rock toe protection to the top of the bank revetment. A rock key with a thickness exceeding four feet would form the upstream boundary of the rock. The soil-filled rock slope protection would then be seeded with native upland species and planted with a mix of transitional zone shrubs and trees. Trees and shrubs more suited to drier conditions would be used at higher elevations and further from the channel.

The downstream end of the site begins at the boundary of the existing bank protection that was installed in 1986 and similar to the transition at the upstream end of the site, a 320 feet long segment would consist of a soil-filled rock slope protection placed at a 2H:1V slope against the existing bank, extending from the top of the launchable rock toe protection. A rock key with a thickness exceeding 4 feet would form the downstream boundary of the rock. The soil-filled rock slope protection would then be seeded with native upland species and planted with a mix of transitional zone shrubs and trees. Trees and shrubs more suited to drier conditions would be used at higher elevations and further from the channel.

Soil filled rock slope protection would also be placed under the H-Street bridge. The extent of this rock would be from the top of the levee slope down to an elevation at 5.5 feet below the existing bench. The rock is intended to protect against erosion that may occur on the levee face if debris were to become trapped at Howe Avenue bridge during large flood events.

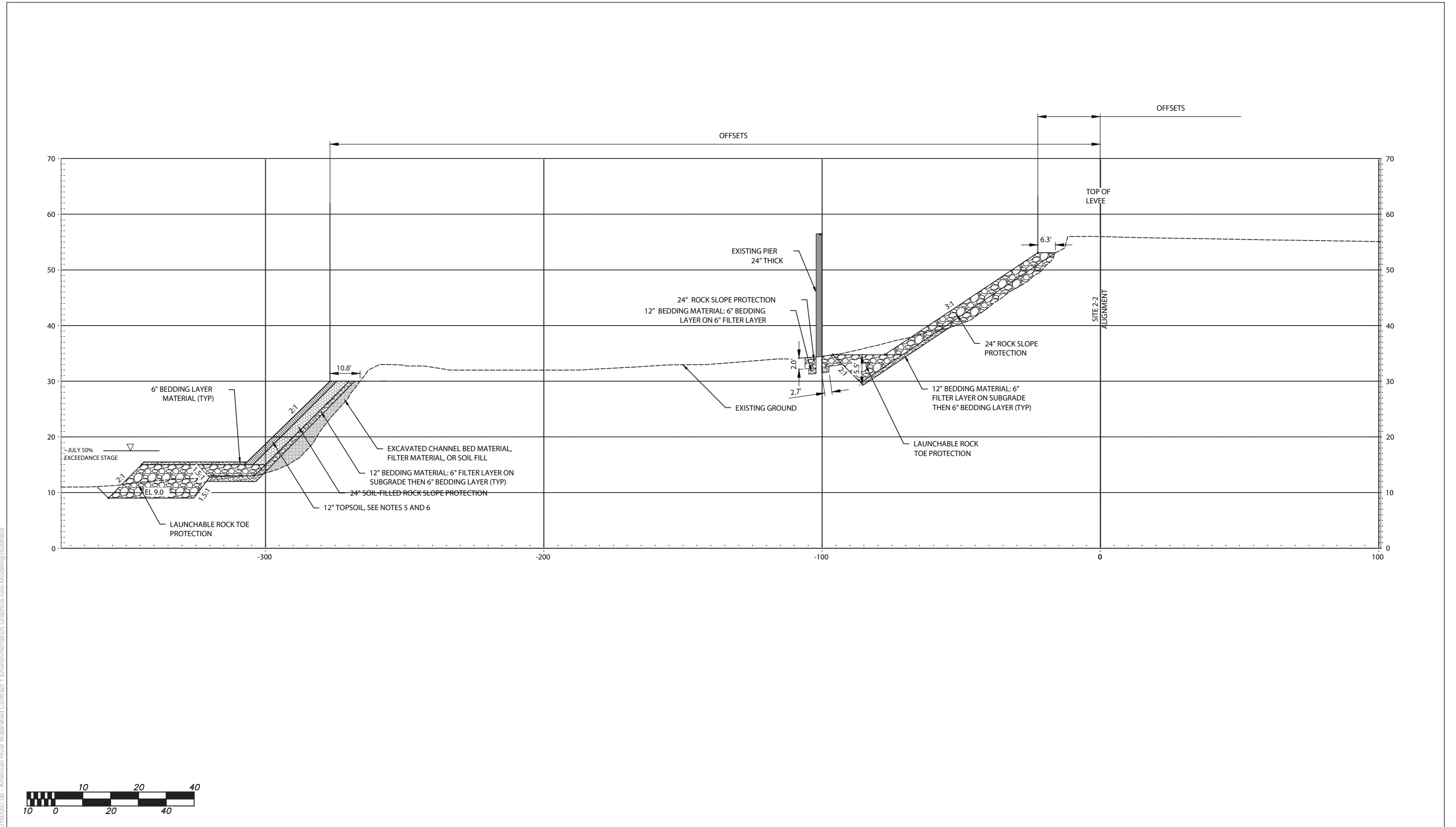
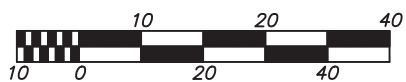
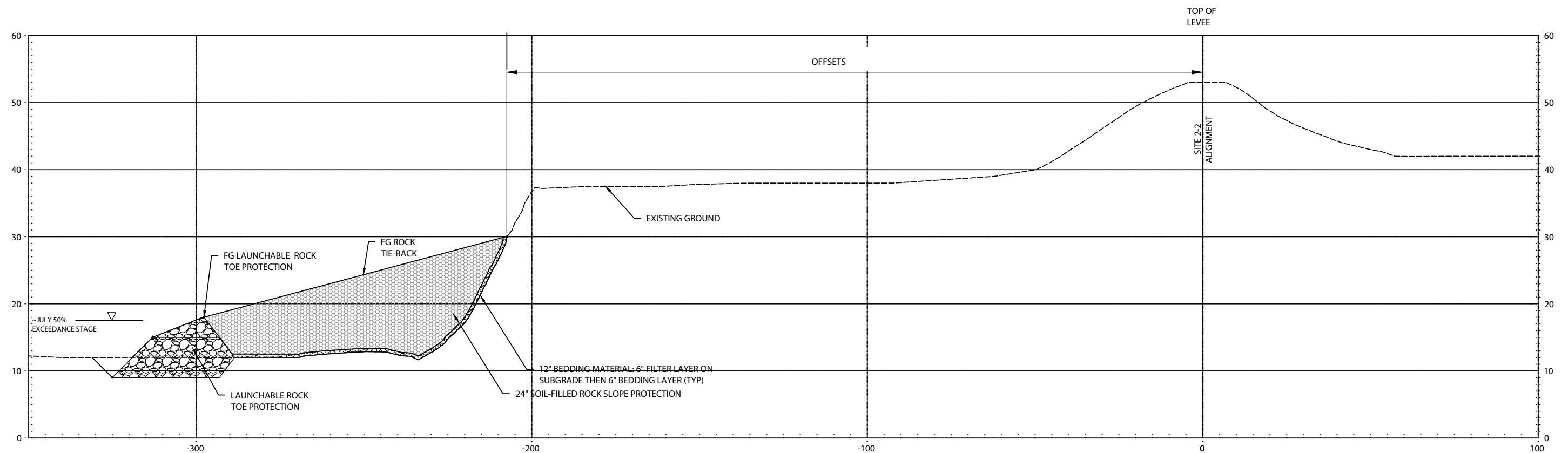


Figure 2-7
Typical Cross Section of Howe Avenue Bridge at Site 2-2

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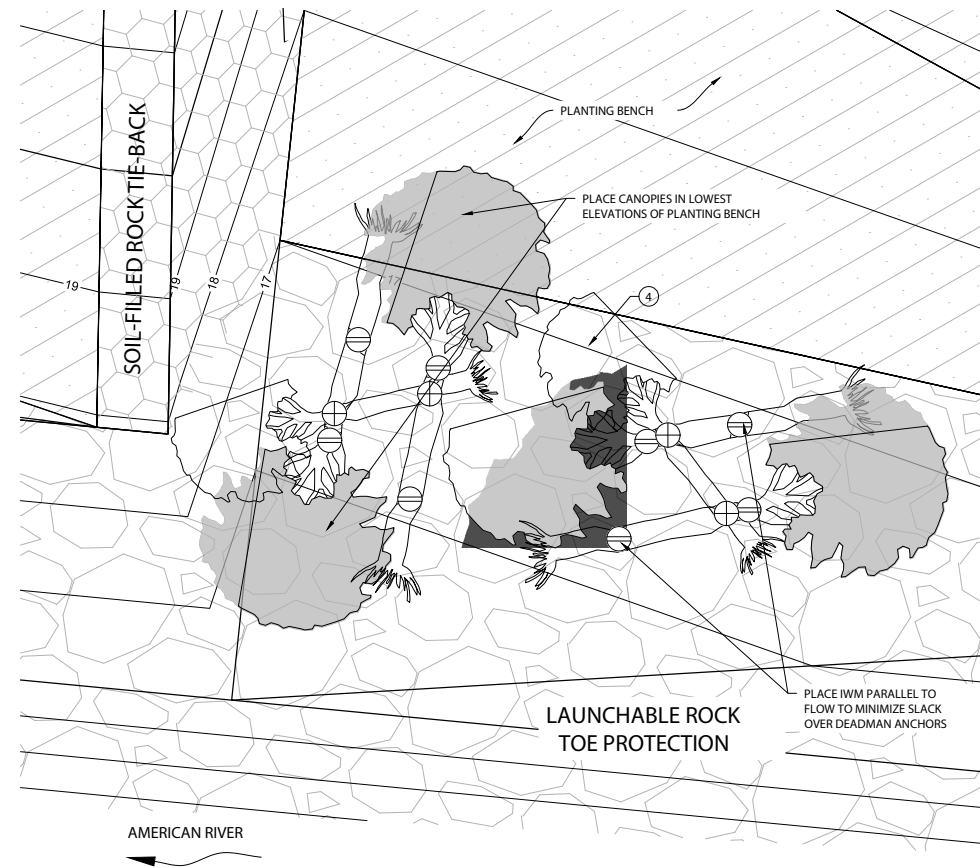
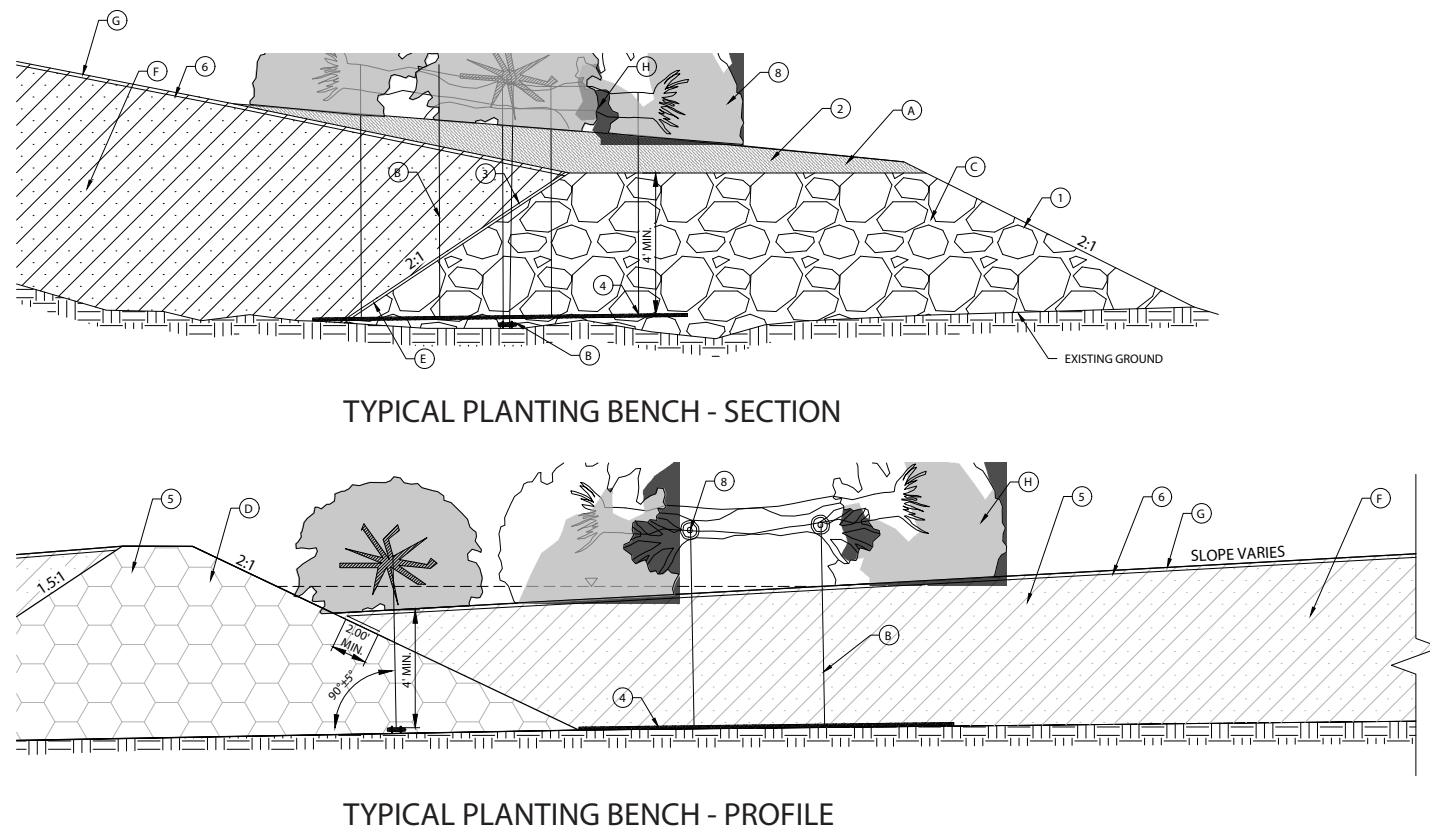


SOURCE: USACE, 2020

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Figure 2-8
Typical Cross Section of Rock Tie-Back at Site 2-2

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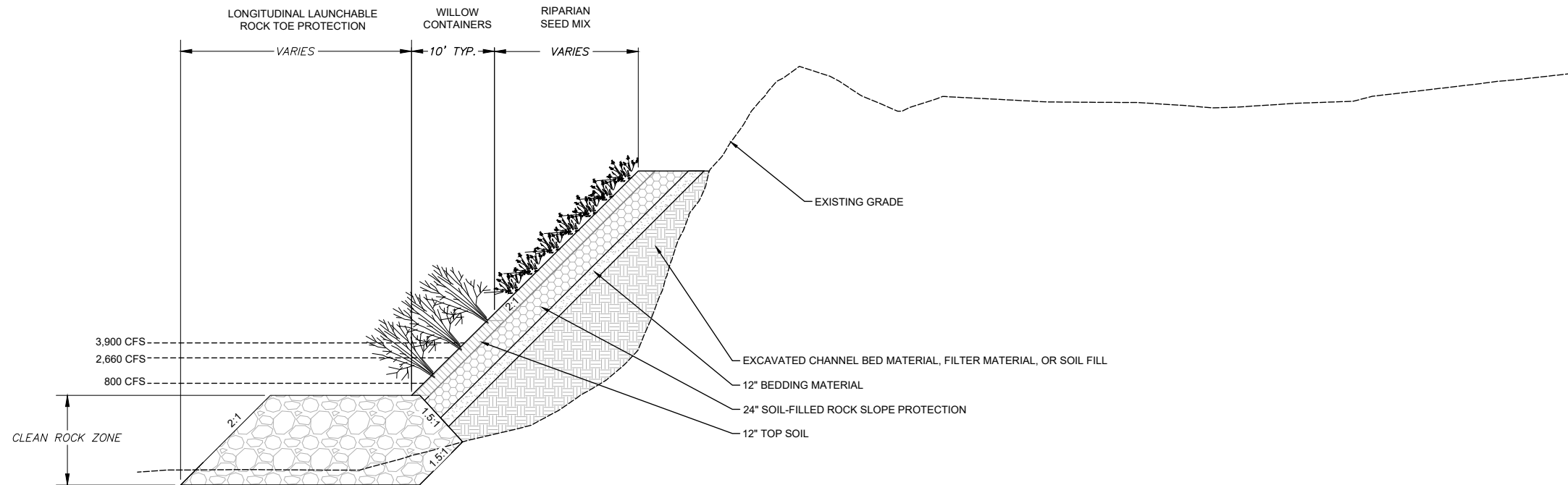
- PLANTING BENCH CONSTRUCTION MATERIALS**
- A. 6" FILTER LAYER MATERIAL.
 - B. IWM DEADMAN ANCHORS
 - C. LAUNCHABLE ROCK TOE PROTECTION
 - D. SOIL-FILLED ROCK TIE-BACKS
 - E. GEOTEXTILE
 - F. PLANTING BENCH SOIL FILL
 - G. EROSION CONTROL FABRIC OVER PLANTING BENCH MEDIUM. SEE PLANTING PLANS FOR PLANTING AND SEEDING DETAILS
 - H. IWM PLACED AT FINISH GRADE
- SUGGESTED PLANTING BENCH SEQUENCING**
1. PLACE LAUNCHABLE ROCK TOE PROTECTION.
 2. TOP WITH 6" OF BEDDING LAYER TO ABOVE AMBIENT WATER LEVELS.
 3. PLACE GEOTEXTILE. SEE SPECIFICATIONS..
 4. PLACE DEADMAN ANCHORS WITH WIRE ROPE CONNECTION.
 5. PLACE SOIL FILL AND SOIL-FILLED ROCK TIE-BACKS. OVERBUILD SOIL FILL TO ABOVE AMBIENT WATER LEVELS AND TRIM TO FINISH GRADE. KEEP UNSECURED END OF WIRE ROPE ABOVE FINISHED GRADE.
 6. INSTALL EROSION CONTROL FABRIC OVER PLANTING BENCH.
 7. SECURE UPSTREAM END OF EROSION CONTROL FABRIC AGAINST ROCK TIE-BACK WITH TOPSOIL PLACED IN BIODEGRADABLE BURLAP SANDBAGS.
 8. PLACE IWM ON DOWNSTREAM SIDE OF ANCHOR POINT UNLESS DIRECTED OTHERWISE BY CONTRACTING OFFICER. CONNECT IWM TO ANCHOR POINT USING MANILLA ROPE.
- ⊕ LOG TO LOG CONNECTION
⊖ DEADMAN CONNECTION

SOURCE: USACE, 2020

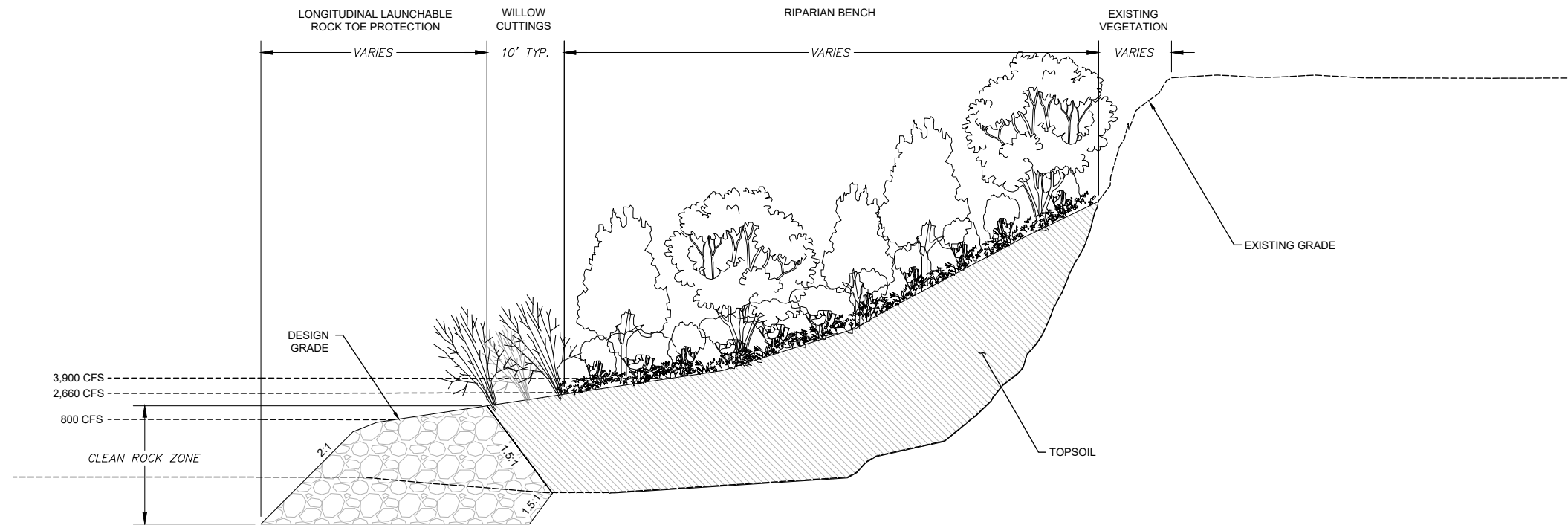
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Figure 2-9
Plan View and Cross Section Detail of Planting Bench at Site 2-2

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TYPICAL PLANTING SECTION (STATION 516+50 TO 519+50 AND 524+50 TO 528+20)
H: 1"=10' V: 1"=5'



TYPICAL PLANTING SECTION (STATION 519+50 TO 524+50)
SCALE: 1"=10'

2.3.2.2 Site 2-3

The primary erosion risk along Site 2-3 is due to a steep bank susceptible to failure due to toe scour, and poor erosion resistance due to lack of vegetation covering the bank. The design of Site 2-3 would combine the flexibility and ecological benefit of a vegetated bank with the strength of rock protection in the form of transverse structures that can dynamically evolve and change with variable flows over time. Site 2-3 would include prominent planting benches cut into the bank with a sufficiently gentle grade for the long-term establishment of riparian shrubs and trees for biotechnical stabilization. In addition, Site 2-3 would include transverse buried rock structures to prevent unchecked or large-scale erosion of the bank during flood events. Together, the bank excavation, planting, and buried rock would provide multiple layers of protection while allowing for limited dynamic changes of the bank through natural riverine processes. Site 2-3 is approximately 6,889 feet long. A plan view of a typical segment of these features is shown on **Figure 2-11** and described below in detail.

Cut Bank Design

Grading of Site 2-3 would extend along the entire site, including below the H Street Bridge, from LAR RM 5.9 upstream to RM 7.2. The grading is intended to: (1) flatten slopes to be less susceptible to failure of the levee structure due to toe erosion; (2) provide benches at suitable elevations to support dense stands of native riparian vegetation which will provide both erosion resistance and improved habitat; and (3) increase flow conveyance. Approximately 363,300 cy of soil would be excavated and removed off site to soil stockpile locations used by the LMA and to the Arden Pond Mitigation Site (see description further in this chapter). The Site 2-3 cut bank area would include three planting benches at lower, middle, and upper elevations and three 2H:1V sloped sections that connect them. See **Figure 2-12** for a typical cross section of the cut bank design at Site 2-3. The cut bank design width would be between approximately 70 to 150 feet horizontally into the existing bank. The lower bench would have a width that varies between 35 and 55 feet. The elevation of the lower bench toe would be cut to match the water surface elevation associated with the mean summer/fall flow of 2,660 cfs. The top of the middle bench would be approximately equal to the elevation of the Ordinary High Water Mark (OHWM) associated with a discharge of 18,500 cfs. To decrease the potential for erosion, the slope between the lower and middle benches would be 4H:1V and 2 feet high. The slope connecting the middle and upper benches would be 2H:1V and 5 feet high. The upper slope that connects the upper bench with existing grade would also be 2H:1V and vary between 0 and 6.5 feet high.

Based on average daily flows in the LAR, the toe of the lower bench would be inundated about 50 percent of the time during the July-November season, and the upper end would be inundated only 5 percent or less of the time during the same season. The elevation and width of the lower bench were designed to establish a low riparian planting surface that will provide significant erosion protection and hydraulic roughness once the vegetation becomes established. The middle bench would generally be dry and would likely only be inundated during winter and early spring months during high flows in the LAR. The

upper bench would be at an elevation set about 5 feet above the OHWM elevation and would be 10 feet wide. The upper bench would vary between 0 and 6.5 feet below the elevation of the existing floodplain and 12 feet above the average winter/spring discharge of 3,900 cfs. The upper bench would be a relatively dry zone planted with trees and shrubs. See **Figure 2-13** for a typical cross section of the benches at Site 2-3.

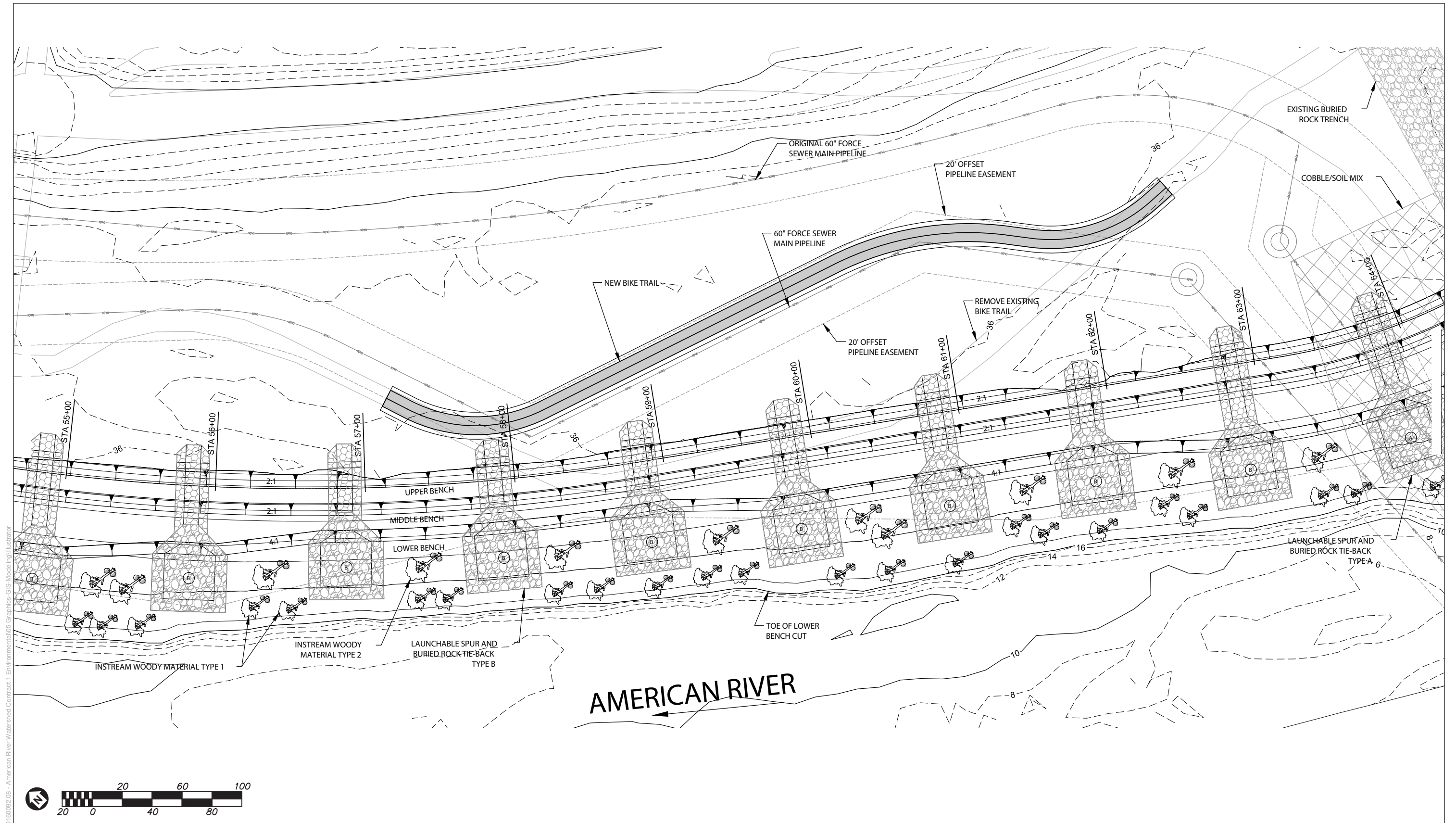
Transverse Rock Structures

Transverse rock structures were designed for Site 2-3 to improve confidence of design performance under USACE criteria and to protect local infrastructure and parkway resources against large-scale erosion by limiting the maximum extent of erosion that could occur if the planted vegetation is unable to resist erosion forces. The top of the structures would be buried 2 feet below the cut bank grade and would be exposed only at locations where bank degradation may occur due to natural processes that occur after the Proposed Action is constructed. These structures would be included in the design for Site 2-3 rather than continuous bank paving to maximize the area for the planting and establishment of riparian and aquatic habitat near the average summer/fall water surface elevations, and allow some variable and natural shoreline to remain.

The transverse rock structures consist of two parts: (1) a buried rock tie-back that extends from the top of the cut bank down to the lower bench; and (2) a launchable rock spur that would be excavated into the lower bench. The function of the buried rock tie-back is to limit the amount of erosion that could occur along the bankline and to prevent flows from flanking the lower bench. The launchable rock spur is designed to deploy as the bank erodes into the bench with sufficient volume of rock to fill in the void created by the scour. A cross sectional view of these two transverse rock structures are shown in **Figure 2-14**. The buried rock tie-backs would be hexagonal in shape to reduce the area of rock near the ground surface and would be 8 feet deep and 22 feet wide at the narrowest section along the bank slope and 50 feet wide at the widest point near the water.

The rock used to construct the tie-backs would be 24-inch rock size mixed with soil fill using a 60 percent rock to 40 percent soil mix. Down on the lower bench, each tie-back would connect to a launchable spur. The spurs would be 50 feet wide, 8 feet deep, and range between 32- and 42-feet long pointing in the direction of the river. The spur structure would be box-like in shape with steep side cuts to hold as much volume of rock as possible for 30-inch rock size. Voids in the launchable rock toe rock of the spur would be filled with 1.5-inch aggregate using a 70 percent to 30 percent rock to soil mix ratio.

The spacing of the launchable rock spurs would be close enough to prevent significant erosion of the bank by reducing local velocities along the bankline during large floods. The launchable rock spurs would be spaced 100 feet between each upstream of the H Street Bridge and 150 feet between each downstream of the bridge.

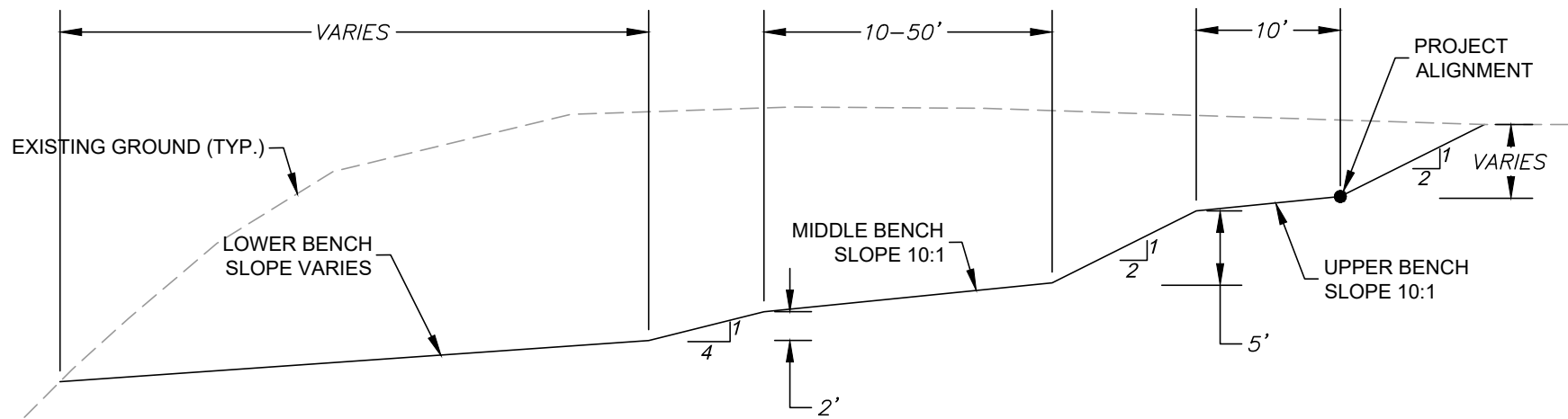


SOURCE: USACE, 2020

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Figure 2-11
Plan View of Typical Components at Site 2-3

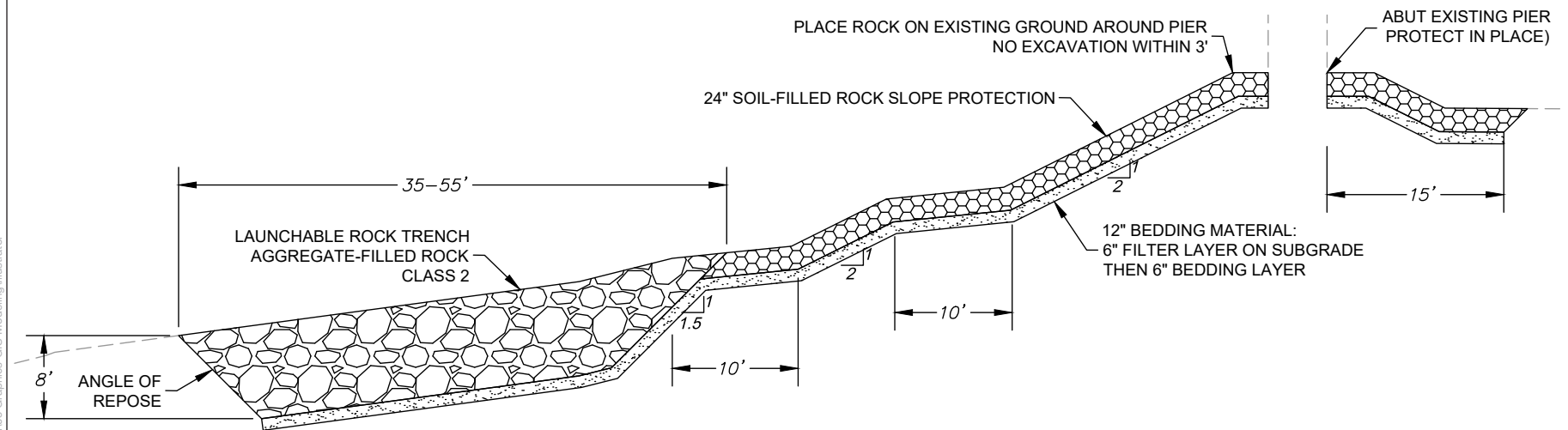
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SOURCE: USACE, 2020

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Figure 2-12
Typical Cross Section of Cut Bank Design at Site 2-3



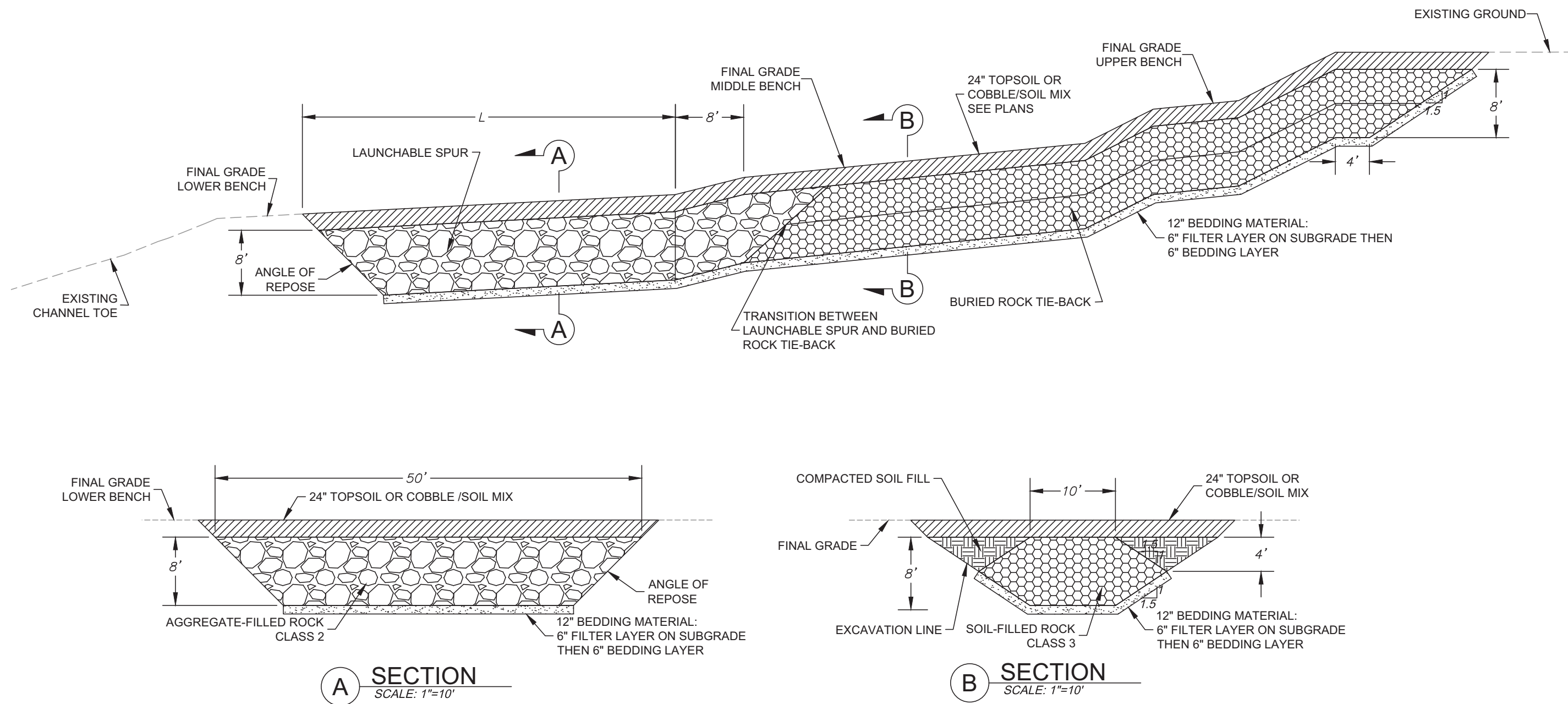
SOURCE: USACE, 2020

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Figure 2-13

Typical Cross Section of Launchable Rock Trench and Benches at Site 2-3

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SOURCE: USACE, 2020

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Figure 2-14
Typical Cross Section of Transverse Rock Structures at Site 2-3

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Both the spur toe and the tie-back sections of the structure are designed with sufficient volume of rock to launch into adjacent scour zones and remain stable. The tie-backs would hold sufficient volume of rock to protect against 15 feet of scour on one side or 10 feet of scour on both sides relative to the cut bank grade.

At the upstream end of Site 2-3, the second buried rock tie-back would be keyed into an existing deep riprap trench that is approximately 30 to 40 feet wide, runs perpendicular to the bank across the floodplain, and ties back into the flood control levee. This design would create a continuous rock key to prevent flows from flanking at the upstream end of the site. In addition, the graded area around the first three transverse rock structures would be protected with a 2-foot layer of 4- to 15-inch cobbles mixed with soil to reduce the likelihood of surface erosion during floods. The cobble/soil mix would also be placed at the downstream transition around the last two structures where the grading transitions back into the existing bank slope. See **Figure 2-15** for a typical cross section of the planting plan on the cobble soil mix section of Site 2-3.

The transverse structures would be covered with 2 feet of compacted topsoil that would be seeded and planted with appropriate grass and shrub species to help hold the soil in place. Although some loss of topsoil and local erosion may occur during large flood events, the roots of the grasses and shrubs are expected to mechanically secure the soil in place and prevent local erosion during more common floods. See **Figure 2-16** for a typical cross section of the planting plan between the rock tie-backs at Site 2-3.

Erosion Protection

The design of Site 2-3 includes a dynamic vegetated bank design that is intended to allow local erosional processes to occur. During large flood events, local scour of up to 10 feet may occur within the cut bank area. The newly planted vegetation on bench surfaces would serve to provide long-term erosion protection, soil stability, and roughness at the site. However, before the vegetation can become established, the site would be vulnerable to high velocities and shear stresses if a significant flood event were to occur in the first 3 years.

For the initial planting condition, modeling indicates that some maintenance could be required to replace vegetation on eroded surfaces if a large flood event occurred during the first 1 to 3 years after plant establishment. The placement and anchoring of anchored whole trees on the lower bench are intended to provide some additional protection to the bench surface immediately after planting to prevent loss of vegetation. The anchored trees would reduce velocities at the surface of the bench as well as provide protection to vulnerable plants during the first few years. In addition, erosion control fabric would be placed over the entire site after seeding. See **Figure 2-17** for a typical view of the planting plan at Site 2-3 as viewed from the river.

H Street Bridge Protection

A launchable rock trench would be constructed along approximately 170 feet of bankline under the H Street Bridge to protect the bridge. The rock in the structure would be buried

and form a continuous trench between upstream and downstream transverse structures. The launchable rock trench would contain sufficient volume of 30-inch rock to launch down into a scour, if one should occur under the bridge, to prevent further erosion of the bank.

In addition, rock slope protection would be placed at piers and along the waterside levee face in the vicinity of the H Street Bridge. Soil-filled and clean rock riprap would have a maximum diameter of 24 inches. The clean rock slope protection would be placed adjacent to the existing rock protection under the bridge to fill in a small unprotected area. The soil-filled rock would be a 70 percent rock to 30 percent soil mix ratio placed on the upper banks of the channel under the bridge around the pier and the piles on the floodplain, and on the levee faces upstream and downstream of the bridge. A 15-foot blanket of rock would be placed around the bridge pier and 10-foot blankets around each of the four rows of piles. The soil-filled rock slope protection would also be placed on levee sections 325 feet upstream and 450 feet downstream of the bridge. See **Figure 2-18** for a typical cross section of rock slope protection under the H Street Bridge.

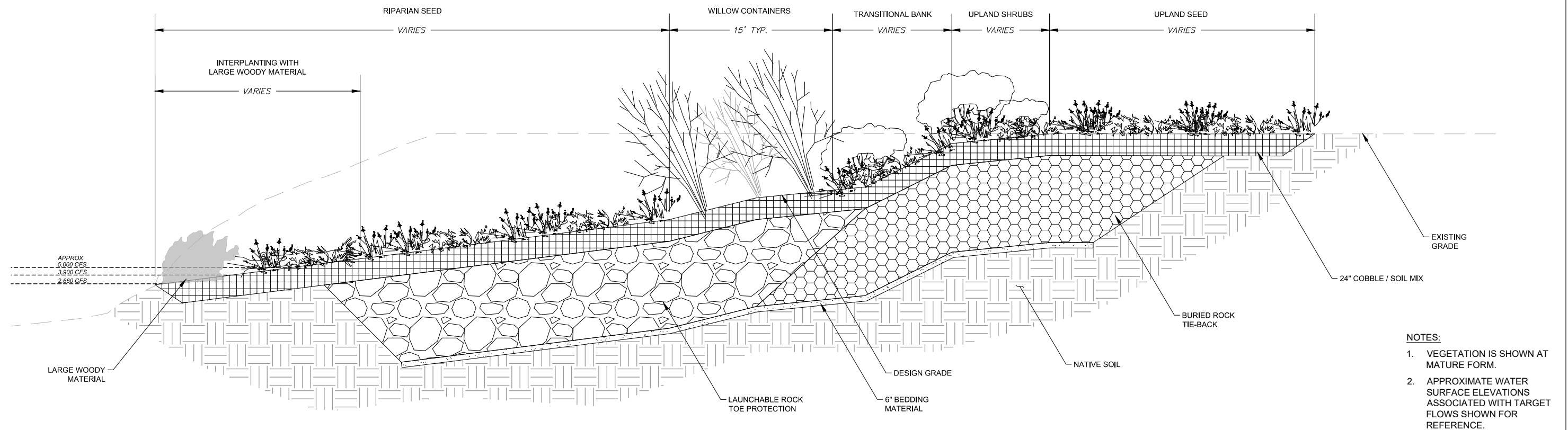
Riprap Storm Channel

Due to grading of the bank at Site 2-3, the last 150 feet of an existing concrete storm drain channel, located in the Campus Commons Golf Course, would be removed and replaced with a new riprap channel. The concrete channel is currently used to transport a design flow of 213 cfs discharged from Sacramento Municipal Sump Station #95 on the landward side of the levee. The new riprap channel would have a base width of 18 feet, a depth of 3 feet, and 2.5H:1V side slopes. The rock for the new riprap channel would have a maximum diameter of 36 inches based on USACE sizing requirements for steep chutes and would be mixed with aggregate. In addition to removing a section of the existing concrete channel, a small footbridge would be removed to allow for project excavation. See **Figure 2-19** for a cross section and plan view of the riprap channel design at Site 2-3.

Instream Woody Material

Along the lower bench of Site 2-3, instream woody material (IWM) structures consisting of whole trees with rootwads intact would be installed to increase the roughness of the bench and to provide fine-textured woody material along the river margin for juvenile salmonid rearing habitat at an elevation of the low flow period between August and December (2,660 cfs). The trees used for IWM installation would be orchard trees approximately 20 to 35 feet in height with diameters between 10 and 20 inches. Small whole trees would be used along the toe of the bench while large whole trees would be installed at the top of the bench between the transverse rock structures. Both sizes of IWM use boulder anchors to provide ballast and hold the structures in place. The boulder anchors use two 2 to 4 ton rocks that would be chained together and draped over the trunks of the whole trees using stainless steel ½-inch chain. Although the boulder anchors are designed to be sufficiently heavy to hold the IWM in place during flood flows up to 160,000 cfs, each structure also includes a second redundant anchor. The small IWM would include a soil anchor buried 12 feet into the bank and connected to the middle of

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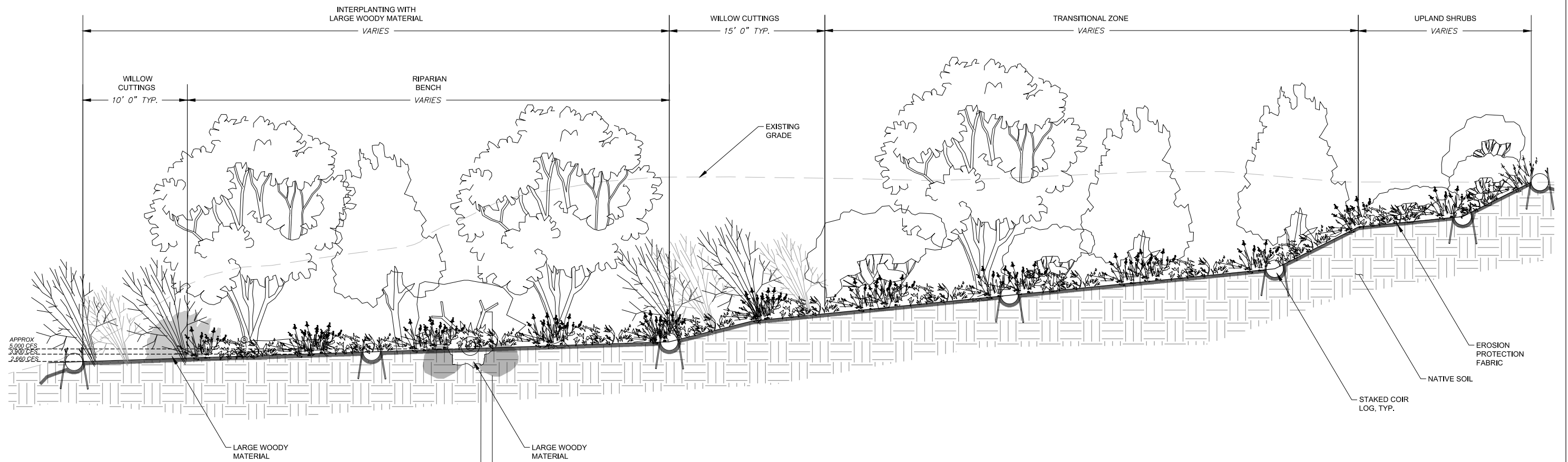


SOURCE: USACE, 2020

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Figure 2-15
Typical Cross Section of Planting Plan on Cobble/Soil Mix Section at Site 2-3

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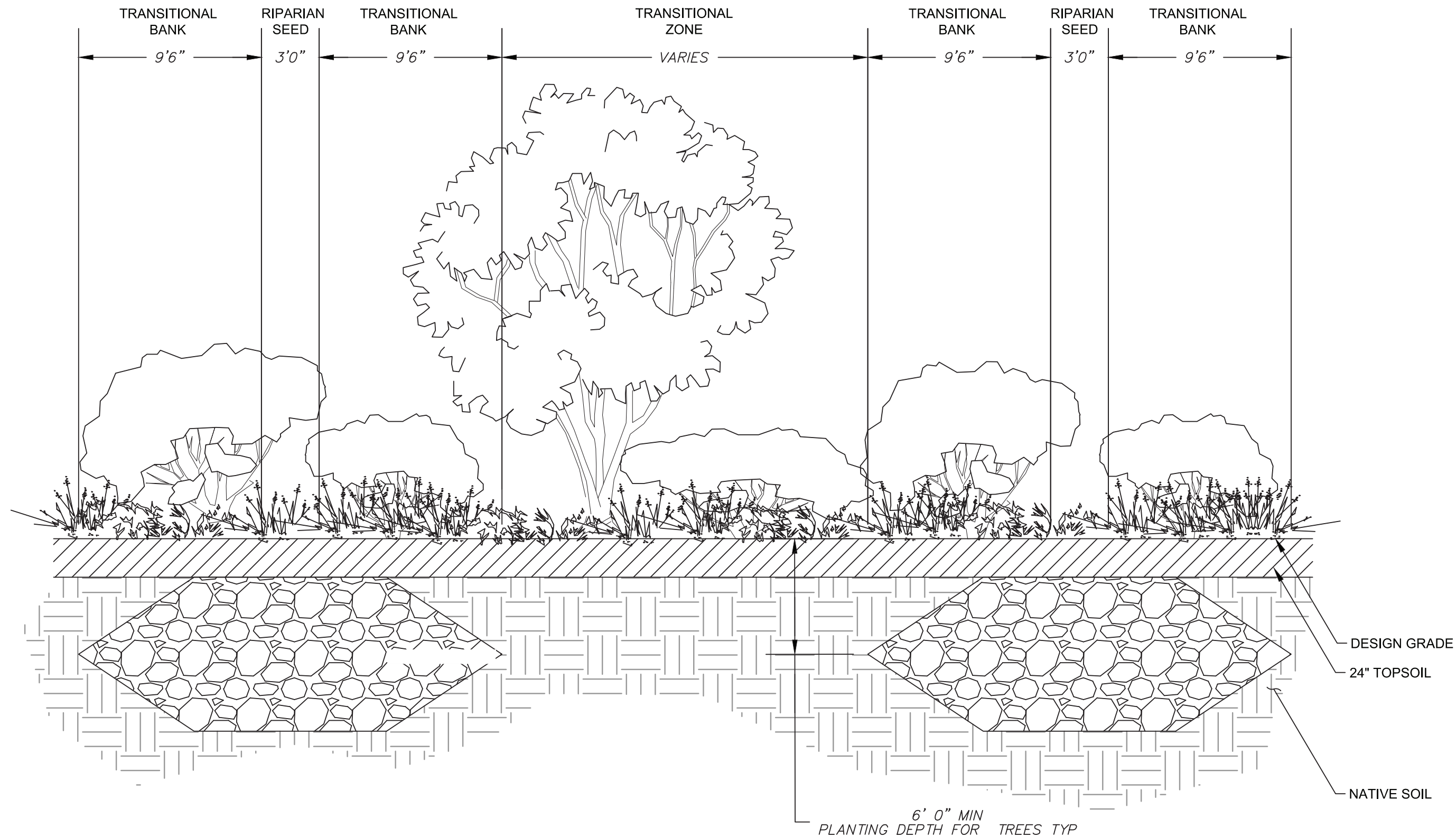


SOURCE: USACE, 2020

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Figure 2-16
Typical Cross Section of Planting Plan between Rock Tie-Backs Section at Site 2-3

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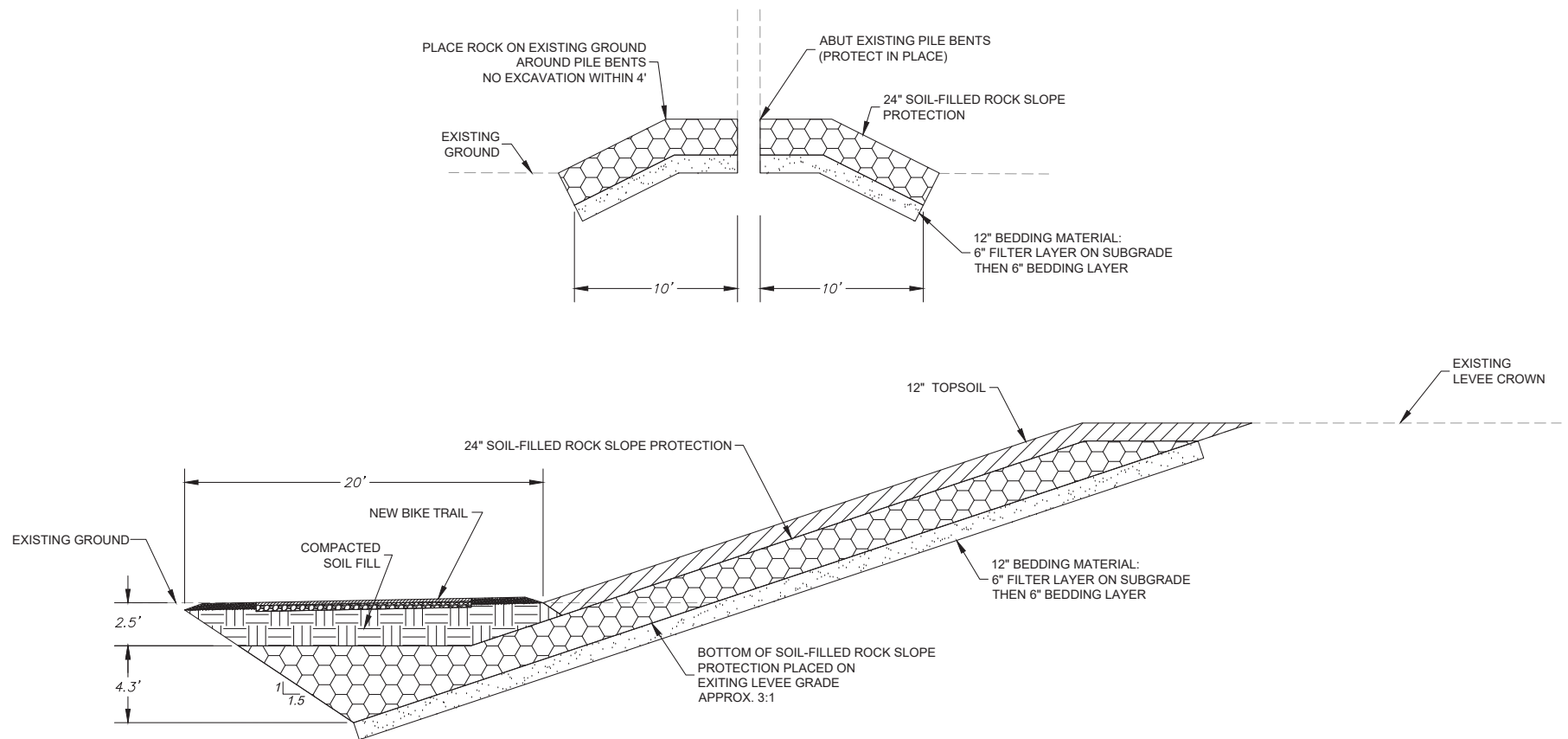


SOURCE: USACE, 2020

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Figure 2-17
Typical View of Lower Planting Bench from the River at Site 2-3

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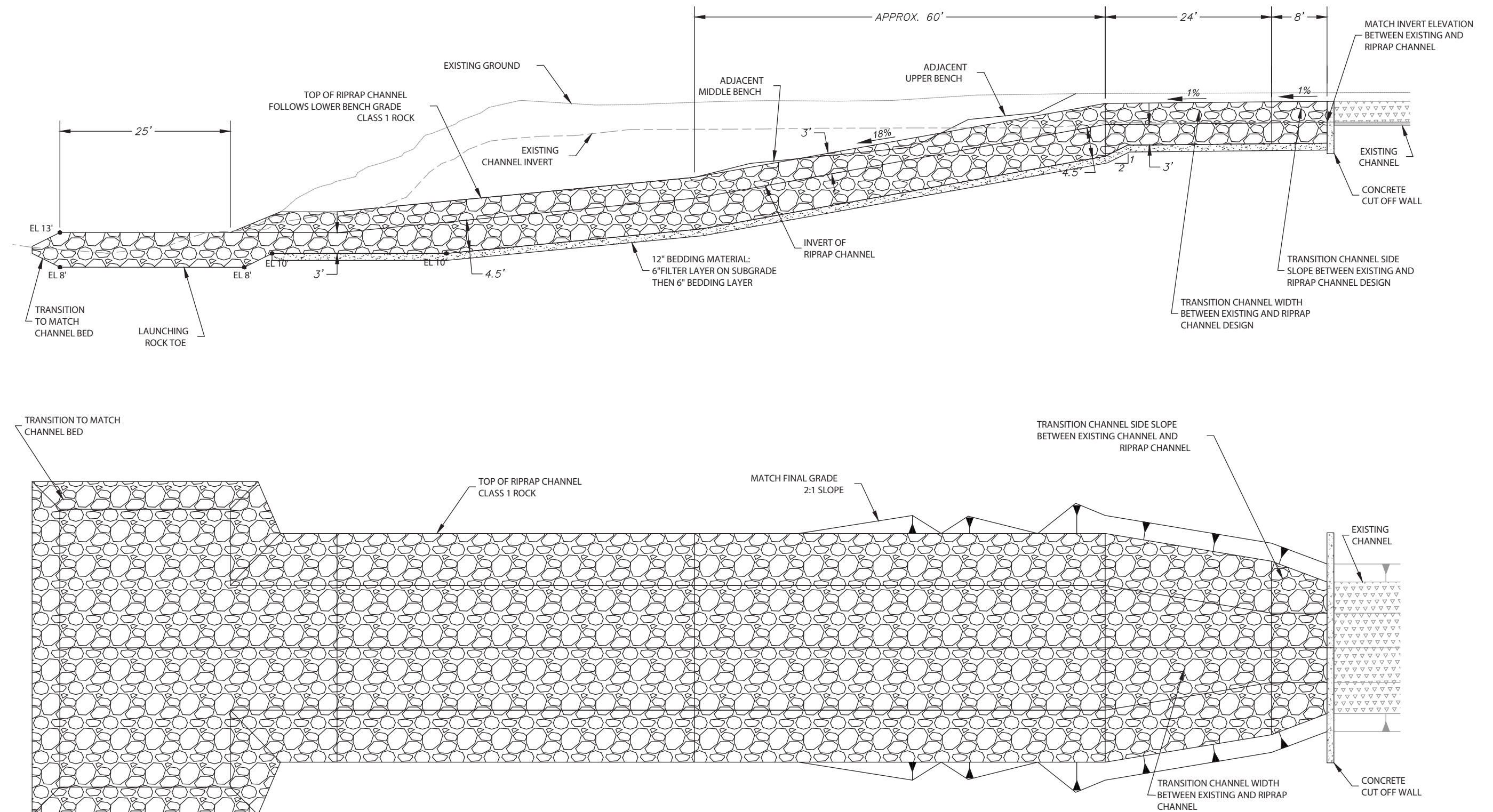
SOURCE: USACE, 2020

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Figure 2-18
Typical Views of Rock Protection for H Street Bridge at Site 2-3

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SOURCE: USACE, 2020

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Figure 2-19
Cross Section and Plan View of Rock Riprap Channel at Site 2-3

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the tree. The large IWM would include a utility pole anchor buried 10 feet into the bank and roped to the trunk of the tree. IWM trees are expected to function for a minimum of approximately 3 years while the newly planted vegetation becomes established on the lower bench.

Bicycle Trail Restoration

Construction at Site 2-3 would result in removal of portions of the American River Parkway paved bicycle trail from grading activities. Approximately 3,500 linear feet of bicycle trail would be constructed to replace the length of trail removed by grading. The bicycle trail would be realigned to be located above the new slope and erosion protection areas.

2.3.3 Mitigation Sites

The ARCF GRR FEIS/FEIR included mitigation of impacts to special-status species and vegetation within the American River Parkway. The adopted mitigation measures included the need for compensatory mitigation for salmonids, valley elderberry longhorn beetle (VELB), and yellow-billed cuckoo. The adopted mitigation measures did not identify the sites where mitigation would occur. The purpose of this section is to describe the three sites now identified for compensatory mitigation of habitat and vegetation that would be developed as part of Proposed Action, the mitigation methods to be used, and post-mitigation monitoring and maintenance to inform the analysis of effects in Chapter 3, *Affected Environment and Environmental Consequences*. To the extent feasible, USACE would avoid and protect existing salmonid and riparian habitats. In addition, USACE would avoid and protect elderberry shrubs, as VELB habitat, on-site, to the extent feasible, when a 100-foot (ft) buffer or wider can be established and maintained around them. However, for erosion protection along the LAR there would be unavoidable adverse effects that are proposed to be reduced through a combination of on-site and off-site actions. As described in Section 2.3.1, *Design Objectives* and 2.3.2, *Erosion Protection*, on-site mitigation has been integrated into the design of the levee erosion protection features to minimize adverse effects on sensitive species of concern. Conservation measures underway by USACE, the CVFPB, and SAFCA that are in the planning and acquisition stages may include but are not limited to: conservation banks and locations in the County of Sacramento's American River Parkway (beyond the locations identified below) that are suitable for establishing woodlands, receiving elderberry shrubs that need to be transplanted, and SRA habitat.

On-site mitigation would be located within Sites 2-2 and 2-3 and includes planting benches and restoration of disturbed areas as described in Sections 2.3.2.1, and 2.3.2.2, respectively. USACE, the CVFPB, and SAFCA are currently coordinating with the County of Sacramento to negotiate the transplanting of elderberry shrubs located within the permanent project footprints at Sites 2-2 and 2-3, and in the Arden Pond Mitigation Site (see description below), to a permanent location in the American River Parkway. Options currently being explored within the American River Parkway include, but are not limited to, the Glenn Hall Park mitigation site and the two Rio Americano mitigation sites described in Chapter 2, *Alternatives of the American River Watershed Common*

Features, Water Resources Development Act of 2016, American River Contract 1 Supplemental Environmental Assessment/Supplemental Environmental Impact Report (USACE and CVFPB 2020), and the two Rossmoor mitigation sites under the Proposed Action, as described in this document. If the County of Sacramento allows for the elderberry shrubs to be relocated, USACE would develop USFWS-approved site designs prior to any effects to valley elderberry longhorn beetle habitat. If transplant sites in the American River Parkway cannot be identified in coordination with the County of Sacramento prior to start of levee construction, or if County of Sacramento approvals cannot be acquired, USACE would find a USFWS-approved conservation bank that is accepting elderberry shrubs or another approved site within the Sacramento region.

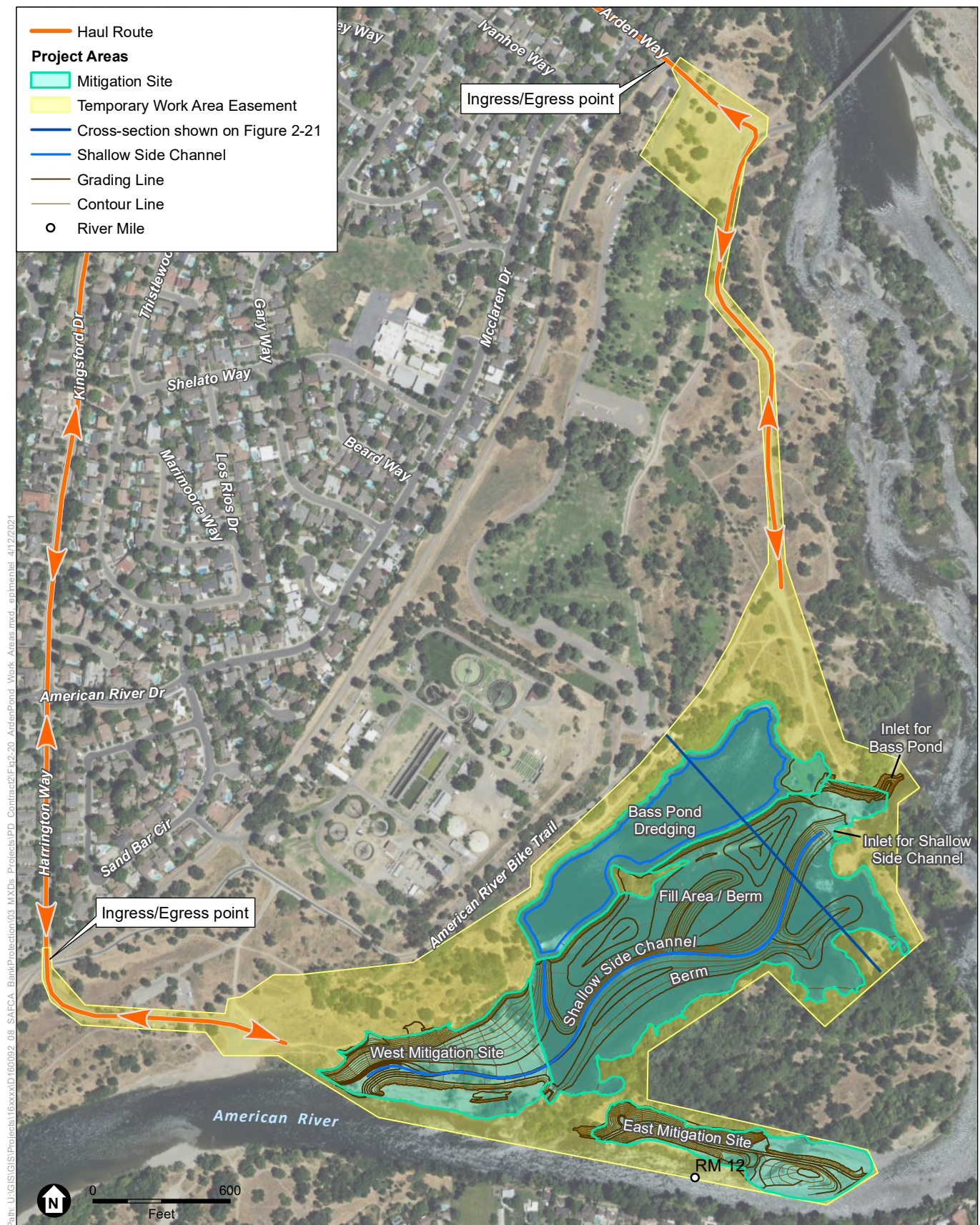
2.3.3.1 Arden Pond Mitigation Site

The proposed Arden Pond Mitigation Site would be developed during performance of Proposed Action is located in the William B. Pond Recreation Area on the right bank floodplain at approximately LAR RM 12 as illustrated in **Figure 2-20**. The main stem of the river channel is single threaded upstream and downstream of the pond area. At RM 13.2, there is a system of braided side channels along the right bank of the river that conveys flows through the approximately 33-acre pond. The outlet of the pond transitions into the main channel at RM 11.9. The pond is currently a recreational attraction for fishing and river sport activities. The pond provides habitat for native and non-native warm water fish throughout the year. The Arden Pond Mitigation Site is being designed to continue to provide recreational opportunities for the public at the northern portion of the site (i.e., Bass Pond shown in Figure 2-20), while increasing suitable habitat for salmonids.

Separating the recreational Bass Pond to the north from the restoration area in the southern portion of the Arden Pond Mitigation Site would reduce depths in the area to meet habitat requirements for juvenile salmonids and support emergent vegetation to improve habitat by providing shade, cover, and food. Revegetation using emergent species (e.g. tules) would occur within portions of the new shoal perimeter of the placed fill. A swale would extend from the inlet channel mouth to the upstream end of the outlet channel. The final grading plan would include several islands within the mitigation site that would also be designed to support riparian trees and shaded riverine aquatic (SRA) habitat. SRA and riparian vegetation would be created along the berm shoreline. IWM would also be added in various places for salmonid rearing habitat.

Bathymetric data was collected within the pond area in June 2020. The typical depth of the pond is around 7 feet when flows in the LAR are at 3,900 cfs. The proposed Arden Pond Mitigation Site would be constructed to meet the compensatory mitigation requirements of the NMFS and USFWS BOs. The primary components of the mitigation site, as illustrated in Figure 2-20, include:

1. A Bass Pond (up to 9.5 acres) within the existing footprint of Arden Pond for recreational fishing activities;



SOURCE: USDA, 2018; NHC, 2021; HDR, 2021; ESA 2021

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Figure 2-20
Arden Pond Mitigation Site

2. A shallow side channel habitat within the existing footprint of Arden Pond as rearing and migration habitat for juvenile salmon with two design features:
 - a. 9 acres of shallow flow areas with depths between 2 and 3 feet at 3,900 cfs during the winter/springs months;
 - b. 5.5 acres of riparian vegetation plantings along the shallow flow areas south of the channel to create shaded riverine habitat;
3. A 9-acre earth-filled berm to separate the bass pond and shallow side channel to prevent predation of juvenile salmonids by bass while still providing flow circulation of fresh water into the area of the pond inhabited by bass will also be planted in riparian habitat; and
4. Two inundated floodplain mitigation sites (approximately 7.5-acre “West” and a 5.0-acre “East” Mitigations Sites) to be excavated to the 2,660 cfs water surface elevation with gradual slopes and planting benches excavated above this elevation. The material excavated from these sites would be used for fill in Arden Pond.

Construction of the Arden Pond Mitigation Site would involve placement of up to 330,000 cy of soil into the restoration area, which is to come from the cut bank excavation of Site 2-3, excavated material from the bass pond, and excavated materials from the West and East Mitigation Sites (see description below). Approximately 226,000 cy of fill material would be placed in the existing pond to create the north berm, south berm and the shallow side channel. The design would create 1- to 3-foot deep shoals in a channel at elevations of 1 to 3 feet below the 3,900 cfs flow water surface elevation up to the existing vegetated shoreline edges and the new berm.

Design of Components

The aquatic habitat enhancement features were formulated to include environmentally beneficial design features intended to avoid impacts or provide for as much on-site replacement of native terrestrial vegetation and wildlife habitat value as reasonably possible. These features included:

- Shallow water side channel for rearing and migration of juvenile salmon, as well as potential opportunities for spawning
- Shallow water side channels that incorporate instream woody material
- Planted riparian vegetation to create additional shaded areas along the shallow pond flow path
- Waterside, low, wetlands bench to remain inundated at river stages corresponding to summer/fall flows
- Establishment of native vegetation on all planted surfaces

Channel

The design of the Arden Pond Mitigation Site channel would be constructed in an ‘S’ curve from the inlet to the outlet with a total length of approximately 2,000 feet to the maintained existing outlet with an additional 1,190 feet of side channel through the West Mitigation Site to a second connection to the American River (see Figure 2-20). The width of the channel, from bank to bank would be approximately 80 feet with a ‘V’ shape and maximum depth of 3 feet at 3,900 cfs. The slope from the shoreline to the deepest point in the channel would be consistent, however because the deepest point will change along the channel’s length, the slopes of the channel bottom would also change.

Designed erosion protection along the channel requires a 1.5- to 2.1-foot thick rock layer along the channel bottom along the entire width and length of the channel. The erosion protection material would consist of a cobblestone rock mix ranging between 0.5 to 4 inches in diameter. The sizing of the rock was based on discussions with USFWS and NMFS to meet salmonid spawning protection requirements. See **Figure 2-21** for a typical cross section of the Arden Pond Mitigation Site.

Berms

Two berms would be constructed in the mitigation site; one on the south side of the channel and one to the north to divide the channel from the Bass Pond (see Figure 2-20). The berms would be graded at a maximum slope of 4H:1V to allow for the growth of vegetation and provide for slope stability. The maximum height of the berms would be 9 feet above the shoreline of the channel. Fill material for the berms would consist of soil hauled from the Site 2-3 as well as on-site excavations and would be compacted enough to reduce permeability of water between the channel and the Bass Pond.

Approximately 125,000 cy of fill material from Site 2-3 and excavated material from the Bass Pond would be used to construct a berm to separate the mitigation site from the 9.5-acre Bass Pond. The berm would meet the existing ground elevations of the existing perimeter berm. The berm would have a 5-foot wide top width with 4H:1V or flatter side slopes. The berm would be vegetated with shoreline plantings of riparian species, such as willow and cottonwood, to create quality rearing habitat along its east side; appropriate grass, forbs, shrub and tree species would be planted on the upper slopes into upland zones. For the portions of the berm that extend up from the channel’s shoreline, erosion protection would be installed along the entire channel length to the minimum height necessary to properly protect the bank. The erosion protection would be as minimal as possible and would consist of a single layer of rock. The rock material is planned to be sourced on-site and would be the same as the material used to protect the river connection, side channel, berm erosion protection and all other erosion protection portions of Arden Pond Mitigation Site.

Bass Pond

The northern part of Arden Pond would be excavated to increase the total depth by 2 feet and achieve a typical total depth of 6 feet to limit the propagation of invasive vegetation. Material excavated from the northern part of Arden Pond would be used for the

construction of the berms and channel (see Figure 2-20). Construction would create a 9.5-acre the Bass Pond within the existing mitigation site footprint. An earth-filled berm (9 acres) would separate the Bass Pond from the side channel to prevent predation of juvenile salmon in the side channel by bass. Excavators would track out excavated material and place it in off-road haul trucks that would move to and deposit the material into the fill location. Tracked haul equipment or temporary matting may be required to support vehicles. Excavated material is estimated to range from 24,000 to 50,000 cy and would be used for onsite design features.

River Connection

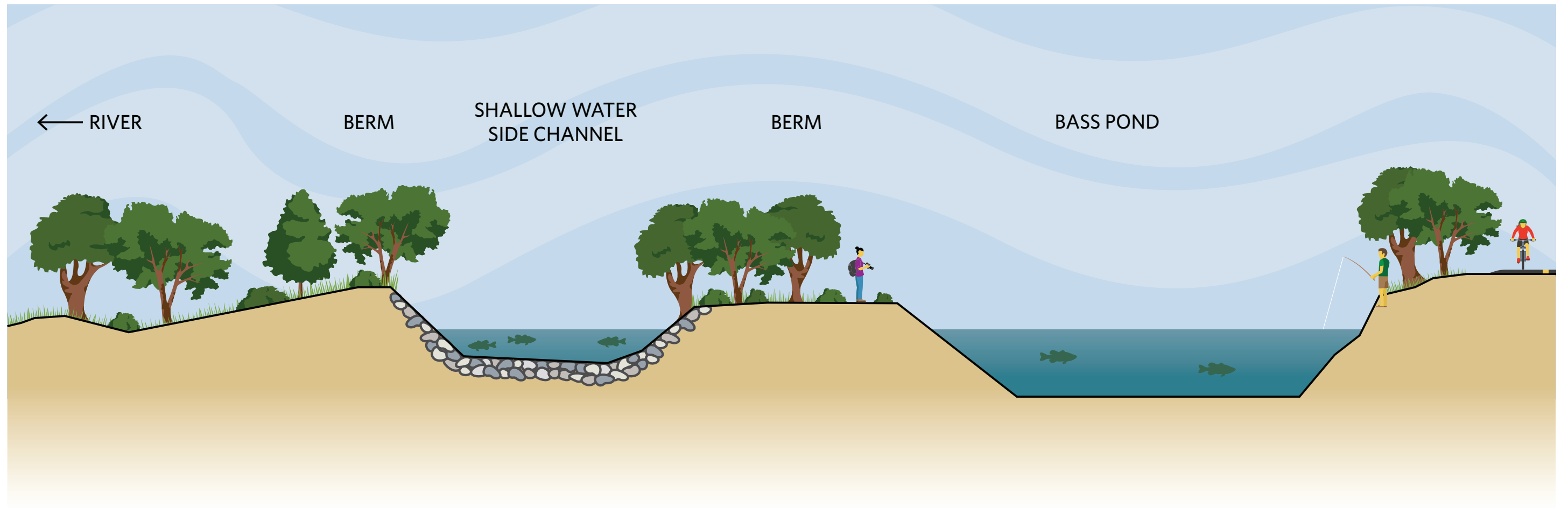
Bass Pond functions, such as replenishing of fresh water, would require that an inlet/outlet connection to the main river allow flow into and out of the pond at regular flow events. The connection would include a rock-lined berm that could function as an open channel during targeted flows. The berm would be designed as described in the berm description above.

The river connection intake would be designed to allow recharge of the Bass Pond to prevent stagnation. River stage versus discharge relationships at the entrance and exit to the flow connections were identified using a combination of flowrate recurrence and flow duration based on mean daily statistics. The pond connection would allow controlled flow while also providing a design that reduces the likelihood of entrainment by juvenile salmonids. However, entrainment can only be prevented by positive exclusion and because this area is not screened, juveniles may enter with water flows. Accordingly, depths and velocities would be targeted, to the extent practicable, to accommodate the swimming capabilities of juvenile salmonids (on the order of 1.0 foot per second (fps) or less). The Bass Pond connection should maintain velocities of 1.0 fps or less during targeted flow events, with the understanding that at times this criterion would not be met because it would be dependent on the main river flows; the connection design in this aspect would be similar to existing conditions.

The inlet would be designed in a way that would allow vehicular traffic across it during normal or dry periods to provide maintenance of the area. The connection will likely be dry during drought and late summer months like the existing pond connection.

The pond outlet would also be designed in a way that would allow vehicular traffic across it during normal or dry periods to provide maintenance of the area. The connection will likely be dry during drought and late summer months like the existing pond connection.

An outflow/overflow feature would be provided on the west end of the pond to accommodate flows that exceed the target replenishing rate. The elevation of this feature will be set such that it prevents the egression of bass back into the river during targeted flows. No provisions would be provided to limit the egress of bass back into the American River under higher flow events. It is understood that the current conditions of the Bass Pond allow for some egression of bass back to the river during high flow events; the connection design in this aspect would be similar to existing conditions.



Not to scale

D:\60092.16 - American River Watershed Common Features Contract 2\05 Graphics-GIS-Modeling\Illustrator

SOURCE: HDR, 2021

American River Common Features Contract 2

Figure 2-21
Typical Cross Section at Arden Pond Mitigation Site

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West and East Mitigation Sites

The West and East Mitigation Sites would be excavated from the existing American River bank near the downstream extent of Arden Pond. The East and West Mitigation Sites segments would include the enhancement and creation of aquatic habitat along an approximately 2,010-linear-foot segment (760-linear feet at the West Mitigation Site and 1,250-linear feet at the East Mitigation Site) along the riverbank (see Figure 2-20). Much of the excavation would occur above the typical summer water surface elevations. If excavation is required below the water surface level (i.e., at the 2,660 cfs flow), it would take place in late summer when water levels are at their lowest that would not require any dewatering. Excavation and grading activities within the site would be completed prior to breaching to the river to complete the connection. A turbidity curtain would be placed along the shoreline from the west edge of the West Mitigation Site to the eastern boundary of the East Mitigation Site at the start of construction and would remain in place until construction activities are completed.

The East Mitigation Site would require excavation of about 35,000 cy of material and the West Mitigation Site would require excavation of about 57,000 cy of material. Excavated material from these sites would be used for fill within the site. The existing elevation at the West and East Mitigation Sites is currently above the 2-year water surface elevation and does not generally support woody vegetation. The Proposed Action would excavate material from the existing banks at these sites down to the 2,660 cfs water surface elevation. The West and East Mitigation Sites would include shallow islands, flat slopes of 5H:1V or flatter with IWM, and benches that would be planted with native riparian vegetation. The flat slopes, vegetation, and lower surfaces would provide rearing habitat and aquatic habitat suitable for juvenile salmonid rearing at a range of flows. The sites together would provide an additional approximate increase of 12.5 acres of habitat (7.5 acres and 5.0 acres on the West and East Mitigation Sites, respectively) below the 18,500 cfs water surface elevation.

Construction Methods and Phasing

Construction would occur in six phases starting as early as the winter of 2021/2022. Trees would be removed between November 2021 and February 2022, before the nesting season (see *Construction Workers and Schedule* section). After these activities and prior to July 1, 2022, mobilization would include the application of temporary best management practices for the control of off-site stormwater runoff and sedimentation, building temporary access roads, preparing staging areas, rerouting pedestrian and bicycle trails, and installing signage for traffic and alternate transportation routes that would be affected by construction activities (e.g., bicycle routes). See Figure 2-20 for identification of work areas and haul routes. The details of the traffic plan for construction traffic at the Arden Pond Mitigation Site is included in **Appendix A**. Vegetation clearing could be needed to allow for site access and to accommodate construction activities.

A turbidity curtain, or other minimization measures approved by the State Water Resources Control Board, NMFS, and USFWS, would be installed prior to any in-water work

conducted on the waterside of the levee. The work limits and staging areas would be fenced with orange construction fencing to protect sensitive habitat and to identify disturbance area limits. In addition, a 6-foot-tall temporary chain-link security fencing would be installed around staging areas and along the access routes within the site.

Prior to commencing earthwork activities within the Arden Pond or East and West Mitigation Sites, measures to eliminate water within the construction footprint would be implemented first. These measures would not be able to begin until the beginning of the in-water work window on July 1. The inlet channel to Arden Pond would be blocked starting June 1, with a temporary dam structure (e.g., a water filled bladder dam or sand or gravel filled sacks). The outlet channel would be notched with an excavator to gradually lower the pond level to an elevation of about 25 feet at the National American Vertical Datum 1988 (NAVD88). The excavator would slowly notch the channel to maintain a controlled rate of lowering pond levels. The controlled rate would be determined at further levels of design to meet geotechnical, fisheries, and water quality requirements as identified in the Clean Water Act Section 401 Water Quality Certification permit. Biological monitors would be on-site to observe for fish presence prior to use of excavators to remove and sidecast material from the channel lowering the channel outlet. After the pond level has been decreased to elevation 25 feet NAVD88, fish rescue within the pond would occur (See *Conversation Measures Section* below). Sediment capture material would be placed in the channel to meet water quality specifications.

If required, pumps may be installed within Arden Pond to lower the pond level below the elevation of the American River channel at the outlet. The pump system and fish screen would conform to the anadromous salmonid passage facility design criteria⁴ issued by NMFS in July 2011.⁵ Water would be pumped directly into the American River, and turbidity testing would occur during the pond lowering to ensure values are within State Water Resources Control Board water quality permit conditions.

Once the pond surface has been lowered to a final working elevation, biologists would perform fish rescue operations to ensure all fish species have been removed from the construction footprint and released in the river downstream or as directed by NMFS. It is unlikely that the entire pond can be pumped dry, and likely that much of the pond area to be filled with sediment would still be inundated with 3 to 4 ft of water, including the Bass Pond. When fish have been removed, earthwork activities would begin.

Once construction activities begin in Arden Pond, any pumping would be routed to an overbank infiltration location. Water would not be permitted to be pumped directly into the American River, and turbidity testing in the American River would ensure water quality standards would be achieved. Continuous pumping would unlikely be required

⁴ Perforated plate: Circular or square openings shall not exceed 3/32 inch (2.38 millimeters [mm]), measured on a side. Slotted or rectangular screen face openings must not exceed 1.75 mm (approximately 1 /16 inch) in the narrow direction. Screen material shall provide a minimum of 27 percent open area. Approach velocity must not exceed 0.20 ft/s for passive screens.

⁵ National Marine Fisheries Service. 2011. Anadromous Salmonid Passage Facility Design. Northwest Region, Portland, OR. Available: https://www.dfw.state.or.us/fish/passag/docs/fish_passage_design_criteria.pdf.

throughout the earthwork placement, but some daily pumping to maintain site conditions would be expected, especially until fill elevations can be established above the ambient pond level.

Material from the East and West Mitigation Sites would be extracted with excavators, loaded into on-site haul vehicles, then hauled over and placed into the fill areas. Excavation of the Bass Pond would be with excavators on areas where the pond bottom is above the proposed lowered pond level, loaded into on-site haul vehicles, transported to the fill locations, and deposited. Material off-hauled from Site 2-3 would be transported to the Arden Pond Mitigation Site in on-road dump trucks and, to the extent possible, dumped into the Arden Pond. Dozers would work to spread deposited fill material and push material out into the Arden Pond.

The channel through the center of the site would be overbuilt to support construction equipment during placement, and then likely trimmed to grade with long-reach excavators. Cobble would be hauled to the site, dumped at elevations where the haul trucks can safely be supported, and loaded onto on-site haul trucks that would haul material to the channel location. The long-reach excavators would place the cobble along the channel to construct the river connection. Flatbed trucks would haul orchard trees onsite, where off-road forklifts would transport the IWM to the long-reach excavators to place where specified in the design plans. The IWM would be buried on one end as shown on the plans. Upon filling the Arden Pond Mitigation Site above the design elevation, the outlet channel would be reconstructed as a roughened rock ramp. Boulders would be hauled on-site to stabilize the ramp, and native material sorted to meet engineered streambed material would be compacted and placed in lifts to reconstruct the outlet channel to a 3-percent slope over 150 linear feet to reconnect the channel to the river.

After the earthwork is finished, all graded areas and materials would be seeded with a mix of native grasses and forbs. Temporary erosion control measures (e.g., coir fabric or similar without plastic) would be installed to prevent erosion of materials prior to installation of vegetation the following spring. The upstream temporary dam structure in the inlet channel and temporary fencing would then be removed. Access roads and staging areas would be restored and reseeded, as necessary, to pre-project conditions or better. The site would be winterized with sediment control as required by the State Water Resources Control Board permit.

Construction Materials and Equipment

Construction materials are shown in **Table 2-1**, below. Sources of cobble would come from within the American River Parkway from old tailing piles further upstream at Sailor Bar where the Sacramento Water Forum has screened cobbled and stockpiled in locations that are currently in use as sources for a variety of restoration projects in the American River. Planting bench soil would come from on-site soil excavated from the Bass Pond and the West and East Mitigation Sites. Finally, IWM would come from sources within a 100-mile distance from the site.

**TABLE 2-1
CONSTRUCTION MATERIAL VOLUMES**

Site	Material	Quantity
Arden Pond Mitigation Site	Cobble	15,000 cubic yards (cy)
	Soil	330,000 cy
	IWM	482 trees

Construction equipment required for the construction of the Arden Pond Mitigation Site is shown in **Table 2-2**, below. Haul trucks are expected to be 32 cy in capacity to bring in soil and cobble. At a minimum, 90 percent of all heavy-duty off-road construction equipment of 50 horsepower or greater would meet EPA Tier 4 standards. No EPA Tier 0 engines would be used. All haul trucks would have 2010 or newer engines.

**TABLE 2-2
CONSTRUCTION EQUIPMENT AND PERSONNEL UTILIZATION**

Type of Equipment	Max. Number Used per Day	Total Operation Days	Number of Workers
Excavator	12	90	30
Dozer	6	90	6
Front End Loader	6	90	6
Roller or grader	1	60	1
Off-road Dump Truck	32	90	32
Dump Truck	7	23	7
Flatbed Truck	1	60	1
4-inch pump	2	60	2
6-inch diesel pump	2	90	2
6-inch diesel pump	4	14	4
4-inch diesel pump	1	90	1
Street Sweeper	1	90	1
Water truck	1	80	1
Total			95

Planting and Irrigation

A planting contractor would assume control the Arden Pond Mitigation Site in Spring 2023 and would install temporary irrigation throughout the site and install container plants. The planting contractor would be required to provide maintenance and irrigation over the next three years during the plant establishment period.

A temporary irrigation system would be installed for the establishment and maintenance period of the transplant and associative plant material. An irrigation mainline to pump water from the river edge or from a domestic water source would be used for irrigation.

Water would be applied by drip or spray irrigation and the irrigation system may be partially or entirely removed for seasonal high water flows. If water is pumped from the river, the pump system and fish screen would conform to the anadromous salmonid passage facility design criteria⁶ issued by NMFS in July 2011.⁷

Maintenance

Maintenance activities would start immediately following completion of the initial planting. The following activities would be performed throughout the year though some would vary according to weather and season: general clean-up maintenance of the sites would occur throughout the year, clean-up maintenance would generally include picking up trash, vandalism repairs, and the removal of used planting accessories (e.g., bamboo stakes, ties, browse guards). For watering maintenance, crews would connect the pump to the irrigation system for each irrigation cycle per the irrigation schedule described in **Table 2-3**. Crews would weed within the watering basins of the transplants and within an 18-inch radius of each woody and grass associated plant, so nonnative herbaceous growth would not compete for soil moisture per the schedule in Table 2-3. Maintenance crews would mow weeds to below six inches in height during the growing season.

TABLE 2-3
THREE-YEAR MAINTENANCE SCHEDULE FOR TRANSPLANT SITES IN THE AMERICAN RIVER PARKWAY

Monitoring Year	Watering (Yrs 1 & 2: Mar 15-Nov 15) (Yr 3: Apr 1-Oct 31)		Weeding (Yrs 1-3: Mar 1- Sept 30)	Mowing (4 times per year)	
	Transplants	Associated Plants	Transplants and Associates	Tractor	String Trimmer
Year 1 (March 15- November 15)	Minimum of 50 gallons of water no more than 1 week apart or as required to maximize growth rates	Minimum of 10 gallons per plant twice a week or as required to maximize growth rates	As needed to keep weeds less than 12" in planting basins	80%	20%
Year 2 (March 15- November 15)		Minimum of 30 gallons per plant every week to 10 days or as required to maximize growth rates	As needed to keep weeds less than 12" in planting basins	60%	40%
Year 3		Minimum of 50 gallons per plant every 10 to 14 days or as required to maximize growth rates	As needed to keep weeds less than 12" in planting basins	40%	60%
Firebreaks	Firebreaks are cleared of weeds and graded once per year				

NOTE:

¹ Adjustments may be made to species if it appears a particular species was not successful on a site

⁶ Perforated plate: Circular or square openings shall not exceed 3/32 inch (2.38 millimeters [mm]), measured on a side. Slotted or rectangular screen face openings must not exceed 1.75 mm (approximately 1/16 inch) in the narrow direction. Screen material shall provide a minimum of 27 percent open area. Approach velocity must not exceed 0.20 ft/s for passive screens.

⁷ National Marine Fisheries Service. 2011. Anadromous Salmonid Passage Facility Design. Northwest Region, Portland, OR. Available: https://www.dfw.state.or.us/fish/passag/docs/fish_passage_design_criteria.pdf.

2.3.3.2 Rossmoor East and West Mitigation Sites along the American River

The proposed mitigation sites are the Rossmoor West Mitigation Site (RM 15.1 Left Bank (L)) and Rossmoor East Mitigation Site (RM 16.1 L). These sites are in addition to the Glenn Hall Park mitigation site and the two Rio Americano mitigation sites described in Chapter 2, *Alternatives of the American River Watershed Common Features, Water Resources Development Act of 2016, American River Contract 1 Supplemental Environmental Assessment/Supplemental Environmental Impact Report* (USACE and CVFPB 2020), which have also been proposed for transplanting of elderberry shrubs from Sites 2-2, 2-3, and Arden Pond. Other sites are also being pursued in anticipation of projected impacts under full implementation of the ARCF GRR. Locations of proposed mitigation sites for elderberry are shown on **Figure 2-22** and **Figure 2-23**. Any one or more of these transplantation sites may be utilized for relocating impacted elderberry shrubs from erosion protection measures along the American River, in order to provide sufficient space requirements necessary for the shrubs. Based on initial spatial investigations, it is anticipated that the identified elderberry transplantation sites in the American River Parkway would provide the following plantable acres provided in **Table 2-4**.

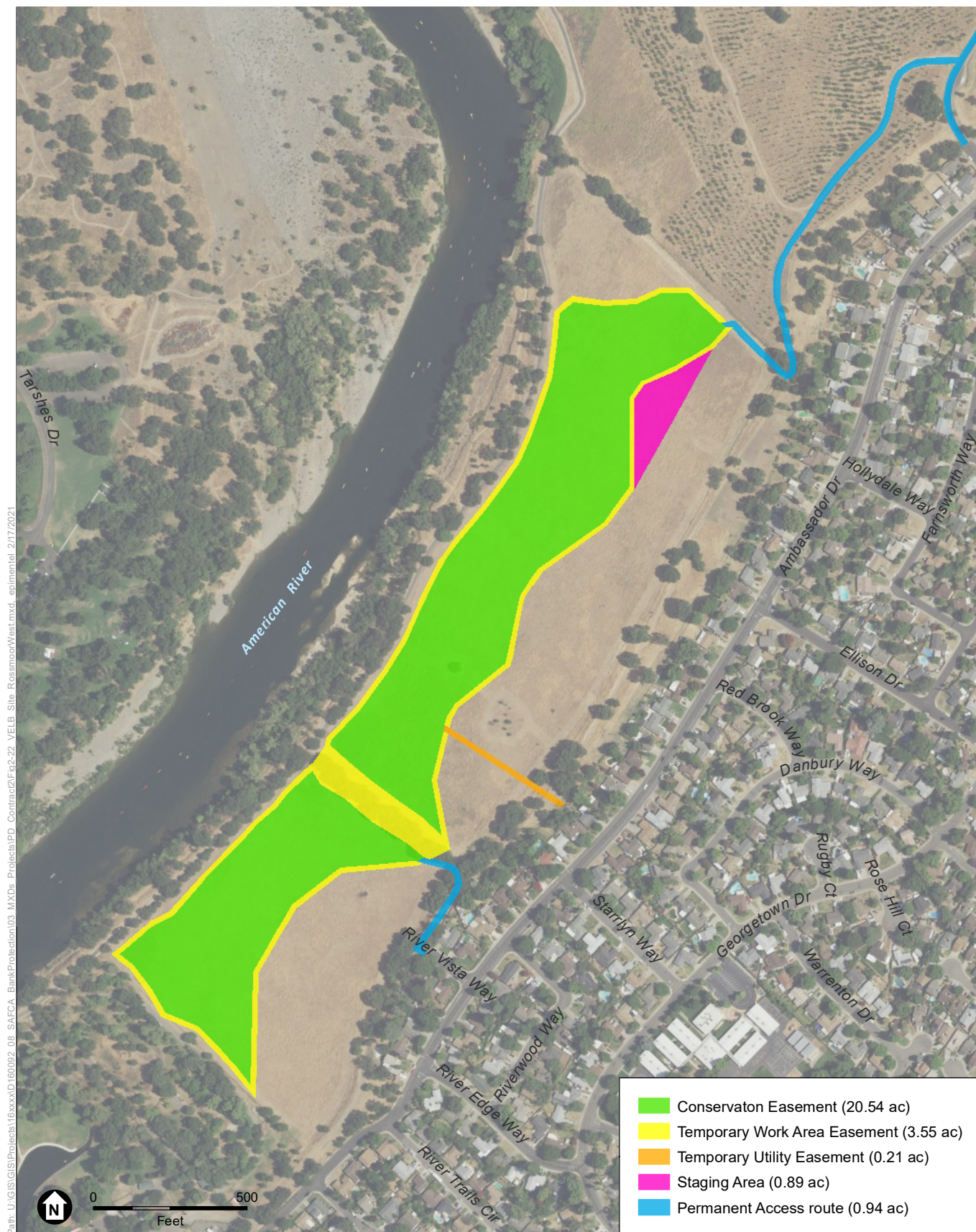
TABLE 2-4
ESTIMATED PLANTABLE AREA FOR ELDERBERRY
SHRUBS AND ASSOCIATED RIPARIAN VEGETATION

Site	Site Area (acre)	Plantable Area (acre)
Rossmoor West (RM 15.1 L)	26.13	20.54
Rossmoor East (RM 16.1 L)	8.1	6.07
Total	34.23	26.61

These mitigation sites were chosen because they were considered suitable for supporting riparian habitat and elderberry shrubs, and because of their limited existing habitat quality. Rossmoor West is bordered by native and non-native riparian woodland and scrub, including a narrow strip that divides the site from the American River. Rossmoor East contains only one tree and is bordered by roads and trails. There are mitigation sites developed by USACE to the west and south of the site and mixed woodland to the north and east.

Access and Staging

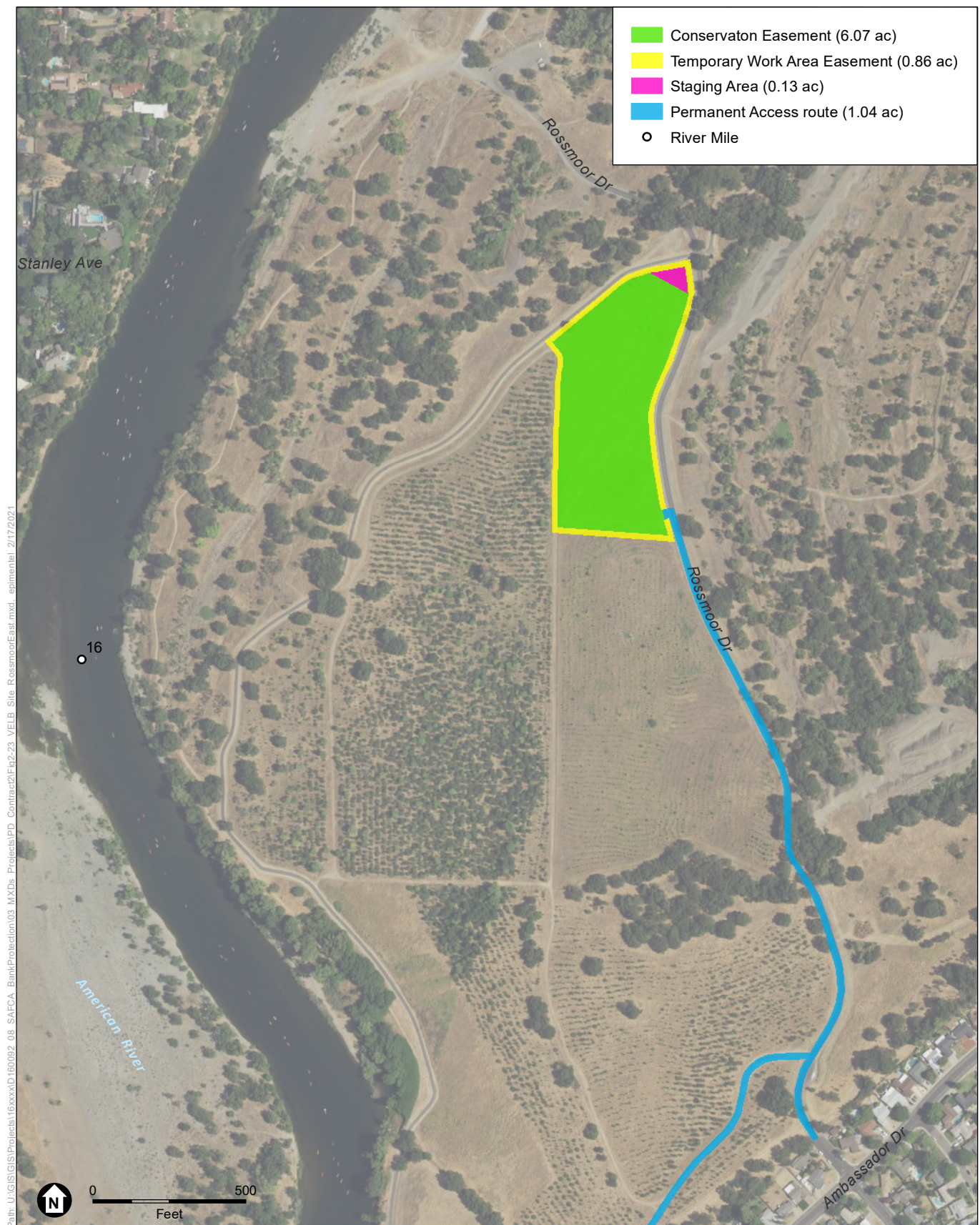
Each mitigation site would require temporary access for initial ground preparation and mitigation site establishment activities with permanent access for long-term maintenance. Temporary activities may include access to domestic water sources or electrical connections for irrigation and deer fence installation, which would only be required during the establishment period. Maintenance activities are explained further below. A temporary staging area would also be established to house an approximately 8-foot by 16-foot storage container, a portable toilet, and a wash station at each site.



SOURCE: DigitalGlobe, 2018; NHC, 2020; USACE, 2021; ESA, 2021

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Figure 2-22
 Rossmoor West Mitigation Site



SOURCE: DigitalGlobe, 2018; NHC, 2020; USACE, 2021; ESA, 2021

ARCF 2016 American River Contract 2

Figure 2-23
Rossmoor East Mitigation Site

Planting Site Elements

Site Preparation

Each site would be cleared of existing grasses and nonnative vegetation. Existing native trees, shrubs, and listed species would be protected in place with construction fencing. Existing site grasses would be trimmed with handheld weed-eaters. Invasive plant species would be removed by hand and disposed off-site. The site (excluding the firebreak) would be ripped to 18 inches with a dozer and disked until the soil is friable and conducive to support native grass germination. The site would be graded to meet adjacent grades and provide proper drainage, then broadcast or drop seeded and sowed with a cultipacker. The area would then be mulched and tackified, and erosion control material would be applied throughout.

Irrigation

Rossmoor East

A temporary irrigation system would be installed for the establishment and maintenance period of the transplants and associative plant material. An irrigation mainline will be installed to pump water from the river edge or from a domestic water source. Water would be applied by drip or spray irrigation. The irrigation system may be partially or entirely removed for seasonal high-water flows. The pump system and fish screen would conform to the anadromous salmonid passage facility design criteria⁸ issued by NMFS in July 2011.⁹

Rossmoor West

A temporary irrigation system will be installed for the establishment and maintenance period of the transplants and associative plant material. The system will either be connected to a domestic water source or a new well will be drilled. If a well is drilled temporary access will be required to connect to a nearby power source. Connecting to a nearby domestic water source will also require temporary access. Because VELB critical habitat occurs between the Rossmoor West mitigation site and the river, additional consultation with the USFWS would be required to obtain temporary access through critical habitat for pumping water from the river. Thus, pumping from the river is not currently an option.

Fencing and Fire Breaks

A temporary 8-foot-high fence may be installed at the perimeter boundary of the project 15 feet off access roads and trails. If installed, the fence posts would be installed 2 feet deep in the native soil without concrete. Fencing would be left in place for approximately 3 growing seasons (years) or until planted trees or shrubs are above the browse line,

⁸ Perforated plate: Circular or square openings shall not exceed 3/32 inch (2.38 millimeters [mm]), measured on a side. Slotted or rectangular screen face openings must not exceed 1.75 mm (approximately 1/16 inch) in the narrow direction. Screen material shall provide a minimum of 27 percent open area. Approach velocity must not exceed 0.20 ft/s for passive screens.

⁹ National Marine Fisheries Service. 2011. Anadromous Salmonid Passage Facility Design. Northwest Region, Portland, OR. Available: https://www.dfw.state.or.us/fish/passag/docs/fish_passage_design_criteria.pdf.

following initial plant installation. Fences would be set off the bike paths by 30 feet, 10 feet off access roads, and 5 feet off of existing fencing. A 15-foot-wide cleared and leveled fire break would extend from the fence into the planting area.

Elderberry Transplanting

The transplants and associated plantings would be laid out in rows spaced 15 to 20 feet apart. The rows would be sinuous to make the plantings appear more natural, rather than having the appearance of an orchard. Elderberry transplants would be clustered in groups from 3 to 12 shrubs along the rows, with transplant clusters taking up approximately 20 to 40 percent of the planting area of the site. Clusters would be spaced apart to provide areas for associated plantings of other native plants. All transplanted elderberry shrubs within the Parkway would be planted a minimum of 30 feet from all trails and roads to prevent future maintenance conflicts. Canopy tree plantings would be arranged to maintain sufficient solar access for maintaining sufficient elderberry growth. Transplanting of the shrubs would be in compliance with the 2017 USFWS guidelines.¹⁰

Associative plants seedlings would be planted in prepared holes and backfilled with the native excavated soil and fertilizer per approved planting specifications. A wire mesh gopher cage or similar device would be installed in the hole prior to plant installation. Stakes and guards may be installed on some species to aid growth and deter herbivore browsing. The areas between the planting rows would be seeded by broadcast, drill, or hydroseeding.

Proposed Planting Mix

The planting mix for proposed mitigation sites would include a number of native riparian and upland plants species, which may include valley oak (*Quercus lobata*), boxelder (*Acer negundo*), Fremont cottonwood (*Populus fremontii*), riparian shrubs, and grasses, and would be consistent with agency guidelines for valley elderberry longhorn beetle mitigation¹¹ and the American River Parkway Plan list of approved plants.¹²

Maintenance

Maintenance activities would start immediately following completion of the initial planting. The following activities would be performed throughout the year although some would vary according to weather and season: general clean-up maintenance of the sites would occur throughout the year, clean-up maintenance would generally include picking up trash, vandalism repairs, and the removal of used planting accessories (e.g., bamboo stakes, ties, browse guards). For watering maintenance, crews would connect the pump to

¹⁰ U.S. Fish and Wildlife Service. 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmoceris californicus dimorphus)*. Sacramento, California. 28 pp.

¹¹ U.S. Fish and Wildlife Service. 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmoceris californicus dimorphus)*. Sacramento, CA. Available: https://www.fws.gov/sacramento/documents/VELB_Framework.pdf.

¹² County of Sacramento. 2008. *American River Parkway Plan 2008*, p. 16. Terrestrial Resource Policy 3.2.1 Planning and Community Development Department. Available: https://regionalparks.saccounty.net/Parks/Documents/Parks/ARPP06-021909_sm.pdf.

the irrigation system for each irrigation cycle per the irrigation schedule described in Table 2-3. Crews would weed within the watering basins of the transplants and within an 18-inch radius of each woody and grass associated plant, so nonnative herbaceous growth would not compete for soil moisture per the schedule in Table 2-3. Maintenance crews would mow weeds to below six inches in height during the growing season. Mowing would conform to the schedule in Table 2-3.

2.3.4 Campus Commons Golf Course Reconstruction

Construction of Site 2-3 would use the Campus Commons Golf Course for staging of construction equipment, work area, and haul routes as described previously. In addition, cut bank excavation and grading for Site 2-3 would remove portions of the golf course along the riverbank. See **Figure 2-24** for the design for reconstruction of the golf course. As part of the Proposed Action following completion of construction activities for Site 2-3, the golf course would be restored before reopening for public use. It is anticipated that the golf course would be closed to the public for approximately two years, beginning in November 2021, to accommodate tree and vegetation clearing and construction staging for Site 2-3.

2.3.4.1 Reconstruction Activities

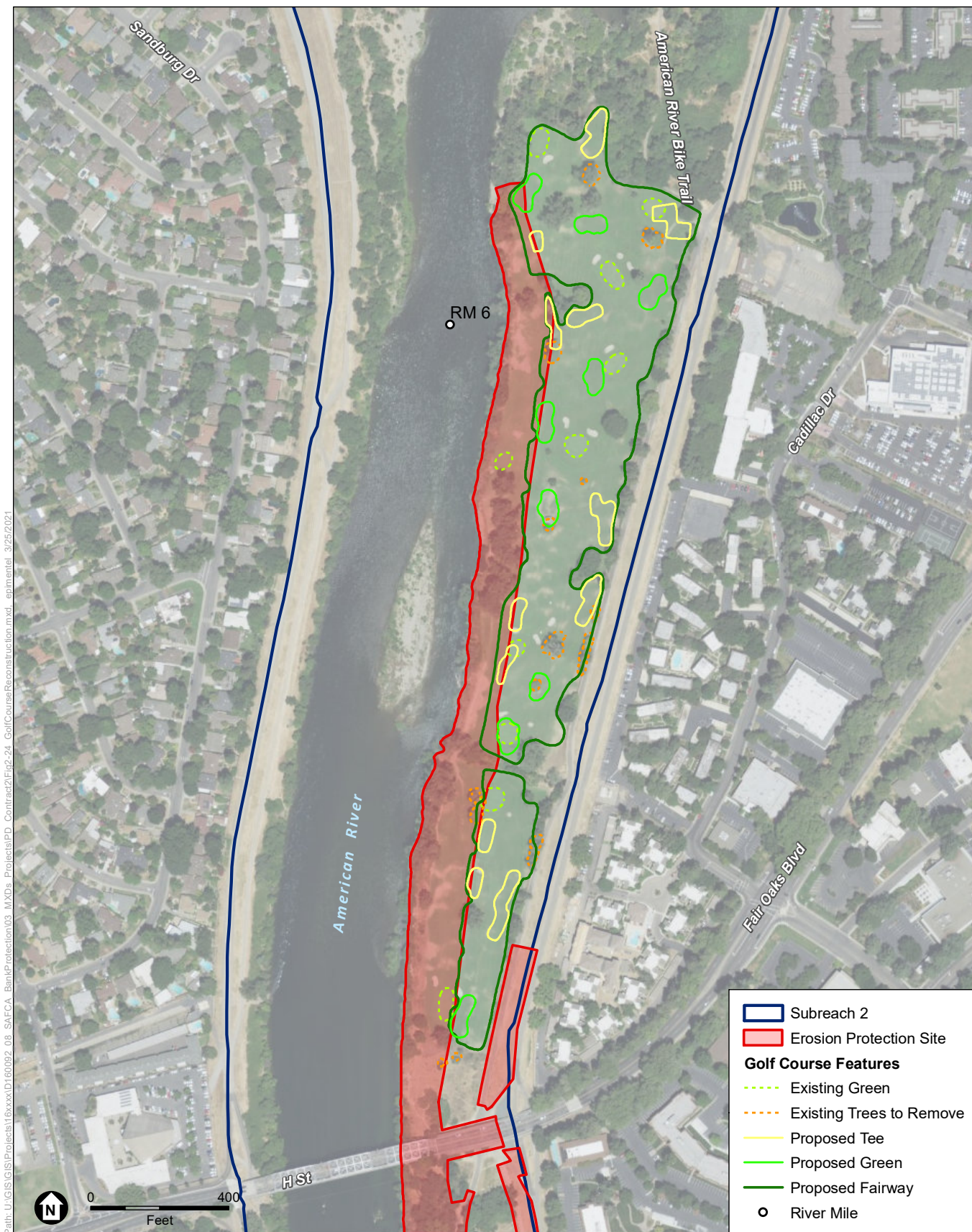
Restoration of the golf course is anticipated to occur in three phases over seven months, beginning in April 2023 and ending in November 2023 (see **Table 2-5**). The three phases of reconstruction would include: (1) rough shaping and grading; (2) construction of golf course facilities including irrigation; and (3) planting of grass, trees and turf. The activities to be undertaken during these phases are described below.

TABLE 2-5
ANTICIPATED PRIMARY GOLF COURSE RESTORATION PHASES IN 2023

April	May	June	July	August	September	October
Rough Shaping and Grading						
Course Construction						
		Grassing and Turf Development				
						Course Open

Rough Shaping and Grading

Approximately 14.6 acres of turf would be roto-tilled, and the site would be graded prior to shaping the features (greens, tees, bunkers, hollows, mounds) for the restored golf course. Approximately 30,000 cubic yards of excavated soil from the construction of the Site 2-3 erosion protection would be used to help build the new features of the golf course.



SOURCE: USDA, 2018; NHC, 2021; ESA 2021

ARCF 2016 American River Contract 2

Figure 2-24
Golf Course Reconstruction Work Areas

Prior to grading, existing electrical lines and irrigation systems would be removed. In addition, approximately 19 trees would be removed. **Table 2-6** lists the tree species and the diameter at breast height (DBH) of each tree to be removed. Following completion of the golf course construction, as part of this phase of the restoration, approximately 40 trees from the preferred planting lists established by the County would be planted throughout the course.

**TABLE 2-6
TREES TO BE REMOVED**

Native/Nonnative	Species	Diameter at Breast Height (DBH) (inches)	Number of Trees
Native Tree Species	Boxelder <i>Acer negundo</i>	17, 21, 31, 33, 34	5
	Fremont cottonwood <i>Populus fremontii</i>	61, 68	2
	Northern California black walnut <i>Juglans hindsii</i>	14	1
Subtotal Native Trees			8
Nonnative Tree Species*	Australian pine <i>Casuarina equisetifolia</i>	8, 14, 17, 20, 21, 33	6
	Blue spruce <i>Picea pungens</i>	12	1
	Douglas Fir <i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	32	1
	Japanese privet <i>Ligustrum japonicum</i>	12	1
	Olive <i>Olea europaea</i>	15, 15	2
	Giant sequoia <i>Sequoiadendron giganteum</i>	40, 48, 65	3
Subtotal Nonnative Trees			14
Total All Trees			22

NOTE:

* Nonnative tree species include trees native to California, but not to this region that were planted for ornamental purposes

SOURCE: ESA tree survey, 2019

Golf Course Reconstruction

The reconstruction of the golf course would involve replacement of facilities removed, and the installation of new facilities. The existing foot bridge would be replaced over the drainage channel to allow pedestrians at the golf course to continue to cross the channel. The new bridge would be eight feet wide and capable of bearing 10,000 pounds to accommodate light trucks. A safety net would be installed along the eastern border of the golf course, adjacent to the American River Bike Trail.

Approximately 1,800 cubic yards of sand and 800 cubic yards of pea gravel would be transported to the site from Sacramento area sources to construct greens and fill sand bunkers.

Grass and Turf Development

Restoration of the golf course would include planting drought and heat tolerant Bermuda grass over all parts of the golf course totaling approximately 14.6 acres. After construction is complete, a period of turf development, lasting 2 to 3 months, would be required before the turf is strong enough to withstand daily play.

Other Construction Considerations

Approximately 11 construction workers would be engaged in the reconstruction of the golf course over seven months. Typical equipment anticipated to be used, duration of use is presented in **Table 2-7**. Construction activities would occur up to 6 days a week between the hours of 7 a.m. and 6 p.m. Access for construction workers and material delivery (sand, gravel, pipe, etc.) would be provided via the existing golf course parking lot and follow haul roads established by the general contractor.

**TABLE 2-7
GOLF COURSE CONSTRUCTION ESTIMATED EQUIPMENT AND PERSONNEL UTILIZATION**

Type of Equipment	Max. Number Used per Day	Total Operation Days	Number of Workers
D-5 Dozer	2	50	2
JD 554 Loader	1	60	1
Mini Excavator	2	90	2
Cat 247B Skid Steer	2	90	2
F700 Dump Truck	2	120	2
Sand Pro	1	60	1
50hp 4wd Tractor	2	90	2
Utility Vehicles	6	120	6
Foreman Truck	1	120	1
Total			11

NOTE: Equipment estimate assumes that all mass grading is done by others and that any excess fill soil is already stockpiled on the golf course site.

Please note that not all pieces of equipment would be operational at the same time and that workers may switch equipment that they operate as the need arises.

2.3.5 Other Construction Considerations for Sites 2-2 and 2-3

Site Preparation and Mobilization

Site preparation would begin with trimming and/or removal of trees where construction access and activities would occur. Trees would be removed between November 2021 and

February 2022, before the nesting season of birds (see *Construction Workers and Schedule* section). After these activities, mobilization would include the application of temporary best management practices for the control of off-site stormwater runoff and sedimentation, building temporary access roads, preparing staging areas, rerouting pedestrian and bicycle trails, and installing signage for traffic and alternate transportation routes that would be affected by construction activities (e.g., bicycle routes).

Vegetation clearing could be needed to allow for site access and to accommodate construction activities. Site preparation could also include the removal of submerged instream woody debris and fallen trees within the construction footprint. A turbidity curtain or other minimization measures approved by NMFS and USFWS would be installed prior to any in-water work conducted on the waterside of the levee. The work limits and staging areas would be fenced with orange construction fencing to protect sensitive habitat and to identify disturbance area limits. In addition, 6-foot tall temporary chain-link security fencing would be installed around staging areas and along the access routes within the sites.

Site Access, Haul Routes, and Staging Areas

Haul routes for riprap, bedding, gravel, soil, and IWM would be from either Interstate 80 (I-80) to the north or from U.S. Highway 50 (U.S. 50) to the south. The neighborhoods along the routes would be notified of haul routes, ingress and egress points, staging areas, detours, lane closures (if any), and closed recreational areas (including bike paths) approximately one week prior to commencement of construction activities.

As depicted on **Figure 2-25**, haul trucks would travel to the staging areas using different haul routes for either Site 2-2 or 2-3. Haul trucks would travel along the lower levee road and bicycle trail except where in located where trucks need to enter or exit the sites. Bicycle traffic would be diverted entirely to the top levee road during the construction season. Internal transfer dump trucks would utilize the top of the levee and the levee toe road to move material from the staging areas where needed within Sites 2-2 or 2-3. In addition, approximately 129,800 cy of soil removed during the cut bank excavation and grading would be hauled off site to the Arden Pond Mitigation Site (see description below) and 233,500 cy to other soil stockpile locations within a 10-mile distance of Site 2-3. The stockpiles would be located on a site or sites that are disturbed and void of any sensitive resources on or adjacent to the sites. See **Figure 2-26** for haul routes to transport soil from Site 2-3.

Construction Materials and Equipment

Construction materials are shown in **Table 2-8**, below. Sources of riprap would come from quarries located between 38 to 73 miles away. Planting bench soil would come from on-site soil excavated for the site repair designs. Finally, IWM would come from sources within a 100-mile distance from the sites.

**TABLE 2-8
CONSTRUCTION MATERIAL VOLUMES**

Site	Material	Quantity
2-2	Riprap	17,200 cubic yards (cy)
	Planting bench soil	12,500 cy
	IWM	80 trees
2-3	Riprap	88,201 cy
	Planting bench soil	11,000 cy
	IWM	240 trees

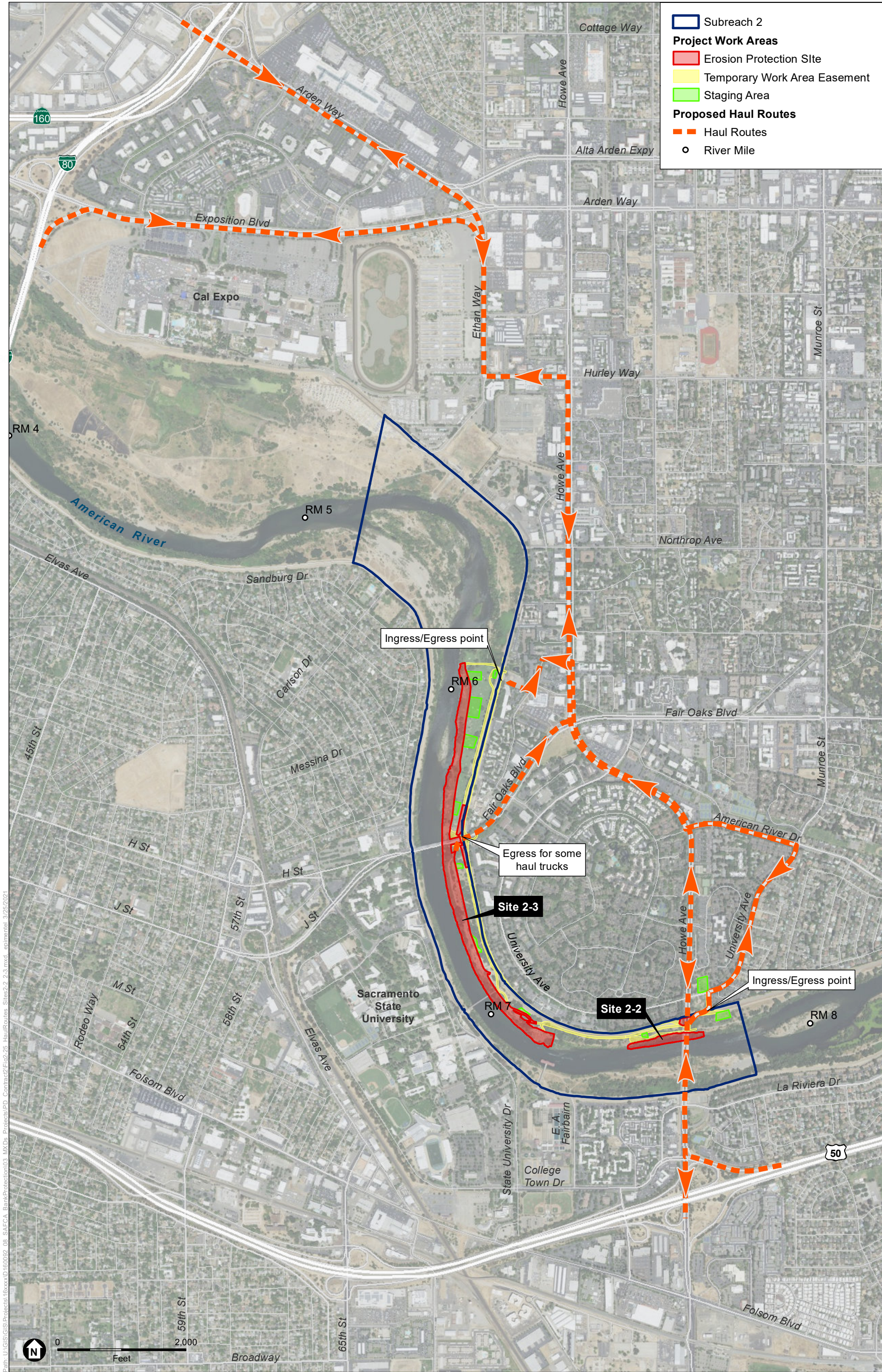
Construction equipment required for the construction of Sites 2-2 and 2-3 is shown in **Table 2-9**, below. Haul trucks are expected to be 32 cy in capacity to bring in riprap from quarries. At a minimum, 90 percent of all heavy-duty off-road construction equipment of 50 horsepower or greater would meet EPA Tier 4 standards. No EPA Tier 0 engines would be used. All haul trucks would have 2010 or newer engines.

**TABLE 2-9
CONSTRUCTION EQUIPMENT AND PERSONNEL UTILIZATION**

Type of Equipment	Max. Number Used per Day	Total Operation Days	Number of Workers
Excavator	20	80	50
Dozer	1	60	1
Front End Loader	8	80	8
Roller or grader	1	60	1
Dump Truck	82	80	82
Transfer Dump Truck	60	80	60
Flatbed Truck	1	60	1
4" pump	4	60	
Water truck	1	80	1
Total			204

Construction Workers and Schedule

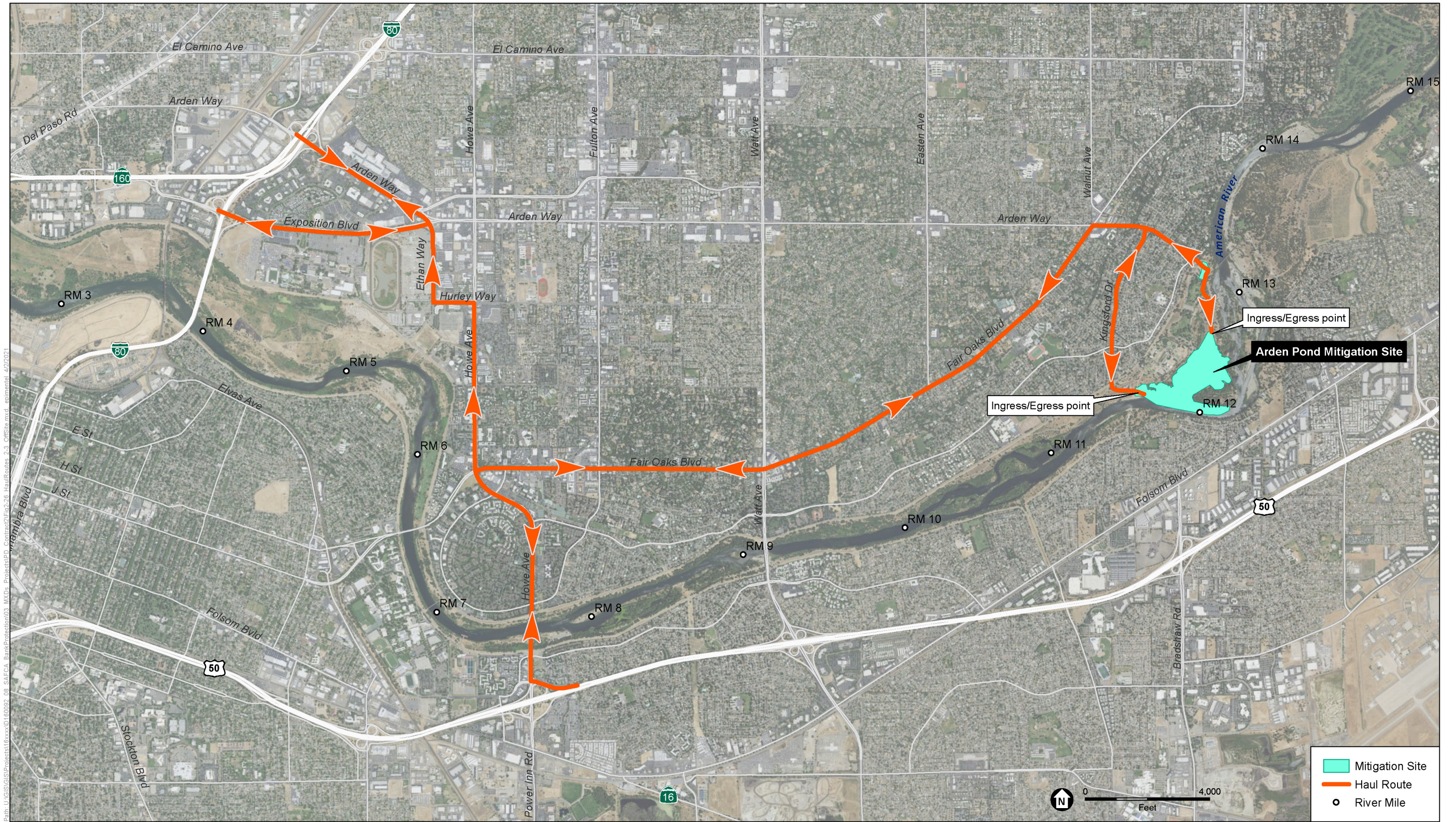
All workers would access the site by regional and local roadways. Construction hours would comply with City of Sacramento's noise ordinance and would be Monday through Saturday from 7:00 a.m. to 6:00 p.m. and Sundays from 9:00 a.m. to 6:00 p.m. No work or hauling would take place on holidays without permission given by the City of Sacramento. Construction is anticipated to occur over approximately 1.5 years. Construction is expected to begin with removal of trees and shrubs beginning as early as November 2021. Mobilization of construction equipment, site preparation, and construction would begin as early as May 2022 and should take approximately 7 months



SOURCE: USDA, 2018; NHC, 2021; ESA, 2021

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Figure 2-25
Haul Routes



SOURCE: DigitalGlobe, 2018; NHC, 2021; USACE, 2021; HDR, 2021; ESA, 2021

ARCF 2016 American River Contract 2

Figure 2-26
Site 2-3 Excavated Soil Haul Routes

to complete, with the last 6 months of post-construction related work (e.g., plantings, irrigation, stormwater control monitoring). **Table 2-10** provides anticipated activities and durations for major work phases at Sites 2-2 and 2-3, the Arden Pond Mitigation Site, and the Rossmoor East and West Mitigation Sites. However, this schedule may need to be extended if flood flows in spring and summer 2022 and/or 2023 limit site access to construction equipment.

TABLE 2-10
ANTICIPATED PRIMARY CONSTRUCTION PHASES

Nov 2021– Feb 2022	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec 2022 to Summer 2023
Tree removal and pruning								
	Primary Earthwork; Delivery and Export of Haul Materials							
							Install Rock Under Bridge; Planting; Fine Grading	
								Planting; Monitoring/ Maintenance

NOTES:

- 1 Tree removal in January and February may be limited or determined to be infeasible due to high water levels near desired planting bench and toe protection areas.

SOURCE: NHC, 2020.

Demobilization and Cleanup

Any staging area would be restored to original pre-existing contour and condition or as agreed to by the property owner. To avoid erosion, staging areas would be hydro-seeded and layered with wood mulch to prevent encroachment of invasive species. Any roads or other access areas damaged by construction would be repaired and restored to prior condition. All trash, excess construction materials, and construction equipment would be removed. Impacts to riparian habitat would be avoided to the extent feasible. Any unavoidable impact to riparian habitat would be mitigated off-site at ratios described in Chapter 3.

2.3.6 Public Safety

The design of Sites 2-2 and 2-3 would meet the USACE EP 1110-2-18 design specifications and would not require a vegetation variance. The bench widths at both sites would provide the required 15--foot vegetation free zone along the waterside of the levee toe to provide access to emergency and maintenance vehicles. The levee roads would also be maintained after construction to provide continued access for operations and maintenance. Placed rock supporting the planting benches would be at slopes of 2H:1V or flatter reducing the potential for pedestrians to become trapped and reduce fall hazards. The design of the IWM along the channel bottom and along the natural vegetation at the

bank toe would be located on the planting bench spaced apart as described previously. The design of the planting bench would allow for natural alcoves to form without IWM remaining on the planting bench and not extending into the waterway. This design would prevent recreationists from getting caught on the IWM and would allow shore access within the alcoves, as described previously. The IWM would be at a depth and velocity where recreational users of the river can wade out and around the IWM at typical recreational flows in the river.

2.3.7 Operations and Maintenance

Once construction is complete and the performance standards have been met and habitat has successfully established, the non-Federal sponsor (the CVFPB) and SAFCA would be responsible for the operations and maintenance (O&M) of Sites 2-2 and 2-3, the Arden Pond Mitigation Site, the Rossmoor Mitigation Sites, and all land used for staging areas would return to original ownership. However, the responsibility for the O&M for the levee and revetment features would be turned over to the LMA (American River Flood Control District (ARFCD)) and the on- and off-site mitigation features would specifically fall to SAFCA for long-term O&M. Regular O&M activities by the LMA would consist of inspections, weed abatement, removal of encroachments and high-hazard vegetation to ensure levee integrity, replacement and re-working of displaced or launched revetment following large flood events, and adequate levee access along the levee toe road. The levee maintenance roads would be used, as they are currently used, to access the length of the levee during these activities and during high-flow events for flood-fighting purposes. O&M activities would not require heavier or noisier equipment than under current conditions. O&M inspections would consist of a patrol vehicle traveling along the levee and small machinery for weed abatement such as mowers and weed whackers/trimmers. These activities would only occur periodically, as under existing conditions. O&M activities would not introduce new land uses into the area.

CHAPTER 3

Affected Environment and Environmental Consequences

3.1 Introduction

3.1.1 Approach to the Analysis

For the purposes of NEPA, the assessment of potential effects takes into consideration the significance of the Proposed Action in terms of its context and its intensity (40 CFR 1508.27). To assist in the evaluation of context, USACE has determined that the affected region is the Project Area, which includes the American River Parkway, staging areas, levee improvement sites, the Campus Commons Golf Course, habitat mitigation sites and construction haul routes. Intensity refers to the severity of the potential effect. The intensity of the potential effects for each resource topic is addressed under the “Impact Analysis” subsection for each resource topic discussed in the following sections of this chapter, starting with Section 3.2.

Each resource topic presented in this chapter includes a summary of the regulatory setting, environmental setting, methodology, and the basis of significance conclusions for environmental effects. Supplemental information on existing environmental and regulatory settings is presented when needed to provide the context for the impact analysis and/or update the information, as relevant. The basis for determining the significance of impacts is presented, based on the criteria used in the ARCF GRR FEIS/FEIR analysis. After publication of the ARCF GRR FEIS/FEIR, changes were made to Appendix G of the CEQA Guidelines (effective December 2018) that reflected changes to the CEQA statute and related court decisions. To the extent that the topics or questions in the revised Appendix G are not reflected in the ARCF GRR FEIS/FEIR significance criteria, these topics and questions have been taken into consideration in the impact analysis.

For impacts associated with implementation of the Proposed Action, mitigation measures included in the ARCF GRR FEIS/FEIR and previously adopted are incorporated into the Proposed Action to reduce the level of significance of the impact. Where an impact of the Proposed Action is determined to require additional mitigation beyond the ARCF GRR FEIS/FEIR mitigation measures, new or modified ARCF GRR FEIS/FEIR mitigation measures are recommended.

3.1.2 Resource Topics Not Discussed in Detail

Some resource topics were eliminated from further analysis in this Supplemental EIS/EIR, because effects of the Proposed Action are negligible, or the project refinements described in the Proposed Action would not create additional impacts on these resources beyond the scope of those evaluated in the ARCF GRR FEIS/FEIR. These resource topics are land use, mineral resources, geology, and socioeconomics, populations, and environmental justice.

3.2 Visual Resources

3.2.1 Environmental Setting

3.2.1.1 Regulatory Setting

Chapter 5 of the ARCF GRR FEIS/FEIR described the status of compliance with the Wild and Scenic Rivers Act in detail, which applies to the aesthetic value of the American River, including visual resources.

3.2.1.2 Existing Conditions

The ARCF GRR FEIS/FEIR Section 3.15 (pages 293 through 312) describes the regional and local setting in the vicinity of the Project Area for the Proposed Action. Views in the Project Area were shown in Section 3.15 (pages 295 to 297) of the ARCF GRR FEIS/FEIR and still accurately depict the current views along the American River Parkway at Sites 2-2 and 2-3, the Arden Pond Mitigation Site, and the Rossmoor East and West Mitigation Sites.

The Campus Commons Golf Course is a 9-hole executive length golf course located along the east side of the American River north of Site 2-3 (see Figure 2-21 in Chapter 2, *Alternatives*). The course is characterized visually by manicured turf that comprises the course's fairways and greens, various sand-filled bunkers, and numerous mature trees. The course is visible to users of the American River Parkway and from residential areas, including River Park and Campus Commons.

Portions of haul routes for construction of the Proposed Action include urbanized areas, passing through the neighborhoods of Arden Arcade, Sierra Oaks, Campus Commons, and Arden Town. The views within the residential areas are considered to be of high visual quality and are primarily traveled by local residents, commuters, students, and recreationists.

3.2.2 Methodology and Basis of Significance

3.2.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.15.2 (page 305) of the ARCF GRR FEIS/FEIR. Evaluation of the project's potential impacts on visual resources was based on a review of scenic vistas and landscapes that could be affected by project-related activities. Visual contrasts were examined, which included evaluations of changes in form, size, colors, project dominance, view blockage, and duration of impacts. Other elements such as natural screening by vegetation or landforms, placement of project components in relation to existing structures, and likely viewer groups were also considered.

3.2.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.15.2 (page 305) of the ARCF GRR FEIS/FEIR, as restated below.

The Proposed Action would result in a significant effect related to visual resources if it 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;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines were adopted that consider the direct, indirect, or cumulative effects of degrading the visual character of a site. As a result, this analysis also takes into consideration the following additional or modified significance criterion:

- Substantially degrade the existing visual character or quality of public views of the site and its surroundings. Public views are those that are experienced from publicly accessible vantage points.

3.2.3 Impact Analysis

3.2.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would experience no change in the

level of risk of flooding due to levee failure because of seepage, slope stability, overtopping, or other erosion concerns.

Under these conditions, a flood event could cause portions of the levees to fail, triggering widespread flooding and related damage. If a catastrophic flood were to occur, vegetation and heavy erosion of soil along the American River Parkway would be lost. Flood fight activities would occur during a high flow emergency response resulting in emergency response with heavy-duty construction equipment in more areas than the Proposed Action. Flood fighting would result in the placement of large volumes of rock along the river banks to stop erosion and prevent further levee failure. The placement of rock would prevent or impede future growth of trees and vegetation on the levee slopes. All these effects on visual resources would be considered significant. However, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore a precise significance determination cannot be made.

3.2.3.2 Proposed Action

The ARCF GRR FEIS/FEIR Section 3.15 (pages 293 through 313) analyzed the impacts on visual resources for approximately 11 miles along the American River Parkway, including the Project Area. The analysis of impacts on visual resources from improvements included in the Proposed Action would be the same as identified in the ARCF GRR FEIS/FEIR for the following:

1. Construction activities would result in short-term significant and unavoidable impacts on the visual character of the American River Parkway.
2. Loss of vegetation due to removal and construction of levee improvements would result in significant and unavoidable short-term effects on visual resources of the mature vegetation, but a less-than-significant long-term impact with mitigation, once new vegetation has been established.
3. Areas along the levee that could erode would expose launchable rock which would result in a long-term adverse impact on visual resources to users within the American River Parkway (i.e., at the levee portion with the launchable rock trench).

As described in Chapter 2, *Alternatives*, the Proposed Action would include levee improvements at Sites 2-2 and 2-3, reconstruction of the Campus Commons Golf Course (to compensate for adverse effects from construction at Site 2-3), and development of three mitigation sites within the Parkway to provide for the mitigation of impacts to biological resources in the LAR. An overview of the locations of these elements of the Proposed Action are shown on Figure 2-3, in Chapter 2, *Alternatives*.

The levee improvements at Sites 2-2 and 2-3 would occur on the water side of the levee in the American River Parkway and mostly out of view from the neighboring urbanized land uses on either side of the American River. Some of the staging areas would also be located out of view from residents or commuters on the land side of the levees. However, construction of Site 2-3 would use the Campus Commons Golf Course for staging of

construction equipment and work areas, which would require the removal of portions of the golf course along the riverbank and the removal of approximately 19 trees. As part of the Proposed Action, following completion of construction activities for Site 2-3, the golf course would be restored before reopening for public use. Following completion of the golf course construction, approximately 40 trees from the preferred planting lists established by Sacramento County would be planted throughout the course, which would help to restore and improve the visual quality. However, construction at Sites 2-2 and 2-3 would result in short-term temporary impacts to views of the banks of the river while newly planted vegetation and trees mature.

In addition, some of the staging areas for Site 2-2 would be in an open space north of the American River Parkway and immediately east of Howe Avenue adjacent to the University Dog Park. These staging areas would be within view of residents in the adjacent portions of the Sierra Oaks neighborhood and users of the dog park during the construction period but would not comprise a permanent adverse visual impact.

Construction of the Arden Pond Mitigation Site would involve placement of approximately 330,000 cubic yards of soil into the site, which currently includes a pond that serves as a recreational attraction for fishing and river sport activities. The final grading plan would include berms within the site that would be designed to support riparian trees and shaded riverine aquatic habitat. New shaded riverine aquatic habitat and riparian vegetation would be created along the berm shorelines, which would improve the visual quality along this portion of the American River over time, and would only result in a short-term temporary significant impact on the views with the Parkway.

The Proposed Action would incorporate more areas of plantings and design features than analyzed in the ARCF GRR FEIS/FEIR. These additional planting areas would reduce the intensity of erosion and launchable rock impacts on visual resources by providing design elements that would help to lessen extreme erosion events and protect newly planted vegetation maturing along the banks of the levee. In addition, under the Proposed Action, USACE would plant additional elderberry plants and plants suitable for shaded riverine aquatic habitat within the Parkway to mitigate for effects of construction on these habitats. The plantings within the American River Parkway at the Rossmoor West and East Mitigation Sites would result in an increase in vegetation that would improve the visual quality along the American River.

Portions of haul routes for construction of the Proposed Action would include urbanized areas where residents, commuters, and workers along the residential roadways would experience views of construction and worker vehicles associated with the Proposed Action. The views within the residential areas are of high visual quality and are primarily traveled by local residents, commuters, students, and recreationists. However, views of construction and worker vehicles associated with the Proposed Action would be limited to the construction period and would not result in a substantial adverse visual impact.

During construction of the Proposed Action, staging areas would have lighting to ensure the security of construction equipment and stored materials, creating new sources of nighttime light that would be visible by neighboring residences and vehicles passing near the staging areas. Some of this lighting could potentially illuminate adjacent residences. This would result in a short-term temporary significant impact. However, Mitigation Measure VIS-1 would reduce the impact of nighttime light to a less-than-significant level (see below).

ARCF GRR FEIS/FEIR Mitigation Measures

The following summarizes ARCF GRR FEIS/FEIR mitigation measures (pages 311 to 312) that are incorporated into the Proposed Action:

- Trees would be planted along the outer portion of the rock trench where there is sufficient space (Mitigation Measures VEG-1 and SRA-1).
- Additional trees would be planted at other areas in the Parkway according to the Parkway Plan in the site to mitigate for the removal of the trees (Mitigation Measures VEG-2 and SRA-1).

Summary

The ARCF GRR FEIS/FEIR concluded that short-term impacts on visual resources associated with construction within the American River Parkway would be significant and unavoidable. However, the ARCF GRR FEIS/FEIR determined that mitigation measures would reduce potential permanent impacts on visual resources to a less-than-significant level because once vegetation has fully developed, the visual quality of the Project Area would be similar to existing conditions. Construction of the Proposed Action would result in no new or more severe short-term visual impacts than those addressed in the ARCF GRR FEIS/FEIR and, therefore, those construction-related short-term visual impacts are already adequately addressed in the ARCF GRR FEIS/FEIR.

However, the ARCF GRR FEIS/FEIR did not consider the use of nighttime lighting for staging areas, and, therefore, there would be a short-term temporary significant impact. Implementation of the following new mitigation measure would reduce impacts from the use of nighttime light under the Proposed Action to a less-than-significant level.

Additional Mitigation Measure for the Proposed Action

Implementation of additional Mitigation Measure VIS-1 would reduce impacts of new sources of nighttime lighting installed for security at the staging areas to a less-than-significant level.

Mitigation Measure VIS-1: Shield Temporary Nighttime Lighting. USACE would require its construction contractors to ensure that all temporary lighting used for security of the staging areas is shielded or directed to avoid or minimize any direct illumination onto light-sensitive receptors located outside of the Project Area.

3.3 Hydrology and Water Quality

3.3.1 Environmental Setting

3.3.1.1 Regulatory Setting

Sections 3.4 and 3.5 of the ARCF GRR FEIS/FEIR (pages 81 and 96, respectively) identified Federal or State environmental laws and regulations that apply to regulating hydrology and water quality. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the ARCF Project and described the status of compliance with those laws and regulations.

3.3.1.2 Existing Conditions

Section 3.4 (pages 81 through 95) and Section 3.5 (pages 95 through 108) of the ARCF GRR FEIS/FEIR describe the regional and local setting in the vicinity of the Project Area. The following provides additional information specific to the Project Area not previously described.

The Project Area is in the Sacramento Hydrologic Basin Planning Area and Lower American Hydrologic Subarea, as designated by the Central Valley Regional Water Quality Control Board (RWQCB). Water quality standards for this basin are contained in the *Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin* (Basin Plan) per Section 303 of the Clean Water Act. The Lower American River is listed as impaired for mercury, polychlorinated biphenyls (PCBs), toxicity, bifenthrin (a pesticide), pyrethroids (pesticides) and indicator bacteria.¹³ The California Department of Water Resources (DWR) defines the Project Area as within the South American Subbasin (5-021.65).¹⁴ This basin is designated as a High Priority basin under DWR's Sustainable Groundwater Management Act¹⁵ for the purposes of meeting the groundwater sustainability goals of the State.

3.3.2 Methodology and Basis of Significance

3.3.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.4 (page 90) and Section 3.5 (page 101) of the ARCF GRR FEIS/FEIR. The analysis evaluates the potential flood-related impacts of the Proposed Action on water surface elevations in the American River and potential water quality impacts that could result from project construction activities and operations based on the construction practices and materials

¹³ State Water Resources Control Board. 2021. *2014-2016 303(d) List of Impaired Waters*. https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/#intrpt2014_2016. Accessed January 2021.

¹⁴ California Department of Water Resources. 2016. *Bulletin 118—Interim Update 2016*. <https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118>. Accessed January 2021.

¹⁵ California Department of Water Resources. 2021. Sustainable Groundwater Management Act, SGMA Basin Prioritization Dashboard. Available: <https://gis.water.ca.gov/app/bp-dashboard/final/>. Accessed January 22, 2021.

that would be used, the location and duration of the activities, regulatory requirements related to water quality, and the potential for degradation of water quality or beneficial uses of Project Area waterways.

The analysis of the ARCF GRR FEIS/FEIR was supplemented with an analysis by Northwest Hydraulic Consultants of the effect of construction of Site 2-1 on flood water surface elevation at a 160,000 cfs flow. Site 2-1 is a levee erosion protection project that was previously analyzed and approved in the *Final Supplemental Environmental Assessment/Environmental Impact Report for the American River Watershed Common Features, Water Resources Development Act of 2016, American River Contract 1*. Northwest Hydraulic Consultants also provided an updated engineering analysis of the proposed bank protection designs at Site 2-2 and 2-3 that is considered in this document.¹⁶ The report includes a description of the site conditions, repair measure selections, design criteria, assumptions, methods, and modeling results used for the project design.

Hydraulic impacts of the design of Sites 2-2 and 2-3 were evaluated by comparing model runs of existing and Proposed Action conditions in a calibrated two-dimensional depth-averaged hydrodynamic model referred to as the LAR HEC-RAS2D model. The LAR HEC-RAS2D model extends from the confluence of the Sacramento River upstream to the top of the leveed reach (about 13 miles). The model is based on topographic and bathymetric data collected in spring 2017, and the existing conditions model was calibrated to the 2017 flow event. The model calibration was also verified with comparisons to the 1997 and 1986 flow events.¹⁷ Modeled effects to water surface elevations were made assuming construction of the 100% design for Site 2-1 and the 65% design of Sites 2-2 and 2-3 over existing conditions for discharges of 115,000 cfs, 160,000 cfs, and 192,000 cfs.¹⁸ The 192,000 cfs flow event represents the incipient overtopping flow on the LAR that would result in water surface elevations at the top of the levees. This flow event is used to inform risk assessments needed to meet USACE Engineering Construction Bulletin 2019-15. All designs and analyses were completed in accordance with USACE Engineering Manuals and Reports.¹⁹

3.3.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.4 (page 92) and Section 3.5 (page 102) of the ARCF GRR FEIS/FEIR, as restated below.

¹⁶ Northwest Hydraulic Consultants, 2020. Design Documentation Report, November 27, 2020.

¹⁷ cbec. 2019. LAR Current Conditions DEM and 2D Model Development Project. Flood Flow Hydrodynamic Modeling Report. Prepared for SAFCA. March 2019.

¹⁸ Northwest Hydraulic Consultants, 2020. Design Documentation Report, November 27, 2020.

¹⁹ Northwest Hydraulic Consultants, 2020. Design Documentation Report, November 27, 2020.

The Proposed Action would result in a significant effect related to hydrology and water quality if it would:

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner that would result in:
 - (1) Substantial erosion or siltation on- or off-site, or
 - (2) Substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Place housing within a 100-year flood hazard area;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury, or death involving flooding;
- Violate water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with ground water recharge;
- Substantially degrade water quality; or
- Alter regional or local flows resulting in substantial increases in erosion or sedimentation.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines were adopted that include the following additional or modified significance criteria:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
 - Result in substantial erosion or siltation on- or off-site;

- Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
- Impede or redirect flood flows.
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Effects Not Evaluated Further

As described in the ARCF GRR FEIS/FEIR, groundwater is not likely to be encountered during excavation or trenching, based on the 2013 Groundwater Update for the California Water Plan which states that groundwater could be as deep as 90 feet below ground surface, which is well-below proposed construction activities. Further, any water that would be encountered during construction activities would be directly connected to water in the American River and not the underlying groundwater basin. Because groundwater is not likely to be encountered and would not be used as a source of water supply, the Proposed Action would not cause a substantial decrease in groundwater supplies. Furthermore, the Proposed Action would not create any new impervious surfaces, other than replacement segments of existing surfaces (i.e., American River Parkway), that would interfere with groundwater recharge, or impede sustainable groundwater management, or increase runoff over existing conditions.

The Project Area is inland and not mapped in an area where tsunami or seiche are likely to occur,²⁰ therefore no further evaluation is necessary.

3.3.3 Impact Analysis

3.3.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would experience no change in the level of risk of flooding due to levee failure because of seepage, slope stability, overtopping, or other erosion concerns.

Under these conditions, a flood event could cause portions of the levees to fail, triggering widespread flooding and related damage. If a catastrophic flood were to occur, emergency flood fighting and clean-up efforts would be undertaken to control further

²⁰ California Geological Survey Department of Conservation, 2021.
<https://www.conservation.ca.gov/cgs/tsunami/maps>. Accessed January 22, 2021.

erosion and loss of the levee system. Timing and duration of control would correlate with other emergency flood fighting needs, but it is foreseeable that the release of sediment, vegetation, debris from urban dwellings and structure, and hazards and hazardous materials would contribute to exceeding applicable environmental thresholds for hydrology and water quality in the American River and further downstream in the Sacramento River. Depending on the magnitude of a flood, flood fighting could last for weeks or even months. Moreover, due to the unpredictable nature of emergency responses, the application of best management practices to control all erosion and movement of other substances and debris into the American River and other waterways would be infeasible. All of these effects on hydrology and water quality would be considered significant; however, the timing, duration, and magnitude of a flood event is unpredictable, and therefore precise significance determination cannot be made.

3.3.3.2 Proposed Action

Sections 3.4 and 3.5 (pages 81 through 108) of the ARCF GRR FEIS/FEIR analyzed the impacts on Hydrology and Water Quality along 11 miles of the American River, including the areas in and around Sites 2-2 and 2-3. The Arden Pond, Rossmoor West and East Mitigation Sites were not included in the ARCF GRR FEIS/FEIR, therefore, supplemental information applicable to these sites is provided in the analysis below.

Hydrology

The objective of the design of Sites 2-2 and 2-3 is to reduce the risk of a levee failure due to erosion as well as maintain hydraulic capacity. The American River levee system was originally intended to convey a discharge of the 100-year event at 115,000 cfs as directed in the Folsom Dam and Lake Water Control Manual (WCM). After flooding in 1986, an emergency objective release provision of 160,000 cfs (or 200-year event) was added to the WCM. The ARCF Project was modified by the Water Resources Development Act of 1999 to include additional necessary features for the American River so that it could safely convey an emergency release of 160,000 cfs. The ARCF GRR identified further improvements to the system to safely convey 160,000 cfs including addressing erosion concerns.

The ARCF American River Levee Raising Top of Levee Profile Design Documentation Report²¹ completed as part of the WRDA 1999 authorization developed a new design top-of-levee elevation for the 160,000 cfs design flow. The new top of levee provided between 2 and 4 feet of freeboard above the expected 160,000 cfs water surface elevation (i.e., the elevation of water in the river channel relative to the top of levee design). The 160,000 cfs water surface elevation is generally 3–4 feet above the 115,000 cfs water surface elevation. Sections of levee that did not meet the new top of levee profile were raised to the new design top of levee profile. Existing sections of levee that met or exceeded the new profile were not adjusted.

²¹ U.S. Army Corps of Engineers. American River Project Common Features American River Levee Raising Sacramento County, California. Top of Levee Profile Design Documentation Report. May 2007.

The recent addition of the auxiliary spillway structure to Folsom Dam and further updates to the WCM have affected the annual chance exceedance (ACE) of flow events on the LAR. Recent hydrological modeling completed as part of the USACE Central Valley Hydrology Study has provided updated storm hydrographs for storm events of varying ACE values. **Table 3-1** summarizes the peak flow on the LAR for various ACE flow events. The objective release flow of 115,000 cfs during a 100-year event will occur during the 4-percent ACE through the 1-percent ACE hydrologic events, while the 0.5-percent ACE is slightly above the 115,000 cfs release at 117,000 cfs. The 160,000 cfs emergency release has an ACE of about 0.3-percent.

TABLE 3-1
SUMMARY OF ANNUAL CHANCE OF EXCEEDANCE FLOWS AT NIMBUS DAM

Annual Chance of Exceedance	Peak Flow (cfs)
50%	20,500
10%	99,000
4%	115,000
2%	115,000
1%	115,000
0.5%	117,000
0.3%	160,000

Existing (also the No Action/No Project condition) and Proposed Action conditions were simulated for the 115,000 cfs, 160,000 cfs, and 192,000 cfs flow events (see Subsection 3.3.2.1, *Methodology*). The model was run for constant upstream and downstream boundary conditions. The Proposed Action conditions model adjusted the ground elevations within the Sites 2-2 and 2-3 footprints to final design elevations. Hydraulic roughness values were also adjusted to calibrated values for the final conditions at Site 2-1 (i.e., the vegetated bench was assigned a roughness value consistent with calibrated values for nearby vegetated benches). The model was run for conditions consistent with expected immediate post-construction conditions (no established vegetation), and for conditions expected after vegetation matures.

Comparison of existing and Proposed Action conditions shows that construction of the levee improvements at Sites 2-2 and 2-3 as part of the Proposed Action would in general lower water surface elevation levels (WSELs) adjacent to Site 2-3 by 0 to 0.5 feet for the 115,000 cfs flood.²² Near Site 2-2, the decrease is between 0.6 and 0.7 feet; however, there are a few locations where the modeling shows WSEL increases, mainly upstream of H Street, that are less than 0.1 feet. For the 160,000 cfs there is a general decrease in WSEL that ranges between 0 and 0.7 feet near Site 2-3. A small rise in WSEL is seen at an isolated area near the H Street bridge with a maximum increase of 0.2 feet. This rise is reportedly due to changes in local flow patterns from construction of Site 2-1 erosion protection, but is relatively small in scale and isolated, as well as being surrounded by

²² Northwest Hydraulic Consultants, 2020. Design Documentation Report, November 27, 2020.

WSEL decreases, and is located in the channel away from the levee. There are decreases in WSEL near Site 2-2 for the 160,000 cfs flow range between 0.7 and 0.8 feet. For the 192,000 cfs flow events, decreases between 0 and 0.9 feet are observed along Site 2-3. The small rise near the left bank of H Street persists with a maximum rise of 0.2 feet. Other small islands of rises in WSEL are observed downstream of H Street, though they are less than 0.1 foot adjacent to the levee. Near Site 2-2, the decrease in WSEL varies between 0.8 and 0.9 feet.

In the modeled scenario with Site 2-1 improvements but without the proposed improvements to Sites 2-2 and 2-3, a rise in WSELs along the reach during the 115,000, 160,000, and 192,000 cfs flows is observed. Without the mitigating effects of Site 2-3 alone, maximum increases in WSEL of about 0.4, 0.5, and 0.6 feet were observed for the 115,000, 160,000, and 192,000 cfs flows, respectively.

Modeling was also conducted to simulate the interim period immediately following completion of construction of the proposed improvements to Sites 2-2 and 2-3 prior to full establishment of anticipated vegetation growth. The modeling indicates that the lower roughness associated with the first few years of vegetation growth after construction would reduce WSELs in Subreach 2 by about 0.3, 0.4, and 0.5 feet for the 115,000 cfs, 160,000 cfs, and 192,000 cfs flows, and by over a foot at Howe Avenue relative to existing conditions.

As described in Chapter 2, *Alternatives*, the Arden Pond Mitigation Site would include construction of an “S” curve channel with a total length of approximately 2,000 feet running through the site in addition to a side channel extension approximately 1,190 feet in length which extends into the West Mitigation Site. The width of the ‘V’ shape channel, from bank to bank would be approximately 80 feet with a maximum depth of 3 feet. The channel would include erosion protection features along the channel consisting of a 1.5- to 2.1-foot thick rock layer along the channel bottom along the entire width and length of the channel. According to hydraulic modeling conducted for the Arden Pond Mitigation Site, the increase in the WSEL under the 115,000, 160,000, and 192,000 cfs flow scenarios would be below 0.05 feet at the banks of the river. With the combination of the Sacramento Weir widening and the Site 2-3 improvements, the WSEL would be reduced at the Arden Pond Mitigation Site. Therefore, with the lowered WSELs under all three flow scenarios, it is unlikely that the Proposed Action would cause the area of the Federal Emergency Management Agency’s (FEMA’s) high flood risk zone (i.e., 1 percent ACE flood map) to be expanded, and would not conflict with the State of California’s 0.5 percent ACE urban flood protection requirement. Further, hydraulic modeling with Sites 2-1, 2-2, 2-3, and the Arden Pond Mitigation Site combined for the same flow scenarios show that there would be no increase in shear stress or velocities along the banks of the American River that could exacerbate or otherwise impact the integrity of bank structures along the river.²³ The hydraulic impact would be less than

²³ Sacramento District, USACE. 2021. Impact Analysis of Erosion Countermeasures on Lower American River (DRAFT).

significant because people or structures would not be exposed to a significant additional risk of loss, injury, or death involving flooding.

USACE modeled the hydraulic effect of installing the elderberry mitigation sites (i.e., the Rossmoor West and East Mitigation Sites). The increase in water surface elevation at a discharge rates of 115,000, 160,000, and 192,000 cfs was modeled using a 2D HEC-RAS model. No increases in WSEL at the Rossmoor East and West Sites were indicated at 115,000 cfs. At both 160,000 and 192,000 cfs, the rise in WSEL is less than 0.05 feet at the banks of the river. The impact of the water surface rise would be less than significant because people or structures would not be exposed to a significant risk of loss, injury, or death involving flooding.

Water Quality

Construction of the Proposed Action would include ground disturbance activities that could expose soils to increased rates of erosion during storm events that could increase the rate of sedimentation in receiving waters. Sediment input into the river and turbidity caused by sediment-laden runoff or placement of rock in the river could cause a turbidity plume in the water that would affect aquatic organisms, including benthic organisms and fish. Use and storage of equipment could result in the accidental spills of fuel, oil, and other construction equipment related materials that could also be carried in stormwater runoff to receiving waters. As a result, there is the potential for construction activities to adversely affect receiving water quality.

A turbidity curtain and/or other turbidity minimization measures would be installed prior to any in-water work conducted on the waterside of the levee. The work limits and staging areas would be fenced (orange construction fencing) to protect sensitive habitat, and to identify disturbance area limits. Coir or rice straw wattles or other sedimentation reducing measures would be installed where feasible downstream from any ground disturbing activities that have the potential to cause sediment runoff into the river. In addition, during construction at the Arden Pond Mitigation Site, dewatering would occur and water pumped from the pond would be discharged on land for natural settlement of suspended sediment and percolation of water into the ground and/or pumped into settling tanks prior to discharge into the river.

Most of the construction activities would occur during dry summer months and when flows are lowest in the American River, likely July to October. Construction activities with ground-disturbances greater than one acre requires construction contractors to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) and comply with the conditions of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). The construction contractor(s) would be required to obtain a NPDES Construction General Permit from the Central Valley RWQCB detailing construction activities, work areas, storage areas, work schedule, potential for run-on, run-off, and spill prevention measure to be implemented during construction activities.

The SWPPP would describe the construction activities to be conducted, and best management practices (BMPs) that would be implemented to contain spills and prevent discharges of stormwater into waterways, including frequency of inspections and monitoring activities that would be required. BMPs could include but are not limited to straw wattles, geotextile and coir mats, tire wash stations at ingress/egress points to prevent tracking soil off-site onto roadways and entering the municipal stormwater collection system, and sand filter bags at stormwater collection inverts. Potential turbidity effects from landside construction (e.g., vehicle, staging, placement of construction equipment) would be limited to stormwater runoff carrying loose soil from staging areas and construction vehicle access areas. Implementation of the SWPPP would reduce the effect sediment and construction related materials entering the stormwater system to a less-than-significant level. Following construction of the Proposed Action, BMPs would continue to be monitored and repaired/replenished while vegetation matures enough to stabilize surface soil in the Project Area.

In addition, as described in Chapter 2, *Alternatives*, construction of the Arden Pond Mitigation Site would involve placement of approximately 330,000 cubic yards of soil at the site, originating from the cut bank excavation of Site 2-3, excavated material from the Bass Pond, and excavated materials from the West and East Mitigation Sites. Imported soils would require laboratory testing in accordance with Clean Water Act Section 401 permit requirements prior to placement to screen for materials that could adversely affect water quality.

As described above, the construction activities associated with the Proposed Action would not violate water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality or conflict with or obstruct implementation of a water quality control plan. Coordination with the Central Valley RWQCB would occur prior to construction through the Clean Water Act Section 401 water quality certification process to ensure that any appropriate measures would be implemented to protect water quality. Protection measures may include total suspended solids (TSS) or settleable solids tests to ensure the turbidity curtain is meeting water quality requirements or other applicable requirements that will be included in permits. Furthermore, through compliance with the NPDES Construction General Permit conditions would minimize stormwater runoff from affecting water quality. To ensure that stormwater runoff meets the standards of the Central Valley RWQCB Basin Plan for the American River, implementation of the proposed avoidance and minimization measures presented below would reduce impacts from construction of the Proposed Action to a less-than-significant level.

ARCF GRR FEIS/FEIR Mitigation Measures

Minor modifications of the ARCF GRR FEIS/FEIR mitigation measures (pages 106 to 108) are incorporated into the Proposed Action, as follows:

- The low-flow period was generalized, because the duration and timing of the low-flow period is variable from year to year, and earthwork needs to start before the in-

water work window in the NMFS BO (July 1–October 31, with an extension under low-flow conditions to November 15).

- Turbidity monitoring measures were clarified to be compliant with the most recent Basin Plan turbidity objectives.

USACE and the CVFPB would implement the following revised ARCF GRR FEIS/FEIR mitigation measures to reduce temporary, short-term construction effects on water quality in the Project Area:

Mitigation Measure WQ-1: Prepare and Implement a Storm Water Pollution Prevention Plan, Spill Prevention Control and Countermeasures Plan, and Associated Best Management Practices. As part of a turbidity monitoring program, the USACE contractor(s) would monitor turbidity in the adjacent water bodies, where applicable criteria apply, to determine whether turbidity is being affected by construction and to ensure that construction does not result in a rise in turbidity levels above ambient conditions, in accordance with the Central Valley RWQCB Basin Plan turbidity objectives. The monitoring program would be coordinated with the Central Valley RWQCB prior to construction and would be implemented by the construction contractor. The contractor would be required to use BMPs, as described below, to prevent runoff from all construction areas. Environmental commitments included in the project to reduce the potential for impacts on water quality include preparation of the SWPPP, and Spill Prevention Control and Countermeasures Plan (SPCCP).

The following measures would be implemented as part of the SWPPP, as required by the State Water Resources Control Board for any construction activities that disturb more than 1 acre, to limit erosion potential.

- Conduct earthwork during low-flow periods (e.g., approximately May 1 through November 30).
- To the extent possible, stage construction equipment and materials on the landside of the subject levee reaches in areas that have already been disturbed.
- Minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations.
- Install sediment barriers (e.g., silt fences, fiber rolls, and straw bales) around the base of soil stockpiles to intercept runoff and sediment during storm events. If necessary, cover stockpiles with geotextile fabric to provide further protection against wind and water erosion.
- Install sediment barriers on graded or otherwise disturbed slopes as needed to prevent sediment from leaving the project site and entering nearby surface waters.

- Install plant materials to stabilize cut and fill slopes and other disturbed areas once construction is complete. Plant materials could include an erosion control seed mixture or shrub and tree container stock. Temporary structural BMPs, such as sediment barriers, erosion control blankets, mulch, and mulch tackifier, could be installed as needed to stabilize disturbed areas until vegetation becomes established.
- During working hours, the construction activity would not cause the turbidity in the adjacent water body down current from the construction sites to exceed the Basin Plan turbidity objectives. Specifically, where natural turbidity is between 0 and 5 nephelometric turbidity units (NTUs), increases would not exceed 1 NTU; where natural turbidity is between 5 and 50 NTUs, increases would not exceed 20 percent; where natural turbidity is between 50 and 100 NTUs, increases would not exceed 10 NTUs; and where natural turbidity is greater than 100 NTUs, increases would not exceed 10 percent.²⁴ In determining compliance with these limits, appropriate averaging periods could be applied, provided that beneficial uses would be fully protected.
- An SPCCP is intended to prevent any discharge of oil into navigable water or adjoining shorelines. The contractor would develop and implement an SPCCP to minimize the potential for adverse effects from spills of hazardous, toxic, or petroleum substances during construction and operation activities. The SPCCP would be completed before any construction activities begin.
- Implementation of this measure would comply with State and Federal water quality regulations. The SPCCP would describe spill sources and spill pathways in addition to the actions that would be taken in the event of a spill (e.g., an oil spill from engine refueling would be immediately cleaned up with oil absorbents). The SPCCP would outline descriptions of containment facilities and practices such as double-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures, and spill response kits. It would also describe how and when employees are trained in proper handling procedure and spill prevention and response procedures. Release of contaminants into adjacent water bodies could result in significant effects.

Adherence to the environmental commitments and the implementation of the measures described in this section if spills were to occur would reduce or minimize this impact to a less-than-significant level.

Summary

Implementation of the mitigation measures in the ARCF GRR FEIS/FEIR, with the modifications described above, would reduce the impact of the Proposed Action on water quality to a less-than-significant level.

²⁴ California Regional Water Quality Control Board, Central Valley Region, Water Quality Control Plan (Basin Plan), Fifth Edition, Revised May 2018. Available: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf.

3.4 Vegetation and Wildlife

3.4.1 Environmental Setting

3.4.1.1 Regulatory Setting

Chapter 5 of the ARCF GRR FEIS/FEIR summarizes the environmental laws and regulations that apply to the ARCF Project and describes the status of compliance with those laws and regulations. Regulations related to special-status species have changed and are discussed in Section 3.6, *Special Status Species*. There has been no change to the applicable regulations related to Vegetation and Wildlife. Additional detail on the American River Parkway Plan is provided here.

The 2008 American River Parkway Plan is the City and County of Sacramento's management plan for the LAR and was adopted by the City and County of Sacramento, and by the State Legislature through the Urban American River Parkway Preservation Act, Public Resources Code Section 5840. It is a policy document that provides guidance for land use decisions affecting the American River Parkway, specifically for its preservation, use, development, and administration. The Plan's purpose is to ensure preservation of the naturalistic environment while providing limited development to facilitate human enjoyment of the Parkway. The Parkway Plan also acts as the management plan for the Federal and State Wild and Scenic Rivers Acts.

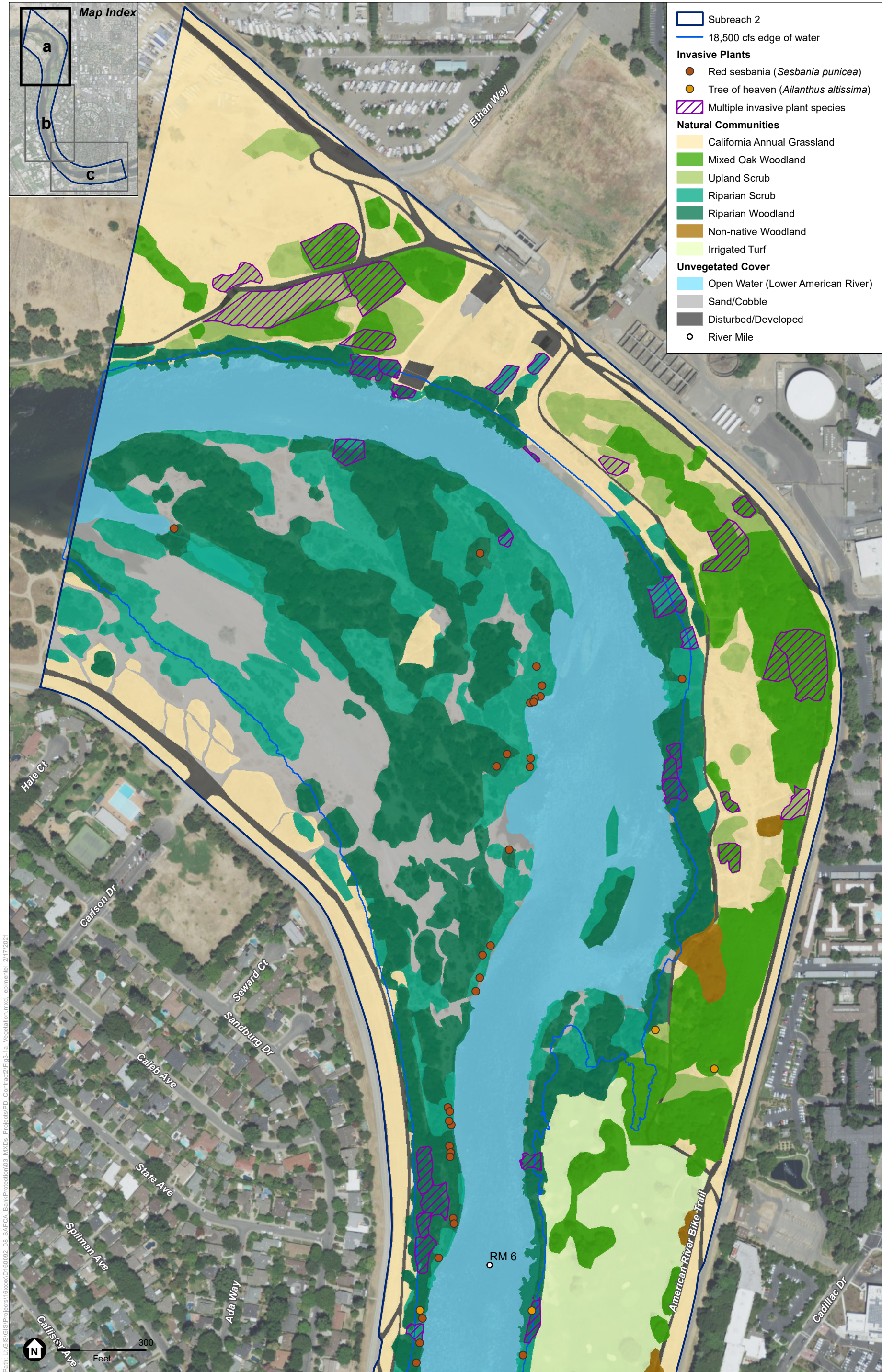
3.4.1.2 Existing Conditions

Section 3.6 (pages 109–116) of the ARCF GRR FEIS/FEIR describes the regional and local setting in the vicinity of Subreaches 1 through 4. Sites 2-2 and 2-3 are located in Subreach 2 and Arden Pond is located in Subreach 4. The following provides additional information specific to the Project Area for vegetation and wildlife for each site.

Field data for vegetation, aquatic resources, and wildlife was collected for the entire Subreach 2, Subreaches 1, 3 and 4 including Arden Pond, and Rossmoor West and East areas (see **Appendices B, C, and D**) and describes existing conditions for vegetation, aquatic resources, and wildlife at Sites 2-2 and 2-3 (including the Campus Commons Golf Course), Arden Pond and Rossmoor West and East.

Habitat Types

The following natural communities (i.e., habitat types) occur in Subreach 2: riverine (open water), annual grassland, mixed oak woodland, non-native woodland, upland scrub, riparian scrub, and riparian woodland (**Figure 3-1a** through **Figure 3-1c**). Non-native woodland is also present. The following natural communities occur in Arden Pond: open water, grassland, native woodland (includes both mixed oak woodland and riparian woodland), non-native herbaceous, non-native woodland, and disturbed/developed (**Figure 3-1d**). The following natural communities occur in Rossmoor West and East sites: grassland and native woodland (**Figure 3-1e**). The distribution of these communities and the common vegetation and wildlife species observed in each are described below.



SOURCE: NHC, 2020; ESA, 2021

ARCF 2016 American Rivert Contract 2

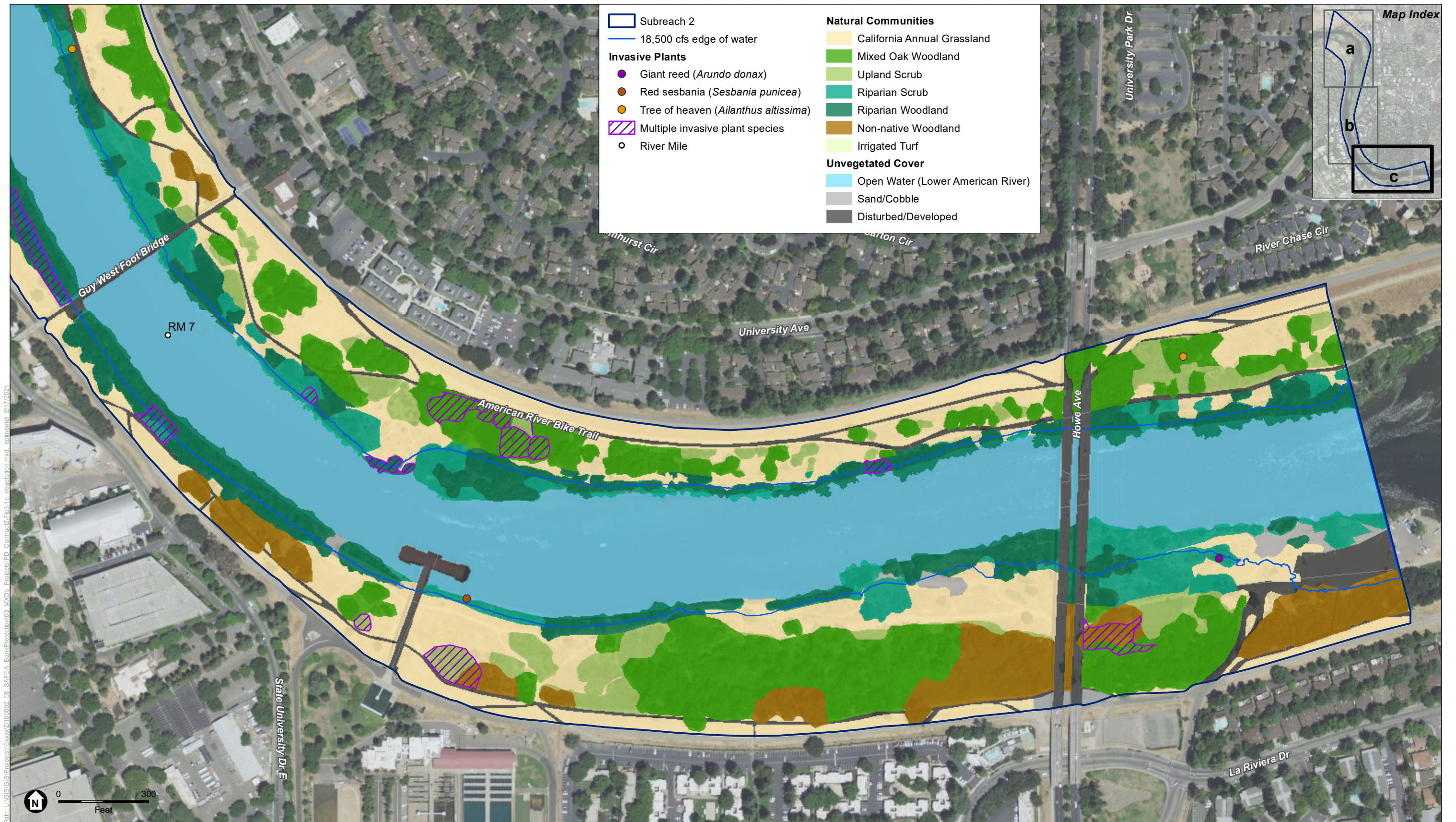
Figure 3-1a
Natural Communities of the Lower
American River Subreach 2



SOURCE: NHC, 2020; ESA, 2021

ARCF 2016 American Rivert Contract 2

Figure 3-1b
Natural Communities of the Lower
American River Subreach 2

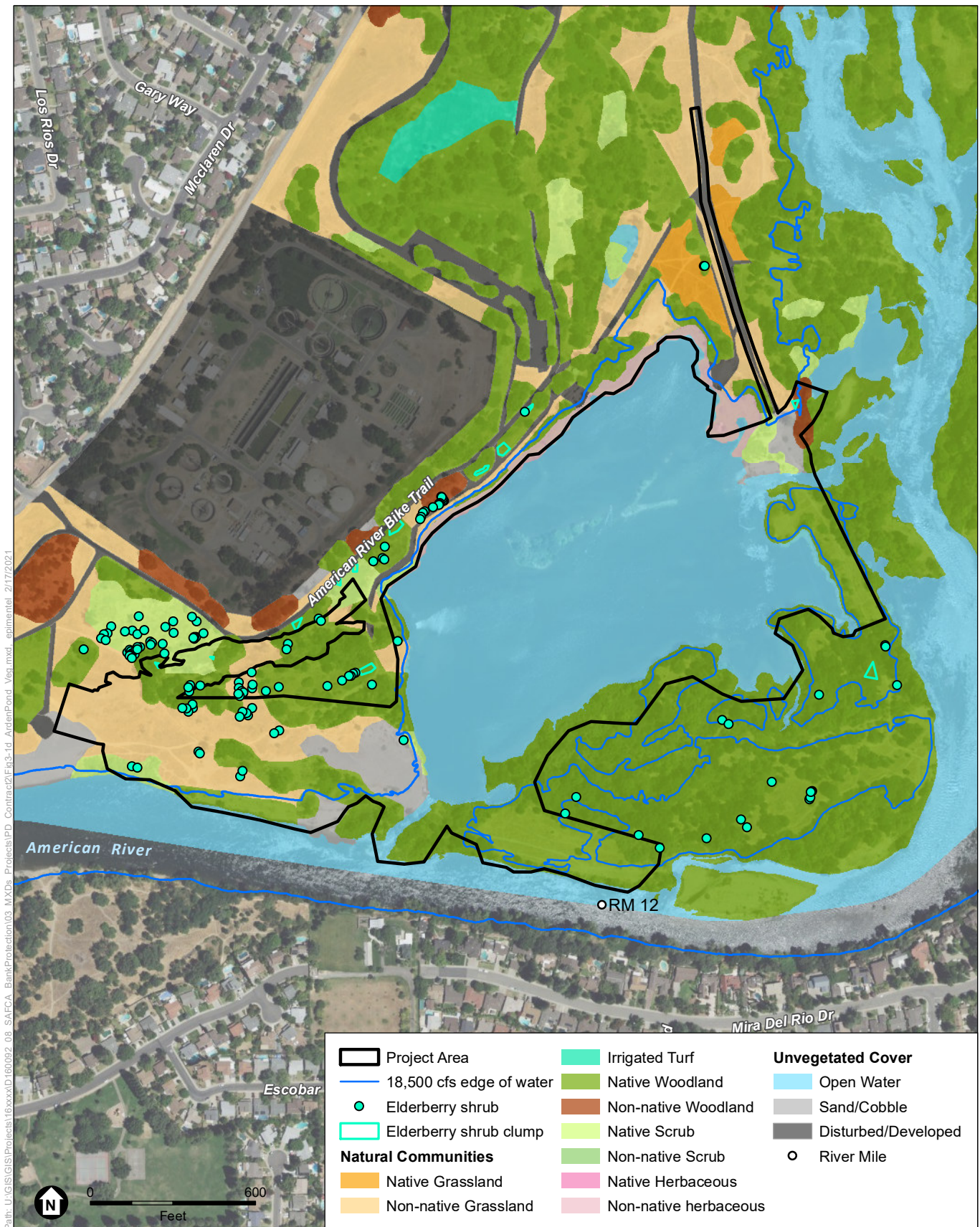


SOURCE: NHC, 2020; ESA, 2021

ARCF 2016 American River Contract 2

Figure 3-1c
Natural Communities of the Lower
American River Subreach 2

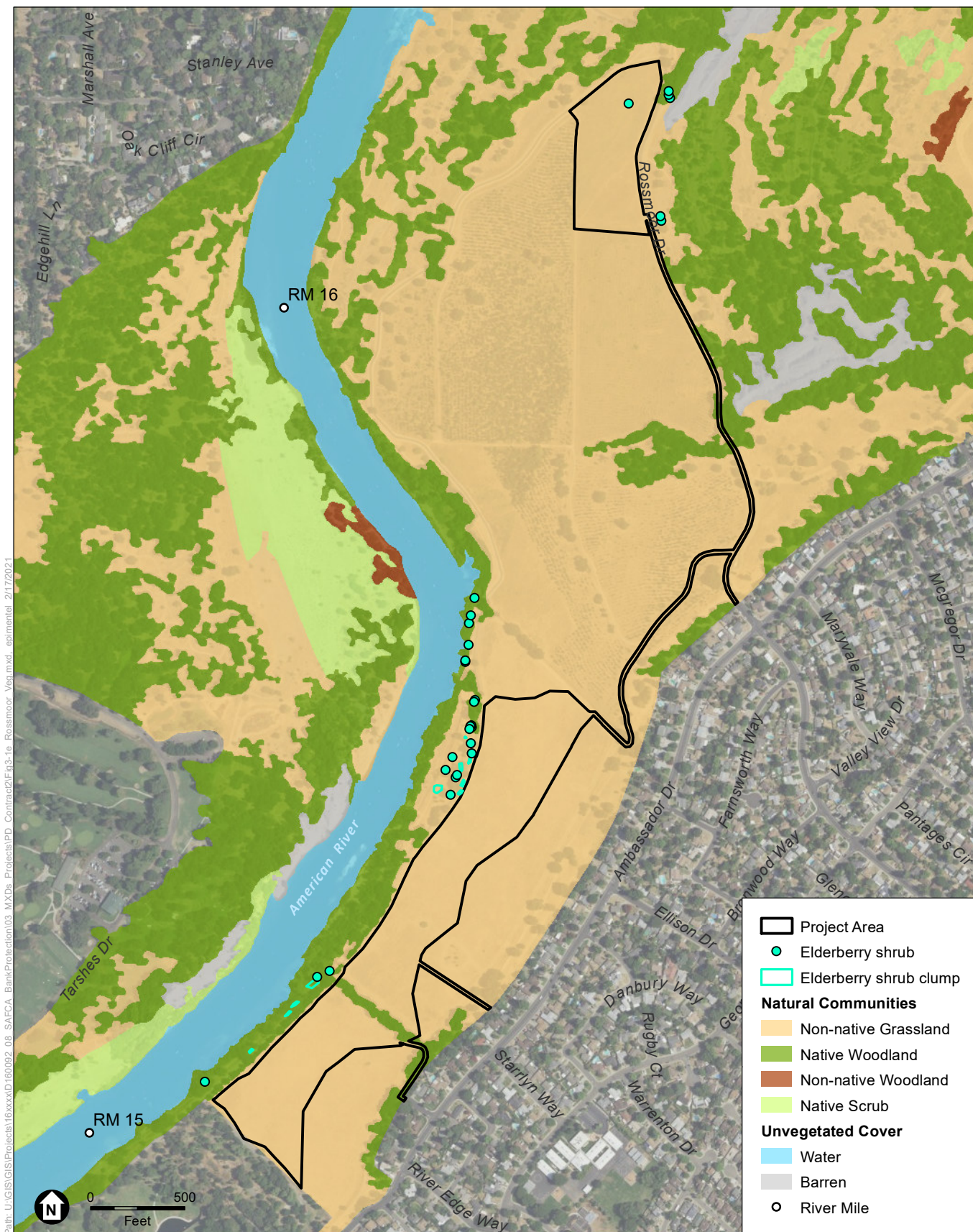
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SOURCE: USDA, 2018; NHC, 2021; ESA 2021

ARCF 2016 American River Contract 2

Figure 3-1d
Natural Communities of the Lower American River Arden Pond Mitigation Site



SOURCE: DigitalGlobe, 2018; CDFW, 2012; NHC, 2020; USACE, 2021; ESA, 2021

ARCF 2016 American River Contract 2

Figure 3-1e

Natural Communities of the Lower American River
Rossmoor Mitigation Sites West and East

Annual Grassland

Common grass species observed in this community include wild oat (*Avena barbata*), bromes (*Bromus diandrus*, *B. hordeaceus*), foxtail barley (*Hordeum murinum*), rattail sixweeks grass (*Festuca myuros*), Bermuda grass (*Cynodon dactylon*), and Pacific bentgrass (*Agrostis avenacea*).

An assemblage of native and non-native forbs is also present in these grasslands. Some common native forbs observed include Canada horseweed (*Erigeron canadensis*), telegraph weed (*Heterotheca grandiflora*), ragweed (*Ambrosia psilostachya*), elegant clarkia (*Clarkia unguiculata*), and turkey mullein (*Croton setigerus*). Among the many common non-native forbs observed are hairy vetch (*Vicia villosa*), cutleaf geranium (*Geranium dissectum*), Italian thistle (*Carduus pycnocephalus*), yellow star thistle (*Centaurea solstitialis*), prickly lettuce (*Lactuca serriola*), poison hemlock (*Conium maculatum*), wild radish (*Raphanus sativus*), wild mustard (*Hirschfeldia incana*), rose clover (*Trifolium hirtum*), and annual yellow clover (*Melilotus indicus*).

Annual grassland provides little cover for most wildlife, yet numerous species forage and several species breed in this habitat type. Grasslands attract bumble bees and other insects that rely on flowering grassland species. They also attract reptiles and amphibians such as western fence lizard (*Sceloporus occidentalis*), common garter snake (*Thamnophis sirtalis*), gopher snake (*Pituophis melanoleucus*), and Sierran treefrog (*Pseudacris regilla*); and birds such as California quail (*Callipepla californica*), western bluebird (*Sialia mexicana*), and lesser goldfinch (*Carduelis psaltria*).

Common small mammals expected to occur in grasslands include western harvest mouse (*Reithrodontomys megalotis*), deer mouse (*Mus musculus*), California vole (*Microtus californicus*), black-tailed jackrabbit (*Lepus californicus*), black-tailed deer (*Odocoileus hemionus*), coyote (*Canis latrans*), and Botta's pocket gopher (*Thomomys bottae*). Small rodents, reptiles, and invertebrates attract raptors (birds of prey) including red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Accipiter striatus*), and American kestrel (*Falco sparverius*), and special-status birds such as white-tailed kite (*Elanus leucurus*), burrowing owl (*Athene cunicularia*), and Swainson's hawk (*Buteo swainsoni*).

Non-native grasslands are important foraging grounds for aerial and ground-foraging insect eaters such as *Myotis* bat species and pallid bats (*Antrozous pallidus*).

Mixed Oak Woodland

Mixed oak woodlands that occur in relatively higher elevation portions of the Project Area are dominated by coast live oak (*Quercus agrifolia*), valley oak (*Q. lobata*), and interior live oak (*Q. wislizeni*) (Figures 3.4-1a through 3.4-1e). Northern California black walnut (*Juglans hindsii*) and California bay (*Umbellularia californica*) are less frequent contributors to the tree canopy.

The oak woodlands support a variety of understory plant species and vegetative structures. When no shrub layer is present, annual grassland is the dominant understory and includes

the common species described above for this community. When oak woodlands support understory shrubs, common native shrubs observed include California rose (*Rosa californica*), California blackberry (*Rubus ursinus*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), and coyote brush (*Baccharis pilularis* ssp. *consanguinea*). Himalayan blackberry (*Rubus armeniacus*), a non-native shrub occurs in the understory of oak woodlands.

Animals present in oak woodland habitat include those that rely heavily on acorns, such as the acorn disseminators western scrub jay (*Aphelocoma californica*), acorn woodpecker (*Melanerpes formicivorus*), and western gray squirrel (*Sciurus griseus*). Wild turkey (*Meleagris gallopavo*), California quail, and black-tailed deer use acorns as a major food source. Deer also use the foliage of several hardwoods.

Oak titmouse (*Baeolophus inornatus*), dark-eyed junco (*Junco hyemalis*), ash-throated flycatcher (*Myiarchus tuberculifer*), northern flicker (*Colaptes auratus*), lesser goldfinch, and great horned owl (*Bubo virginianus*) nest in woodland habitat. Cavity nesters include western bluebird and ash-throated flycatcher. Special-status birds such as Cooper's hawk (*Accipiter cooperii*) and sharp-shinned hawk (*A. striatus*) are known to nest in these woodlands. The pallid bat, also a special-status species, may inhabit these woodlands as well.

Amphibians and reptiles can be found on the woodland floor where moisture is retained under fallen wood and in tree crevices. Among these species are California toad (*Anaxyrus boreas halophilus*) and Sierran treefrog. Reptiles include western fence lizard, southern alligator lizard (*Elgaria multicarinata* ssp. *multicarinata*), ringneck snake (*Diadophis punctatus*), gopher snake, western rattlesnake (*Crotalus viridis helleri*), and California king snake (*Lampropeltis zonata*).

Upland Scrub

Upland scrub habitat consists of areas dominated by native and non-native shrubs that have no tree cover and contain the common herbaceous species described above for annual grassland. Common native shrub species observed are coyote brush, blue elderberry, California rose, California blackberry, Himalayan blackberry, California grape (*Vitis californica*), and western redbud (*Cercis occidentalis*).

Many of the wildlife species described above for oak woodland also use adjacent upland scrub areas for foraging or cover.

Wetlands and Other Waters

In July 2019, Environmental Science Associates biologists conducted an aquatic resources delineation for LAR Subreach 2. Subreach 2 is comprised of a total of 37.57 acres of potential waters of the United States: 22.43 acres of perennial riverine (i.e., American River), 15.04 acres of seasonally flooded forested wetlands that are comprised of a riparian woodland overstory and a riparian scrub understory, and 0.10 acres of drainage ditch (Appendix C). The term "forested wetlands" is used interchangeably in this Draft Supplemental EIS/EIR with the term "seasonally-flooded riparian habitat."

A delineation conducted for Arden Pond on January 21, 2021 by Environmental Science Associates biologists identified approximately 77.18 acres of potential waters of the United States, which was composed of 56.96 acres of perennial riverine (i.e., American River), 17.49 acres of seasonally flooded forested wetlands, that are comprised of a riparian woodland overstory and a riparian scrub understory, 2.11 acres of seasonally flooded scrub, which is comprised primarily of riparian scrub with no overstory, and 0.62 acres of emergent wetland occur within the Arden Pond Mitigation Site (Appendix C).

The Rossmoor West and East sites do not contain aquatic resources.

Wetland and other waters habitat for both Subreach 2 and Arden Pond are described below.

Riparian Scrub (Scrub-shrub)

Riparian scrub habitat consists of shrub-dominated areas that are subject to hydrologic influence from the American River. These areas are dominated by sandbar willow (*Salix exigua*), arroyo willow (*S. lasiolepis*), common button bush (*Cephalanthus occidentalis*), California rose, California blackberry, California wild grape, blue elderberry, and Himalayan blackberry.

Areas that experience high flows typically do not support herb species, and cobbles tend to be the dominant ground cover. Areas that experience slower flows support a variety of herb species including mugwort (*Artemisia douglasiana*), marsh brittlegrass (*Setaria parviflora*), Santa Barbara sedge (*Carex barbarae*), horsetails (*Equisetum arvense* and *E. hymale* ssp. *affine*), rushes (*Juncus balticus*, *J. bufonius*, *J. effusus*, and *J. patens*), beardless wildrye (*Elymus triticoides*), and water iris (*Iris pseudacorus*).

Riparian scrub supports large numbers of insects and attracts passerine birds, including several species of flycatchers, warblers, and hummingbirds. In addition, a number of Federally listed species rely on riparian corridors, including the western yellow-billed cuckoo (*Coccyzus americanus*).

Riparian Woodland

Riparian woodlands are tree-dominated areas that are subject to frequent hydrologic influence from the American River. These areas are dominated by Fremont cottonwood (*Populus fremontii*), Goodding's willow (*Salix gooddingii*), red willow (*S. laevigata*), white alder (*Alnus rhombifolia*), Oregon ash (*Fraxinus latifolia*), and/or California sycamore (*Platanus racemosa*). Pacific willow (*Salix lasiolepis*), valley oak, American elm (*Ulmus americana*), and black locust (*Robinia pseudoacacia*) are less frequent contributors to the tree canopy. Riparian woodlands support a variety of shrubs and herbs similar to those described above for the riparian scrub community.

Many wildlife species depend on riparian woodlands for water, food, and cover. Several raptor species—red-shouldered hawk, Cooper's hawk, great horned owl, and the State-listed Swainson's hawk—build their nests in the crowns of cottonwood, valley oak, and other large trees that grow on the landside and waterside of the levees. Natural cavities

and woodpecker holes provide nesting sites for cavity-nesting species, including wood duck (*Aix sponsa*), American kestrel, tree swallow (*Tachycineta bicolor*), western bluebird, and western screech owl (*Megascops kennicottii*).

Riverine

Riverine habitat consists of inundated areas, including the American River. Such areas support some submerged non-native aquatic vegetation: Brazilian waterweed (*Egeria densa*), curly pondweed (*Potamogeton crispus*), and water primrose (*Ludwigia hexapetala*). Many bird species use open waters for resting, hunting, and escape cover. Common species include gulls, waterfowl, and osprey (*Pandion haliaetus*). Shorelines provide hunting grounds for wading birds such as herons and egrets, and for kingfisher, waterfowl, and shorebirds. Flycatchers, swallows, and other insectivorous birds catch their prey over water. Mammal species that occur in this habitat type include river otter (*Lontra canadensis*) and beaver (*Castor canadensis*). Instream woody structure along the shoreline of riverine habitat provides perching habitat for bird species such as black phoebe (*Sayornis nigricans*) and resting or basking habitat for other species (e.g., western pond turtle [*Actinemys marmorata*] and river otter).

Emergent Wetland

Emergent wetland is dominated by perennial aquatic emergent vegetation and annual hydrophytic forbs. Vegetation is typically dominated by spikerush (*Eleocharis macrostachya*), rushes (*Juncus* spp.), or vervain (*Verbena bonariensis*). The emergent wetland on the north side of the lagoon is disturbed by frequent foot traffic and has compacted soils. Emergent wetlands are among the most productive wildlife habitats in California. They provide food, cover, and water for birds, mammals, reptiles, and amphibians. Many species rely on Fresh Emergent Wetlands for their entire life cycle.

Non-native Woodland

Non-native woodland includes single-species tree stands of either Australian pine (*Casuarina equisetifolia*), black locust, or tree of heaven (*Ailanthus altissima*).

Bird species that may use this habitat types include scrub jay, Northern mockingbird (*Mimus polyglottos*), house finch (*Carpodacus mexicanus*), California quail, and western bluebird. Common mammals include black-tailed deer, raccoon (*Procyon lotor*), and opossum (*Didelphis virginiana*). Gopher snake and western fence lizard also occur in this habitat type.

Invasive Plant Species

Invasive non-native plant species occur in all plant communities, but most commonly in and adjacent to annual grasslands. Areas dominated by non-native vegetation are generally associated with recent human disturbance and include dredged mine tailings, maintained levee slopes, landscaped areas, and areas subject to frequent flood inundation or scour. Non-native weeds dominate some areas, especially along the side slopes of the levees. To a lesser degree, invasive plants are also found in other plant communities such as riparian and oak woodland.

The California Invasive Plant Council maintains an inventory that categorizes non-native invasive plants that are determined to be a threat to the state's wildlands. The categorization is based on an assessment of the ecological impacts of each plant based on the best available knowledge of invasive plant experts. **Table 3-2** lists each non-native plant species encountered during biological resources reconnaissance surveys and its rating in the California Invasive Plant Council inventory.

3.4.2 Methodology and Basis of Significance

3.4.2.1 Methodology

This analysis uses the same methodology described in Section 3.6.2 (pages 116–117) of the ARCF GRR FEIS/FEIR. However, the second significance threshold was expanded to include “State-protected wetlands,” to reflect an update made to Appendix G of the State CEQA Guidelines for 2019. Impacts on vegetation and wildlife resources were evaluated based on data collected from biological resources surveys, and other resources such as aerial imagery and the American River Parkway Plan (Parkway Plan). The goals and objectives of the Parkway Plan were also considered for the impact analysis, along with the effects of constructing the alternatives on those goals and objectives. Impacts on vegetation and wildlife were evaluated based on construction activities and on habitat changes expected to occur after construction of the project.

3.4.2.2 Basis of Significance

The Proposed Action would result in a significant effect related to vegetation and wildlife if it would result in any of the following:

- Substantial loss, degradation, or fragmentation of any natural communities or wildlife habitat.
- Substantial effects on a sensitive natural community, including State- or Federally-protected wetlands and other waters of the United States, as defined by Section 404 of the Clean Water Act.
- Substantial reduction in the quality or quantity of important habitat, or access to such habitat for wildlife species.
- Substantial conflict with the American River Parkway Plan or the Sacramento County Tree Preservation Ordinance.
- Substantial adverse effects on native woodland habitats in the American River Parkway, resulting in the loss of vegetation and wildlife.

TABLE 3-2
INVASIVE PLANT SPECIES IN SUBREACH 2

Common Name	Scientific Name	Cal-IPC Rating
Australian pine	<i>Casuarina equisetifolia</i>	Watch
Bermuda grass	<i>Cynodon dactylon</i>	Moderate
Black locust	<i>Robinia pseudoacacia</i>	Limited
Brazilian waterweed	<i>Egeria densa</i>	High
Chinese tallow tree	<i>Triadica sebifera</i>	Moderate
Common fig	<i>Ficus carica</i>	Moderate
Curly pondweed	<i>Potamogeton crispus</i>	Moderate
Cutleaf geranium	<i>Geranium dissectum</i>	Limited
English ivy	<i>Hedera helix</i>	High
Foxtail barley	<i>Hordeum murinum</i>	Moderate
Giant reed	<i>Arundo donax</i>	High
Himalayan blackberry	<i>Rubus armeniacus</i>	High
Italian thistle	<i>Carduus pycnocephalus</i>	Moderate
Mexican fan palm	<i>Washingtonia robusta</i>	Moderate
Pacific bentgrass	<i>Agrostis avenacea</i>	Limited
Pampas grass	<i>Cortaderia selloana</i>	High
Poison hemlock	<i>Conium maculatum</i>	Moderate
Rattail sixweeks grass	<i>Festuca myuros</i>	Moderate
Red sesbania	<i>Sesbania punicea</i>	High
Ripgut brome	<i>Bromus diandrus</i>	Moderate
Rose clover	<i>Trifolium hirtum</i>	Limited
Soft brome	<i>Bromus hordeaceus</i>	Limited
Spanish broom	<i>Spartium junceum</i>	High
Tree of heaven	<i>Ailanthus altissima</i>	Moderate
Tree tobacco	<i>Nicotiana glauca</i>	Moderate
Water iris	<i>Iris pseudacorus</i>	Limited
Water primrose	<i>Ludwigia hexapetala</i>	High
Wild mustard	<i>Hirschfeldia incana</i>	Moderate
Wild oat	<i>Avena barbata</i>	Moderate
Wild radish	<i>Raphanus sativus</i>	Limited
Yellow star thistle	<i>Centaurea solstitialis</i>	High

NOTES:

Cal-IPC = California Invasive Plant Council

- ^a High = species have severe ecological impacts on the physical processes of plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
- Moderate = species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, although establishment is generally dependent on ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
- Limited = species are invasive, but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.
- Watch = species have been assessed as posing a high risk of becoming invasive in the future.

3.4.3 Impact Analysis

3.4.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would experience no change in the present level of risk of flooding due to levee failure because of seepage, slope stability, overtopping, or other erosion concerns.

Section 3.6.3 (pages 117–118) of the ARCF GRR FEIS/FEIR analyzed impacts to vegetation and wildlife under the No Action/No Project Alternative. The ARCF GRR FEIS/FEIR stated that it would be speculative to consider that additional work would be conducted to address seepage, slope stability, overtopping, and erosion issues. If a flood event were to occur, the Sacramento area would remain at risk of a possible levee failure.

The ARCF GRR FEIS/FEIR determined that given the lack of specific erosion protection measures, levees along the American River would continue to erode, resulting in the loss of bankside vegetation. It is foreseeable that this condition would require recurring repairs at high levee risk areas within the river corridor as a result of incremental or episodic flooding damage. Furthermore, flood fighting activities that would occur during a high-flow emergency response could involve the rapid placement of large rock along the levee slope, which would adversely affect future vegetation growth along the American River levees. The ARCF GRR FEIS/FEIR determined that as levees and berms along the American River erode, riparian habitat and native wood habitats would be lost. In addition, polluted flood flows could disrupt or contaminate Federal and state-protected wetlands, including seasonally flooded forested wetlands. Trees that could be lost but are protected by local tree ordinances would likely trigger major post-flood recovery revegetation. The No Action Alternative could also be inconsistent with the Parkway Plan, which calls for bank scour and erosion to be “proactively managed” to protect public infrastructure, habitat, and recreational resources. In addition, should flood fighting activities be insufficient to prevent levee failure, a large area of vegetation and terrestrial wildlife habitat could be inundated, leading to a substantial reduction in the quality and quantity of habitats for wildlife species. The effects of catastrophic levee failure and associated repairs on vegetation and wildlife would be significant. However, the timing, duration, and magnitude of a flood event, and whether a flood would require nominal or major repairs, is unpredictable, and therefore a precise significance determination cannot be made.

3.4.3.2 Proposed Action

Anticipated Effects on Vegetation

Section 3.6.4 (pages 121–123) of the ARCF GRR FEIS/FEIR analyzed impacts on vegetation and wildlife along the entire leveed stretch of the American River. The ARCF GRR FEIS/FEIR assessed effects on nesting birds, other terrestrial wildlife, and sensitive habitat types, including wetlands, and considered conflicts with local plans and policies including the Parkway Plan. The ARCF GRR FEIS/FEIR further evaluated the specific effects of launchable rock trenches and bank protection, including the loss of riparian

habitat that would occur during their installation. Riparian habitat as defined by the USFWS for this Project includes native and non-native woody vegetation (woodland and scrub habitat) between the levees above and below the OHWM. In areas where the riparian habitat occurs below the OHWM and meets the three wetland parameters (hydrology, hydric soils, and hydrophytic vegetation), riparian habitat has been classified as forested wetlands (Appendix C). The ARCF GRR FEIS/FEIR estimated that up to 65 acres of riparian habitat would be removed throughout the lower American River, including reaches not within the scope of the current Proposed Action, if Alternative 2 of the ARCF GRR FEIS/FEIR were fully constructed. The impacts to riparian habitat discussed in the section below were anticipated as part of the 65 acres in the ARCF GRR FEIS/FEIR. However, because there are multiple phases of this project, USACE and the USFWS have agreed upon creating an impact log that tracks the running total of impacts. If the 65 acres is exceeded, additional analysis and consultation will be required. In addition, the ARCF GRR FEIS/FEIR determined that construction work would also occur on grassland habitats within the Parkway.

The analysis in the ARCF GRR FEIS/FEIR determined that constructing new bank protection features would involve removing grasses, shrubby vegetation, riparian woodland, and instream woody material, resulting in the loss of 80,825 linear feet of SRA habitat. Large trees would be protected in place during construction, to the extent possible. In addition, the analysis determined that although the impacts of bank protection work would be partially self-mitigated with the installation of a waterside planting bench, and removal of instream woody material would be avoided to the extent possible, some impacts related to the degradation of natural communities, effects on sensitive natural communities, and reduced quality and quantity of wildlife habitat would remain because of the lag time between the time trees would be planted and the time they would mature to a point that they could provide the same functional values as the vegetation removed during construction. Although the design of the Proposed Action would allow for retaining some large riparian trees, others would be removed, reducing the shade and organic input to the adjacent aquatic habitat. Similarly, most existing instream woody material would be removed. The on-site replacement habitat would be designed to provide both terrestrial riparian habitat values as well as adjacent aquatic habitat (SRA habitat) values. Instream woody material in the form of trees and logs, held in place with ropes, are included in the design. However, shade and aquatic vegetation would require a substantial period of time to develop in order to provide the same values as are present under existing conditions. The ARCF GRR FEIS/FEIR determined that the short-term impact on both riparian and SRA habitats would be significant and unavoidable, but that long-term impacts would be mitigated by on-site and off-site riparian and SRA habitat creation.

Under the Proposed Action, impacts from construction activities to install exposed and buried rock structures, and a planting bench at Site 2-2 would include the loss of 1.39 acres of riparian woodland and 0.11 acre of riparian scrub in the footprint of the Project Area (**Table 3-3a**). Riparian habitat would also be damaged and removed within construction access areas and haul routes, resulting in removal of 0.44 acre of riparian woodland and 0.04 acre of riparian scrub habitat.

TABLE 3-3A
EXISTING AND RESTORED HABITAT AREAS IN SITES 2-2 AND 2-3

Site	Habitat Area	Habitat Type	Erosion Protection Area Above OHWM Habitat Impacted (acres)	Erosion Protection Area Above OHWM Habitat Created ¹ (acres)	Erosion Protection Area Below OHWM Habitat Impacted (acres) ²	Erosion Protection Area Below OHWM Habitat Created ¹ (acres)	Access Areas Above OHWM Habitat Impacted (acres)	Access Areas Above OHWM Habitat Created (acres)	Access Areas Below OHWM Habitat Impacted (acres) ³
2-2	Riparian Woodland	Native woodland	0.66	0.05	0.62	0.62	0.44	0.00	0.00
		Non-native woodland	0.03	0.00	0.08	0.00	0.00	0.00	0.00
	Subtotal		0.69	0.05	0.70	0.62	0.44	0.00	0.00
	Riparian scrub	Native scrub	0.05	0.00	0.05	0.26	0.04	0.00	0.00
		Non-native scrub	0.01	0.00	0.00	0.00	0.00	0.00	0.00
	Subtotal		0.06	0.00	0.05	0.26	0.04	0.00	0.00
	Herbaceous	Native grassland	0.00	0.08	0.00	0.56	0.00	0.00	0.00
		Non-native grassland	0.19	0.00	0.03	0.00	1.76	0.00	0.00
	Subtotal		0.19	0.08	0.03	0.56	1.76	0.00	0.00
	Other	Unvegetated	0.16	0.00	0.17	0.00	0.91	0.00	0.00
		Open water	0.00	0.00	1.35	0.00	0.00	0.00	0.03
	Subtotal		0.16	0.00	1.52	0.00	0.91	0.00	0.03
Site 2-2 Total			1.10	0.13	2.30	1.45	3.15	0.00	0.03

TABLE 3-3A (CONTINUED)
EXISTING AND RESTORED HABITAT AREAS IN SITES 2-2 AND 2-3

Site	Habitat Area	Habitat Type	Erosion Protection Area Above OHWM Habitat Impacted (acres)	Erosion Protection Area Above OHWM Habitat Created ¹ (acres)	Erosion Protection Area Below OHWM Habitat Impacted (acres) ²	Erosion Protection Area Below OHWM Habitat Created ¹ (acres)	Access Areas Above OHWM Habitat Impacted (acres)	Access Areas Above OHWM Habitat Created (acres)	Access Areas Below OHWM Habitat Impacted (acres) ³
2-3	Riparian Woodland	Native woodland	5.88	2.70	1.83	3.31	1.15	0.00	0.067
		Non-native woodland	1.54	0.00	0.39	0.00	0.51	0.00	0.02
	<i>Subtotal</i>		7.42	2.70	2.22	3.31	1.66	0.00	0.08
	Riparian scrub	Native scrub	3.59	3.70	1.28	4.46	0.16	0.65	0.06
		Non-native scrub	0.01	0.00	0.00	0.00	0.00	0.00	0.00
	<i>Subtotal</i>		3.60	3.70	1.28	4.46	0.16	0.65	0.06
	Herbaceous	Native grassland	0.00	2.70	0.00	0.86	0.00	0.00	0.00
		Non-native grassland	4.60	0.00	0.04	0.00	2.16	0.00	0.00
		Irrigated turf	5.12	0.00	0.07	0.00	3.96	0.00	0.00
		Emergent wetland	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<i>Subtotal</i>		9.72	2.70	0.11	0.86	6.12	0.00	0.00
	Other	Unvegetated	1.46	0.00	0.08	0.00	1.49	0.00	0.00
		Open water	0.00	0.00	0.65	0.00	0.00	0.00	0.01
	<i>Subtotal</i>		1.46	0.00	0.70	0.00	1.49	0.00	0.01
	Site 2-3 Total		22.20	9.10	4.34	8.63	9.43	0.65	0.15

NOTE:

¹ On-site created habitat acreage estimates are based on 65% project designs.² Impacts to riparian habitat below the OHWM includes forested wetlands and mitigation is included in the riparian mitigation numbers³ Impacts associated with Access Areas below the OHWM are temporary and will not require the removal of vegetation, thus restoration for these areas is not proposed or shown in the table above

At Site 2-3, the Proposed Action includes a cut bank design with large planting benches and addition of IWM, transverse rock structures, launchable rock trench located along 170 feet of bankline below the H Street Bridge, and a new riprap channel which would replace a portion of an existing concrete storm drain channel. These activities would result in the loss of 9.64 acres of riparian woodland and 4.88 acre of riparian scrub in the footprint of the Project Area (Table 3-3). Riparian habitat would also be impacted within construction access areas and haul routes, resulting in removal of 1.74 acre of riparian woodland and 0.22 acre of riparian scrub habitat. In addition, reconstruction of the Campus Commons Golf Course would remove 22 trees, the majority of which are ornamental trees planted for landscaping at the golf course. Two cottonwood trees and five box elder trees are remnants of the riparian system that existed prior to development but are no longer associated with the remaining riparian habitat.

The Arden Pond Mitigation Site has been designed to provide compensatory mitigation for the Proposed Action. The approximately 33 acres of pond within the Arden Pond Mitigation Site would be regraded and a portion filled to create a side channel. The side channel area would be improved through the planting of riparian vegetation and creation of a shallow flow channel that would improve habitat conditions for juvenile salmonid rearing and migration. The creation of additional habitat within the Arden Pond Mitigation Site and East and West Mitigation Sites would result in the temporary disturbance of (roughly 10.77 acres of SRA habitat and 19.28 acres of riparian habitat) low-quality juvenile salmonid rearing and riparian habitat. However, the Proposed Action would create and/or restore an estimated 30 acres of higher quality riparian habitat along the shores and islands of the proposed side channel and an additional approximately 3 acres of open water for a total of 33 acres of inundated rearing and SRA habitat between the shallow river channel, and the East and West Mitigation Sites (**Table 3-3b**). An additional 2.5 acres of upland riparian habitat would be restored within the Arden Pond Mitigation Site. Approximately 39 acres of disturbed riparian and grassland habitat would be temporarily disturbed for access and staging. These areas would be replanted with the appropriate riparian vegetation and native grassland mixes, with the exception of two acres which will be designated for permanent access.

The impacts of the Proposed Action on natural communities, including sensitive natural communities, and wildlife habitat would be significant. Implementation of Mitigation Measures VEG-1, VEG-2, VELB-1, and SRA-1 set forth in the FEIS/FEIR and augmented herein to meet site-specific conditions would reduce this impact to a less-than-significant level, because of a combination of avoidance, minimization, and compensation by creation of on-site and off-site riparian habitat.

**TABLE 3-3B
EXISTING AND RESTORED HABITAT AREAS IN ARDEN POND**

Site	Habitat Area	Habitat Type	Restoration Area Above OHWM Habitat Temporarily Impacted (acres)	Restoration Area Above OHWM Habitat Created ^{1, 2} (acres)	Restoration Area Below OHWM Habitat Temporarily Impacted (acres) ^{2,3}	Restoration Area Below OHWM Habitat Created ¹ (acres)
Shallow River Channel	Riparian Woodland	Native woodland	0.00	0.25	0.46	21.89
		Non-native woodland	0.00		0.06	
	Subtotal		0.00		0.52	
	Riparian scrub	Native scrub	0.00	0.25	0.38	21.89
	Subtotal		0.00		0.38	
	Herbaceous	Emergent wetland	0.00	0.00	0.04	0.00
		Native grassland	0.00	0.00	0.00	0.00
		Non-native grassland	0.00	0.00	0.01	0.00
	Subtotal		0.00	0.00	0.05	0.00
	Other	Unvegetated	0.00	0.00	0.45	0.00
		Open water	0.00	0.00	22.26	1.52
	Subtotal		0.00	0.00	22.71	1.52
	Shallow River Channel Total			0.00	0.25	23.66
West Mitigation Site	Riparian Woodland	Native woodland	1.94	1.67	1.42	5.15
		Non-native woodland	0.00		0.00	
	Subtotal		1.94		1.42	
	Riparian scrub	Native scrub	0.06	1.67	0.06	5.15
	Subtotal		0.06		0.06	
	Herbaceous	Emergent wetland	0.00	0.00	0.00	0.00
		Native grassland	0.00	0.00	0.00	0.00
		Non-native grassland	1.90	0.00	0.04	0.00
	Subtotal		1.90	0.00	0.04	0.00
	Other	Unvegetated	1.37	0.00	0.52	0.00
		Open water	0.00	0.00	0.01	0.51
	Subtotal		1.37	0.00	0.53	0.51
West Mitigation Site Total			5.27	1.67	2.05	5.66
East Mitigation Site	Riparian Woodland	Native woodland	1.54	0.63	2.47	3.61
		Non-native woodland	0.00		0.00	
	Subtotal		1.54		2.47	
	Riparian scrub	Native scrub	0.00	0.63	0.00	3.61
	Subtotal		0.00		0.00	

TABLE 3-3B (CONTINUED)
EXISTING AND RESTORED HABITAT AREAS IN ARDEN POND

Site	Habitat Area	Habitat Type	Restoration Area Above OHWM Habitat Temporarily Impacted (acres)	Restoration Area Above OHWM Habitat Created ^{1, 2} (acres)	Restoration Area Below OHWM Habitat Temporarily Impacted (acres) ^{2,3}	Restoration Area Below OHWM Habitat Created ¹ (acres)
East Mitigation Site (cont.)	Herbaceous	Emergent wetland	0.00	0.00	0.00	0.00
		Native grassland	0.00	0.00	0.00	0.00
		Non-native grassland	0.00	0.00	0.00	0.00
	Subtotal		0.00	0.00	0.00	0.00
	Other	Unvegetated	0.00	0.00	0.00	0.00
		Open water	0.28	0.00	0.66	0.71
	Subtotal		0.28	0.00	0.66	0.71
	East Mitigation Site Total		1.82	0.63	3.13	4.32
Arden Pond Mitigation Site Total			7.09	2.55	28.84	33.39

NOTES:

¹ On-site created habitat acreage estimates are based on 65% project designs.

² Created riparian habitat will be a combination of riparian woodland and riparian scrub

³ Impacts to riparian habitat below the OHWM includes forested wetlands and mitigation is included in the riparian mitigation numbers

Anticipated Effects on Wildlife

As described in Section 3.6, *Special Status Species*, riparian vegetation along the lower American River provides habitat for the valley elderberry longhorn beetle (VELB). The riparian corridor is also considered to be suitable stop-over habitat for the western yellow-billed cuckoo. To mitigate the impacts on habitat for these species, USACE would create replacement riparian habitat at ratios of 3:1 (acres replaced to acres affected) and 2:1, respectively. A total of 16.02 acres of riparian habitat would be affected at Sites 2-2 and 2-3 erosion protection areas and up to an additional 2.44 acres in the construction access areas and haul routes. Some of the riparian habitat in access areas may be avoided, if feasible. To mitigate these impacts to Sites 2-2 and 2-3, USACE would create a total of 36.92 acres of riparian habitat, which would include 19.31 acres of on-site riparian habitat in the Project Area. In addition, 21.16 acres of off-site riparian habitat would be created at off-site locations including, but not limited to Rio Americano East and West, Rossmoor East and West, and at Arden Pond (see Section 3.6, *Special Status Species*). An additional 14.59 acres of riparian and VELB habitat will be created to compensate for impacts to VELB habitat at Arden Pond, for a total of 51.51 acres of created riparian habitat. Further, the Proposed Action would affect 4.86 acres of non-native grassland in the Project Area. Non-native grassland would be replaced with 4.20 acres of native grassland, which is a ratio of 0.86:1, but represents a much higher habitat value than non-native grassland. A total of 4.05 acres of non-native grassland would be disturbed in the access and staging areas. This area would be restored after construction by seeding native grassland plant species in this area.

After construction, the Proposed Action would also provide improved habitat for juvenile salmonids and species that typically occur at the water's edge, such as western pond turtle and river otter, by providing instream woody material. Surveys along the summer/fall (flows of 2,660 cfs) and winter/spring (flows of 3,900 cfs) shorelines at Site 2-2 recorded 30 percent and 65 percent instream woody structure, respectively, while Site 2-3 includes instream cover of 43 and 53 percent cover, respectively (Appendix D). Designs for Site 2-2 include instream cover of approximately 33 percent and 34 percent at the respective shorelines, while designs for 2-3 include instream cover of approximately 50 percent and 59 percent respectively.

As described in Section 3.6.4 of the ARCF GRR FEIS/FEIR, USACE analyzed effects on nearshore aquatic habitat (i.e., SRA habitat) using the Standard Assessment Methodology (SAM) model developed by a multi-agency team including USACE, DWR, USFWS, and NMFS. More information on the methods used for the SAM analysis and the results of the analysis are included in Section 3.6, *Special Status Species*. The results show that plantings in the bench would be expected to provide similar or better habitat values for salmonid species over time compared to the existing condition. However, a temporal impact on SRA habitat would occur, which USACE would mitigate by restoring SRA habitat at mitigation sites in the American River Parkway (beyond those identified in Section 2.3.3 *Mitigation Sites*) that would be selected and designed in coordination with NMFS and USFWS. This off-site SRA habitat creation would be developed as part of the consultation under the federal Endangered Species Act. There would be short-term unavoidable impacts on riparian habitat, but the long-term effects on vegetation and wildlife would be mitigated to a less-than-significant level by providing higher long-term habitat values on-site and off-site. Off-site actions include restoring SRA habitat at Arden Pond as well as other mitigation sites in the American River Parkway that would be selected and designed in coordination with NMFS and USFWS and restoration actions at elderberry transplant sites. Additional discussion can be found in Section 3.6, *Special Status Species*.

Riparian woodland present within Subreach 2 is considered a sensitive natural community. A total of 15.76 acres would be created within Sites 2-2 and 2-3 and 35.75 acres would be created off-site (at locations described in Section 2.3.3 *Mitigation Sites*) to address impacts on VELB and western yellow-billed cuckoo habitat at a 3:1 and 2:1 ratio, respectively. The Proposed Action would result in a net increase in riparian woodland (including forested wetland) acreage within and near the Project Area. State and Federally protected wetlands and other jurisdictional waters are also considered to be protected sensitive natural communities and have been included in the impacts and mitigation described above in this paragraph. Based on the design of the Proposed Action, this riparian habitat (including forested wetland) would be replaced with 9.31 acre of riparian habitat located below the OHWM (Table 3-3). Additional off-site riparian habitat would be created at Arden Pond and if needed additional mitigation sites in the American River Parkway that would be selected and designed in coordination with NMFS and USFWS as part of the consultation under the Endangered Species Act and that would be located below the OHWM (See SRA-1 for additional discussion). No additional mitigation for impacts on jurisdictional waters is proposed. Given the above considerations, the impact of the project on sensitive

natural communities, including riparian habitat and wetlands and other waters under State and Federal jurisdiction, would be less than significant with mitigation.

Construction activities for the Proposed Action could interfere with local movement of native resident or migratory wildlife species. Grading and other ground-disturbing activities could temporarily disrupt the movement of reptiles and amphibians, such as the western pond turtle. It is anticipated that reptiles and amphibians would continue to move to and through nearby unaffected aquatic or upland habitat away from active construction activities during construction. Effects of the project on access of these species to their habitat would be temporary and these species would be expected to return to areas affected by construction once such work is completed. Additionally, similar areas of riparian and grassland habitat in reaches along the Lower American River unaffected by the Proposed Action could be utilized by these species. Equipment and personnel movement and vegetation removal during construction could interfere with the movement of other terrestrial wildlife species such as small mammals or birds; however, these activities are not expected to result in substantial effects on the movement of these species because they are mobile and can move away from construction activities to unaffected areas.

Noise from construction of the Proposed Action could temporarily alter the foraging patterns of resident wildlife species but is not anticipated to substantially interfere with foraging because these species could move to nearby unaffected habitat. The impacts from construction on nesting birds specifically, including the effects of removal of riparian trees, are discussed in Section 3.6, *Special Status Species*. Although construction work for the Proposed Action could temporarily alter the movement patterns of native resident or migratory wildlife species, it is not anticipated to significantly interfere with the movement of these terrestrial species, which could move to nearby unaffected habitat. Furthermore, construction would be temporary, limiting the potential for long-term impacts on the migration and movement of terrestrial wildlife. Once mitigation plantings become established, Subreach 2 would provide riparian habitat that is expected to be of higher quality than existing habitat, because habitat features that benefit native species would be included in the design, and the site would be managed for the establishment and persistence of native trees, shrubs and herbaceous plants. Over the long-term, the Proposed Action would not substantially reduce the quality or quantity of important habitat, or access to such habitat for wildlife species, although temporary loss of habitat would occur, which would be mitigated by off-site mitigation and/or purchase mitigation credits. Therefore, the impact of the Proposed Action on the quantity and quality of wildlife habitat and access by wildlife to habitat would be less than significant with mitigation (see mitigation discussion, below).

The American River Parkway Plan provides a guide for land use decisions affecting the Parkway, and the plan specifically addresses the preservation, use, development, and administration of the Parkway. With the on-site replacement of riparian habitat, the Proposed Action would ensure that there would be no net impacts on lands designated by the Parkway Plan as Protected Areas or Nature Study Areas. Although an initial loss of

riparian habitat within the Parkway would occur, eventually the Parkway would experience a net increase in the extent of riparian habitat, or credits would be purchased at a NMFS-approved mitigation bank. This increase in riparian vegetation is consistent with Terrestrial Resource Policy 3.2 of the Parkway Plan, which calls for the protection, enhancement, and expansion of the Parkway's native willow, cottonwood, and valley oak-dominated riparian and upland woodlands that provide important SRA, seasonal floodplain, and riparian habitats. Consequently, the impact of the Proposed Action on local conservation plans, such as the Parkway Plan, would be less than significant.

The Project Area provides woody material, such as fallen logs, tree limbs, and branches that are lying on the floodplain surface. This instream woody material (native wood habitat) is particularly important when located on the winter/spring and summer/fall waterline, where it provides cover and foraging substrate for juvenile salmonids. This wood habitat also provides cover and perching habitat for terrestrial species. For example, various mammals (e.g., river otter) or reptiles (e.g., western pond turtle) use this wood as resting or basking habitat, and birds (e.g., black phoebe) use the wood as perches. Wood (e.g., harvested orchard trees) would be installed and kept in place with chains and/or ropes on the floodplain as part of the Proposed Action at all three sites. Although that project element is specifically designed to replace the wood present along the average winter/spring and summer/fall waterline as salmonid habitat, placing the wood would also mitigate the removal of wood habitat for terrestrial species, and the impact of the Proposed Action on woody debris habitat for terrestrial species would be less than significant.

ARCF GRR FEIS/FEIR Mitigation Measures

The following summarizes ARCF GRR FEIS/FEIR mitigation measures (pages 128 to 129) that are incorporated into the Proposed Action (with specific mitigation site information added):

Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site. Project designs would be refined to reduce impacts on vegetation and wildlife to the extent practicable. Refinements implemented to reduce the loss of riparian habitat would include reducing the impact footprint, constructing bank protection rather than launchable rock trench whenever feasible, and designing planting benches.

Where practicable, trees would be retained in locations where the bank protection and planting bench are constructed. Trees would be protected in place along the natural channel during the placement of rock. Additional plantings would be installed on the newly constructed bench to provide habitat for fish and avian species. The planting bench would be used where practicable to minimize impacts on fish and wildlife species. The on-site habitat would be created in accordance with the ARCF GRR Habitat Mitigation, Monitoring, and Adaptive Management Plan (HMMAMP), which includes conceptual mitigation proposals, performance standards, and adaptive management tasks.

Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal. To compensate for the removal of riparian habitat (including forested wetlands),

replacement habitat would be created at a ratio of 2:1 to account for the temporal loss of habitat while newly created habitat is growing. Species selected to compensate for the riparian corridor removal would be consistent with the approved list of trees, shrubs, and herbaceous plants native to the Parkway. The riparian replacement habitat would create habitat connectivity and wildlife migratory corridors that would provide for the habitat needs of important native wildlife species without compromising the integrity of the flood control facilities, the Parkway's flood conveyance capacity, and the Parkway management goals in the Parkway Plan. Some of the replacement riparian habitat would be planted on top of the rock trench. Additionally, to comply with the Parkway Plan, lands within the Parkway would be evaluated for compensation opportunities. The exact location of the compensation lands in the Parkway would be coordinated with the Sacramento County Department of Regional Parks during the design phase of the project and would comply with the Parkway Plan's objectives and goals. It is assumed that sufficient lands are available within the Parkway. The replacement habitat would be created in accordance with the ARCF GRR HMMAMP, which includes conceptual mitigation proposals, performance standards, and adaptive management tasks.

Within the Project Area, USACE has designated Erosion Protection and Work Area construction zones. In Work Area zones, some or all the vegetation would be removed for site access, haul routes, and staging areas. Then, upon completion of the project, work zones would be seeded with native grassland species. Erosion Protection construction zones would require that most riparian vegetation be removed, but riparian vegetation would be planted at a planting bench and within the site on buried revetment or among the revetment. To compensate for the temporal loss of riparian vegetation and SRA habitat, creation of off-site habitat would also occur at sites that would be protected in perpetuity. These sites would include a mitigation site in the American River Parkway that would be selected and designed in coordination with NMFS and USFWS as part of the consultation under the Endangered Species Act. In addition, riparian habitat would be planted at previously-designated and approved elderberry shrub mitigation areas (the Glenn Hall Park mitigation site the two Rio Americano mitigation sites described in Chapter 2, *Project Description of the American River Watershed Common Features, Water Resources Development Act of 2016, American River Contract 1 Supplemental Environmental Assessment/ Supplemental Environmental Impact Report* (USACE and CVFPB 2020)) and the two Rossmoor mitigation sites under the Proposed Action, as described in Chapter 2, *Project Description* of this document.

Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.

This mitigation measure is described in Section 3.6, *Special Status Species*.

Summary

The ARCF GRR FEIS/FEIR concluded that mitigation measures would reduce potential long-term impacts on vegetation and wildlife resources to a less-than-significant level because once vegetation has fully developed, the habitat quality of the Project Area

would be similar or better than under existing conditions. The ARCF GRR FEIS/FEIR also concluded that short-term impacts on vegetation and wildlife resources associated with construction within the American River Parkway would be significant and unavoidable. Construction of the Proposed Action would not result in short-term impacts on vegetation and wildlife resources that would be new or more severe than those addressed in the ARCF GRR FEIS/FEIR and, therefore, those construction-related short-term impacts on vegetation and wildlife are already adequately addressed in the ARCF GRR FEIS/FEIR.

Under the Proposed Action, the mitigation for loss of riparian habitat would be satisfied as part of required compensatory mitigation for the loss of suitable habitat for VELB and western yellow-billed cuckoo. For more details on the compensatory mitigation requirements for the VELB and western yellow-billed cuckoo, see Section 3.6, *Special Status Species*.

In summary, to address the impacts on the 18.46 acres of riparian habitat (including forested wetland below OHWM) that would be affected by the Proposed Action at Sites 2-2 and 2-3, replacement riparian habitat would be created, including 15.76 acres on site and 35.75 acres off site. For temporary impacts to 39 acres of riparian habitat (including forested wetland below the OHWM) at the Arden Pond Mitigation Site, approximately 22 acres of riparian habitat (16 acres above the OHWM and 6 acres below the OHWM) would be restored to better than pre-project conditions. Additional riparian habitat will be planted in previously disturbed areas creating a net gain of riparian habitat. Implementing this compensatory mitigation would reduce long-term impacts on any natural community or wildlife habitat within the Project Area to a less-than-significant level by creating on-site and off-site riparian habitat. Short-term impacts on vegetation and wildlife habitat would remain significant and unavoidable, because it would take several years (e.g., 10 to 15 years) for riparian habitat to become fully mature and provide the same values as existing riparian habitat.

Because impacts on migratory and movement conditions for terrestrial wildlife would be minor or temporary in duration and mitigated by on-site replacement, off-site mitigation, the impacts on the quality or quantity of important habitat, or access to such habitat for wildlife species, would be less than significant with on-site and off-site mitigation, and no additional mitigation measures are necessary.

With implementation of the riparian habitat mitigation that addresses impacts on VELB and western yellow-billed cuckoo, the potential for conflicts with the Parkway Plan would be less than significant because a net long-term increase in the extent of riparian habitat within the Parkway would occur.

Because the project would involve anchoring of new large instream woody material to replace the wood present along the shoreline that would be removed during construction activities, the impact of the Proposed Action on native wood habitat with the Parkway would be less than significant.

Implementation of the above mitigation measures from the ARCF GRR FEIS/FEIR with added specificity regarding mitigation sites would reduce the impact of the Proposed Action on vegetation and wildlife to a less-than-significant level.

3.5 Fisheries

3.5.1 Environmental Setting

3.5.1.1 Regulatory Setting

Section 3.7 (page 132) of the ARCF GRR FEIS/FEIR identified Federal or State environmental laws and regulations that apply to fisheries resources. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the ARCF Project and described the status of compliance with those laws and regulations. There has been no change to the applicable listed regulations related to fisheries. The American River Parkway Plan discusses management of fish habitat and is described in Section 3.4.1.1 of this SEIS/SEIR.

3.5.1.2 Existing Conditions

Section 3.7 (pages 131–135) of the ARCF GRR FEIS/FEIR describes the regional and local setting in the vicinity of the Project Area for the Proposed Action. The following provides additional information specific to the Project Area:

Native and non-native fish species that can be found in the Lower American River are listed on page 133 of the ARCF GRR FEIS/FEIR.

The ARCF GRR FEIS/FEIR identified the important attributes of fish habitat present in the Lower American River as aquatic vegetation and shaded riverine aquatic (SRA) habitat. The ARCF GRR FEIS/FEIR defined aquatic vegetation as floating, submerged, and emergent vegetation that serves as hiding cover and an invertebrate food production base for nearly all aquatic species. The ARCF GRR FEIS/FEIR defined SRA habitat as overhanging canopy cover.

In 2018, Environmental Science Associates biologists conducted aquatic vegetation and shoreline habitat surveys in the Project Area.²⁵ In the Project Area, aquatic vegetation was present along 49 percent of the total summer/fall seasonal shoreline (61.6 percent at Site 2-2 and 90.1 percent at Site 2-3) and 58.6 percent of the total winter/spring shoreline (54 percent at Site 2-2 and 85.4 percent at Site 2-3). Approximately 1,162 linear feet of shoreline habitat was present along the summer/fall seasonal shoreline in the Project Area of Site 2-2 and 4,548 linear feet along the summer/fall seasonal shoreline at Site 2-3 (Appendix D). Aquatic vegetation was not assessed along the shoreline of the Arden Pond Mitigation Site. However, the Arden Pond Mitigation Site does include 1,579 linear

²⁵ Environmental Science Associates. 2018. Lower American River Resource Assessment. Prepared for Sacramento Area Flood Control Agency. Sacramento, CA. November 2018.

feet of shoreline habitat along the American River at the summer/fall seasonal shoreline which has aquatic vegetation present along 40.5 percent of the summer/fall shoreline and 89.5 percent along the winter/spring seasonal shoreline.

3.5.2 Methodology and Basis of Significance

3.5.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.7.2 (page 136) of the ARCF GRR FEIS/FEIR. This involves analyzing how the expected changes to aquatic vegetation and SRA habitat may affect populations of native fish species and how construction activities may affect native fish. Effects on special-status fish species are addressed in Section 3.6 and impacts on natural communities (including riparian vegetation) are addressed in Section 3.4.

3.5.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.7.2 (page 136) of the ARCF GRR FEIS/FEIR, as restated below.

The Proposed Action would result in a significant effect related to fisheries if it would:

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Substantially conflict with the American River Parkway Plan;
- Substantially reduce the habitat of a fish population; or
- Cause a fish population to drop below self-sustaining levels.

3.5.3 Impact Analysis

3.5.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the risk of flooding within the Sacramento metropolitan area due to levee failure caused by seepage, slope stability, overtopping, or other erosion concerns would remain unchanged from its present level.

The ARCF GRR FEIS/FEIR concluded that the effects of flood fighting on fish in the event of a levee failure could be significant. If flood fighting were to occur to stop erosion and prevent levee failure, placing large rock along the levee slope would prevent or impede the future growth of trees and vegetation on the levee slopes, which would substantially reduce fish habitat. Emergency cleanup and earth-moving activities could also result in an increase in sediment and turbidity that would adversely affect migration, spawning, or rearing habitat. Given the nature of emergency cleanup activities,

implementing best management practices and measures to reduce effects on fish may not be feasible, and populations may drop below self-sustaining levels.

In addition, high flows in the American River would cause levees and berms to erode. As the banks of the river erode, important SRA habitat would be lost. Flood fight activities to save levee structures would likely occur during a high-flow emergency response. All of these effects on fisheries would likely be significant, although no precise significance determination is possible.

3.5.3.2 Proposed Action

In 2015, NMFS issued a Biological Opinion (BO) for the ARCF GRR consultation for levee improvements and bank protection along the Sacramento River, levee improvements along Arcade, Magpie, and Dry/Robla Creeks, widening the Sacramento Bypass and Weir, and bank protection along the lower American River. The NMFS BO evaluated impacts to Sacramento River winter-run and Central Valley spring-run Chinook salmon, California Central Valley steelhead, and green sturgeon, as well as their critical habitat. The BO evaluated potential impacts based on rough estimates and preliminary designs for the proposed project. In 2020, a new Biological Assessment (BA), the Reinitiation BA, was prepared to reinitiate consultation with NMFS to provide new information related to site-specific details for the Proposed Action. The following impact analysis summarizes Section 6.0 (pages 59–68) of the ARCF NMFS Reinitiation BA, reflecting the impacts of the Proposed Action.

Of the 8,148 linear feet within the construction footprint for Sites 2-2 (1,259 ft) and 2-3 (6,889 ft), an estimated 5.44 acres of SRA and benthic habitats would be affected by construction activities. This estimate was calculated using the slope area approach. The slope area calculation involves measuring the levee slope below the waterline (in this case the OHWM/18,500 cfs line) and the natural benthic substrate out to the limit of effect.

Within the Arden Pond Mitigation Site, there would be impacts on approximately 10.77 acres of SRA habitat and 19.28 acres of riparian habitat during construction. This habitat constitutes the entirety of the current pond. The outflow and adjacent habitat along the American River is low-quality habitat for salmonids due to temperature, water quality, and predation (e.g. from bass). The Proposed Action would create and/or restore an estimated 30 acres of higher quality riparian habitat along the shores and islands of the proposed side channel and an additional approximately 3 acres of open water for a total of 33 acres of inundated rearing and SRA habitat between the shallow river channel, and the East and West Mitigation Sites (Table 3-3b).

As part of the permit conditions of the ARCF NMFS Reinitiation BA, USACE will develop and implement a compensatory mitigation accounting plan to ensure the tracking of compensatory measures associated with the implementation of the Proposed Action. The accounting plan will verify that tracking of impacts as site designs are developed to ensure incidental take is not exceeded and identify when triggers for reinitiation have been met.

Rock placement during bank protection activities would likely disturb native, resident fish by increasing noise, water turbulence, and turbidity, causing them to move away from the area of rock placement and put them at a slightly increased risk of predation.

Construction of bank protection would disturb soils and lead to increased turbidity in the nearshore aquatic habitat. The increase in suspended solids and turbidity would generally be short term. Sedimentation and turbidity increases may affect fish physiology, behavior, and habitat.

Direct effects on resident native fish species habitat would be limited because existing conditions would not be worsened by project construction, which would include creating planting benches to provide shade and instream woody material elements of SRA habitat. A temporary loss of SRA habitat would occur, but over the long term, the erosion protection sites would support higher quality SRA habitat than under existing conditions. Temporary reductions in SRA habitat would be compensated for by creation of riparian habitat along the LAR within the American River Parkway (see Section 3.6, *Special Status Species*). Because the LAR is expected to recover in the long term and provide improved habitat for fish species, the project would not conflict with the river's outstandingly remarkable value of fisheries designation under the Federal Wild and Scenic Rivers Act, and would not be in conflict with the American River Parkway Plan (see Section 3.4, *Vegetation and Wildlife*).

At Site 2-2, the Proposed Action would construct a launchable rock-filled trench designed to deploy once erosion has removed the bank material beneath it. The launchable rock trench along the entire alignment of Site 2-2 would be constructed outside of the natural river channel, with no significant direct construction effects on native fish species. Although the toe would be constructed primarily of large diameter riprap, a surface bedding layer of cobbles and gravels would be added to reduce fisheries impacts. At extreme flood flows, when the rock would launch, the mobilized large rock could physically hurt fish in the channel; however, it is assumed that if no rock were to be launched the levee would overtop or breach, causing fish to be transported out of the floodway where they would most likely die. A planting bench would be constructed, along with IWM, which would improve foraging and refuge requirements for fisheries.

At Site 2-3, a cut bank design with large planting benches and addition of IWM would provide benefits for fisheries creating floodplain habitat that would improve fisheries foraging and refuge opportunities and provide for on-site mitigation. Transverse rock structures would be constructed at Site 2-3 but should not impact fish unless bank degradation occurs, and riprap rock is exposed. These were added to reduce impacts from over-armoring the bank surface with unsuitable riprap and to maximize the size and effectiveness of planting benches. A launchable rock trench located along 170 feet of bankline below the H Street Bridge would have minimal long-term impacts to fish except at extreme flood flows as described for the launchable toe for Site 2-2. The launchable trench is designed to protect the bridge from failure which would cause significant impacts to fish. A new riprap channel which replaces a portion of an existing concrete storm drain channel would likely cause no additional impacts to fish.

Construction at the Arden Pond Mitigation Site would include modification of the current bass pond by installing a semi-permeable earthen berm to form an enhanced bass pond on the northern side of the pond and a shallow pond-like habitat for juvenile rearing on the southern side. The bass pond would provide improved habitat for non-native bass and provide opportunities for recreational fishing. The juvenile salmonid shallow water habitat would provide a large amount of shallow flow area with moderate depth between 2 and 3 feet at 3,900 cfs, in addition to large amounts of riparian vegetation to create SRA habitat and IWM to support salmonid rearing. Temporary impacts to fisheries would be the same as those experienced at Sites 2-2 and 2-3 due to excavation of the bass pond, construction of the berm, and building up of substrate in the salmonid habitat. However, long term benefits of the Proposed Action would significantly improve habitat in the area for salmonids and other native fishes.

Reconstruction of the Campus Commons Golf Course and construction of the Rossmoor West and East Mitigation Sites would not affect fish habitats because the sites are in areas that are only inundated under very high-flow events. Therefore, conditions for fish under such events would remain unchanged and there would be no impact on fisheries from the construction of these sites.

Implementation of the mitigation measures identified below would reduce the impact of construction of the erosion protection measures on fisheries resources to a less-than-significant level.

ARCF GRR FEIS/FEIR Mitigation Measures

Mitigation Measures FISH-1 and FISH-2 contained in the ARCF GRR FEIS/FEIR (pages 143–144) are summarized below and incorporated into the Proposed Action. Mitigation Measure FISH-3, below, is new and designed to address additional impacts of the Proposed Action:

- Based on input from NMFS, the in-water work window was changed from the period of August 1 to November 30 as previously allowed in the 2015 NMFS BO, to the period of July 1 to October 31, because this was determined to be appropriate for the salmonids occurring in the American River.

Mitigation Measure FISH-1: Observe In-Water Work Windows. In-water construction would be restricted to the general estimated work window of July 1 through October 31. The exception being that in-water work necessary for dewatering activities would begin June 1. During preconstruction engineering and design, the work window may be adjusted on a site-specific basis, considering periods of low fish abundance, and in-water construction outside the principal spawning and migration season. Typical construction season generally corresponds to the dry season, but construction may occur outside the limits of the dry season, only as allowed by applicable permit conditions.

Mitigation Measure FISH-2: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination. Because of the deleterious effects on native resident fish of numerous chemicals used in construction, if a

hazardous materials spill does occur, a detailed analysis would be performed immediately by a registered environmental assessor or professional engineer to identify the likely cause and extent of contamination. This analysis would conform to American Society for Testing and Materials Standards and would include recommendations for reducing or eliminating the source or mechanisms of contamination. Based on this analysis, USACE and its contractors would select and implement measures to control contamination, with a performance standard that surface water quality and groundwater quality must be returned to baseline conditions.

- The following mitigation measure is new and specific to the construction at the Arden Pond Mitigation Site.

Mitigation Measure FISH-3: Implement Fish Rescue Plan. Installation of the cofferdam and dewatering in the Arden Pond Mitigation Site during construction could result in fish stranding, both during initial temporary dam installation and following potential temporary dam overtopping events. USACE would implement fish rescues acceptable to NMFS. USACE would implement dewatering in a manner that is not harmful to fish or other aquatic or semi-aquatic wildlife. Dewatering would initially use the least impactful techniques, such as draining the pond via gravity first followed by using a pump system to complete the dewatering. The suction end of the intake pipe shall be fitted with fish screens intended to prevent entrainment or impingement of small fish.²⁶ USACE would ensure that dewatering would be implemented with a fish rescue team composed of several qualified fisheries biologists and/or technicians, each with experience in fish capture and handling to maximize efficiency of rescues while avoiding potential stranding or desiccation of fish. The fish rescue effort will be implemented during the dewatering of the pond area behind the temporary dams and involve capture and return of those fish to suitable habitat within adjacent waterways, or to a NMFS approved location. The area will first be seined, to the extent feasible, followed by electrofishing to remove fish that are behind the dam. The contractor will monitor the progress of dewatering and allow for the fish rescue to occur prior to completely closing the dam and again when water depths reach the approximate elevation of the American River. NMFS will be notified at least 48 hours prior to the start of fish rescue efforts. Information on the species, number, and sizes of fish collected will be recorded during the fish rescue and provided in a letter report to be submitted within 30 days after the fish rescue to NMFS. Implementation of fish rescues would minimize potential adverse effects to listed fish species (if present) associated with fish stranding during dewatering activities related to the construction activities.

Additionally, the previously adopted mitigation measures that address riparian habitat removal in the ARCF GRR FEIR/FEIS Vegetation and Wildlife Section (Section 3.6) and summarized in Section 3.4 of this document (Mitigation Measures VEG-1 and VEG-2) would reduce impacts on fisheries resources. BMPs associated with construction related impacts such as dust, runoff, turbidity, and spills that are summarized in Section 3.3,

²⁶ http://www.dfg.ca.gov/fish/ResQurces/Projects/Engin/Engin_ScreenCriteria.asp.

Hydrology and Water Quality of this Supplemental EIS/EIR (Mitigation Measure WQ-1) and are consistent with the Water Quality and Groundwater Resources Section of the ARCF GRR FEIR/FEIS Section (Section 3.5) that would also reduce impacts on fisheries resources. Lastly, mitigation measures that address impacts on listed fish species from the ARCF GRR FEIR/FEIS Special Status Species Section (Section 3.8) and summarized in Section 3.6 of this document (Mitigation Measures FISH-4 and SRA-1) would also reduce impacts on fisheries resources.

Summary

Implementation of the previously adopted mitigation measures in the ARCF GRR FEIS/FEIR, as modified with the Proposed Action site-specific measures as described in the mitigation measures above, and new Mitigation Measure FISH-2 would reduce the impact of the Proposed Action on fisheries resources to a less-than-significant level.

3.6 Special Status Species

3.6.1 Environmental Setting

3.6.1.1 Regulatory Setting

Section 3.6 (pages 144 and 145) of the ARCF GRR FEIS/FEIR presents Federal and State laws governing special-status species. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations and described the status of overall ARCF project compliance with those laws and regulations. While most of these laws and regulations are unchanged, two of the applicable laws and regulations related to special-status species have changed, as summarized below. The American River Parkway Plan which addresses management of special-status species habitats is described in Section 3.4.1.1, above.

Changes to the Federal Migratory Bird Treaty Act and the Federal Endangered Species Act are discussed below.

Migratory Bird Species Act

In December 2017, the acting Solicitor of the U.S. Department of the Interior issued a memorandum stating that the Migratory Bird Treaty Act does not prohibit incidental take of migratory birds.²⁷ This interpretation has been challenged in Federal court. In California, migratory birds are still protected (including from incidental take) under State law.²⁸

²⁷ Jordani, D. H. 2017. Memorandum M-37050 to the Secretary, Deputy Secretary, et al. Subject: The Migratory Bird Treaty Act Does Not Prohibit Incidental Take, U.S. Department of the Interior, Washington, DC, December 2017. Available: <https://www.doi.gov/sites/doi.gov/files/uploads/m-37050.pdf>. Accessed January 11, 2021.

²⁸ California Department of Fish and Wildlife and X. Becerra. 2018. California Department of Fish and Wildlife and California Attorney General Xavier Becerra Advisory Affirming California's Protections for Migratory Birds, Sacramento, CA, November 29, 2018. Available: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=162352>. Accessed January 12, 2021.

Federal Endangered Species Act Regulations

The Federal Government has adopted several rules regarding implementation of the Federal Endangered Species Act (e.g., 84 *Federal Register* 44976, August 27, 2019); however, these changes do not substantially change the application of NEPA to the Proposed Action.

Other relevant laws and regulations that have remained unchanged are:

- National Environmental Policy Act of 1969, as amended (42 USC 4321 et seq.)
- Wild and Scenic Rivers Act (16 USC 1217 et seq.)
- California Endangered Species Act
- California Environmental Quality Act, as amended

3.6.1.2 Existing Conditions

Section 3.8 (pages 144–195) of the ARCF GRR FEIS/FEIR describes the regional and local setting in the vicinity of the Project Area for the Proposed Action. The following provides additional information specific to the Project Area. For the purposes of this section, the Project Area includes Subreach 2, Sites 2-2 and 2-3 (including the Campus Commons Golf Course), Subreach 4, the Arden Pond Mitigation Site, and Rossmoor West and East sites.

Updated lists of regionally-occurring special-status species were compiled from a nine-quadrangle search of the California Natural Diversity Database (CNDDDB);²⁹ a nine-quadrangle search of the California Native Plant Society (CNPS) database;³⁰ a search of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation endangered species database;³¹ and literature regarding the biological resources of the region. The search encompassed the following 7.5-minute U.S. Geological Survey topographic quadrangles:

Taylor Monument	Rio Linda	Citrus Heights
Sacramento West	Sacramento East	Carmichael
Clarksburg	Florin	Elk Grove

²⁹ California Department of Fish and Wildlife. 2021. California Natural Diversity Database (CNDDDB) search for the U.S. Geological Survey 7.5-minute Sacramento East topographic quadrangle and surrounding eight quadrangles. RareFind 5.0. Version 5.2.14. Biogeographic Data Branch. Information accessed January 12, 2021.

³⁰ California Native Plant Society. 2021. Special-status Plants documented on the U.S. Geological Survey 7.5-minute Sacramento East topographic quadrangle and surrounding eight quadrangles. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Rare Plant Program. Available: www.rareplants.cnps.org. Accessed January 12, 2021.

³¹ U.S. Fish and Wildlife Service. 2021. List of Threatened and Endangered Species that may occur in you Proposed Project Location or may be Affected by your Proposed Project. Consultation Code: 08ESMF00-2021-SLI-0720; Event Code: 08ESMF00-2021-E-02098. Species list generated January 14, 2021.

Species on the list were assessed on the basis of habitat requirements and distribution relative to the location of and vegetation communities occurring in and around the Project Area. **Tables 3-4** and **3-5** provide comprehensive lists of the special-status species considered in this analysis.

The “Potential to Occur” categories are defined as follows:

- **None:** The Project Area does not provide habitat and occurs outside of the known extant geographic and/or elevation range for the species.
- **Unlikely:** The Project Area provides only limited and low-quality habitat for a particular species and the known range for a particular species may be outside of the Project Area. Specific to plants, the Project Area may provide habitat, but the species was not observed within the Project Area during botanical surveys conducted during the identifiable period.³²
- **Likely:** The Project Area and/or immediate vicinity provides suitable habitat for a particular species.
- **Present:** The species (or evidence of its presence) was observed during biological resources surveys conducted within the Project Area (see below).

Species unlikely to occur within the Project Area are not discussed further. The analysis below considers those special-status species that have been categorized as likely to occur or are present in the Project Area.

Federally Listed and State-Listed Wildlife Species

Valley Elderberry Longhorn Beetle

Section 3.8.1 (page 149) of the ARCF GRR FEIS/FEIR describes the ecology of valley elderberry longhorn beetle (VELB) in the Project Area. Updated occurrence information is presented below.

There are documented occurrences of VELB in the Project Area from 1984, when 11 beetles were captured, and from 2009. In 2018 and 2020, surveys were completed to update and document the current elderberry and VELB populations within Sites 2-2 and 2-3.³³ Surveys conducted in 2020 documented the current elderberry and VELB populations at Arden Pond.³⁴ Surveys documented the current elderberry and VELB populations within the Rossmoor West and East sites and between these sites and the American River on January 11, 2021.

³² Environmental Science Associates. 2019. American River Common Features Project American River Contract 1. Special-Status Species Report. August 2019.

³³ Environmental Science Associates. 2018. *Lower American River Subreach 2 Draft Final Resource Assessment*. November 2018.

³⁴ Environmental Science Associates. 2020. American River Common Features 2016 Project American River Erosion Protection – American River Contract 3 Detailed Resource Assessment Report. Revised Draft. October 2020.

TABLE 3-4
REGIONALLY OCCURRING SPECIAL-STATUS ANIMAL SPECIES CONSIDERED IN THE PROJECT AREA

List Type	Animal Type	Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Listed Species	Invertebrates	crotch bumble bee <i>Bombus crotchii</i>	NL/NL	Open grasslands and scrub habitat in California with available underground nesting habitat in animal burrows.	Unlikely. Annual grassland and scrub habitats are available and several commonly visited flower species were observed in the Project Area; however, nearest occurrence is 18 miles to the west at the U.C. Davis arboretum. No sightings in the project vicinity.
		western bumble bee <i>Bombus occidentalis</i>	NL/NL	Nests, forages, and overwinters in meadows and grasslands with abundant floral resources and available underground nesting habitat in animal burrows. Range is throughout California, but more common in the Sierra Nevada and Coast Ranges than in the Central Valley.	Unlikely. Grassland habitat is available, but the western bumble bee is uncommon in the Central Valley. Nearest historic occurrence from 1965 is 17 miles to the west near the City of Davis.
		Conservancy fairy shrimp <i>Branchinecta conservatio</i>	FE/NL	Occurs in swales in grassland communities and in large turbid vernal pools, where rooted vegetation is absent.	None. Vernal pool landscapes and hydrology not present.
		vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT/NL	Vernal pools, swales, and ephemeral freshwater habitat. Most commonly found in small (< 0.05 acre), clear to tea-colored vernal pools with mud, grass, or basalt bottoms in unplowed grasslands.	None. Vernal pool landscapes and hydrology not present.
		valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT/NL	Mature elderberry shrubs with stems one inches in diameter or greater at ground level.	Present. Elderberry plants are present in the Project Area. Exit holes observed.
		vernal pool tadpole shrimp <i>Lepidurus packardii</i>	FE/NL	Typically occurs in large, deep vernal pools, but also uses smaller pools within larger vernal pool complexes.	None. Vernal pool landscapes and hydrology not present.
	Amphibians	California tiger salamander <i>Ambystoma californiense</i>	FT/CT	Grassland, oak savannah, and edges of mixed woodland and lower elevation coniferous forest. Spends much time underground in mammal burrows. Breeds in temporary ponds such as vernal pools but may also breed in slower parts of streams with few predators.	Unlikely. Grassland habitat is present, but vernal pool landscapes are not present.
		California red-legged frog <i>Rana draytonii</i>	FT/CSC	Inhabits ponds, quiet pools of streams, marshes, and riparian areas with dense, shrubby, or emergent vegetation. Likely extirpated from the Central Valley since the 1960s.	None. The Project Area occurs outside of the known extant geographic range for this species.

TABLE 3-4 (CONTINUED)
REGIONALLY OCCURRING SPECIAL-STATUS ANIMAL SPECIES CONSIDERED IN THE PROJECT AREA

List Type	Animal Type	Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Listed Species (cont.)	Reptiles	giant garter snake <i>Thamnophis gigas</i>	FT/CT	Permanent or semi-permanent water and dense emergent vegetation; freshwater marshes, streams, and canals with permanent water.	Unlikely. The American River lacks suitable habitat.
	Birds	tricolored blackbird <i>Agelaius tricolor</i>	NL/CT	Breeds near freshwater in dense emergent vegetation or dense brush.	Unlikely. Marginal nesting habitat in the willow riparian area. Closest known occurrence is greater than 5 miles away.
		golden eagle <i>Aquila chrysaetos</i>	NL/CFP	Uncommon permanent resident and migrant throughout California, except in the central portion of the Central Valley. Inhabits rolling foothills, mountainous areas, sage-juniper flats, and deserts.	None. The Project Area does not provide habitat and occurs outside of the known extant geographic range.
		Swainson's hawk <i>Buteo swainsoni</i>	NL/CT	Often nests near riparian systems, but also uses lone trees in agricultural fields or pastures and roadside trees when available and adjacent to suitable foraging habitat.	Likely. Riparian provides suitable nesting habitat. Known to occur within 0.5 miles of the Project Area.
		western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FT/CE	In California, western cuckoos are largely restricted to river valleys in the north-central (e.g., Sacramento River) and southwestern (e.g., Kern River) regions. Western cuckoos prefer to nest in willow (<i>Salix</i> spp.), cottonwood (<i>Populus</i> spp.), and mesquite (<i>Prosopis</i> spp.), but they will also use orchards.	Likely. Vocalization recently documented approximately 3 miles upstream on a densely forested island in the American River. Sub-marginal nesting habitat occurs in the Project Area, but it may be used by transient birds.
		bank swallow (nesting) <i>Riparia riparia</i>	NL/CT	Colonial nester mostly along coastal areas and rivers in Northern and Central California. Nesting restricted to vertical banks or bluffs with friable soils suitable for burrowing. Vegetation is varied; nesting sites are selected mostly based on the suitability of the nesting bank.	Likely. Previously observed approximately 0.5 miles downstream of the Project Area. No bank nesting habitat observed within the Project Area, but may use the Project Area for foraging.
	Fishes	Delta smelt <i>Hypomesus transpacificus</i>	FT/CE	Euryhaline (tolerant of a wide salinity range) species that is confined to the San Francisco Estuary, principally in the Delta and Suisun Bay	None. The Project Area occurs outside of the known extant geographic range for this species.
		Sacramento River winter-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	FE/CE	Cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	Likely. Juveniles hatched in the Sacramento River may enter the Lower American River for non-natal refugia and rearing after emigrating from their natal Sacramento River.

TABLE 3-4 (CONTINUED)
REGIONALLY OCCURRING SPECIAL-STATUS ANIMAL SPECIES CONSIDERED IN THE PROJECT AREA

List Type	Animal Type	Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Listed Species (cont.)	Fishes (cont.)	Central Valley spring-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	FT/CT	Cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	Likely. Juveniles hatched in tributaries of the Sacramento River may use the Lower American River for non-natal rearing and refugia after emigrating from their natal rivers and streams.
		California Central Valley steelhead <i>Oncorhynchus mykiss</i>	FT/NL	Cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	Present. Adults spawn in Lower American River gravel and juveniles rear in and emigrate through the Lower American River.
		North American green sturgeon <i>Acipenser medirostris</i>	FT/NL	Cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	Unlikely. No evidence of occurrence in the Lower American River exists, but Federal critical habitat is designated in the Lower American River from its confluence with the Sacramento River upstream to the State Route 160 bridge.
Non-listed Special-Status Species	Amphibians	western spadefoot <i>Spea hammondi</i>	NL/CSC	Grasslands within lowland washes, floodplains, alluvial fans, and playas. Breeds almost exclusively in vernal pools or similar seasonal wetlands.	Unlikely. Grassland habitat is present, but vernal pool landscapes are not present.
	Reptiles	western pond turtle <i>Actinemys marmorata</i>	NL/CSC	Variety of aquatic habitats, both permanent and intermittent, with suitable aerial and aquatic basking sites. Needs upland habitats for nesting, overwintering, and aestivating.	Present. Observed in the Project Area during surveys.
	Birds	burrowing owl <i>Athene cunicularia</i>	NL/CSC	Nests and roosts in burrows, usually of ground squirrels, in grasslands and ruderal habitats.	Likely. Potential nesting habitat along the levees where several ground squirrel burrows were observed. Closest known extant CNDDDB occurrence is 3 miles to the south.
		purple martin <i>Progne subis</i>	NL/CSC	Nests mostly in old woodpecker cavities; also nests in human-made structures. Nest is often located in tall, isolated trees/snags.	Likely. Potential nesting habitat in the Project Area. Known to occur on bridge and overpass structures within 1 mile of the Project Area.
	MBTA-Protected Birds and California Fish and Game Code Subsections 3503 and 3503.5	Cooper's hawk <i>Accipiter cooperii</i>		A common migrant and winter resident. Nests and forages in a wide variety of forest and woodland habitats.	Likely. Known to occur within 0.5 miles of the Project Area.
		great egret (rookery site) <i>Ardea alba</i>		Colonial nester in large trees. Rookery sites located near marshes, tide flats, irrigated pastures, and margins of rivers and lakes.	Likely. Potential nesting habitat in the Project Area. There is an egret rookery approximately 5 miles upstream of the Project Area on the American River.

TABLE 3-4 (CONTINUED)
REGIONALLY OCCURRING SPECIAL-STATUS ANIMAL SPECIES CONSIDERED IN THE PROJECT AREA

List Type	Animal Type	Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Non-listed Special-Status Species (cont.)	MBTA-Protected Birds and California Fish and Game Code Subsections 3503 and 3503.5 (cont.)	great blue heron (rookery site) <i>Ardea herodias</i>		Variety of habitats near sources of water. Nests commonly high in the tops of secluded large snags or live trees.	Likely. Potential nesting habitat in the Project Area. There is a heron rookery within 5 miles downstream of the Project Area on the American River.
		Ferruginous hawk <i>Buteo regalis</i>		Inhabits natural grasslands mostly in the northwest including Canada, eastern Oregon, Nevada, northern Arizona, New Mexico, and Texas.	Unlikely. Grassland provides habitat, but the Project Area occurs outside of the known extant geographic range for nesting.
		white-tailed kite (nesting) <i>Elanus leucurus</i>	NL/FP	Savanna, open woodland, marshes, partially cleared lands and cultivated fields, mostly in lowland habitats. Nests in trees, often near marshes.	Present. Known to occur in the Project Area.
		merlin <i>Falco columbarius</i>		Breeds in patchy shrub/grassland from northward tree limit in Alaska, Canada, and Eurasia southward to southern Alaska, Oregon, Idaho, South Dakota, northern Great Lakes region, New York, Maine, Nova Scotia, British Isles, and central Russia.	Unlikely. Grassland provides habitat, but the Project Area occurs outside of the known extant geographic range for nesting.
	Mammals	pallid bat <i>Antrozous pallidus</i>	NL/CSC	Arid deserts and grasslands of low elevations in California; often near rocky outcrops and water. Usually roosts in rock crevices or buildings, less often in caves, tree hollows, mines, etc. Prefers narrow crevices in caves as hibernation sites.	Likely. This species may roost in buildings and bridges in the Project Area; however, roosting is not reported by the CNDDB within 5 miles of the Project Area or within the nine-quadrangle area that includes the Project Area.
		western red bat <i>Lasiurus blossevillei</i>	NL/CSC	Associated with riparian habitat. Roosts primarily in the foliage of trees or shrubs, but may also occasionally use caves. Day roosts commonly in edge habitats.	Likely. This species may roost in mixed oak woodland habitat in the Project Area; however, roosting is not reported by the CNDDB within 5 miles of the Project Area or within the nine-quadrangle area that includes the Project Area.
		American badger <i>Taxidea taxus</i>	NL/CSC	Requires sufficient food, friable soils to excavate dens and pursue prey, and relatively open, uncultivated ground.	Likely. The potential exists for this species to use the Parkway. Although no signs of presence were observed, there were small fossorial mammal burrows and ground squirrel activity. There are two known occurrences within 5 miles; however, the most recent sighting was from 1991.
	Fishes	Sacramento perch <i>Archoplites interruptus</i>	NL/CSC	Currently found mostly in warm, turbid, moderately alkaline reservoirs or farm ponds, generally where other centrarchids are absent.	None. The Project Area does not provide habitat.

TABLE 3-4 (CONTINUED)
REGIONALLY OCCURRING SPECIAL-STATUS ANIMAL SPECIES CONSIDERED IN THE PROJECT AREA

List Type	Animal Type	Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Non-listed Special-Status Species (cont.)	Fishes (cont.)	Central Valley fall-/late fall-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	NL/CSC	Cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	Present. Adults spawn in Lower American River gravel and juveniles rear in and emigrate through the Lower American River.
		hardhead <i>Mylopharodon conocephalus</i>	NL/CSC	Low to mid-elevation streams with clear, deep pools and runs with slow velocities.	Present. Known to occur in the Lower American River.
		western river lamprey <i>Lampetra ayresi</i>	NL/CSC	Cold, freshwater streams with suitable gravel for spawning and sandy to silty backwaters or stream edges for larval rearing.	Present. Adults spawn in Lower American River gravel and larvae rear in the Lower American River.

NOTES:

CDFW = California Department of Fish and Wildlife; CNDDDB = California Natural Diversity Database; Delta = Sacramento–San Joaquin Delta; Parkway = American River Parkway

FEDERAL

FC = Federal candidate for listing; FE = Federally listed as endangered; FT = Federally listed as threatened; MBTA = Migratory Bird Treaty Act; NL = no listing

STATE

CSC = California species of special concern; CE = State listed as endangered; CP = State proposed for listing; CT = State listed as threatened; FP = California fully protected species; NL = no listing

SOURCES:

California Department of Fish and Wildlife. 2021. California Natural Diversity Database (CNDDDB) search for the U.S. Geological Survey 7.5-minute Sacramento East topographic quadrangle and surrounding eight quadrangles. RareFind 5.0. Version 5.2.14. Biogeographic Data Branch. Information accessed January 12, 2021.

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TABLE 3-5
REGIONALLY OCCURRING SPECIAL-STATUS PLANTS CONSIDERED IN THE PROJECT AREA

Listing Status	Common Name Scientific Name	Status Fed/State/ CRPR or Other	Habitat	Potential to Occur
Listed Species	Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>	NL/CE/1B.2	Clay soils; margins of marshes and swamps; vernal pools. 10-2,375 meters. Evident and Identifiable from April–August.	Unlikely. Suitable habitat not present. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	Mason's lilaeopsis <i>Lilaeopsis masonii</i>	NL/CR/1B.1	Freshwater or brackish marshes and swamps; riparian scrub. 0–10 meters. Evident and Identifiable from June–September.	Unlikely. No occurrences this far upriver. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	slender Orcutt grass <i>Orcuttia tenuis</i>	FT/CE/1B.1	Vernal pools, often gravelly. 35 – 1,760 meters. Evident and Identifiable from May – September (October).	Unlikely. Suitable habitat not present. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	Sacramento Orcutt grass <i>Orcuttia viscida</i>	FE/CE/1B.1	Vernal pools. 30 – 100 meters. Evident and Identifiable from April – July (September).	Unlikely. Suitable habitat not present. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
Non-listed Species	Ferris' milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	NL/NL/1B.1	Vernally mesic meadows and seeps; sub-alkaline grasslands. 1–60 meters. Evident and Identifiable from April–May.	Unlikely. Suitable alkaline substrate not present in the Project Area. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	valley brodiaea <i>Brodiaea rosea</i> ssp. <i>vallicola</i>	NL/NL/4.2	Silty, sandy and gravelly loam soils; valley and foothill grasslands along swales; vernal pools. 10-335 meters. Grows in grasslands on old alluvial terraces that have developed a perched water table, in vernal pool landscapes (Preston, 2013). Evident and Identifiable from April–May (June).	Unlikely. Vernal pool landscapes and hydrology not present. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	bristly sedge <i>Carex comosa</i>	NL/-/2B.1	Coastal prairie; margins of marshes and swamps; valley and foothill grassland. 0–625 meters. Evident and Identifiable from May–September.	Likely in Rossmoor. Grassland within the Rossmoor provides suitable habitat. Likely in Arden Pond. Open water provides suitable habitat. Unlikely in Sites 2-2 and 2-3. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.

TABLE 3-5 (CONTINUED)
REGIONALLY OCCURRING SPECIAL-STATUS PLANTS CONSIDERED IN THE PROJECT AREA

Listing Status	Common Name Scientific Name	Status Fed/State/ CRPR or Other	Habitat	Potential to Occur
Non-listed Species (cont.)	pappose tarplant <i>Centromadia parryi</i> ssp. <i>parryi</i>	NL/NL/1B.2	Often on alkaline soils; chaparral; coastal prairie; meadows and seeps; coastal salt marshes and swaps; vernal mesic valley and foothill grassland. 0–420 meters. Evident and Identifiable from May–November.	Unlikely. Suitable alkaline substrate not present in the Project Area. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	Parry's rough tarplant <i>Centromadia parryi</i> ssp. <i>rudis</i>	NL/NL/4.2	Valley and foothill grassland on alkaline, vernal mesic soils; seeps; sometimes roadsides; vernal pools. 0–100 meters. Evident and Identifiable from May–October.	Unlikely. Suitable alkaline substrate not present in the Project Area. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	Peruvian dodder <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	NL/NL/2B.2	Freshwater marshes and swamps. 15–280 meters. Evident and Identifiable from July–October.	Unlikely. Suitable habitat present, but last seen in 1948 in Merced County. Observations in Sacramento County have not yet been verified. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	dwarf downingia <i>Downingia pusilla</i>	NL/NL/2B.2	Mesic valley and foothill grassland; vernal pools; roadside ditches. 1–445 meters. Evident and Identifiable from March–May.	Unlikely. Suitable habitat not present. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	stinkbells <i>Fritillaria agrestis</i>	NL/NL/4.2	Clay or sometimes serpentine soils; chaparral; cismontane woodland; pinyon and juniper woodland; valley foothill grassland. 10–1,555 meters. Evident and Identifiable from March–June.	Unlikely. Suitable habitat on suitable soil is not present. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	hogwallow starfish <i>Hesperervax caulescens</i>	NL/NL/4.2	Valley and foothill grassland on mesic, clay soils; vernal pools. 0–505 meters. Evident and Identifiable from March–June.	Unlikely. Suitable habitat on suitable soil is not present. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.

TABLE 3-5 (CONTINUED)
REGIONALLY OCCURRING SPECIAL-STATUS PLANTS CONSIDERED IN THE PROJECT AREA

Listing Status	Common Name Scientific Name	Status Fed/State/ CRPR or Other	Habitat	Potential to Occur
Non-listed Species (cont.)	woolly rose-mallow <i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	NL/NL/1B.2	Often in riprap on sides of levees; freshwater marshes and swamps. 0–120 meters. Evident and Identifiable from June–September.	Unlikely in Rossmoor. Grassland does not provide suitable habitat. Likely in Arden Pond. Open water provides suitable habitat. Unlikely in Sites 2-2 and 2-3. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	Northern California black walnut <i>Juglans hindsii</i>	NL/NL/1B.1	Deciduous tree found in riparian forests and riparian woodlands up to 460 meters. Widely naturalized as a result of agricultural use as a rootstock for English walnuts. Considered native and special status in stands at three sites. Evident and Identifiable from April–May.	Unlikely. None of the special status native stands are near the Project Area.
	Ahart's dwarf rush <i>Juncus leiostermus</i> var. <i>ahartii</i>	NL/NL/1B.2	Vernal pools; mesic valley and foothill grassland. 30–229 meters. Evident and Identifiable from March–May.	Unlikely. Project Area outside elevation range. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	legenere <i>Legenere limosa</i>	NL/NL/1B.1	Vernal pools. 1–880 meters. Evident and Identifiable from April–June.	Unlikely. Suitable habitat not present. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	Heckard's pepper-grass <i>Lepidium latipes</i> var. <i>heckardii</i>	NL/NL/1B.2	Alkaline flats within valley and foothill grassland. 2–200 meters. Evident and Identifiable from March–May.	Unlikely. Suitable soils not present. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	hoary navarretia <i>Navarretia eriocephala</i>	NL/NL/4.3	Vernally mesic cismontane woodland, and valley and foothill grassland. 105–400 meters. Evident and Identifiable from May–June.	Unlikely. Project Area outside elevation range. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	Sanford's arrowhead <i>Sagittaria sanfordii</i>	NL/NL/1B.2	Assorted shallow freshwater marshes and swamps. 0–650 meters. Evident and Identifiable from May–October (November).	Present. Suitable habitat present and species was observed in Project Area. Unlikely in Rossmoor. Grassland does not provide suitable habitat. Likely in Arden Pond. The open water provides habitat.

TABLE 3-5 (CONTINUED)
REGIONALLY OCCURRING SPECIAL-STATUS PLANTS CONSIDERED IN THE PROJECT AREA

Listing Status	Common Name Scientific Name	Status Fed/State/ CRPR or Other	Habitat	Potential to Occur
Non-listed Species (cont.)	Suisun Marsh aster <i>Symphotrichum lentum</i>	NL/NL/1B.2	Brackish and freshwater marshes and swamps. 0–3 meters. Evident and Identifiable from (April) May–November.	Unlikely in Rossmoor. Grassland does not provide suitable habitat. Unlikely in Arden Pond. Open water provides marginal habitat. Unlikely in Sites 2-2 and 2-3. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.
	saline clover <i>Trifolium hydropyllum</i>	NL/NL/1B.2	Marshes and swamps; mesic, alkaline valley and foothill grassland; vernal pools. 0–300 meters. Evident and Identifiable from April–June.	Unlikely. Suitable soils not present. Species not observed during botanical surveys conducted in Sites 2-2 and 2-3.

NOTES:

CRPR = California Rare Plant Rank

Status Codes:

FEDERAL

FE = listed as endangered under the Federal Endangered Species Act; FT = listed as threatened under the Federal Endangered Species Act;
NL = no listing

STATE

SE = listed as endangered under the California Endangered Species Act; ST = listed as threatened under the California Endangered Species Act;
NL = no listing

CALIFORNIA RARE PLANT RANK (CRPR)

Rank 1A = Plants presumed extirpated in California and either rare or extinct elsewhere; Rank 1B = Plants rare, threatened, or endangered in California and elsewhere; Rank 2A = Plants presumed extirpated in California, but more common elsewhere;
Rank 2B = Plants rare, threatened, or endangered in California, but more common elsewhere.

An extension reflecting the level of threat to each species is appended to each rarity category as follows:

- .1—Seriously endangered in California
- .2—Fairly endangered in California
- .3—Not very endangered in California

SOURCES:

California Department of Fish and Wildlife. 2021. California Natural Diversity Database (CNDDB). RareFind 5.0. Version 5.2.14. Biogeographic Data Branch.
California Native Plant Society. 2021. Special-status Plants documented on the U.S. Geological Survey 7.5-minute Sacramento East topographic quadrangle and surrounding eight quadrangles. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Rare Plant Program. Available: www.rareplants.cnps.org. Accessed January 12, 2021.
Preston, R. E. 2013. A Revision of *Brodiaea coronaria* (Asparagaceae: Brodiaeoidae): Morphometric Analysis and Recognition of New and Emended Taxa. *Systematic Botany* 38(4):1012–1028. DOI: 10.1600/036364413X674913.
U.S. Fish and Wildlife Service. 2021. List of Threatened and Endangered Species that may occur in you Proposed Project Location or may be Affected by your Proposed Project. Consultation Code: 08ESMF00-2021-SLI-0720; Event Code: 08ESMF00-2021-E-02098. Species list generated January 14, 2021.

Surveys were conducted in accordance with the USFWS 2017 *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (2017 Framework).³⁵ This guidance document superseded the 1999 *Conservation Guidelines for Valley Elderberry Longhorn*

³⁵ U.S. Fish and Wildlife Service. 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (Desmoceris californicus dimorphus). Sacramento, California. 28 pp.

Beetle.³⁶ Global Positioning System (GPS) point locations and data with sub-meter accuracy were taken for elderberry shrubs with stems measuring 1 inch or greater in diameter at ground level. Visual estimates of shrub height and maximum diameter (canopy) were recorded. All shrubs within the project limits were located in riparian habitat. To ensure consistency with the previous methodology as used in the ARCF 2015 Biological Assessment, a geographic information system (GIS) was used to group elderberry stems into clusters if the stems were within 16 feet of each other (as described in the survey protocol developed by Talley and others for the original 2011 surveys). Each elderberry cluster is considered equivalent to a “shrub.”

In addition to mitigating direct impacts on elderberry shrubs, the 2017 Framework focuses on maintaining the connectivity of riparian habitats. Not only do riparian habitats provide habitat used by VELB for mating, foraging, and dispersal, but studies have shown that healthy riparian habitats increase elderberry recruitment and health. The USFWS 2017 Framework states (pages 7–8):

Because the elderberry is the sole host plant of the VELB, any activities that adversely impact the elderberry shrub may also adversely impact the VELB. Adverse impacts to elderberry shrubs can occur either at a habitat scale or at an individual shrub scale. Activities that reduce the suitability of an area for elderberry plants or elderberry recruitment and increase fragmentation may have adverse impacts to mating, foraging, and dispersal of VELB. The patchy nature of VELB habitat and habitat use makes the species particularly susceptible to adverse impacts from habitat fragmentation.

Occupied clusters of elderberry stems in the Parkway are approximately 25 to 50 meters (82 to 164 feet) apart.³⁷ Therefore, the area within 25 meters of the shrubs is considered a zone of riparian habitat where elderberry plants could be recruited to provide habitat that could be easily reached by VELB, if they were to occupy existing elderberry plants. Thus, surveys also determined the presence of suitable habitat for identified elderberry shrubs.

To determine elderberry shrub habitat, collected data was evaluated and assessed based on Talley et al. 2006; Talley et al. 2007;³⁸ Holyoak et al. 2008;³⁹ and Vaghti et al. 2009.⁴⁰ Elevation of floodplain, associated overstory species, and vegetation canopy structure were considered in determining the affected elderberry shrub habitat. Analysis

³⁶ U.S. Fish and Wildlife Service. 1999. *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*. Sacramento, California. 15 pp.

³⁷ Talley, T. S., D. Wright, and M. Holyoak. 2006. *Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus) 5-Year Review: Summary and Evaluation*. Prepared for U. S. Fish and Wildlife Service, Sacramento Office, Sacramento, California.

³⁸ Talley, T. S., E. Fleishman, M. Holyoak, D. D. Murphy, and A. Ballard. 2007. Rethinking a rare-species conservation strategy in an urban landscape: The case of the valley elderberry longhorn beetle. *Biological Conservation* 135:21–32.

³⁹ Holyoak, M., and M. Koch-Munz. 2008. The effects of site conditions and mitigation practices on success of establishing the Valley elderberry longhorn beetle and its host plant, blue elderberry. *Environmental Management* 42:444–457.

⁴⁰ Vaghti, M. G., M. Holyoak, A. Williams, T. S. Talley, and A. K. Fremier. 2009. Understanding the Ecology of Blue Elderberry to Inform Landscape Restoration in Semiarid River Corridors. *Environmental Management* 43:28–37.

of elderberry shrub elevation data showed that elderberry shrubs rarely occur within frequently inundated areas. Only 2 out of 599 shrubs (0.3 percent) for which elevation data was available in the Project Area occurred below the elevation of the 2-year flood (i.e., 18,500 cfs or the OHWM), which is at about 26 feet in elevation on the National Geodetic Vertical Datum (NGVD) in Sites 2-2 and 2-3. Elderberry shrubs are more likely found at 12 feet above the summer low flow (at 17.4 feet or 2,660 cfs),⁴¹ which, on average, is at about 30 feet NGVD in the Project Area. Analysis of the plant communities that elderberry shrubs are associated with found that elderberry shrubs are most commonly found in elderberry savanna, and black walnut– or black locust–dominated communities, but can be found in virtually all woodland and scrub communities above the OHWM. Woodland or scrub communities occurring above the OHWM and within 82 feet of an elderberry shrub canopy were considered suitable habitat for VELB. Non-native grasslands, open water, paved surfaces, and barren land were not considered habitat for VELB. **Figures 3-2 and 3-3** show elderberry shrubs and habitat for the VELB within the Project Area.

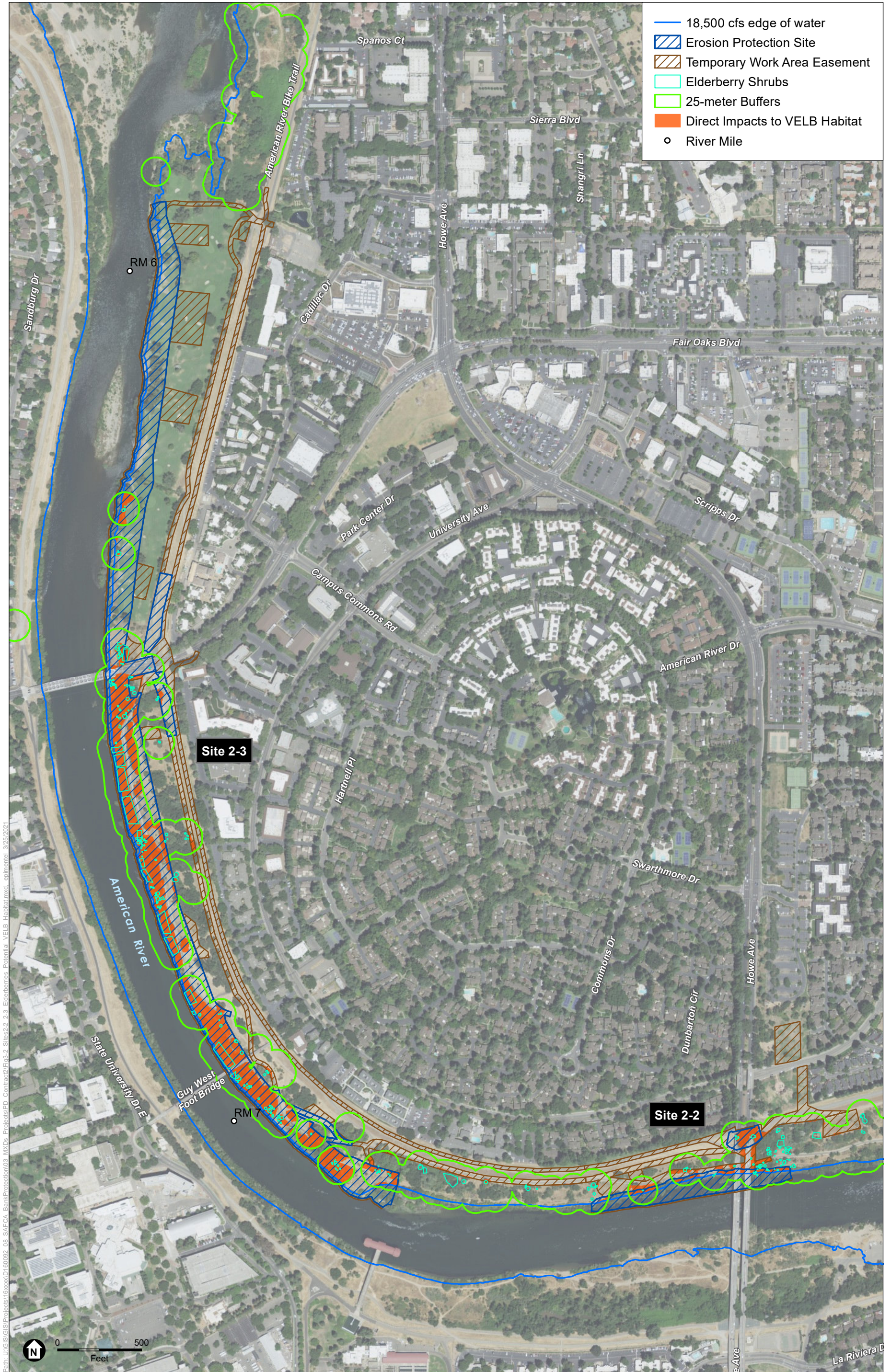
Western Yellow-Billed Cuckoo

Western yellow-billed cuckoo is State-listed as endangered. Section 3.8.1 (page 151) of the ARCF GRR FEIS/FEIR describes the ecology of this species in the Project Area. In addition, in May 2017 USFWS received a petition to delist the Western distinct population segment of the western yellow-billed cuckoo. After reviewing the petition, USFWS determined in June 2018 that substantial scientific or commercially available data to support delisting had been provided and that further review of the potential delisting was warranted. The Western distinct population segment of the yellow-billed cuckoo is currently under 5-year review. Updated occurrence information is presented below.

Until very recently, the CNDDDB's last documented occurrence of western yellow-billed cuckoo in the vicinity of the Project Area is from the late 1800s. However, on July 27, 2019, a cuckoo vocalization was documented approximately 3 miles upstream on a heavily forested island in the American River.⁴² A single vocalization was heard but no additional information was gathered. Based on habitat quality, this may have been a transient bird moving through from breeding sites along the Sacramento River.

The Project Area provides marginal remnant riparian habitat that may be used for foraging or dispersal (**Figures 3-4 and 3-5**). However, the riparian habitat in the Project Area does not meet the typical size requirements (25 contiguous acres or more) for home ranges of nesting western yellow-billed cuckoos.⁴³

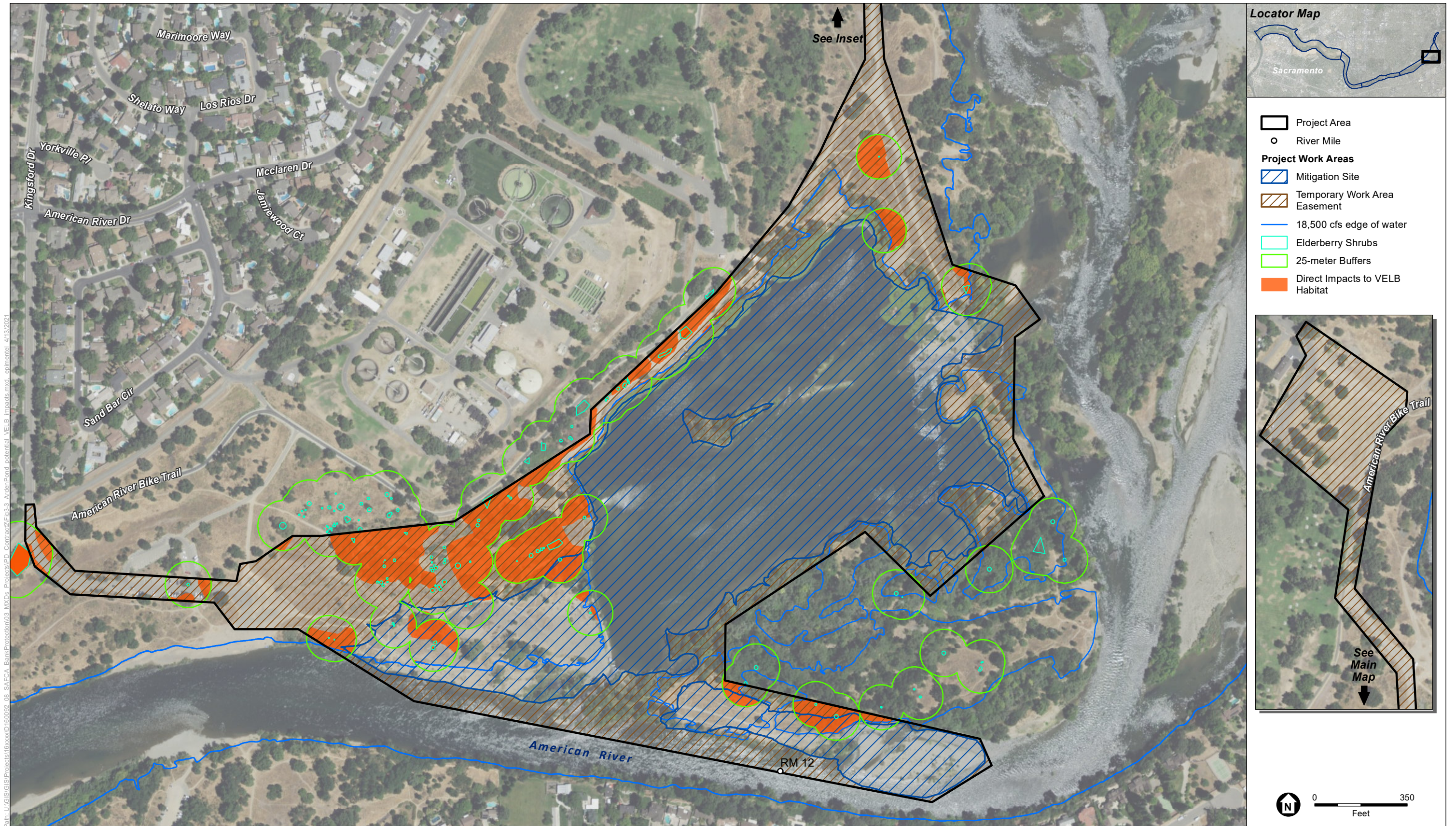
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- ⁴¹ Vaghti, M. G., M. Holyoak, A. Williams, T. S. Talley, and A. K. Fremier. 2009. Understanding the Ecology of Blue Elderberry to Inform Landscape Restoration in Semiarid River Corridors. *Environmental Management* 43:28-37.
- ⁴² Ron Melcer Jr., Senior Environmental Scientist–Supervisor, Delta Stewardship Council, email communication with Gerrit Platenkamp, Project Manager, ESA, July 28, 2019.
- ⁴³ U.S. Fish and Wildlife Service. 2001. Endangered and Threatened Wildlife and Plants; 12-Month Finding for a Petition to List the Yellow-Billed Cuckoo (*Coccyzus americanus*) in the Western Continental United States. *Federal Register* 66:38611–38626, July 25, 2001.



SOURCE: USDA, 2018; NHC, 2021; ESA, 2021

ARCF 2016 American Rivert Contract 2

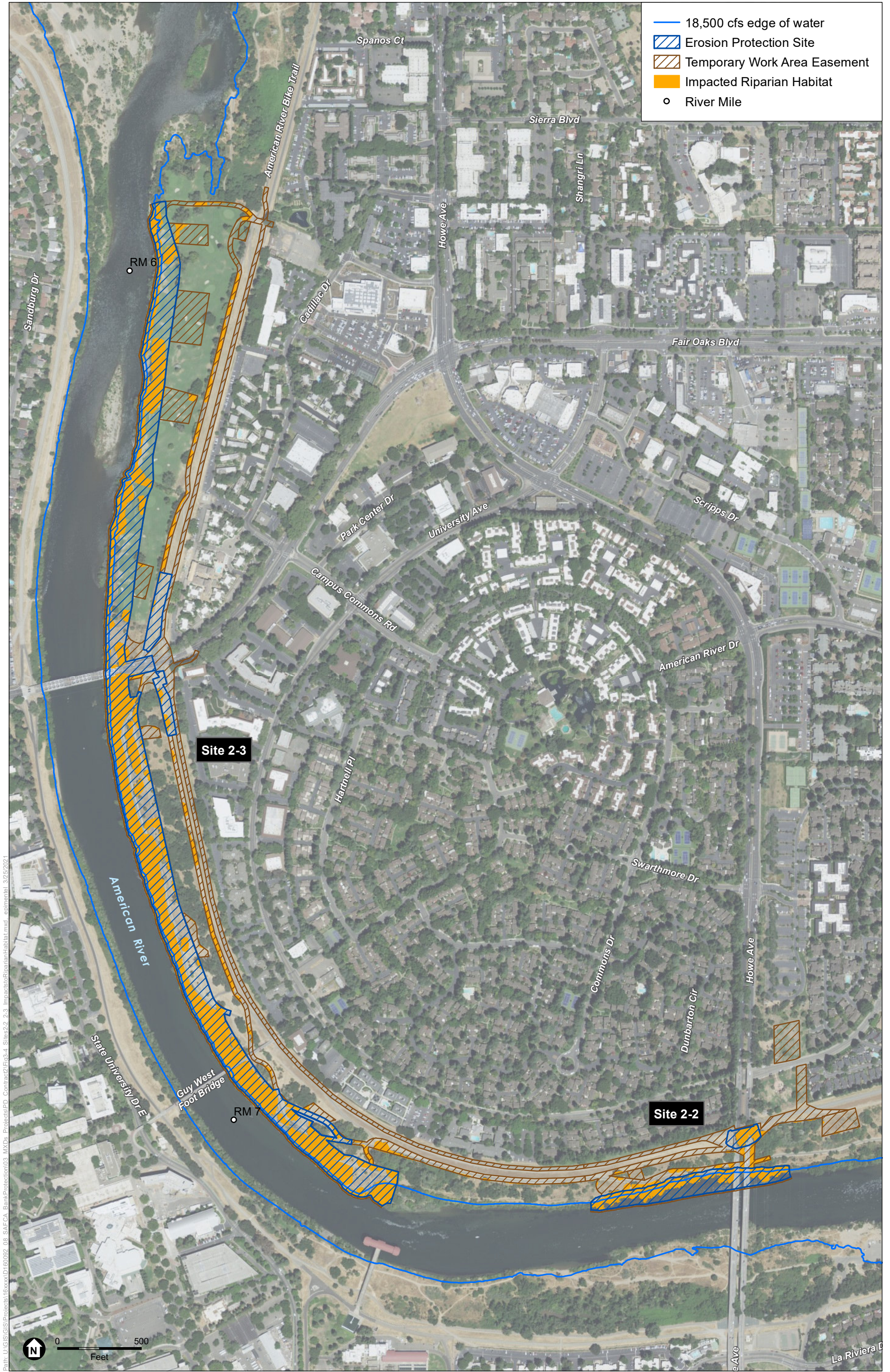
Figure 3-2
Project Impacts to VELB Habitat



SOURCE: Sacramento County, 2018; NHC, 2021; ESA, 2021

ARCF 2016 American River Contract 2

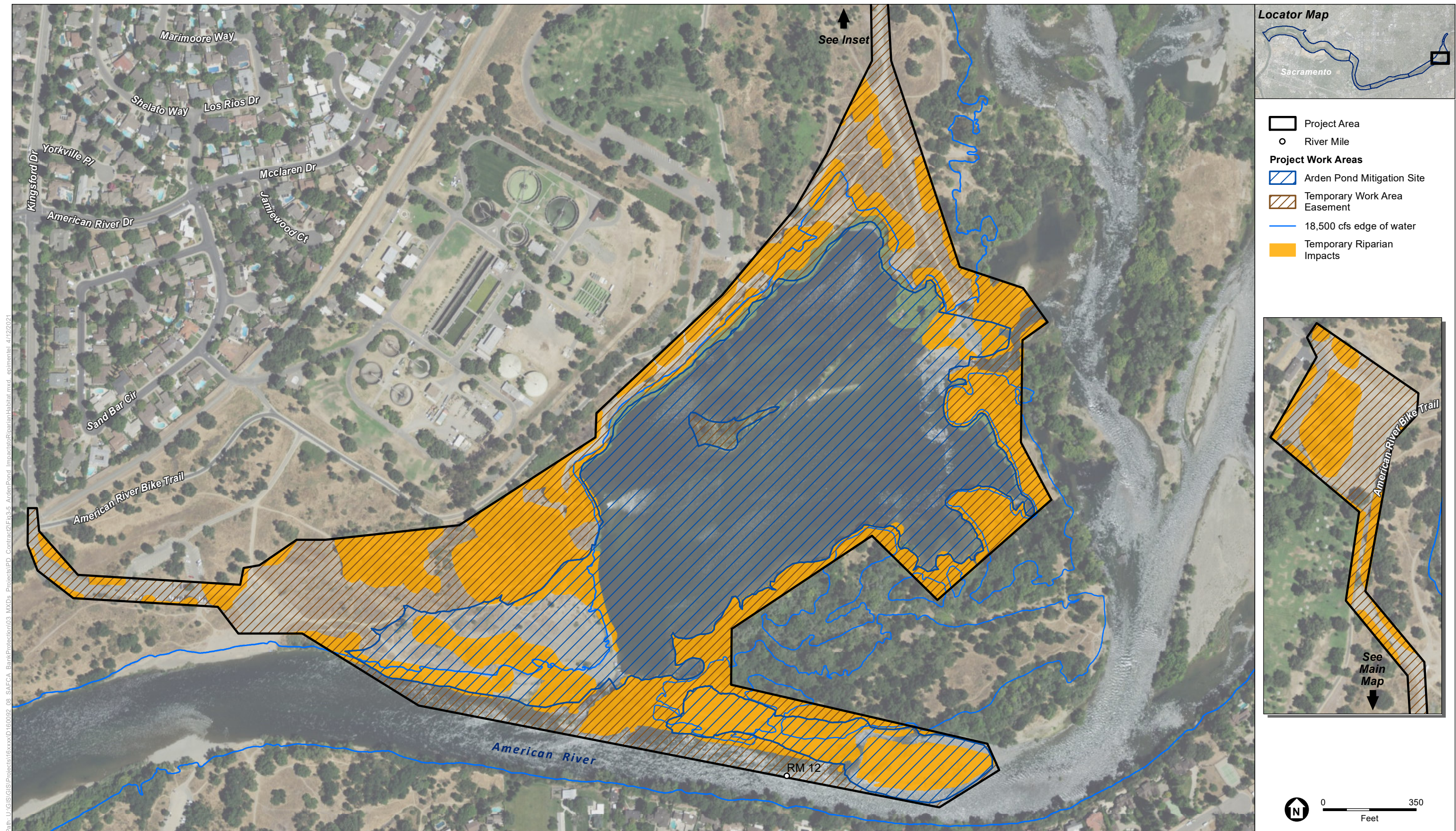
Figure 3-3
Potential Impacts to VELB Habitat at Arden Pond



SOURCE: USDA, 2018; NHC, 2021; ESA, 2021

American River Contract 2

Figure 3-4
Project Impacts to Riparian Habitat



SOURCE: Sacramento County, 2018; NHC, 2021; ESA, 2021

ARCF 2016 American River Contract 2

Figure 3-5
Temporary Impacts to Riparian Habitat at Arden Pond

Swainson's Hawk

Swainson's hawk is State-listed as threatened. Section 3.8.1 (pages 151–152) of the ARCF GRR FEIS/FEIR describes the ecology of this species in the Project Area. Updated occurrence information is presented below.

The closest CNDDDB occurrence of Swainson's hawk is of a nesting pair approximately 0.5 mile west of the Project Area. The pair was last observed nesting in 2011. A pair was observed in the same vicinity in 2012, but nesting was not confirmed. The most recently documented CNDDDB occurrence, in 2017, is a nest approximately 1.5 miles west of the Project Area. In addition, a nest has been regularly documented just upstream of Howe Avenue,⁴⁴ and a potential nesting pair was observed in May 2019 by a California Department of Water Resources survey team just downstream of Watt Avenue, approximately 1.4 miles east of the Project Area.⁴⁵

The large trees in the riparian corridor within the Project Area and adjacent parks provide suitable nesting sites and annual grasslands and nearby parks provide suitable foraging habitat.

Bank Swallow

Bank swallow is State-listed as threatened. It is a neotropical migrant that arrives in California in May and breeds before returning to South America in late July or August. Swallows inhabit primarily riparian and lowland habitats with vertical banks, bluffs, and cliffs where they dig holes for nesting in sandy or fine-textured soil.⁴⁶ The species' range in California is estimated to have been reduced by 50 percent since 1900.⁴⁷ Bank swallow was formerly more common as a breeder in California. Now, only approximately 110–120 colonies remain in the state. Approximately 75 percent of the current breeding population in California occurs along the banks of the Sacramento and Feather Rivers in the northern Central Valley.⁴⁸

A historical population of nesting bank swallows was documented in the CNDDDB, approximately 0.5 miles downstream of the Project Area. The most recent record for this location is from 1986. The closest recent (2017) CNDDDB record is from near Knights Landing, 17 miles from the Project Area. Although nesting habitat in the Project Area is limited, as the banks are mostly covered in dense vegetation, there is high-quality foraging habitat that bank swallows may use.

⁴⁴ K. C. Sorgen, Senior Natural Resources Specialist, Sacramento Area Flood Control Agency. Comments on an administrative draft of Wildlife Habitat Survey Report for American River Common Features 2016 Project American River Contract 1, September 10, 2019.

⁴⁵ Lori Price, Environmental Scientist, Flood Projects Office, California Department of Water Resources. Comments on an administrative draft of Wildlife Habitat Survey Report for American River Common Features 2016 Project American River Contract 1, August 30, 2019.

⁴⁶ California Department of Fish and Game. 1999. California Wildlife Habitat Relationships System California Interagency Wildlife Task Group: Bank Swallow.

⁴⁷ California Department of Fish and Game. 1999. California Wildlife Habitat Relationships System California Interagency Wildlife Task Group: Bank Swallow.

⁴⁸ California Department of Fish and Game. 1999. California Wildlife Habitat Relationships System California Interagency Wildlife Task Group: Bank Swallow.

Sacramento River Winter-Run Chinook Salmon

Sacramento River winter-run Chinook salmon is federal and State-listed as endangered. Section 3.8.1 (pages 154–157) of the ARCF GRR FEIS/FEIR describes the ecology and occurrence of this species in the Project Area.

Central Valley Spring-Run Chinook Salmon

Central Valley spring-run Chinook salmon is federal and State-listed as threatened. Section 3.8.1 (pages 156–158) of the ARCF GRR FEIS/FEIR describes the ecology and occurrence of this species in the Project Area.

California Central Valley Steelhead

California Central Valley steelhead is federal-listed as threatened. Section 3.8.1 (pages 156, 157, and 159–160) of the ARCF GRR FEIS/FEIR describes the ecology and occurrence of this species in the Project Area.

North American Green Sturgeon

North American green sturgeon is federal-listed as threatened. Section 3.8.1 (pages 156, 157, and 161–162) of the ARCF GRR FEIS/FEIR describes the ecology and occurrence of this species in the Project Area.

Non-listed Special-Status Wildlife Species

Western Pond Turtle

Western pond turtle is a State of California species of special concern. This moderate-sized aquatic turtle is commonly found in ponds, lakes, marshes, rivers, streams, and irrigation ditches with rocky or muddy substrates. It basks in sandy areas that may or may not be bordered by aquatic vegetation. Aquatic sites are often within woodlands, grasslands, and open forests between sea level and 6,000 feet. Western pond turtle nests are created in upland areas with friable soils, often up to 0.25 miles from an aquatic site.^{49, 50}

Western pond turtles are discontinuously distributed throughout California west of the Cascade-Sierran crest.⁵¹ There are documented CNDDDB occurrences for this species. This species was observed in the Project Area just downstream of the Campus Commons Golf Course, on the right bank of the river, basking on a log in the water.⁵² Pond turtles are expected to use upland and aquatic habitat in the Project Area throughout the year.

⁴⁹ Jennings, M. R., and M. P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. Final report submitted to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA.

⁵⁰ Zeiner, D. C., W. F. Laudenslayer Jr., and K. E. Mayer (comp. eds.). 1988. *California's Wildlife. Volume I: Amphibians and Reptiles*. California Statewide Wildlife Habitat Relationships System. Sacramento: California Department of Fish and Game.

⁵¹ Jennings, M. R., and M. P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. Final report submitted to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA.

⁵² Environmental Science Associates. 2019. Wildlife Habitat Survey Report: American River Common Features Project American River Contract 1. Prepared for Sacramento Area Flood Control Agency. August 2019.

Burrowing Owl

Burrowing owl is a California species of special concern. Section 3.8.1 (pages 152–153) of the ARCF GRR FEIS/FEIR describes the ecology of this species in the Project Area. Recent occurrence information is presented below.

The closest extant CNDDDB occurrence for burrowing owl is from 2006 and is approximately 3 miles south of the Project Area at the old Army Depot. The non-riparian areas of the levee and bike path along the project corridor in the staging and access areas of the Project Area, especially Site 2-2, consist of disturbed grasslands with small-mammal burrows and ground squirrel activity. This area provides nesting habitat for burrowing owl. Additionally, the annual grassland within the Rossmoor West and East sites provides suitable habitat. During reconnaissance-level surveys, no burrowing owls nor signs of occupied burrows were found.

Purple Martin

Purple martin is a California species of special concern. Section 3.8.1 (page 153) of the ARCF GRR FEIS/FEIR describes the ecology and occurrence of the purple martin, a California species of special concern, and its potential to nest within the Project Area.

White-Tailed Kite

White-tailed kite is a State fully protected species. Section 3.8.1 (page 153) of the ARCF GRR FEIS/FEIR describes the ecology and occurrence of this species in the Project Area.

MBTA-Protected Birds California Fish and Game Code Subsections 3503 and 3503.5

The Federal Migratory Bird Treaty Act and California Fish and Game Code protect raptors, most native migratory birds, and breeding birds that could be present in the Project Area. The Lower American River Parkway corridor provides high-quality foraging and nesting opportunities for a variety of resident and migratory birds. Common passerine and raptor species that may nest in the Parkway's mature trees include western scrub jay, acorn woodpecker, downy woodpecker, northern flicker, black phoebe, American robin, western bluebird, ash-throated flycatcher red-tailed hawk, red-shouldered hawk (observed), and great horned owl. Cliff swallows were observed nesting under the Howe Avenue Bridge. A full list of species observed in the Project Area is provided in Appendix B. Additional information for Cooper's hawk, great egret, and great blue heron are provided below.

Cooper's Hawk

Cooper's hawk is a CDFW watch list species. Cooper's hawk is a resident of wooded areas throughout California, with breeding described throughout the Coast Ranges and Sierra Nevada foothills. The species' peak nesting season is May through July, although nesting may occur any time from March to August.⁵³

⁵³ Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White (eds.). 1990. *California's Wildlife. Volume II: Birds*. Sacramento: California Department of Fish and Game.

A Cooper's hawk nest was recorded by the CNDDDB within one mile south of the Project Area in 2007.⁵⁴ Woodland habitat in and near the Project Area provides potential nesting opportunities for this species.

Great Egret

Great egret is a species protected under the MBTA. This species is a common yearlong resident throughout California, except for high mountains and deserts. They nest in colonies in large trees usually near water. Nests are often sheltered from prevailing winds and may be as high as 100 feet off the ground. Great egrets feed and rest in wetlands, and along the margins of estuaries, lakes, riverine features, mudflats, salt ponds, and irrigated agricultural lands. There is an egret rookery located approximately 5 miles upstream of the Project Area. There were no rookeries observed in the Project Area.

Great Blue Heron

Great blue heron is a species protected under the MBTA. This species is commonly found all year throughout most of California in shallow estuaries and emergent wetlands. They are less commonly found along riverine and rocky marine shorelines, croplands, pastures, and mountains. They usually nest in colonies on the tops of secluded large snags or live trees, usually among the tallest available. There is a heron rookery without 5 miles downstream of the Project Area. There were no rookeries observed in the Project Area.

Pallid Bat

Pallid bat, a California species of special concern, occurs throughout California except in parts of the high Sierra and the northwestern corner of the state.⁵⁵ The pallid bat inhabits a variety of habitats, such as grasslands, shrublands, woodlands, and forests; however, it is most abundant in open, dry habitats with rocky areas for roosting. Pallid bats roost alone, in small groups, or gregariously.⁵⁶ Roosts include caves, crevices in rocky outcrops and cliffs, mines, trees, and various manmade structures (e.g., bridges, barns, porches); they generally have unobstructed entrances/exits that are high above the ground, warm, and inaccessible to terrestrial predators. Year-to-year and night-to-night roost reuse is common; however, bats may switch day roosts on a daily and seasonal basis.⁵⁷

The pallid bat is the most widely described special-status bat species in central California. No occurrences are reported within 5 miles of the Project Area, or in the nine-quadrangle area that includes the Project Area. However, during reconnaissance-level surveys, bats

⁵⁴ California Department of Fish and Wildlife. 2021. California Natural Diversity Database (CNDDDB) search for the U.S. Geological Survey 7.5-minute Sacramento East topographic quadrangle and surrounding eight quadrangles. RareFind 5.0. Version 5.2.14. Biogeographic Data Branch. Information accessed January 12, 2021.

⁵⁵ Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White (eds.). 1990. *California's Wildlife. Volume III: Mammals*. Sacramento: California Department of Fish and Game.

⁵⁶ Western Bat Working Group. 2005. Western Bat Working Group Species Accounts for all Bats. Available: http://www.wbwg.org/speciesinfo/species_accounts/allbats.pdf.

⁵⁷ Western Bat Working Group. 2005. Western Bat Working Group Species Accounts for all Bats. Available: http://www.wbwg.org/speciesinfo/species_accounts/allbats.pdf.

were observed using the H Street Bridge for a day roost. The bats were not identified to species, but the bridge provides suitable roosting habitat for pallid bat.

Western Red Bat

The western red bat is a California species of special concern. This is a riparian obligate species (i.e., a species dependent on riparian habitat) that is ubiquitous throughout California except in the northern Great Basin region. Western red bats roost individually in dense clumps of tree foliage in riparian areas, orchards, and suburban areas. Individuals have been observed foraging around street lamps and floodlights in suburban areas.⁵⁸

Based on its tendency to roost within tree foliage, this species may be intermittently present in the riparian and woodland habitat in the Project Area. However, roosting occurrences are not reported by the CNDDDB within 5 miles of the Project Area or in the nine-quadrangle area that includes the Project Area.

American Badger

The American badger is a California species of special concern. This species prefers open grasslands and riparian habitat in the valley areas, although it is present throughout multiple habitat types in California. This species inhabits areas with friable soils to excavate dens and pursue prey, and relatively open, uncultivated ground. In California, badgers range throughout the state, except for the humid coastal forests of northwestern California in Del Norte County and northwestern Humboldt County.⁵⁹

Reconnaissance-level wildlife surveys of the Project Area in summer 2020 did not detect any badger excavations or other signs of species presence. This species was previously observed in the vicinity of the Project Area (2 miles to the south), but the observation is almost 30 years old. Nonetheless, suitable habitat is present in the Project Area in annual grasslands.

Central Valley Fall-/Late Fall–Run Chinook Salmon

Section 3.8.1 (pages 156, 157, and 158–159) of the ARCF GRR FEIS/FEIR describes the ecology and occurrence of this species in the Project Area.

Hardhead

Hardhead is a California fish species of special concern found at low to mid-elevations in relatively undisturbed habitats of larger streams with clear, cool water. This species prefers pools and runs with deep, clear water, slow velocities, and sand-gravel-boulder

⁵⁸ Western Bat Working Group. 2005. Western Bat Working Group Species Accounts for all Bats. Available: http://www.wbwg.org/speciesinfo/species_accounts/allbats.pdf.

⁵⁹ Williams, D. F. 1986. *Mammalian Species of Special Concern in California*. Wildlife Management Division Administrative Report 86-1. Sacramento: California Department of Fish and Game. June 1986.

substrates. The range for hardhead extends from the Pit River in the north to the Kern River in the south. The species is common in the Lower American River.⁶⁰

Western River Lamprey

Western river lamprey is a California species of special concern. This species prefers clean, gravelly riffles in permanent streams for adult spawning while larvae need sandy to silty backwaters or stream edges. Their range extends from just north of Juneau, Alaska, south to tributaries of the San Joaquin River. They have been observed in the Lower American River.⁶¹

Listed Special-Status Plant Species

No listed special-status plants have the potential to occur within the Project Area.

Non-Listed Special-Status Plant Species

Sanford's Arrowhead

Section 3.8.1 (page 162) of the ARCF GRR FEIS/FEIR describes the ecology and of this species in the Project Area. Updated occurrence information is presented below.

Sanford's arrowhead was observed within Subreach 2, across from Sites 2-3 on the left bank during the special-status plant surveys conducted by Environmental Science Associates in July 2019.⁶² Four individual plants of Sanford's arrowhead were located in an area of mud substrate on the left (west) bank of the American River. There is suitable habitat within Sites 2-2 and 2-3 as well as within the Arden Pond Mitigation Site, but it was not observed in Sites 2-2 or 2-3.

Bristly Sedge

Bristly sedge is a CRPR 2B plant. This species is found in coastal prairie, margins of marshes and swamps, and valley and foothill grassland from 0 to 625 meters. This species is identifiable from May to September. This species was not observed within Sites 2-2 and 2-3 during the botanical surveys conducted in 2019. This species has the potential to occur within the open water area and grassland associated with Arden Pond Mitigation Site and Rossmoor West and East sites.

Woolly Rose-Mallow

Woolly rose-mallow is a CRPR 1B plant. This species is often found in riprap on sides of levees in freshwater marshes and swamps and is identifiable from June to September.

⁶⁰ Moyle, P.B., R. M. Quinones, J. V. Katz and J. Weaver. 2015. *Fish Species of Special Concern in California*. Third Edition. Sacramento: California Department of Fish and Wildlife. Available: <https://www.wildlife.ca.gov/Conservation/SSC/Fishes>. Accessed January 10, 2021.

⁶¹ Moyle, P.B., R. M. Quinones, J. V. Katz and J. Weaver. 2015. *Fish Species of Special Concern in California*. Third Edition. Sacramento: California Department of Fish and Wildlife. Available: <https://www.wildlife.ca.gov/Conservation/SSC/Fishes>. Accessed January 10, 2021.

⁶² Environmental Science Associates. 2019. *American River Common Features 2016 Project American River Contract I, Special-Status Plant Survey Report*. Prepared for U.S. Army Corps of Engineers, Central Valley Flood Protection Board, and Sacramento Area Flood Control Agency. November 2019.

This species was not observed within Sites 2-2 and 2-3 during the botanical surveys conducted in 2019. This species has the potential to occur within the open water area associated with Arden Pond Mitigation Site.

Critical Habitat for Listed Wildlife Species

USFWS defines the term “critical habitat” in the Federal Endangered Species Act as a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat has been designated for the following regionally occurring species: California red-legged frog, California tiger salamander, Conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, Sacramento Orcutt grass, slender Orcutt grass, and VELB. The Project Area does not occur within designated critical habitat for any of these species, although designated critical habitat for VELB abuts the northern boundary of the Rossmoor West site.⁶³

The Project Area is within designated critical habitat for Central Valley spring-run Chinook and California Central Valley steelhead.

The National Marine Fisheries Service (NMFS) defines the term “essential fish habitat” in the Magnuson-Stevens Fishery Conservation and Management Act as waters and substrate of the United States necessary for fish spawning, breeding, or growth to maturity. The Project Area is within essential fish habitat for Chinook salmon.

3.6.2 Methodology and Basis of Significance

3.6.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.8.2 (pages 162–163) of the ARCF GRR FEIS/FEIR. Impacts on special-status species in the Project Area were evaluated based on data collected from biological resources surveys conducted in 2018, 2019, and 2020 at Sites 2-2 and 2-3 (including the Campus Commons Golf Course), in 2020 at Arden Pond, and in 2021 at Rossmoor West and East Mitigation Sites, and from other resources such as the following:

- Aerial imagery.
- An updated list of special-status wildlife species with potential to occur in or in the vicinity of the Project Area that was compiled from a nine-quadrangle search of the CNDDDB.⁶⁴

⁶³ U.S. Fish and Wildlife Service. 2021. List of Threatened and Endangered Species that may occur in you Proposed Project Location or may be Affected by your Proposed Project. Consultation Code: 08ESMF00-2021-SLI-0720; Event Code: 08ESMF00-2021-E-02098. Species list generated January 14, 2021.

⁶⁴ California Department of Fish and Wildlife. 2021. California Natural Diversity Database (CNDDDB) search for the U.S. Geological Survey 7.5-minute Sacramento East topographic quadrangle and surrounding eight quadrangles. RareFind 5.0. Version 5.2.14. Biogeographic Data Branch. Information accessed January 12, 2021.

- A search of USFWS's Information for Planning and Consultation endangered species database.⁶⁵
- Literature regarding the biological resources of the region.
- Coordination with USFWS and NMFS.
- The Standard Assessment Methodology (SAM) model for fish species.

For this analysis, the project alternatives were determined to have a significant impact on special-status species if project activities would have a substantial adverse effect, either directly or through habitat modification, on any species identified as candidate, sensitive, or special-status in local or regional plans or policies, or regulations, or by CDFW, USFWS, or NMFS. The impact analysis also considered the goals and objectives of the American River Parkway Plan and how project construction would affect those goals and objectives. Impacts on special-status species were evaluated based on anticipated construction activities and changes to habitat types after construction of the project.

The SAM analysis used measurements of SRA habitat features in both existing (without-project) and designed (with-project) conditions. Shoreline surveys conducted in 2018 and 2020 provided the without-project data and the 65-percent design plans provided the with-project data. The SAM analysis for individual fish species followed the approach used in the 2015 NMFS Biological Opinion (BO) for the ARCF 2016 Project.

As described in the original NMFS BO,⁶⁶ SAM results are weighted relative response index (WRI) values that represent the difference between modeled fish responses to existing (without-project) conditions and designed (with-project) conditions. Negative WRI values indicate that existing conditions are better for fish and positive WRI values indicate that designed (proposed future) conditions are better for fish. While the quantified WRI values are provided in Appendix D, these numbers are used on a qualitative basis to determine the extent of impacts, and not a quantitative basis to assign value or absolute extent of impacts. Instead, impacts and mitigation have been assessed by determining the slope-area of the project footprint. The slope-area involves measuring surface area of the levee slope below the OHWM (18,500 cfs) and the natural benthic substrate out to the limit of rock placement. See Appendix D for details on updated SAM analysis methods and results.

3.6.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.8.2 (page 163) of the ARCF GRR FEIS/FEIR, as restated below.

⁶⁵ U.S. Fish and Wildlife Service. 2021. List of Threatened and Endangered Species that may occur in you Proposed Project Location or may be Affected by your Proposed Project. Consultation Code: 08ESMF00-2021-SLI-0720; Event Code: 08ESMF00-2021-E-02098. Species list generated January 14, 2021.

⁶⁶ National Marine Fisheries Service. 2015. Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the American River Common Features General Reevaluation Report. pp. 25–26.

The Proposed Action would result in a significant effect related to special-status species if it would result in:

- Substantial direct or indirect reduction in growth, survival, or reproductive success of species listed or proposed for listing as threatened or endangered under the Federal or California Endangered Species Act;
- Substantial direct mortality, long-term habitat loss, or lowered reproductive success of Federally or State-listed threatened or endangered animal or plant species or candidates for Federal listing;
- Direct or indirect reduction in the growth, survival, or reproductive success of substantial populations of Federal species of concern, State-listed endangered or threatened species, plant species listed by the California Native Plant Society, or species of special concern or regionally important commercial or game species; or
- An adverse effect on a species' designated critical habitat.

Effects Not Evaluated Further

Section 3.6.2, *Environmental Setting*, above discusses all special-status wildlife, fish, and plant species evaluated in this analysis and summarizes the potential for each of these species to be present in the Project Area. The wildlife, fish, and plant species that are not expected to occur, or have low potential to occur (because the Project Area does not provide suitable habitat for the species, or because the Project Area is generally outside the species' range) are not analyzed further in this Supplemental EIS/EIR.

3.6.3 Impact Analysis

3.6.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would experience no change in the present level of risk of flooding due to levee failure because of seepage, slope stability, overtopping, or other erosion concerns. This analysis finds the same effects as are described in Section 3.8.3 (page 163) of the ARCF GRR FEIS/FEIR, which are summarized below.

Under the No Action Alternative, no construction-related impacts would occur. If a levee failure were to occur, however, special-status species would experience substantial adverse effects as a result of flooding. The potential for loss of lives and property would require emergency action. The required emergency procedures could have significant effects on special-status species, such as sedimentation and turbidity from emergency repair efforts, a need to suspend best management practices (BMPs), permanent loss of SRA habitat as a result of rock placement, long-term loss of habitat for non-aquatic species, lack of reproductive success, and mortality. All these effects on special-status species would be significant; however, the timing, duration, and magnitude of a flood event is unpredictable, making a precise significance determination impossible.

3.6.3.2 Proposed Action

The following impact analysis is drawn from Section 3.8.4 (pages 164–180) of the ARCF GRR FEIS/FEIR, as revised to reflect the Project Area and the impacts of the Proposed Action. All reference to the construction at Site 2-3 includes analysis of the reconstruction of the Campus Commons Golf Course. In addition, the impact analyses specific to the Arden Pond Mitigation Site and Rossmoor West and East sites are based on the results of the 2020 and 2021 surveys.

Valley Elderberry Longhorn Beetle

Construction would directly affect 1.04 acres of VELB habitat at Site 2-2 and 8.63 acres at Site 2-3. An additional 7.50 acres would be impacted at the Arden Pond Mitigation Site during the construction. These areas include the shrub and the riparian habitat within 25 meters (82 feet), which is considered VELB habitat. The impact of this loss of Federally listed species habitat would be significant. The impact would be reduced to a less-than-significant level with implementation of Mitigation Measure VELB-1, which would include creating 51.51 acres of on-site and off-site VELB habitat. The affected shrubs would be transplanted to one of the approved elderberry shrub mitigation sites: Rio Americano West, Rio Americano East or the Rossmoor East Mitigation Sites or other elderberry shrub mitigation sites in the LAR as described in Chapter 2, *Alternatives*.

Operation and maintenance (O&M) by the American River Flood Control District of the mitigation sites planned as part of the Proposed Action could require the trimming of elderberry shrubs as described in Section 3.8.4 (page 165) of the ARCF GRR FEIS/FEIR. As part of long-term O&M, up to 0.5 acre of elderberry shrubs would be trimmed by the American River Flood Control District, and up to 25 acres over the life of the project (ARCF GRR FEIS/FEIR, Table 20). Trimming consists of cutting overhanging branches along the levee slopes on both the landside and waterside. Some shrubs may be located adjacent to the levee with branches hanging over the levee maintenance road. Up to a third of a shrub would be trimmed in a single season. Trimming would occur between November 1 and March 15. This loss of VELB habitat would be significant.

To offset this impact, USACE would implement Mitigation Measure VELB-1. Specifically, the mitigation for O&M impacts would be offset by development of off-site mitigation sites that would be designed in accordance with the 2017 Framework. In addition, each year the American River Flood Control District would document the amount of VELB habitat that they have trimmed and report that number to USACE to ensure compliance with the USFWS Biological Opinion. If the local maintaining agency has a need to exceed the amount of VELB habitat which needs to be trimmed or affected due to routine maintenance, then they would request that USACE reinitiate consultation on this biological opinion for those actions. With the implementation of the mitigation discussed above, O&M activities would result in less-than-significant impacts on VELB.

Western Yellow-Billed Cuckoo

As described in the Proposed Action effects discussion in Section 3.8.4 (page 167) of the ARCF GRR FEIS/FEIR, the Project Area is unlikely to support nesting western yellow-billed cuckoos because the riparian corridor is narrow, patchy, and frequented by park visitors. Construction of Sites 2-2 and 2-3 would result in the loss of 18.46 acres of riparian habitat (Table 3-3). The construction of Arden Pond Mitigation Site would result in the temporary loss of approximately 30 acres of riparian habitat. This loss of habitat would be a significant impact. With implementation of Mitigation Measures VELB-1, VEG-1, VEG-2, and BIRD-1, the impact would be reduced to a less-than-significant level.

Swainson's Hawk

As described in Section 3.8.4 (page 168) of the ARCF GRR FEIS/FEIR, the Project Area possesses suitable roosting and nesting habitat for Swainson's hawk. Project construction could affect the riparian habitat used by this species for roosting and nesting. Although the removal of riparian trees would be mitigated through compensatory plantings, there would be a temporal loss of habitat until the newly planted trees could become established and mature. Long-term effects on Swainson's hawk nesting habitat could result from the loss of riparian habitat in the Project Area as follows: 1.50 acres at Site 2-2 and 14.52 acres at Site 2-3 for erosion protection efforts, and 0.48 acres at Site 2-2 and 1.96 acres at Site 2-3 of riparian habitat within the access areas, haul routes, and staging areas. An additional 8 acres would be temporarily impacted within restoration areas and 22 acres of habitat within access areas and temporary work zones during restoration efforts at the Arden Pond Mitigation Site. This would be a significant impact on Swainson's hawk nesting habitat.

Before the start of construction, a pre-construction survey would be conducted following the Swainson's Hawk Technical Advisory Committee Guidance.⁶⁷ Should surveys indicate that nesting Swainson's hawk are present, the potential would exist for short-term, temporary impacts during construction from dust, noise, and vibration.

The compensatory mitigation proposed to address impacts to western yellow-billed cuckoo would also compensate for the loss of Swainson's hawk nesting habitat within riparian habitat. Both species use riparian trees for nesting, and mitigation plantings to address project-related impacts on western yellow-billed cuckoo would additionally benefit Swainson's hawk. Although no active Swainson's hawk nest sites were identified within the Project Area, potential nesting habitat would be temporarily reduced because there would be a lag time between when trees would be removed or trimmed during project construction and when the replacement trees would be mature enough to support raptor nesting. There would be a net increase in the extent and quality of riparian habitat that would be present once the mitigation plantings become established. With implementation of the mitigation measures identified for impacts on riparian habitat

⁶⁷ Swainson's Hawk Technical Advisory Committee. 2000. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*. May 31, 2000.

(VEG-1 and VEG-2) and nesting birds (BIRD-1), the impact on Swainson's hawk from construction-related activities would be reduced to a less-than-significant level.

O&M activities after construction would be consistent with existing O&M practices, so any impacts associated with O&M would also be similar to existing conditions. O&M would involve activities such as mowing, herbicide application, and rodent control. Rodent control would be limited to preventing rodents from burrowing and undermining the levee; therefore, rodent control actions are not expected to appreciably reduce the prey base for Swainson's hawk. Mowing in the Project Area may also increase the visibility of prey, thereby enhancing foraging efficiency for Swainson's hawk. Application of herbicides would be limited and is not expected to appreciably affect habitat conditions for Swainson's hawk (i.e., no loss of nesting trees or loss of grassland foraging habitat). O&M would involve limited vegetation trimming and management to facilitate visual inspections of the levee. This vegetation trimming is expected to focus largely on shrubs and small, short trees whose presence may be concealing levee erosion issues. Therefore, vegetation management during O&M activities is not anticipated to affect large trees that represent suitable nesting habitat for Swainson's hawk. Because these activities would be short term, and the resulting impacts would be temporary, impacts of O&M would be less than significant.

Bank Swallow

Bank swallows historically nested along the Lower American River, as recently as 1986, and continue to forage in the area, but were not known to nest in the Project Area due to the dense vegetation cover on the banks in Sites 2-2 and 2-3. If present in the vicinity of the Project Area, nesting bank swallow colonies could be directly affected if the proposed erosion protection measures were implemented during the species' nesting season (April 1 through August 31). Thus, measures to reduce erosion risk could indirectly affect bank swallows by removing suitable or potentially suitable foraging habitat and making the banks unsuitable for future use by bank swallows. This impact on bank swallow would be significant. With implementation of Mitigation Measure BIRD-1, including pre-construction surveys and avoidance buffers if nesting birds are located the impact on bank swallow from construction activities would be reduced to a less-than-significant level.

O&M activities after construction would be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. In addition, these activities would be short term, and the resulting impacts would be temporary and less than significant.

Burrowing Owl

During their nesting period (February 1 through August 15), burrowing owls could use small-mammal burrows in grassland areas that are present in and adjacent to the levees along the American River and within the grassland associated with the Rossmoor West and East sites. If present, ground disturbance (excavation and backfilling) could result in direct mortality or injury of burrowing owls within burrows and similar nesting features. Such features could be disturbed or destroyed during construction in staging areas and

during proposed elderberry transplanting activities within the Rossmoor West and East sites. This would be a significant impact. However, because there is only habitat for burrowing owls in staging areas and transplant areas there is flexibility to avoid active burrows. Thus, implementation of pre-construction surveys to identify active burrows and placement of avoidance buffers to avoid active burrows, as described in Mitigation Measure BIRD-1, would reduce potential impacts from construction on burrowing owl to a less-than-significant level.

O&M activities after construction would be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. Ongoing rodent control could limit the availability of small-mammal burrows often used by burrowing owl. However, because rodent control would be limited to areas where such burrows could threaten the integrity of the levee system, such actions are not expected to substantially reduce the availability of suitable burrows for burrowing owl along the American River. Mowing tall vegetation also improves foraging habitat conditions and accessibility to burrows. Therefore, because O&M activities would be short term and the resulting impacts would be temporary, impacts of O&M would be less than significant.

White-Tailed Kite

The Project Area contains numerous large riparian trees that provide suitable nesting conditions for white-tailed kite. Noise from heavy construction machinery could prompt nest abandonment and subsequent failure of nests in and near construction activity areas. Vegetation removal could also result in direct take of active white-tailed kite nests. This would be a significant impact. Implementation of Mitigation Measures VEG-1 and VEG-2 would reduce the impact on riparian nesting habitat to a less-than-significant level. Implementation of Mitigation Measure BIRD-1 would reduce the impact on nesting white-tailed kites to a less-than-significant level.

O&M activities after construction would be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. Vegetation management during O&M activities is not anticipated to affect large trees, limiting the potential for such activities to affect nesting habitat for white-tailed kite. Therefore, because O&M activities would be short term and the resulting impacts would be temporary, impacts of O&M would be less than significant.

Purple Martin

Purple martins inhabit riparian forest and woodland areas and nest in tree cavities or crevices of cliffs. This species is also known to use infrastructure such as bridge and overpasses (e.g., in weep holes) or other manmade structures (e.g., lamp posts, traffic lights, birdhouses) for nesting. By removing riparian forest, the project could continue to fragment suitable habitat for this species. Noise from heavy construction machinery could prompt nest abandonment and subsequent failure of nests in and near construction activity areas. Vegetation removal could also result in direct take of purple martins if any are nesting in the trees targeted for removal. This impact would be significant. With implementation of Mitigation Measure BIRD-1 and restoration of riparian habitat in the

Parkway, the impact of construction on purple martin would be reduced to a less-than-significant level.

O&M activities after construction would be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. The application of herbicides could also indirectly affect purple martins by wilting or killing vegetation that contributes to the production of their prey (i.e., insects). Vegetation management during O&M activities would not likely affect nesting habitat for purple martin because it would not target the large trees (more specifically, large trees with cavities) used by this species. Mowing noise may temporarily disturb purple martins, but the activity would be only sporadic and short term.

Other Breeding and Migratory Birds

Many non-listed bird species that are otherwise protected by the Migratory Bird Treaty Act and the California Fish and Game Code are expected to be present in the Project Area. These include Cooper's hawk, great blue heron, great egret, and other common passerine, raptor, and wading bird species. General disturbance, including exposure to noise, vibration, and dust, could adversely affect nesting birds by altering their nesting behaviors (e.g., prompting adults to abandon eggs or chicks in nests). Construction activities would occur during a period that overlaps with the nesting season for numerous bird species that are present in the Project Area. Construction work, including removal of riparian trees, during the nesting season could result in the destruction of nests and eggs and mortality of nestlings. This would be a significant impact. With implementation of Mitigation Measure BIRD-1, the impact of construction on non-listed birds protected by the Migratory Bird Treaty Act or the California Fish and Game Code would be reduced to a less-than-significant level.

O&M activities after construction are expected to be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. Vegetation management for O&M activities is not anticipated to affect large trees, limiting the potential for such activities to affect nesting birds. Therefore, because O&M activities would be short term and the resulting impacts would be temporary, impacts of O&M would be less than significant.

Western Pond Turtle

Western pond turtle inhabits rivers, pond, wetlands, and irrigation ditches for aquatic habitat and sandy or grassland areas for upland habitat. This species nests in upland areas within one-quarter mile of aquatic habitat. Construction equipment accessing areas occupied by western pond turtle could strike turtles that are nesting, basking, or traversing upland habitat, resulting in mortality of these animals. Western pond turtles may also be crushed or entombed when construction equipment causes burrows to collapse. In addition, fuel, oil, other petroleum products, and other chemicals used during maintenance activities could be accidentally introduced into waterways. In sufficient concentrations, these contaminants would be toxic to western pond turtles and their prey species. This would be a significant impact. With implementation of Mitigation Measures

TURTLE-1 and WQ-1, the impact of construction on western pond turtle would be reduced to a less-than-significant level.

O&M activities, including vegetation management along the levees, could involve mowing and trimming of small trees and shrubs using hand tools or machinery. Such activities could incidentally collapse burrows or crush nests on the ground, potentially affecting western pond turtle individuals or their habitat. Pond turtles could be killed or injured by mower blades when they are above ground (e.g., during periods of cooler temperatures, such as early mornings) and unable to leave areas being maintained because of their relative lack of mobility. Mowing equipment could crush or expose a buried western pond turtle nest, potentially resulting in nest failure. This would be a significant impact. With implementation of Mitigation Measures TURTLE-1 and WQ-1, the impact of O&M on western pond turtle would be reduced to a less-than-significant level.

Pallid Bat

Construction activities could disturb riparian forest, which provides potential roosting habitat for pallid bat. Potential roosting habitat for pallid bat is also present underneath the Howe Avenue Bridge, the H Street Bridge, and the Guy West Bridge. The period of construction activities would overlap the bat maternity season (generally May 1 to August 31). Tree removal in riparian habitat could adversely affect breeding and non-breeding pallid bats by causing the loss of established roosts and potential roosting habitat. Project construction work around vehicle and pedestrian bridges crossing the American River could also disturb pallid bat if they were occupying any of the bridges. General construction-related disturbance, including exposure to noise, vibration, and dust, could adversely affect breeding and non-breeding bats. This would be a significant impact. With implementation of Mitigation Measure BATS-1, the impact of construction on this species would be reduced to a less-than-significant level.

O&M activities, specifically trimming or removal of woody vegetation along the levees, could indirectly and directly affect colonies of roosting pallid bats by resulting in the loss or modification of habitat. However, such management of woody vegetation is largely expected to avoid the mature riparian trees (larger than 4 inches in diameter at breast height) where bats are most likely to be present, minimizing the potential for O&M activities to affect roosting pallid bats. The application of herbicides could also indirectly affect pallid bats by wilting or killing vegetation that contributes to the production of their prey (i.e., insects). However, the application of herbicides would be highly localized and would focus on helping to eradicate unwanted weedy plants in the Project Area. Thus, the application of herbicides as part of O&M for the Proposed Action is not anticipated to appreciably affect the supply of prey for pallid bat. The impact of O&M on pallid bat would be less than significant.

Western Red Bat

Western red bats may establish day roosts in the foliage of large cottonwood, oak, and willow trees in the Project Area, and maternal roosts may occur in large well-developed stands of riparian habitat. Tree removal in riparian habitat could affect western red bats if

they are present. General construction-related disturbance, including exposure to noise, vibration, and dust, could adversely affect breeding and non-breeding bats. This would be a significant impact. With implementation of Mitigation Measure BATS-1 and restoration of riparian habitat in the Parkway the impact of construction on this species would be reduced to a less-than-significant level.

The potential effects of O&M under the Proposed Action on western bat are the same as those described previously for pallid bat.

American Badger

American badger inhabits grasslands and riparian habitats. Potential impacts on American badger include mortality, injury, displacement, and harassment, along with permanent and temporary loss of habitat. During construction under the Proposed Action, badgers would be at risk of direct impacts such as vehicle strikes, along with impacts from loss of habitat, increased risks of predation loss, and disruption of behavioral patterns. Heavy machinery operating in the Project Area could compact the soil, making the ground less suitable for digging for badgers and their primary prey species. This would be a significant impact. Implementation of Mitigation Measure BADGER-1 would reduce this impact to a less-than-significant level.

O&M activities are expected to have only minor effects on habitat conditions for American badger. No widespread soil compaction is anticipated, and rodent control would result in only limited ground disturbance. Mowing work along the levees may displace badgers, but this effect would only be temporary because the activity would be temporary. Overall, the effect of O&M on American badger would be less than significant.

Sanford's Arrowhead

Sanford's arrowhead is an aquatic emergent herbaceous plant that grows in a variety of shallow freshwater habitats. This species occurs opposite Site 2-3 on the west bank of the river (Appendix B). Additionally, Sanford's arrowhead could occur within Sites 2-2, 2-3 and Arden Pond Mitigation Site and in the riparian habitat between the Rossmoor West and East sites and the American River. Sanford's arrowhead plants could be crushed by construction equipment or trampled by construction personnel, resulting in damage to or mortality of the plants. Ground disturbance for the Proposed Action's bank improvement actions would increase the potential for Sanford's arrowhead plants to be unintentionally buried or removed. Construction associated with the Arden Pond Mitigation Site could result in removal of individuals if present in these areas. This would be a significant impact. Implementation of Mitigation Measure PLANT-1 would reduce this impact to a less-than-significant level, because as part of the final construction design, USACE would adjust construction access routes and the footprint of erosion protection activities to ensure the avoidance of known Sanford's arrowhead plants.

O&M activities after construction would involve activities such as mowing, herbicide application, and rodent control. Rodent control and mowing activities would increase the potential for Sanford's arrowhead to be unintentionally trampled, crushed, or ripped up

by maintenance workers and equipment. O&M would involve limited vegetation trimming and management to facilitate visual inspections of the levee; this activity would have the same potential for Sanford's arrowhead to accidentally be damaged or killed as under current O&M activities. Overspray from herbicide applications may result in even accidental mortality of non-target plants, including Sanford arrowhead. However, the application of herbicides would be highly localized, and herbicides would not be sprayed near the known Sanford's arrowhead population within the Project Area. Thus, the application of herbicides as part of O&M for the Proposed Action is not anticipated to affect Sanford's arrowhead. The impact of O&M on Sanford's arrowhead would be less than significant.

Bristly Sedge and Woolly Rose-Mallow

Bristly sedge and woolly rose-mallow could occur within the grassland and/or open water within the Rossmoor West and East sites and Arden Pond Mitigation Site. Ground disturbance for the Proposed Action's bank improvement actions would increase the potential for these plants to be unintentionally buried or removed if present. Construction associated with the Arden Pond Mitigation Site and potential water delivery installation between the Rossmoor sites and the American River could result in removal of individuals if present in these areas. This would be a significant impact. Implementation of Mitigation Measure PLANT-1 would reduce this impact to a less-than-significant level, because as part of the final construction design, USACE would adjust construction access routes and the footprint of erosion protection activities to ensure the avoidance of these species, if determined to occur within these footprints.

Winter-Run Chinook Salmon

Construction impacts on winter-run Chinook salmon were based on the Proposed Action effects described in Section 3.8.4 (pages 170–173) of the ARCF GRR FEIS/FEIR and long-term impacts were based on SAM analysis as described above in Section 3.6.1.2 Existing Conditions. See Appendix D for details on updated SAM analysis methods and results.

Winter-run Chinook salmon do not spawn in the Project Area,⁶⁸ therefore, project construction activities are not likely to affect winter-run Chinook salmon spawning or spawning habitat. Construction would avoid the primary migration period (December through July) and would be restricted to the channel edge, and the avoidance and minimization measures described below would be implemented. Therefore, no construction-related effects on winter-run Chinook salmon spawning or spawning habitat would occur.

Implementation of the erosion protection measures would result in adverse effects on juvenile and smolt winter-run Chinook salmon, their critical habitat, and essential fish habitat. Construction activities that increase noise, turbidity, and suspended sediment

⁶⁸ Moyle, Peter B. *Inland Fishes of California - Revised and Expanded*. 1st ed. University of California Press, 2002. <https://www.ucpress.edu/book/9780520227545/inland-fishes-of-california>.

may disrupt feeding or temporarily displace fish from their preferred habitat. Physical damage to or harassment of listed fish species would be low during the construction months. Adults would not sustain any physical damage because of construction as their size, preference for deep water,⁶⁹ and more crepuscular migratory behavior⁷⁰ would enable them to avoid most temporary, nearshore disturbance that occurs during typical daylight construction hours. Overall, the impact of construction activities on winter-run Chinook salmon would be significant. With implementation of Mitigation Measures WQ-1, FISH-1, FISH-2, FISH-3 and FISH-4 (below), this impact would be reduced to a less-than-significant level. Restricting in-water activities to a work window of July 1 through October 31 and implementing the avoidance and minimization measures described below would minimize, but not avoid, potential construction-related effects on juveniles and smolts.

Instream construction activities may cause mortality and reduced abundance of benthic aquatic macroinvertebrates within the erosion footprint, due to the placement of rock over the existing streambed. These effects to aquatic macroinvertebrates are expected to be long-term as permanent bank armoring alters the natural streambed (USFWS 2004). The amount of food available for adult and juvenile salmonids in the Action Area is therefore expected to be permanently decreased in the areas where submerged riprap is being placed.

Over the lifetime of the project, winter-run Chinook salmon juvenile habitat is expected to show a long-term positive response to the Proposed Action based on the American River SAM analysis when both instream woody material (IWM) and planted benches are incorporated into with-project conditions.

Although winter and spring values of the WRI increase immediately above baseline conditions after construction for juvenile rearing of Chinook salmon, the values for summer and fall WRI remain below baseline conditions for 15 years before they increase above baseline conditions, due to the time it takes after planting for vegetation to develop at Sites 2-2 and 2-3, and the Arden Pond Mitigation Site. For juvenile migration the predicted recovery to baseline conditions is less than one year in spring and winter, with recovery in summer and fall taking 3 and 8 years, respectively. Therefore, although long-term habitat conditions at Sites 2-2 and 2-3, and the Arden Pond Mitigation Site for juvenile Chinook salmon are predicted to be substantially better than under baseline conditions, there would be a temporary adverse impact of the Proposed Action on juvenile Chinook salmon (including winter-run Chinook salmon) habitat. This impact would be significant.

Protection measures would generally provide long-term increases in bank shading at project sites. Short-term impacts on SRA habitat would be reduced to a less-than-

⁶⁹ Raleigh, R. F., Miller, W. J., & Nelson, P. C. (1986). Habitat suitability index models and instream flow suitability curves: chinook salmon. National Ecology Center.

⁷⁰ Keefer, M. L., Caudill, C. C., Peery, C. A., & Moser, M. L. (2013). Context-dependent diel behavior of upstream-migrating anadromous fishes. *Environmental biology of fishes*, 96(6), 691-700.

significant level with implementation of Mitigation Measures SRA-1, which would provide for the creation of off-site SRA habitat.

Spring-Run Chinook Salmon

Construction impacts of the Proposed Action on spring-run Chinook salmon have not changed from those described in Section 3.8.4 (page 173) of the ARCF GRR FEIS/FEIR. Long-term impacts were informed using SAM analysis like the methodology used for winter-run Chinook salmon. See Appendix D for details on updated SAM analysis methods and results.

Adult spring-run Chinook salmon migrate up the Sacramento River from March through September, although most individuals have entered tributary streams by mid-June and would not be affected by construction activities. Similar to winter-run Chinook salmon, spring-run Chinook salmon typically spend up to 1-year rearing in freshwater before migrating to sea. Therefore, the potential for construction-related effects would be like those described above for winter-run Chinook salmon. Construction related impacts would have a significant impact on spring-run Chinook salmon. With implementation of Mitigation Measures WQ-1, FISH-1, FISH-2, FISH-3, and FISH-4 this impact would be reduced to a less-than-significant level, as was described for winter-run Chinook salmon.

The Proposed Action would have a long-term beneficial effect on spring-run Chinook salmon habitat, but adverse impacts from vegetation removal on SRA habitat for juvenile salmon are expected to last for up to 15 years after construction, similar to what was described for winter-run Chinook salmon (see Appendix D). This would be a significant impact. Implementation of Mitigation Measure SRA-1, which would create off-site compensatory SRA habitat in the American River Parkway, would reduce this impact to a less-than-significant level.

Central Valley Fall/Late Fall–Run Chinook Salmon

Construction impacts on fall/late fall–run Chinook salmon have not changed from the Proposed Action effects described in Section 3.8.4 (pages 173–174) of the ARCF GRR FEIS/FEIR. Long-term impacts were informed using SAM analysis similar to the methodology used for other salmonids above. See Appendix D for details on updated SAM analysis methods and results.

Fall/late fall–run Chinook salmon migrate into the Sacramento River and its tributaries from June through December; therefore, construction activities would coincide with most of the migration period. Construction activities that increase noise, turbidity, and suspended sediment may disrupt adult passage through the Project Area and may displace these fish by affecting their preferred habitat and spawning habitat. The project could represent a long-term loss of a small amount of potential spawning habitat because repairs would require covering bottom substrates with revetment. However, the extent of spawning area that might be affected would be very small. In general, channel areas immediately adjacent to erosion protection sites do not support spawning riffles. Long-term changes on nearshore habitat are expected to have adverse effects on habitat that is important to

all life stages of fall/late fall–run Chinook salmon. These impacts on fall/late fall–run Chinook salmon would be significant. With implementation of Mitigation Measures WQ-1, FISH-1, FISH-2, FISH-3 and FISH-4, this impact would be reduced to a less-than-significant level, as was described for winter-run Chinook salmon.

The Proposed Action would have a long-term beneficial effect on fall/late fall–run Chinook salmon habitat, but temporary adverse impacts from vegetation removal on SRA habitat for juvenile salmon could persist up to 15 years after construction, similar to the effects described for winter-run Chinook salmon (see Appendix D). This would be a significant impact. Implementation of Mitigation Measure SRA-1, which would create off-site compensatory SRA habitat in the American River Parkway, would reduce this effect to a less-than-significant level.

California Central Valley Steelhead

Construction impacts on steelhead have not changed from the Proposed Action effects described in Section 3.8.4 (pages 174–175) of the ARCF GRR FEIS/FEIR. Long-term impacts were informed using SAM analysis similar to the methodology used for other salmonids above. See Appendix D for details on updated SAM analysis methods and results.

In the Sacramento River, adult steelhead migrate upstream during most months of the year, beginning in July, peaking in September, and continuing through February or March. Adults use the river channel in the Project Area as a migration pathway to upstream spawning habitat. They may also use deep pools with instream cover as resting and holding habitat. Juveniles and smolts are most likely to be present in the Project Area during their downstream migration to the ocean, which may begin as early as December and peaks from January to May. For purposes of this analysis, rearing juvenile steelhead are assumed to use nearshore and off-channel habitat in the Project Area. The potential for construction-related effects on steelhead juveniles and smolts and their habitat would therefore be similar to that described above for winter-run Chinook salmon. The potential for construction-related effects on steelhead would be like that described above for adult winter-run Chinook salmon. These impacts on steelhead would be significant. With implementation of Mitigation Measures WQ-1, FISH-1, FISH-2, FISH-3 and FISH-4 this impact would be reduced to a less-than-significant level.

Over the lifetime of the project, California Central Valley steelhead juvenile habitat is expected to show a long-term positive response to the Proposed Action, based on the SAM analysis when both instream woody material (IWM) and planted benches are incorporated into with-project conditions (Appendix D). Juvenile steelhead migration showed an almost immediate increase in WRI values (Appendix D).

Although winter and spring values of the WRI increase immediately above baseline after construction for juvenile rearing of steelhead, the values for summer and fall remain below baseline for up to 13 years before they increase above baseline conditions, due to the time it takes after planting for vegetation to develop at Sites 2-2 and 2-3, and the Arden Pond Mitigation Site. Therefore, although long-term habitat conditions at Sites 2-2

and 2-3, and Arden Pond Mitigation Site for juvenile steelhead are predicted to be substantially better than baseline conditions, the Proposed Action would cause a temporary adverse impact on juvenile steelhead habitat. This impact is considered significant.

Short-term impacts on SRA habitat would be reduced to a less-than-significant level with implementation of Mitigation Measures SRA-1, which would provide for the creation of off-site SRA habitat.

Potential spawning habitat is present in the American River in the ARCF GRR Project Area. Steelhead spawn in late winter and late spring, outside of the July 1 through October 31 work window. Therefore, project construction is unlikely to affect steelhead spawning or steelhead spawning habitat.

Green Sturgeon

Green sturgeon critical habitat begins downstream of the Project Area, below the State Route 160 bridge, but no occurrences have been documented in the American River. Thus, green sturgeon are unlikely to be present during construction activities and no direct effects on sturgeon from construction are anticipated. Any downstream indirect effects are also unlikely because critical habitat ends 3 miles downstream of the Project Area.

ARCF GRR FEIS/FEIR Mitigation Measures

The ARCF GRR FEIS/FEIR mitigation measures (pages 180-195) listed below are incorporated into the Proposed Action and revised or added to as described in the bullets below. These reflect the revised Project Area and current agency guidance. Implementing these mitigation measures would reduce impacts on special-status species to a less-than-significant level. Modifications of the ARCF GRR FEIS/FEIR mitigation measures are as follows.

- Mitigation for impacts on VELB was updated from the 1999. *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*⁷¹ to reflect the new 2017 *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* USFWS guidelines for impacts to VELB.⁷²
- Nesting seasons and buffer distances for nesting birds were added.
- A rodent abatement buffer of 100 feet around nesting burrowing owls was added.
- Mitigation for PLANT-1 was updated to include botanical surveys in areas where previous surveys were not conducted.

⁷¹ U.S. Fish and Wildlife Service. 1999. *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*. Sacramento, California. 15 pp.

⁷² U.S. Fish and Wildlife Service. 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)*. U.S. Fish and Wildlife Service; Sacramento, California. 28 pp.

- The in-water work window to avoid impacts on listed fish species was changed from the period of August 1 to November 30 to the period of July 1 to October 31.
- Additional Mitigation Measures are added for BATS-1 and BADGER-1.

Mitigation Measure VELB-1: Implement Current USFWS Avoidance, Minimization, and Compensation Measures for Valley Elderberry Longhorn Beetle. USACE would implement the following measures in accordance with the *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (USFWS 2017), to reduce effects on valley elderberry longhorn beetle:

Avoidance and Minimization Measures

To reduce direct and indirect impacts on shrubs that would not be transplanted and that occur within 50 meters (165 feet) of the project, the following measures would be implemented:

Fencing. All areas to be avoided during construction activities would be fenced and/or flagged as close to construction limits as feasible.

Avoidance area. Activities that may damage or kill an elderberry shrub (e.g., trenching, paving) may need an avoidance area of at least 6 meters (20 feet) from the dripline, depending on the type of activity.

Worker education. A qualified biologist would provide training for all contractors, work crews, and any on-site personnel on the status of the VELB, its host plant and habitat, the need to avoid damaging the elderberry shrubs, and the possible penalties for non-compliance.

Construction monitoring. A qualified biologist would monitor the initial groundbreaking activities, vegetation removal, installation of protective fencing, and would be present during all transplanting and trimming activities. Weekly site visits would also be conducted to ensure all mitigation measures are being implemented and maintained. Additional monitoring may be required per the USFWS BO.

Timing. As much as feasible, all activities that could occur within 50 meters (165 feet) of an elderberry shrub would be conducted outside of the flight season of the VELB (March–July).

Trimming. Trimming may remove or destroy VELB eggs and/or larvae and may reduce the health and vigor of the elderberry shrub. To avoid and minimize adverse effects on VELB when trimming, trimming would occur between November and February and would avoid the removal of any branches or stems that are 1 inch or larger in diameter unless they were approved and compensated for by following the USFWS requirements.

Chemical Usage. Herbicides would not be used within the dripline of the shrub. Insecticides would not be used within 30 meters (98 feet) of an elderberry shrub. All chemicals would be applied using a backpack sprayer or similar direct application method.

Mowing. Mechanical weed removal within the dripline of the shrub would be limited to the season when adults are not active (August–February) and would avoid damaging the elderberry shrub.

Erosion Control and Revegetation. Erosion control would be implemented, and the affected area would be revegetated with appropriate native plants.

Dust Control. Dust would be controlled by reducing speed limits to 10 miles per hour, regularly watering roads, and wetting down soil before removal and during placement.

Transplanting

Affected elderberry shrubs with one or more stems measuring 1.0 inch or greater in diameter at ground level that could feasibly be transplanted in accordance with the 2017 Framework must be transplanted to a mitigation site as approved by USFWS. Elderberry compensation would be planted in the Parkway, but outside of the Project Area (off-site) because of construction timing. USACE would find areas in the Lower American River Parkway to either expand existing compensation areas or provide connectivity between areas of conserved VELB habitat. Sites within the Lower American River Parkway would be coordinated with the Sacramento County Department of Regional Parks and USFWS during the design phase of the project. Sites would be designed and developed in accordance with the criteria listed below before any effects on VELB habitat.

For impacts on VELB habitat at Site 2-2 (1.04 acres), Site 2-3 (8.63 acres), and the Arden Pond Mitigation Site (7.50 acres), USACE would mitigate at a 3:1 ratio and create a total of 51.51 acres of VELB and riparian habitat off-site. The elderberry shrubs that would be affected would be transplanted to either the Rio Americano West Mitigation Site, the Rio Americano East Mitigation Site, or Rossmoor East Mitigation Site. These sites would be used for the transplantation and compensation for impacts on elderberry shrubs as described in the *Compensatory Mitigation* section below.

Monitor. A qualified biologist would be on-site for the duration of transplanting activities to assure compliance with avoidance and minimization measures and other conservation measures (as listed above).

Exit Holes. Exit-hole surveys would be completed immediately before transplanting. The number of exit holes found, the GPS location of the plant to be relocated, and the GPS location where the plant is transplanted would be reported to USFWS and to the CNDDDB.

Timing. Elderberry shrubs would be transplanted when the shrubs are dormant (November through the first 2 weeks in February) and after they have lost their leaves. Transplanting during the non-growing season would reduce shock to the shrub and increase transplantation success.

Transplanting Procedure. Transplanting would follow the most current version of the ANSI A300 (Part 6) guidelines for transplanting shrubs (<http://www.tcia.org/>).

Trimming Procedure. Trimming would occur between November and February and should minimize the removal of branches or stems that exceed 1 inch in diameter.

Compensatory Mitigation

A Compensatory Mitigation Proposal would be prepared detailing the management of on-site and off-site lands. This plan would meet the standards for long-term management and protection of the site as outlined in USFWS's 2017 *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* and the Habitat Mitigation, Monitoring, and Adaptive Management Plan for the ARCF GRR (December 2015). The Compensatory Mitigation Proposal would be prepared and submitted by USACE to USFWS for approval. It would include habitat goals that would be suitable for the western yellow-billed cuckoo and VELB, and would benefit Swainson's hawk, with specific information regarding site selection and development, a planting plan that includes appropriate buffers, success standards, monitoring specifications, and a reporting schedule with data as outlined in Section 6.1 and Appendix C of the 2017 Framework.

Site Selection and Development. Site selection would use a landscape-level approach that would benefit not only the VELB and western yellow-billed cuckoo, but all other species that rely on riparian habitat in the Parkway. Mitigation sites would focus on restoring riparian areas adjacent to the American River that would provide connectivity for VELB populations as described in the 2017 Framework.

Planting Plan. A planting plan would be prepared that would consider site specifics that would influence the success of the elderberry shrub and associated plantings and create a healthy riparian system. The plan would establish a diverse natural community with a complex vegetation structure that would support species present in the Project Area that rely on riparian habitat. The plan would be designed to achieve the following goals described in the 2017 Framework:

- (1) Maximize the number of stems between 2 centimeters (0.8 inches) and 12 centimeters (4.7 inches).
- (2) Minimize competition for sunlight and water. Native associates should be planted at a ratio of one native associate for every three elderberry plants.
- (3) Achieve an average elderberry stem density of 240 stems per acre.

Buffers. An appropriate buffer would be established between mitigation lands and adjacent lands in accordance with the 2017 Framework.

Success Standards. Performance standards including survival rates, stem densities, and recruitment as outlined below and detailed in the 2017 Framework would be established and met to meet compensatory mitigation goals:

- (1) A minimum of 60 percent of the initial elderberry and native associate plantings must survive over the first 5 years after the site is established. As much as feasible, shrubs should be well distributed throughout the site; however, in some instances, underlying geologic or hydrologic issues might preclude elderberry establishment over some portion of the site. If significant die-back occurs within the first 3 years, replanting may be used to meet the 60 percent survival criterion. However, replanting efforts should be concentrated in areas containing surviving elderberry plants. In some instances, overplanting may be used to offset the selection of a less suitable site.
- (2) After 5 years, the site must show signs of recruitment. A successful site should have evidence of new growth on existing plantings as well as natural recruitment of elderberry shrubs. New growth is characterized as stems less than 3 centimeters (1.2 inches) in diameter. If no signs of recruitment are observed, the agency or applicant should discuss possible remedies with USFWS.
- (3) The Performance Standards outlined in Appendix C of the 2017 Framework, Table 2 for VELB mitigation would be complied with for monitoring years 2 through 7. If performance standards are not met, additional years would be required to meet the performance standards and monitoring years would start over.

Monitoring. The population of VELB, the general condition of the mitigation site, and the condition of the elderberry and associated native plantings in the mitigation site should be monitored at appropriate intervals. In any survey year, a minimum of two site visits between February 14 and June 30 of each year must be conducted by a USFWS-approved biologist. As indicated in the 2017 Framework, surveys must include:

- (1) A search for VELB exit holes in elderberry stems, noting the precise locations and estimated ages of the exit holes. The location of shrubs with exit holes should be mapped with a GPS. Because adult VELB are rarely encountered, targeted surveys for adults are not required. However, surveyors should record all adult VELB seen. Record photographs should be taken for all observations of adult VELB and their location mapped with a GPS. All exit-hole or adult VELB observations should be reported to the CNDDDB.
- (2) An evaluation of the success standards outlined above.
- (3) An evaluation of the adequacy of the site protection (fencing, signage, etc.) and weed control efforts on the mitigation site. Dense weeds and grasses such as

Bermuda grass (*Cynodon dactylon*) are known to depress elderberry recruitment and their presence should be controlled to the greatest extent practicable.

- (4) An assessment of any real or potential threats to VELB and its host plant, such as erosion, fire, excessive grazing, off-road vehicle use, vandalism, and excessive weed growth.
- (5) A minimum of 10 permanent photographic monitoring locations, established to document conditions present at the mitigation site. Photographs should be included in each report.

Reports. In accordance with the 2017 Framework, yearly survey reports would be submitted to USFWS within 6 months of the final survey each year for monitoring years 2–7 (2017 Framework, Appendix C).

Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.

To avoid and minimize effects on nesting birds, USACE would implement the following measures:

- Before ground disturbance, all construction personnel would participate in a USFWS-approved worker environmental awareness program. A qualified biologist would inform all construction personnel about the life history of Swainson’s hawk, western yellow-billed cuckoo, western burrowing owl, bank swallow, and other relevant species, as well as the importance of nest sites and foraging habitat.
- Where feasible, construction and maintenance activities that have the potential to affect special-status nesting birds and common nesting birds would occur at times of the year when adverse effects on those species would be avoided. If activities are conducted outside the nesting seasons specified in **Table 3-6**, no additional measures are required to mitigate adverse effects on nesting birds.

TABLE 3-6
NESTING SEASON FOR SPECIAL-STATUS AND COMMON NESTING BIRDS

Species	Nesting Season
White-tailed kite	February 1 to September 30
Bald eagle	January 1 to August 31
Northern harrier	March 1 to August 31
Swainson’s hawk	March 1 to September 15
Western yellow-billed cuckoo	June 1 to August 15
Burrowing owl	Year-round: February 1 to August 31 (nesting); September 1 to January 31 (wintering)
Bank swallow	April 1 to August 31
Purple martin	February 1 to August 31
Common nesting birds (raptors, passerines, herons, and egrets)	February 1 to August 31

- A breeding season survey for nesting birds would be conducted by a qualified biologist for all trees and shrubs to be removed or disturbed that are located within 500 feet of construction activities, including grading. Swainson's hawk surveys would be completed during at least two of the following survey periods: January 1 to March 20, March 20 to April 5, April 5 to April 20, and June 10 to July 30. An area with a radius of 0.5 mile from construction activities would be surveyed for Swainson's hawk nests. No fewer than three surveys would be completed in at least two survey periods, and at least one of these surveys would occur immediately before project initiation.⁷³ Western burrowing owl surveys would follow suggested guidelines set forth in CDFW's *Staff Report on Burrowing Owl Mitigation*⁷⁴ such as conducting three or more daytime survey visits at least 3 weeks apart during the peak of breeding season from April 15 to July 15. Other migratory bird nest surveys could be conducted concurrent with Swainson's hawk surveys, with at least one survey to be conducted no more than 48 hours from the initiation of project activities to confirm the absence of nesting. If the biologist determines that the area surveyed does not contain any active nests, construction activities, including removal or pruning of trees and shrubs, could commence without any further mitigation. If at any time during the nesting season construction stops for a period of 2 weeks or longer, pre-construction surveys would be conducted before construction resumes.
- If nesting birds have been identified within or adjacent to the construction footprint, USACE would establish avoidance buffers as indicated in **Table 3-7**. Reduced buffers may be implemented if recommended by the monitoring biologist and approved by CDFW (and/or USFWS if the species is Federally listed). Buffers would be marked in the field by a qualified biologist using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the buffers. Specific buffer distances for burrowing owl, which vary depending on time of year and level of disturbance, are presented in **Table 3-8** in accordance with CDFW's *Staff Report on Burrowing Owl Mitigation*.⁷⁵ Reduced buffers for burrowing owl may be implemented if recommended by the monitoring biologist, due to the nature of the activity, and if approved by CDFW. For example, typical burrow avoidance distances during active construction are 160 feet during the non-breeding season, and 250-feet during the breeding season. Any needed burrowing owl exclusion and burrow closure would occur during the non-breeding season only following the methodology in the CDFW *Staff Report*.
- Tree and shrub removal and work in other areas scheduled for vegetation clearing, grading, or other construction activities would not be conducted during the nesting season (generally February 15 through September 30,

⁷³ Swainson's Hawk Technical Advisory Committee. 2000. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*. May 31, 2000.

⁷⁴ California Department of Fish and Game. 2012. *Staff Report on Burrowing Owl Mitigation*. March 7, 2012.

⁷⁵ California Department of Fish and Game. 2012. *Staff Report on Burrowing Owl Mitigation*. March 7, 2012.

depending on the species and environmental conditions for any given year) where feasible.

- During rodent abatement efforts, no fumigation, use of treated bait, or other means of poisoning nuisance animals would occur within 100 feet of areas where burrowing owls are known to occur (e.g., burrows with observed nesting owls).

**TABLE 3-7
REQUIRED BUFFER DISTANCES FOR NESTING BIRDS***

Resource	Buffer Distance
White-tailed kite	0.5 mile
Bald eagle	0.5 mile
Swainson's hawk	0.25 mile (urban); 0.5 mile (rural or during use of heavy equipment)
Western yellow-billed cuckoo	500 feet
Bank swallow	300 feet
Burrowing Owl	160 feet (non-breeding season) and 250-feet (breeding season)
Common nesting birds	100 feet (passerines); 300 feet (raptors); 200 feet (heron or egret rookeries)

NOTE: If maintaining these buffers is not feasible they can be reduced in coordination with CDFW and/or USFWS.

**TABLE 3-8
RECOMMENDED RESTRICTED ACTIVITY DATES AND SETBACK DISTANCES BY LEVEL OF
DISTURBANCE FOR BURROWING OWLS**

Time of Year	Distance of Disturbance (feet) from Occupied Burrows Low Disturbance	Distance of Disturbance (feet) from Occupied Burrows Medium Disturbance	Distance of Disturbance (feet) from Occupied Burrows High Disturbance
April 1 to August 15	600	1,500	1,500
August 16 to October 15	600	600	1,500
October 16 to March 31	150	300	1,500

NOTES:

Low = Presence of maintenance staff on foot or in vehicles conducting work with light equipment (maintenance trucks, all-terrain vehicles).

Medium = Heavy equipment use with moderate noise levels (approximately 50–75 A-weighted decibels [dBA]).

High = Heavy equipment with high noise levels (more than 75 dBA).

SOURCE: California Department of Fish and Game. 2012. *Staff Report on Burrowing Owl Mitigation*. March 7, 2012.

Mitigation Measure TURTLE-1: Implement Measures to Avoid and Minimize Effects on Western Pond Turtle. The USACE would implement the following measures to avoid and minimize effects on western pond turtle:

- A qualified biologist would conduct a pre-construction survey within 7 days before the start of project activities. If no western pond turtles are observed,

USACE would document that information for the file, and no additional measures would be required, except as described below for dewatering activities.

- Should any western pond turtles be detected on land during the pre-construction survey, the qualified biologist would identify the location using GPS coordinates. With prior CDFW approval, a qualified biologist may relocate any western pond turtles found on land or in aquatic habitat within the construction footprint to suitable aquatic habitat at least 200 feet away from the construction footprint.
- If western pond turtles are observed on land within the construction footprint during project activities, USACE would stop work within approximately 200 feet of the turtle, and a qualified biologist would be notified immediately. If possible, the turtle would be allowed to leave on its own and the qualified biologist would remain in the area until the biologist deems his or her presence no longer necessary to ensure that the turtle is not harmed. Alternatively, with prior CDFW approval, the qualified biologist may capture and relocate the turtle unharmed to suitable habitat at least 200 feet outside the construction footprint. If a western pond turtle nest is unintentionally uncovered during project activities, work would stop in the vicinity of the nest and USACE would contact CDFW to determine the appropriate next steps.
- Prior to dewatering activities at Arden Pond, approval should be obtained from CDFW so that qualified biologists may capture and relocate western pond turtles during dewatering activities. The pond turtles would be captured and relocated unharmed to suitable habitat at least 200 feet outside the construction footprint. Pre-construction survey should be completed to determine if and where western pond turtles occur within Arden Pond. A qualified biologist would then monitor dewatering activities and relocate pond turtles as needed to ensure that all western pond turtles have safely vacated the area prior to the start of construction activities.

Mitigation Measure PLANT-1: Implement Measures to Avoid and Minimize Effects on Special-Status Plants. To avoid and minimize effects on these known and potentially occurring plants, the USACE would implement the following measures:

- Prior to construction, botanical inventories shall be conducted during the identifiable periods for Sanford's arrowhead (blooms May-October), bristly-sedge (blooms May-September), and woolly rose-mallow (blooms June-September) within Sites 2-2 and 2-3, the Arden Pond Mitigation Site and Rossmoor West and East sites as appropriate.
- Sanford's arrowhead, bristly-sedge, and woolly rose-mallow plants identified during rare-plant surveys would be marked or fenced off as an avoided area during construction if they occur outside of the construction footprint. A qualified biologist would establish a buffer of at least 25 feet around the

plants. If a buffer of 25 feet is not possible, the next maximum possible distance would be fenced off as a buffer.

- If Sanford's arrowhead, bristly-sedge, or woolly-rose mallow are located within the construction footprint and cannot be avoided during construction, the botanist shall establish distribution of the individuals in the population. A detailed relocation and mitigation/conservation plan that includes long-term strategies for the conservation of the species should be developed in coordination with CDFW upon confirming the presence of this species in the Project Area.
- If operations and maintenance activities are to occur near plants, a qualified biologist would mark their location with pin flags. The qualified biologist would instruct all personnel conducting the O&M activities regarding the location, appearance, and extent of these plants and the importance of avoiding impacts on this species.
- Herbicides would not be used within 3 meters (10 feet) of a known Sanford's arrowhead plant and a potentially occurring Sanford's arrowhead, bristly-sedge, or woolly rose-mallow plant. All chemicals would be applied using a backpack sprayer or similar direct application method.

Mitigation Measure FISH-4: Implement Measures to Avoid and Minimize Effects on Listed Fish Species. To avoid and minimize effects on listed fish species, the following measures would be implemented:

- In-water construction activities (e.g., placement of rock revetment) would be limited to the work window of July 1 through October 31. Except for in-water work related to what is necessary for dewatering, activities would begin starting June 1. If USACE needs to work outside of this window, it would consult with USFWS and NMFS.
- Erosion control measures (BMPs) would be implemented, including a Storm Water Pollution Prevention Plan and Water Pollution Control Plan, to minimize the entry of soil or sediment into the American River. BMPs would be installed, monitored for effectiveness, and maintained throughout construction operations to minimize effects on Federally listed fish and their designated critical habitat. Maintenance would include daily inspections of all heavy equipment for leaks.
- USACE would participate in an existing Interagency Working Group or work with other agencies to participate in a new Bank Protection Working Group to coordinate stakeholder input into future flood risk reduction actions associated with the ARCF 2016 Project, American River Contract 2.
- USACE would coordinate with NMFS during pre-construction engineering and design as future flood risk reduction actions are designed to ensure that conservation measures are incorporated to the extent practicable and feasible and projects are designed to maximize ecological benefits.

- USACE would include a Riparian Corridor Improvement Plan as part of the project, with the overall goal of maximizing the ecological function and value of the existing levee system in the Sacramento metropolitan area.
- USACE would implement an ARCF GRR Habitat Mitigation Monitoring and Adaptive Management Plan (HMMAMP) with an overall goal of ensuring that the conservation measures achieve a high level of ecological function and value. The HMMAMP would include:
 - Specific goals and objectives and a clear strategy for maintaining all project conservation elements for the life of the project.
 - Measures to be monitored by USACE for 10 years after construction. USACE would update its O&M manual to ensure that the HMMAMP is adopted by the local sponsor to ensure that the goals and objectives of the conservation measures are met for the life of the project.
 - Specific goals and objectives and a clear strategy for achieving full compensation for all project-related impacts on listed fish species.
- USACE would continue to coordinate with NMFS during all phases of construction, implementation, and monitoring by hosting annual meetings and issuing annual reports throughout the construction period as described in the HMMAMP.
- USACE would seek to avoid and minimize adverse construction effects on listed species and their critical habitat to the extent feasible and would implement on-site and off-site compensation actions as necessary.
- For identified designated critical habitat, where feasible all efforts will be made to compensate for impacts as close as possible to the place of occurrence. The SAM has been used throughout the Sacramento River basin and Delta flood control system to inform impacts to designated critical habitat, SRA, and instream components. Estimates of suitable habitat will be verified in the field by the USACE prior to initiating proposed actions to determine the extent of suitable habitat present NMFS. The USACE will develop and implement a compensatory mitigation accounting plan to ensure the tracking of compensatory measures associated with implementation of the Proposed Action. USACE will continue to coordinate with NMFS after construction during the monitoring periods for habitat establishment via written monitoring reports, electronically, and through site visits as requested. USACE would minimize the removal of existing riparian vegetation and IWM to the maximum extent practicable. Where appropriate, removed IWM would be anchored back into place, or if not feasible, new IWM would be anchored in place.
- USACE would ensure that the planting of native vegetation would occur as described in the HMMAMP. All plantings must be provided with the appropriate amount of water to ensure successful establishment.

- USACE would provide a copy of the BO, or similar documentation, to the prime contractor, making the prime contractor responsible for implementing all requirements and obligations included in the documents and for educating and informing all other contractors involved in the project as to the requirements of the BO.
- A NMFS-approved Worker Environmental Awareness Training Program for construction personnel would be conducted by the NMFS-approved biologist for all construction workers before the start of construction activities. Written documentation of the training would be submitted to NMFS within 30 days of the completion of training.
- USACE would consider installing IWM of at least 40 percent shoreline coverage at all seasonal water surface elevations in coordination with the Interagency Working Group or the Bank Protection Working Group. The purpose is to maximize the refugia and rearing habitats for juvenile fish.
- USACE would protect in place all riparian vegetation on the lower waterside slope of any levee, unless removal is specifically approved by NMFS, following completion of project construction.
- Erosion protection material used within restoration areas would consist of a cobblestone rock mix ranging between 0.5 to 4 inches in diameter, which is consistent with the rock sizing recommended by the USFWS and NMFS to meet salmonid spawning protection requirements.

In 2015, NMFS issued a BO for the ARCF GRR consultation for levee improvements and bank protection along the Sacramento River, levee improvements along Arcade, Magpie, and Dry/Robla Creeks, widening the Sacramento Bypass and Weir, and bank protection along the lower American River. The NMFS BO evaluated impacts to Sacramento River winter-run and Central Valley spring-run Chinook salmon, California Central Valley steelhead, and green sturgeon, as well as their critical habitat. The BO evaluated potential impacts based on rough estimates and preliminary designs for the proposed project. In 2020, the NMFS Biological Assessment for the American River Common Features WRDA 2016 Project (2020 NMFS BA) was prepared to reinitiate consultation with NMFS to provide new information related to site-specific details for the Proposed Action. The following conservation measure from the 2015 NMFS Biological Opinion on the ARCF GRR and the 2020 NMFS BA prepared for reinitiation with NMFS are also incorporated into the Proposed Action (USACE 2020):

- Screen any water pump intakes, as specified by the 2011 NMFS screening specifications.⁷⁶ Water pumps would maintain an approach velocity of 0.2 feet per second or less. Screen openings would be for a perforated plate: circular or square openings shall not exceed 3/32 inch (2.38 millimeters [mm]), measured on a side, and slotted or rectangular screen face openings

⁷⁶ National Marine Fisheries Service. 2011. Anadromous Salmonid Passage Facility Design. NMFS, Northwest Region, Portland, OR. Available: https://www.dfw.state.or.us/fish/passage/docs/fish_passage_design_criteria.pdf.

must not exceed 1.75 mm (approximately 1/16 inch) in the narrow direction. Screen material shall provide a minimum of 27 percent open area.

Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat. USACE would implement the following avoidance, minimization, and compensation measures:

- For identified designated critical habitat of listed fish species, where feasible, all efforts would be made to compensate for impacts where they have occurred, or elsewhere in the American River Parkway. Impacts on designated critical habitat, SRA habitat, and instream components combined and the compensation value of replacement habitat would be informed by a qualitative assessment of habitat value from the SAM model used throughout the Sacramento River basin and Sacramento–San Joaquin Delta flood control system. Amount of mitigation would be assessed using the slope-area method combined with the qualitative assessment.
- USACE would incorporate compensation for SRA habitat losses by constructing off-site compensation sites, such as Arden Pond and others and if needed, purchasing additional credits at a NMFS-approved conservation bank, where appropriate, or by implementing a combination of the two. USACE would compensate for lost habitat using NMFS-approved mitigation actions at a 1:1 ratio prior to construction, 2:1 ratio during construction, or a 3:1 ratio if mitigation actions occur after construction. Off-site mitigation in the Lower American River includes fish habitat mitigation at Arden Pond that would benefit fall-run Chinook, late fall-run Chinook and steelhead. Riparian plantings will be installed onsite on planting benches where feasible and at two sites near Rio Americano High School. An additional shallow water side channel construction will be considered as a part of Lower American River Contract 2 or 3 at Glenn Hall Park that would benefit the above listed salmonids. If USACE finds that onsite and offsite permittee responsible mitigation and mitigation bank opportunities have been exhausted, they will approach the resource agencies regarding the potential use of in-lieu fees for remaining mitigation needs.
- Compensation sites would be monitored, and vegetation would be replaced as necessary based on performance standards in the ARCF GRR HMMAMP.

Summary

The mitigation measures in the ARCF GRR FEIS/FEIR, as modified above, would reduce the impacts on special-status species addressed in that document to a less-than-significant level. The ARCF GRR FEIS/FEIR did not consider impacts on special-status bat, American badger and, therefore, there would be a residual significant impact. Implementation of the following new Mitigation Measures BATS-1 and BADGER-1 would reduce impacts from the Proposed Action on special-status bats and American badger to a less-than-significant level.

Additional Mitigation Measures

Implementation of the following additional Mitigation Measures BATS-1 and BADGER-1 not provided for in the ARCF GRR FEIS/FEIR would reduce impacts on special-status bats and American badger, respectively, to a less-than-significant level.

Mitigation Measure BATS-1: Implement Measures to Protect Maternity Roosts of Special-Status Bats. The ARCF GRR FEIS/FEIR does not identify a significant impact associated with special-status bats. Therefore, the following is a new mitigation measure. The USACE would implement the following measures to avoid and minimize effects on special-status bats, including pallid bat and western red bat:

- When possible, removal of trees identified as providing suitable roosting habitat should be conducted during seasonal periods of bat activity, including:
 - Between March 1 and April 15, and after evening temperatures rise above 45 degrees Fahrenheit and/or no more than ½ inch of rainfall within 24 hours occurs; or
 - Between September 1 and about October 15, and before evening temperatures fall below 45 degrees Fahrenheit and/or more than ½ inch of rainfall within 24 hours occurs.
- If removal of trees must occur during the bat pupping season, within 30 days of tree removal activities, all trees to be removed shall be surveyed by a qualified biologist for the presence of features that may function as special status bat maternity roosting habitat. Trees that do not contain potential special status maternity roosting habitat may be removed. For trees that contain suitable special status bat maternity roosting habitat, surveys for active maternity roosts shall be conducted by a qualified biologist in trees designated for removal. The surveys shall be conducted from dusk until dark.
- If a special-status bat maternity roost is located, appropriate buffers around the roost sites shall be determined by a qualified biologist and implemented to avoid destruction or abandonment of the roost resulting from tree removal or other project activities. The size of the buffer shall depend on the species, roost location, and specific construction activities to be performed in the vicinity. High-visibility construction fencing would be installed around the buffer and would remain in place until the tree is no longer occupied by bats. No project activity shall commence within the buffer areas until the end of the pupping season (September 1) or until a qualified biologist confirms the maternity roost is no longer active. If construction activities must occur within the avoidance buffer, then the activities would be monitored by a qualified biologist either continuously or periodically during work, as determined by the qualified biologist. The qualified biologist would be empowered to stop activities that, in the biologist's opinion, threaten to cause unanticipated and/or unpermitted adverse effects on special-status bats. If adverse effects

cannot be avoided, USACE and CVFPB would coordinate with CDFW to determine appropriate measures to minimize such effects.

- All trees designated for removal would be surveyed by a qualified biologist to identify features that provide habitat for roosting bats., such as cracks, crevices, or bark fissures for trees containing suitable bat roosting habitat that are planned for removal or trimming (irrespective of the time of year), such trees should be trimmed and/or removed in a two-phase removal system conducted over two consecutive days. The first day, limbs and branches would be removed. Removal activities on the first day should avoid limbs with bat habitat features for roosting bats and remove only branches or limbs without those features. On the second day, the entire tree would be removed. If it is not feasible to remove a tree using the two-phased approach, limbs containing habitat features should be removed and left undisturbed near the felled tree. A qualified biologist would monitor removal of these trees.
- A qualified biologist would conduct a pre-construction emergence survey for special-status bats within 14 days before the start of work within 250 feet of the Howe Avenue Bridge, the Guy West Bridge, or the H Street Bridge. The survey would be conducted 1 hour before dusk to 1 hour after dusk to identify whether special-status bats are occupying the bridges as day roosts. If special-status bats are found roosting beneath any of these bridges and work would occur within 250 feet of the roost, one-way doors would be installed at roost entrances, allowing bats to exit but preventing them from entering, to encourage the bats to relocate. If maternity roosts are found, they would be avoided by at least 250 feet until the offspring have fledged. If avoidance is not feasible, additional mitigation would be developed in consultation with CDFW.

Mitigation Measure BADGER-1: Implement Measures to Avoid and Minimize Effects on American Badger. The ARCF GRR FEIS/FEIR did not identify a significant impact on American badger. Therefore, the following is a new mitigation measure. The USACE would implement the following measures to avoid and minimize effects on American badger.

- The USACE would conduct pre-construction clearance surveys for American badgers. These surveys would be conducted within 14 days of the start of any ground-disturbing activity. If no potential American badger dens are present, no further mitigation is necessary.
- If a potential American badger den is discovered but deemed inactive, the qualified biologist would excavate the den during the initial clearance survey to prevent badgers from reoccupying the den during the construction period.
- If found to be present, occupied badger dens would be flagged and ground-disturbing activities would be avoided within 50 feet of an occupied den. Maternity dens would be avoided during pup-rearing season (February 15 through July 1) and a minimum 200-foot buffer would be established.

- If avoidance of a non-maternity den is not feasible, badgers would be relocated by carefully evacuating the burrow (either by hand or using mechanized equipment, under the direct supervision of a qualified biologist) before or after the rearing season (February 15 through July 1). Any relocation of badgers would occur only after consultation with CDFW.

3.7 Cultural Resources

3.7.1 Environmental Setting

3.7.1.1 Regulatory Setting

The regulatory setting in the ARCF GRR FEIS/FEIR (page 195) is generally applicable to the analysis in this Supplemental EIS/EIR and is not repeated here.

3.7.1.2 Existing Conditions

The area within which cultural resources are identified and within which potential effects to historic properties are analyzed is called the Area of Potential Effects (APE). The APE for the Proposed Action includes the project footprint (the area where any ground-disturbance would occur), such as bank excavation, riprap placement, staging areas, and habitat mitigation. These areas are described in detail above in Chapter 2, *Alternatives*. The APE includes the area within which built-environment resources could be affected physically, including through vibration. No permanent substantial visual or auditory changes would occur as a result of implementation of the Proposed Action; therefore, no area of indirect effect (the area in which changes in the visual or auditory setting may occur) has been identified. The vertical extent of the project APE is variable but would have a maximum depth of up to 26 feet below ground surface for bank excavation and placement of buried rock.

The APE for the Proposed Action may contain Native American human interments and artifacts of past human activity ranging from Native American sites to flood control structures. USACE has consulted with the State Historic Preservation Officer (SHPO) and other parties regarding the APE and executed a Programmatic Agreement (PA) to guide compliance with Section 106 of the National Historic Preservation Act (NHPA). USACE uses effects determinations arrived at through Section 106 compliance to assess effects to cultural resources under NEPA and to mitigate for adverse effects under both laws.

The PA, titled *Programmatic Agreement Among the U.S. Army Corps of Engineers and the California State Historic Preservation Officer Regarding the American River Common Features Project, Sacramento and Yolo Counties, California*, and executed on September 10, 2015, establishes the process USACE will follow to comply with Section 106 of the NHPA, taking into consideration the views of the signatory and concurring parties and interested Native American Tribes. The PA stipulates time frames and document review procedures; delineation of project APEs; development of a Historic Properties Management Plan (HPMP) to guide identification, evaluation, and findings of

effect; Historic Property Treatment Plans (HPTs) to identify treatment for historic properties that would be adversely affected; a process to guide limited geotechnical investigations; Native American consultation procedures; and other processes and implementation procedures. The Project HPMP was completed in June 2017. The term “historic property” refers to any cultural resource that has been found eligible for listing, or is listed, in the National Register of Historic Places (NRHP).

Native American Consultation

USACE is the lead Federal agency responsible for compliance with Section 106 of the NHPA and has conducted consultations with Native American Tribes and interested parties according to the PA. Several Native American Tribes and interested parties were contacted while developing the PA and provided with general information about the ARCF 2016 Project. Consultations specifically related to the Proposed Action are a continuation of the ongoing process. All Native American Tribes identified in the PA have been contacted and provided a description of the Proposed Action and requested to provide information on resources important to Native Americans. A Draft Identification and Evaluation Report was distributed to consulting Native American Tribes in April 2020. The Draft report proposed a finding of No Adverse Effect to historic properties. This finding is conditioned on developing a Monitoring and Discovery Plan. SHPO concurred in the finding of No Adverse Effect in a letter dated September 2, 2020. Consultation with Native American Tribes is ongoing.

The CVFPB is the State lead agency responsible for CEQA compliance. The California Natural Resources Agency adopted the California Natural Resource Agency Final Tribal Coordination Policy on November 20, 2012, which was developed in response to Governor Brown’s September 19, 2011 Executive Order B-10-11. The CVFPB has adopted this Policy. Accordingly, Native American consultation for CEQA compliance will be conducted in accordance with the Policy adopted by the CVFPB. The purpose of the Policy is to ensure effective, meaningful, and mutually beneficial government-to-government consultation, communication, and coordination between the CVFPB and tribal entities relative to activities under the CVFPB’s jurisdiction that may affect tribal communities. USACE and the CVFPB would contact Native American contacts identified by the California Native American Heritage Commission (NAHC) in an effort to identify cultural resources important to Native Americans, including Tribal Cultural Resources (TCRs) as defined in California Public Resources Code Section 21074, that may be present in the project area.

Identification of Potential Historic Properties

Records searches conducted at the North Central Information Center (NCIC) on October 21, 2019, and the Northwest Information Center (NWIC) on October 23, 2019, identified one recorded Historic Property within the Proposed Action APE: P-34-000509 (CA-SAC-482H), the American River levee. Within the Rossmoor West Mitigation Site, one historic property was identified: P-34-000182/183 (CA-SAC-155/H / CA-SAC-156), a multicomponent archaeological site.

Letters describing the proposed project and erosion counter measures APE were mailed to potentially interested Native American Tribes on October 8, 2019. Letters requesting information on the VELB mitigation locations were mailed in February 2020. Responses were received from the Shingle Springs Band of Miwok Indians, Wilton Rancheria, and the United Auburn Indian Community (UAIC) requesting additional information and to consult on the project. Consultation is ongoing; at this time, no specific information has been received regarding potential historic properties, defined according to NHPA, or Native American-identified TCRs, defined according to State law.

Portions of the levee northeast of California State University at Sacramento (CSUS) and southwest of Campus Commons as well as the Campus Commons Golf Course were surveyed on December 16, 2019, by professional archaeologists meeting the Secretary of the Interior (SOI) requirements. Surveys of elderberry transplant locations, including the Rossmoor West and East Mitigation Sites, were conducted on March 10 and 11, 2020, by SOI qualified archaeologists, accompanied by a UAIC Tribal Monitor. These surveys were conducted using intensive standards (transects spaced no more than 15 meters apart). A Trimble 7 Series GPS unit capable of sub-meter accuracy was carried to record the location of any identified resources. Hard copy maps were used to ensure adequate coverage of the APE. Conversations between the archaeologists and Tribal Monitor on December 20, 2019, resulted in both parties agreeing that if cultural resources were present, they would likely be found during subsurface work or exploration and not on the surface. The Arden Pond Mitigation Site was surveyed by USACE archaeologists on November 13, 2020. No cultural resources were identified.

Much of the Proposed Action APE is covered in pavement, landscaped, or consists of very steep terrain and is heavily vegetated. No cultural resources were identified during the pedestrian survey, although subsurface cultural resources are known to exist at site CA-SAC-155/H / CA-SAC-156.

Geoarchaeological testing was performed at the Rossmoor West Mitigation Site in July 2020. The goal of this testing was to define the boundaries of site CA-SAC-155/H / CA-SAC-156. Observation of cultural material during testing confirmed that site CA-SAC-155/H / CA-SAC-156 overlaps with the northern-most portion of the Rossmoor West Mitigation Site. This area would either be avoided during transplanting or planted with smaller elderberry shrubs in order to avoid adverse effects to site CA-SAC-155/H / CA-SAC-156. Consultation with Native American Tribes and SHPO is ongoing regarding design of the Proposed Action and NRHP eligibility.

Based on the record search, background research, pedestrian survey, and consultation with interested Native American Tribes, USACE has found that the erosion protection project would result in No Adverse Effect to historic properties. SHPO concurred in the finding of No Adverse Effect in a letter dated September 2, 2020. Consultation on the Rossmoor West and East Mitigation Sites and the Arden Pond Mitigation Site is ongoing.

3.7.2 Methodology and Basis of Significance

3.7.2.1 Methodology

For those resources recommended to be eligible for listing in the NRHP/California Register of Historical Resources (CRHR), analysis of the effects or likely effects was based on evaluation of the changes to the existing historic properties that would result from implementing the Proposed Action. In making a determination of the effects on Historic Properties, consideration was given to:

- Specific changes in the characteristics of Historic Properties in the APE;
- The temporary or permanent nature of changes to Historic Properties and the visual area around the Historic Properties; and
- The existing integrity considerations of Historic Properties in the APE and how the integrity was related to the specific criterion (or criteria) that makes a Historic Property eligible for listing in the NRHP.

An assessment of effects for the purposes of this Supplemental EIS/EIR and a determination of effect under Section 106 of the NHPA is made only for those resources determined to be eligible for listing in the NRHP. Resources that have been found or recommended to be ineligible for listing in the NRHP are not considered further in this Supplemental EIS/EIR. Similarly, because isolated artifacts are generally not considered to be potentially eligible for listing in the NRHP and because an assessment of effects for the purposes of this Supplemental EIS/EIR and a determination of effects under Section 106 of the NHPA is made only for those resources determined to be eligible for listing in the NRHP or that are listed in the NRHP, isolated artifacts are not considered to be Historic Properties and an assessment of effects on those resources is not necessary. Therefore, isolated artifacts are not considered further in this Supplemental EIS/EIR.

This evaluation of potential effects on cultural resources is based on detailed information compiled since the ARCF GRR FEIS/FEIR was prepared, as described above under “Existing Conditions.” The effects analysis considered the following factors related to the Proposed Action: project elements, including erosion counter measures, staging areas, potential effect mechanisms; the area that would be temporarily and permanently disturbed; known or potential locations of cultural resources, including locations identified by Native Americans as cultural landscapes, traditional cultural properties, sacred sites or other sensitive resources. In particular, the significance of each effect was evaluated in terms of its potential effect on resources that are eligible or potentially eligible for listing in the NRHP/CRHR. The mitigation identified in the ARCF GRR FEIS/FEIR for potential impacts on cultural resources included implementing stipulations of the ARCF PA.

USACE has not concluded determinations of NRHP eligibility for components of the Proposed Action based on consultation with SHPO and other ARCF PA Parties and therefore the impact analysis presented in this document does not reflect consensus findings under Section 106 of the NHPA as implemented through the ARCF PA. In

accordance with the ARCF PA, confirmation of NRHP eligibility and findings of effect and appropriate mitigation would be made through consultation between USACE, SHPO, and other ARCF PA Parties as appropriate prior to initiating construction of the Proposed Action.

3.7.2.2 Basis of Significance

The following analysis uses the same basis of significance described in Section 3.9 (page 195) of the ARCF GRR FEIS/FEIR. Any adverse effects on cultural resources listed or eligible for listing in the NRHP (i.e., historic properties) are considered significant. 36 CFR 800.5(a)(1) provides criteria for assessing an adverse effect. Effects are considered to be adverse under Section 106 of the NHPA if they:

- Alter, directly or indirectly, any of the characteristics of a cultural resource that qualify that resource for the NRHP so that the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association is diminished.
- Cause a substantial adverse change in the significance of a historic property through the physical demolition, destruction, relocation, or alteration of the historic property of its immediate surroundings such that the significance of the resource would be materially impaired.

Under California law (i.e., CEQA), effects on a historic resource or unique archaeological resource are considered to be adverse if they:

- Materially impair the significance of a historic resource or unique archaeological resource.
- Require the demolition of a historic resource.

Two additional significance thresholds not included in the 2016 ARCF GRR FEIS/FEIR are considered in this analysis. The project would be determined to result in a potentially significant effect if it would:

- Disturb any Native American human remains, including those interred outside of formal cemeteries; or
- Result in a substantial adverse change in the significance of a Tribal Cultural Resource (as defined in California Public Resources Code [PRC] Section 21074 and above) when compared against existing conditions.

3.7.3 Impact Analysis

3.7.3.1 No Action/No Project Alternative

Under the No-Action Alternative, USACE would not construct the proposed erosion protection measures. As a result, if a flood event were to occur, the Sacramento area would remain at the same level of risk of a possible levee failure due to erosion as today.

Continued severe erosion has the potential to destroy buried cultural resources or to expose them to the surface, increasing the possibility of damage from both natural forces and man-made impacts.

Potential levee failure and the resulting major flooding event could alter existing conditions by burying, destroying, or revealing cultural resources. Failure of the levee and subsequent flooding would trigger post-failure emergency repairs. Flooding could result in significant damage to cultural resources in a large geographic area through erosion and inundation. The required post-failure emergency repairs could have a large footprint, and the urgent need to immediately repair the levee would preclude proper planning and environmental protection. These effects on cultural resources would be significant. However, the timing, duration, and magnitude of such a flood is unpredictable, and therefore a precise determination of significance is not possible.

3.7.3.2 Proposed Action

Erosion protection measures would include substantial ground disturbance, including bank excavation and riprap placement, use of staging areas, and habitat mitigation. These earthmoving activities could result in damage to or destruction of unknown or subsurface historic-period sites, prehistoric-period archaeological sites, and Native American–identified TCRs.

Two potential historic properties are located within the Proposed Action APE: P-34-000509 (CA-SAC-482H), the American River levee, and site P-34-000182/183 (CA-SAC-155/H/CA-SAC-156). In accordance with the ARCF PA, confirmation of NRHP eligibility and findings of effect and appropriate mitigation would be made through consultation between USACE, SHPO, and other ARCF PA Parties as appropriate prior to initiating construction of the Proposed Action.

Unknown archaeological resources and TCRs also could be discovered and inadvertently damaged during project construction.

Implementing Mitigation Measures CR-1, CR-2, CR-3, CR-4, and CR-5 described below would reduce the potential impact related to inadvertent damage to or destruction of presently undocumented archaeological resources and TCRs to a less-than-significant level under CEQA because the measures would require that if archaeological resources or TCRs are discovered prior to or during project-related construction, appropriate treatment and protection measures must be implemented.

Although no Native American human remains have been discovered in or near the APE, they could be encountered during earthmoving activities associated with the project. This potential impact related to inadvertent damage to or destruction of presently undocumented human remains would be significant. Implementing the new mitigation measure (Mitigation Measure CR-6) described below would reduce the impact to a less-than-significant level because it requires disturbances in the area of a find must be halted and appropriate treatment and protection measures must be implemented. All of this measure

must be done in consultation with the NAHC, Most Likely Descendant (MLD), and landowners, in compliance with California Health and Safety Code Section 7050 *et seq.* and PRC Section 5097.9 *et seq.*

Avoidance, Minimization, and Mitigation Measures

The following mitigation measures augment the mitigation identified in the ARCF GRR FEIS/FEIR, including actions to address TCRs under CEQA and specifically address discovery of archaeological resources and human remains. If the project is implemented, USACE and the CVFPB would implement the measures as described.

Mitigation Measure CR-1: Resolve Adverse Effects through a Programmatic Agreement and Historic Properties Treatment Plan. A Programmatic Agreement has been executed for the ARCF Project. A Historic Properties Treatment Plan (HPTP) would be developed if the proposed action is found to result in adverse effects.

Mitigation Measure CR-2: 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 Proposed Action. 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 Proposed Action. 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.

Mitigation Measure CR-3: 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 resources and TCRs 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 Native American tribes. USACE may invite Native American representatives from interested culturally affiliated Native American tribes to participate.

Mitigation Measure CR-4: Implement Procedures for Discovery of Cultural Material. If the discovery of cultural materials (e.g., unusual amounts of shell, animal bone, any human remains, bottle glass, ceramics, building remains), TCRs, 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.

Mitigation Measure CR-5: Evaluate Any Tribal Cultural Resources Discovered and Implement Avoidance and Minimization Measures to Avoid Significant Adverse Effects. California Native American Tribes have expertise regarding TCRs (PRC Section 21080.3.1). Consistent with the California Natural Resources Agency Tribal Consultation Policy, culturally affiliated Tribes would be consulted concerning TCRs that may be affected, if these types of resources are discovered before or during construction. Consultation with culturally affiliated Tribes would focus on identifying measures to avoid or minimize impacts on any such resources discovered during construction. If TCRs are identified in the APE before or during construction, the following performance standards would be met before any further construction and associated activities that may result in damage to or destruction of TCRs:

- Each identified TCR would be evaluated for CRHR eligibility through application of established eligibility criteria (14 CCR 15064.636), in consultation with interested Native American Tribes.
- If a TCR is determined to be eligible for listing in the CRHR, USACE, in consultation with the CVFPB, would avoid damaging the Tribal Cultural Resource in accordance with PRC Section 21084.3, if feasible. If the CVFPB determines that the project may cause a substantial adverse change to a TCR, and measures are not otherwise identified in the consultation process, the following are examples of mitigation steps or alternatives capable of avoiding or substantially lessening potential significant impacts on a TCR:
 - i. Avoid and preserve resources in place, including, but not limited to, planning construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
 - ii. Treat the resource with culturally appropriate dignity, taking into account the Tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - a. Protect the cultural character and integrity of the resource.
 - b. Protect the traditional use of the resource.
 - c. Protect the confidentiality of the resource.
 - d. Establish permanent conservation easements or other interests in real estate, with culturally appropriate management criteria for the purposes of preserving or using the resources or places.

- e. Protect the resource.

Mitigation Measure CR-6: Implement Procedures for Discovery of Human Remains. The roles and responsibilities of USACE during the response to the discovery of human remains are outlined in the HPMP. To minimize adverse effects from encountering human remains during construction, the CVFPB would implement the following measures:

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

to further disturbance. If the CVFPB rejects the recommendation of the MLD and mediation by the NAHC fails to provide measures acceptable to the CVFPB, the CVFPB would implement mitigation to protect the burial remains. Construction work in the vicinity of the burials would not resume until the mitigation is completed.

Summary

The ARCF GRR FEIS/FEIR concluded that mitigation measures would reduce potential impacts of the project on cultural resources under NEPA and the NHPA to a less-than-significant level as any adverse effects would be resolved by implementing requirements contained in the PA. The ARCF GRR FEIS/FEIR also concluded that under CEQA the impacts of project construction on historic and unique archaeological resources would be significant and unavoidable. With implementation of new Mitigation Measures CR-1, CR-2, CR-3, CR-4, CR-5, and CR-6, the Proposed Action would have a less-than-significant impact with mitigation under CEQA.

3.8 Transportation and Circulation

3.8.1 Environmental Setting

3.8.1.1 Regulatory Setting

Section 3.10 (page 219) of the ARCF GRR FEIS/FEIR identified Federal, State, and local regulations that apply to transportation and circulation. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations and described the status of compliance with those laws and regulations. There are no additional laws or regulations applicable to transportation and circulation that have gone into effect since certification of the ARCF GRR FEIS/FEIR.

3.8.1.2 Existing Conditions

Section 3.10 of the ARCF GRR FEIS/FEIR (pages 220 through 224) describes the regional and local setting for the ARCF GRR Project, including the setting for the Proposed Action and vicinity. The following provides additional information specific to the Project Area.

The Project Area would be accessed from the State highway system from U.S. Highway 50 (U.S. 50) and Business 80/Capital City Freeway. The nearest highway interchanges to the Project Area include the following:

- U.S. 50 and Howe Avenue
- U.S. 50 and Watt Avenue
- U.S. 50 and Sunrise Boulevard
- Business 80/Capital City Freeway and Exposition Boulevard
- Business 80/Capital City Freeway and Arden Way

In addition to the major arterial roadways used to access the Project Area described in the ARCF GRR FEIS/FEIR, including Howe Avenue, Watt Avenue, Arden Way, and Fair Oaks Boulevard, construction of the facilities planned under the Proposed Action would also require use of Exposition Boulevard, Ethan Way, Hurley Way, and Coloma Road to access the Project Area.

In addition, access to the Project Area would require use of minor arterial and collector roadways. In East Sacramento, American River Drive, University Avenue, and Cadillac Drive would provide access to Sites 2-2 and 2-3 (including the Campus Commons Golf Course) from Howe Avenue and Fair Oaks Boulevard. In Carmichael, Kingsford Drive/Harrington Way would provide access to the Arden Pond Mitigation Site from Arden Way. In Rancho Cordova, Elmanto Drive would provide access to the Rossmoor West and East Mitigation Sites.

3.8.2 Methodology and Basis of Significance

3.8.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.10.2 (page 224) of the ARCF GRR FEIS/FEIR. The methodology anticipated that the levee improvements along the American River, including the Project Area, would generate intermittent substantial volumes of construction traffic, due to earthwork and delivery of materials. Operation of the Proposed Action would generate traffic volumes for maintenance activity that would be similar to traffic volumes for maintenance generated under existing conditions.

3.8.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.10.2 (page 224) of the ARCF GRR FEIS/FEIR, as stated below.

The Proposed Action would result in a significant effect related to transportation and circulation if it would:

- Substantially increase traffic in relation to existing traffic load and capacity of the roadway system;
- Substantially disrupt the flow of traffic;
- Expose people to significant public safety hazards resulting from construction activities on or near the public road system;
- Reduce the supply of parking spaces sufficiently to increase demand above supply;
- Cause substantial deterioration of the physical condition of nearby roadways;
- Result in inadequate emergency access; or
- Disrupt railroad services for a significant amount of time.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines were adopted. As a result, this analysis also takes into consideration the following modified significance criteria:

- Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

3.8.3 Impact Analysis

3.8.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would experience no change in the present level of risk of flooding due to levee failure from seepage, slope stability, overtopping, or other erosion concerns.

Under these conditions, a flood event could cause portions of the levees to fail, possibly triggering widespread flooding and related damage. If a catastrophic flood were to occur, emergency flood fighting and clean-up efforts would be initiated, probably requiring mobilization of a large number of emergency vehicles and construction equipment. In addition, under the No Action/No Project alternative, if a flood event were to occur, roadways and railroads could be inundated with floodwaters, causing disruptions in traffic and deterioration of roadway conditions. These effects on transportation would be considered significant; however, the timing, duration, and magnitude of a flood event is unpredictable and precise significance determination cannot be made.

3.8.3.2 Proposed Action

Traffic Load and Capacity

Section 3.10 (pages 224 through 229) of the ARCF GRR FEIS/FEIR analyzed the impacts on transportation and circulation associated with construction of levee improvements throughout the Sacramento area, including the Project Area that encompasses Sites 2-2 and 2-3, the Arden Pond Mitigation Site, and the Rossmoor West and East Mitigation Sites. The ARCF GRR FEIS/FEIR identified that implementation of the proposed levee improvements would require moving construction equipment and materials along highways and local roads such as Howe Avenue, Arden Way, and Fair Oaks Boulevard, as well as local minor arterial streets to access the construction sites. The ARCF GRR FEIS/FEIR transportation and circulation impact analysis identified that construction of proposed levee improvements and related mitigation activities would intermittently generate substantial volumes of traffic due to the earthwork involved and the need for materials deliveries and would result in significant temporary and short-term impacts.

In addition, construction of levee improvements and related mitigation activities in performance of the Proposed Action would require trucks to enter the American River Parkway, and the increased traffic in the Parkway would result in significant temporary impacts to recreational users, bicycle commuters, and residents adjacent to the levee structure. Construction-related traffic on residential roads to access the Parkway would result in significant temporary and short-term impacts to residents along the selected routes. The following discussion provides additional details on transportation and circulation effects of the Proposed Action that were not available when the ARCF GRR FEIS/FEIR was prepared.

Site Preparation and Mobilization

Site preparation would begin with trimming and/or removal of trees where construction access and activities would occur. After these activities, mobilization would include building of temporary access roads, preparing staging areas, rerouting pedestrian and bicycle trails, and installing signage for alternate transportation and travel routes that would be affected by construction activities (e.g., bicycle routes). Vegetation clearing could be needed to allow for site access and to accommodate construction activities.

Site Access and Haul Routes

As depicted on Figure 2-25 in Chapter 2, *Alternatives*, haul trucks would travel to the staging areas using different haul routes for Site 2-2 and 2-3 (including the Campus Commons Golf Course). Haul trucks may travel along a portion of the top levee road between Sites 2-2 and 2-3 at ingress and egress locations. Internal transfer dump trucks would utilize the levee toe road to move material from the staging areas where needed within Sites 2-2 or 2-3. In addition, soil removed during the cut bank excavation and grading at Site 2-3 would be hauled off site to the Arden Pond Mitigation Site (see description in Chapter 2, *Alternatives*) and other soil stockpile locations used by the local maintaining agency (LMA) for such purpose within a 10-mile distance of Site 2-3. See Figure 2-26 in Chapter 2, *Alternatives*, for haul routes to transport soil from Site 2-3 to the Arden Pond Mitigation Site and to major routes to Interstate 80 (I-80) and U.S. 50. Haul routes for the reconstruction of the Campus Commons Golf Course would use the same as those for Site 2-3 but would only use the entrance point to the golf course parking lot as the ingress/egress point for construction-related trips. The primary haul route for the Rossmoor West and East Mitigation Sites would use U.S. 50 and Sunrise Boulevard.

Haul routes for riprap, bedding, gravel, and IWM would travel to the site from either I-80 to the north or from U.S. Highway 50 to the south. The neighborhoods within the area would be notified of haul routes, ingress and egress points, staging areas, detours, lane closures (if any), and closed recreational areas (including bike paths) approximately one week prior to commencement of construction activities.

Anticipated Construction Traffic Volumes and Distribution

Construction traffic associated with the Proposed Action would result from the transport of construction personnel, materials, and equipment to and from the project sites. Most

construction traffic volumes would be associated with the delivery of material and supplies to staging areas, and export of fill to off-site locations. **Table 3-9** provides a summary of haul trips, as they would be anticipated to occur throughout the primary construction phases.

As shown in Table 3-9, the Proposed Action would include overlapping construction phases. The Proposed Action would result in approximately 85,642 haul trips, based on the anticipated size of haul vehicles. Haul trips would begin in approximately May 2022 and continue through approximately May 2023. The anticipated peak haul trips per hour would take place from May 2022 through October 2022 during the primary construction phase at Sites 2-2 and 2-3, including hauling of materials from Site 2-3 to the Arden Pond Mitigation Site. As shown in Table 3-9, haul trips would decrease significantly during the reconstruction of the Campus Commons Golf Course. Based on an assumption of evenly distributed truck trips across an 11-hour workday, the construction phase of the Proposed Action could be anticipated to add approximately 73 truck trips per hour along the proposed haul routes during the primary construction phase from May 2022 through October 2022. This would be a significant and unavoidable impact.

Safety Hazards

Construction of levee improvements at Sites 2-2 and 2-3 (including Campus Commons Golf Course) and related mitigation activities at the Arden Pond Mitigation Site and the Rossmoor West and East Mitigation Sites would require trucks to enter the American River Parkway. The increased traffic in the Parkway would result in significant temporary and short-term impacts on recreational users, bicycle commuters, and pedestrians. Without appropriate safeguards, implementation of the Proposed Action could expose people to significant public safety hazards resulting from construction activities on or near the public road system and within the Parkway.

While the transportation and circulation analysis in the ARCF GRR FEIS/FEIR did not specifically evaluate public safety hazards resulting from construction activities on or near the public road system, this topic was addressed in the ARCF GRR FEIS/FEIR by Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan, which is incorporated into the Proposed Action. The mitigation measure includes the requirement that safe pedestrian and bicyclist access be maintained around the construction areas at all times, the requirement that construction areas would be secured as required by the applicable jurisdiction to prevent pedestrians and bicyclists from entering the work site, and the requirement that all stationary equipment would be located as far away as possible from areas where bicyclists and pedestrians are present. Implementation of Mitigation Measure TR-1 identified in the ARCF GRR FEIS/FEIR and previously adopted and incorporated into the Proposed Action and new Mitigation Measure TR-2 would ensure that public safety hazards resulting from construction activities on or near the public road system would be reduced to less than significant.

TABLE 3-9
ANTICIPATED CONSTRUCTION TRAFFIC VOLUMES

Schedule	Site	Materials	Total Imported Materials (CY or Trees)	Total Haul Trips	Return Trips	Work Period (Days)	Total Truck Trips	Trips/ Day	Trips/ Hr
May through October 2022	Repair Site 2-2	Planting Bench Soil	44,027	1,375.83	1,375.83	157	2,752	35	3.2
		IWM	80	8.00	8.00	157	16	0	0.0
		Rock Haul	51,800	1,618.75	1,618.75	157	3,238	41	3.8
		Site Total		3,003	3,003		6,005	77	7
	Repair Site 2-3	IWM	240	24.00	24.00	157	48	1	0.1
		Rock Haul	197,680	6,177.50	6,177.50	157	12,355	158	14.3
		Exported Material	363,300	11,353.13	11,353.13	157	22,706	290	26.3
		Site Total		17,555	17,555		35,109	448	41
	Arden Pond	Soil for Berms and Fill Design	330,000	10,312.50	10,312.50	157	20,625	263	23.9
		IWM (Trees)	482	48.20	48.20	157	96	1	0.1
		Rock Haul	15,000	468.75	468.75	157	938	12	1.1
		Site Total		10,829	10,829		21,659	276	25
		Total for Phase		31,387	31,387		62,773	800	73
April through May 2023	Golf Course Construction - Rough Shaping and Grading Phase	Sand	1,800	56.25	56	51	113	2.19	0
		Gravel	800	25	25	51	50	0.97	1
		Site Total		81	81		163	3	1
		Total for Phase		11,434	11,434		22,869	293	27
OVERALL TOTAL				42,821	42,821	-	85,642	Total Truck Trips	

NOTES:

Truck Volume (CY) 32
Truck Volume (Trees) 10
Construction Days Per Week 6
Construction Day (Hours) 11
CY of Rock in 1 Ton (CY) 1.4
Tons of soil in 1 CY 1.5

Source: NHC, 2021; ESA, 2021

Parking Demand

The ARCF GRR FEIS/FEIR determined that the increase in vehicle traffic within the project area that would be caused by the Proposed Action would not result in a reduction of public parking availability, because construction vehicles would be required to park in designated staging areas, as specified in the mitigation measure provided below.

Mitigation measures identified in the ARCF GRR FEIS/FEIR are incorporated into the Proposed Action, including the requirement that the construction contractor provide adequate parking for construction trucks, equipment, and construction workers within designated staging areas throughout the construction period. If inadequate space for parking is available at a given work site, the construction contractor would be required to provide an off-site staging area and, as needed, coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site. Implementation of mitigation measures identified in the ARCF GRR FEIS/FEIR and incorporated into the Proposed Action would ensure that impacts related to the supply of parking spaces adjacent to project sites would be less than significant.

Deterioration of Roadways

The ARCF GRR FEIS/FEIR determined that construction of the levee improvements would result in a substantial increase in traffic on local roadways associated with truck haul trips during construction activities, and the haul trucks could cause additional damage or deterioration to roadway conditions.

Without appropriate safeguards, implementation of the Proposed Action, which would deploy substantial numbers of heavy duty trucks hauling heavy loads of soil, rock, and other materials, could cause substantial deterioration of the physical condition of nearby roadways, including potholes, fractures, or other damages. Mitigation measures identified in the ARCF GRR FEIS/FEIR are incorporated into the Proposed Action, including the requirement that the construction contractor assess damage to roadways caused by the transit of project vehicles and equipment and repair all potholes, fractures, or other damages. Implementation of mitigation measures identified in the ARCF GRR FEIS/FEIR and incorporated into the Proposed Action (see below) would ensure that impacts related to substantial deterioration of the physical condition of nearby roadways would be less than significant.

Inadequate Emergency Access

The ARCF GRR FEIS/FEIR determined that construction of the levee improvements would result in a substantial increase in traffic on local roadways associated with truck haul trips during construction activities. The ARCF GRR FEIS/FEIR determined that traffic controls associated with truck haul trips during construction activities would cause or contribute to substantial temporary increases in traffic levels on several roadways, as traffic is detoured, slowed, or disrupted by lane closures. Traffic controls could cause delays during the morning and evening peak commute hours, which could disrupt emergency response times in the vicinity of the construction sites. Implementation of

mitigation measures identified in the ARCF GRR FEIS/FEIR and incorporated into the Proposed Action would ensure that impacts related to inadequate emergency access would be less than significant.

Conflict or Inconsistency with State CEQA Guidelines Section 15064.3

State CEQA Guidelines Section 15064.3(b) was adopted in December 2018 by the California Natural Resources Agency and took effect on July 1, 2020. Amendments to the CEQA Guidelines Appendix G, Section XVII were also adopted. These revisions to the State CEQA Guidelines criteria for determining the significance of transportation impacts shift the focus from vehicle delay to reduction of greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses for projects that are not roadway capacity projects. Vehicle miles traveled (VMT) is a measure of the total number of miles driven to or from a destination, such as work and home, and is sometimes expressed as an average per trip or per person.

CEQA Guidelines Section 15064.3(a) states, “For the purposes of this section, ‘vehicle miles traveled’ refers to the amount and distance of automobile travel attributable to a project,” where, in accordance to guidance provided by the California Office of Planning and Research,⁷⁷ automobiles refer to on-road passenger vehicles, specifically cars and light trucks. Consequently, truck haul trips associated with construction for the Proposed Action are not factored into the assessment of project VMT, and the focus of this analysis is on passenger vehicle (i.e., cars and light trucks) trips generated by the Proposed Action. However, this Supplemental EIS/EIR also includes an analysis of emissions associated with heavy truck traffic generated by the Proposed Action (as well as commuter trips; see Section 3.9, *Air Quality* Section 3.10, *Greenhouse Gas Emissions and Energy Consumption*)

While the Proposed Action would result in temporary construction-related vehicle trips (i.e., cars and light trucks) associated with workers traveling to and from construction sites, these additional trips would not be expected to result in a long-term change in travel behavior or a long-term increase in VMT. In addition, the Proposed Action would not develop any uses (e.g., residential, commercial, industrial) that would result in a long-term change in travel behavior or a long-term increase in VMT. Operations and maintenance trips associated with improvements implemented under the Proposed Action would not be anticipated to materially increase over existing trips. Consequently, the Proposed Action would not result in a long-term increase in VMT or result in conflicts or inconsistency with State CEQA Guidelines Section 15064.3, and the Proposed Action would result in a less-than-significant impact.

⁷⁷ California Office of Planning and Research. 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December 2018.

Conflict with a Program, Plan, or Ordinance: Decreased Performance or Safety of Alternative Modes of Transportation

Construction of the Proposed Action would have an impact on bicycle and pedestrian routes along the American River Parkway. As described in Chapter 2, *Alternatives*, internal haul routes would utilize multiple pathways atop and within the levees along both sides of the American River, which would interfere with commuter and recreational use of those facilities during construction. Construction activities would result in the temporary closure of bicycle/pedestrian pathways, requiring commuters and recreational users to seek alternative routes within the American River Parkway or in adjacent neighborhoods. In other areas, temporary detour routes would be identified for bicyclists and pedestrians using the American River Parkway bicycle trail. As described in Chapter 2, *Alternatives*, construction at Site 2-3 would result in removal of portions of the American River Parkway paved bicycle trail from grading activities. During construction, alternative routes would be designated with signage for users of the trail. Approximately 3,500 lineal feet of bicycle trail would be constructed to replace the length of trail removed by grading.

While temporary, these impacts would have the potential to reduce safe access for bicycle and pedestrian users, which would conflict with the County of Sacramento's policy regarding pedestrian pathways along the American River Parkway. But implementation of the previously adopted mitigation measures described below would reduce the impact to less than significant.

ARCF GRR FEIS/FEIR Mitigation Measures

The following ARCF GRR FEIS/FEIR mitigation measure found in Section 3.10 (pages 228-229) is incorporated into the Proposed Action:

Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan. Before the start of project-related construction activities, USACE and the CVFPB would require the contractor to prepare a Traffic Control and Road Maintenance Plan. This plan would describe the methods of traffic control to be used during construction. All on-street construction traffic would be required to comply with the local jurisdiction's standard construction specifications. The items listed below would be included in the plan and as terms of the construction contracts:

- The contractor would be required to prepare a Traffic Control and Road Maintenance Plan. A traffic control plan describes the methods of traffic control to be used during construction. All on-street construction traffic would be required to comply with the City of Sacramento's standard construction specifications as detailed in City Code 12.20.030 to the satisfaction of the City Traffic Engineer. The plan would reduce the effects of construction on the roadway system in the Project Area throughout the construction period.
- Construction contractors would follow the standard construction specifications of affected jurisdictions and obtain the appropriate encroachment permits, if

required. The conditions of the encroachment permit would be incorporated into the construction contract and would be enforced by the agency that issues the encroachment permit.

- Proposed lane closures would be coordinated with the appropriate jurisdiction and would be minimized to the extent possible during the morning and evening peak traffic periods.
- Standard construction specifications also typically limit lane closures during commuting hours. Lane closures would be kept as short as possible. If a road must be closed, detour routes and/or temporary roads would be made to accommodate traffic flows. Detour signs would be provided to direct traffic through detours. Advance notice signs of upcoming construction activities would be posted at least 1 week in advance so that motorists are able to avoid traveling through the study area during these times. Within the Parkway, detours would be used to allow for continued use by bicycle commuters.
- Safe pedestrian and bicyclist access would be maintained 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 would be located as far away as possible from areas where bicyclists and pedestrians are present.
- The construction contractor would provide adequate parking for construction trucks, equipment, and construction workers within the designated staging areas throughout the construction period. If inadequate space for parking is available at a given work site, the construction contractor would provide an off-site staging area and, as needed, coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site.
- The construction contractor would assess damage to roadways used during construction and would repair all potholes, fractures, or other damages.
- The construction contractor would notify and consult with emergency service providers at least 14 days prior to commencement of construction that would partially or fully obstruct roadways to ensure that alternative emergency access routes are established to facilitate the passage of emergency vehicles on city streets.
- Emergency vehicle access would be made available at all times. The contractor would be required to coordinate with local emergency responders to inform them of the construction activities.

Summary

Implementation of the Proposed Action would generate temporary but substantial volumes of traffic on local roadways and highways, primarily numerous daily transits by haul trucks carrying fill and borrow material to and from levee sites. Mitigation measures identified in the 2016 ARCF GRR FEIS/FEIR are incorporated into the Proposed Action

and would reduce the magnitude of impacts, but temporary traffic increases during project construction would remain significant and unavoidable. Construction of the Proposed Action would not cause new or more severe traffic impacts than those addressed in the ARCF GRR FEIS/FEIR

Implementation of the proposed new mitigation measure, not included in the ARCF GRR FEIS/FEIR, below would reduce anticipated impacts on the safety of alternative modes of transportation (e.g., bicycles and pedestrians) to a less-than-significant level.

Additional Mitigation Measure

Implementation of the following mitigation measure would reduce the impact on bicycle and pedestrian access to a less-than-significant level. To maintain safe usage of pedestrian and bicycle facilities that would intersect construction traffic, signal personnel would be in place to control construction vehicle, pedestrian, and bicycle traffic at those locations.

Mitigation Measure TR-2: Provide Bicycle and Pedestrian Access. The contractor would prepare a Traffic Control and Road Maintenance Plan that would include, but not be limited to, the following provisions related to bicycle and pedestrian access:

- Provide signs along affected pedestrian and bicycle pathways announcing scheduled closures and recommended detour routes.
- Place signal personnel at intersections of construction vehicle pathways and active bicycle and pedestrian facilities.

3.9 Air Quality

3.9.1 Environmental Setting

3.9.1.1 Regulatory Setting

Section 3.11 (page 229) of the ARCF GRR FEIS/FEIR identified the Federal Clean Air Act (CAA) and the California Clean Air Act (CCAA) that apply to regulating air quality emissions. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the Proposed Action and described the status of compliance with those laws and regulations. Additional and updated applicable laws and regulations related to air quality are summarized below.

Federal

The CAA requires the U.S. Environmental Protection Agency (EPA) to set minimum emissions standards for a range of pollution sources. Specifically, EPA and the National Highway Traffic Safety Administration (NHTSA) regulate emissions from on-road vehicles include automobiles and light-duty trucks. In 2012, EPA and NHSTA established the Corporate Average Fuel Economy (CAFE) standards for automobiles and light-duty trucks for model years 2014 and beyond (77 *Federal Register* [FR] 62624).

Under the original iteration of the CAFE standards, fuel economy would be raised to the equivalent of 54.6 miles per gallon by 2025 (77 FR 62630).

On August 2, 2018, the NHSTA and EPA proposed the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule) (49 Code of Federal Regulations (CFR) 523, 531, 533, 536, and 537 and 40 CFR 85 and 86). This rule addresses emissions and fuel economy standards for motor vehicles and is separated in two parts as described below.

Part One, “One National Program” (84 *Federal Register* [FR] 51310), revokes a waiver granted by EPA to the State of California under Section 209 of the CAA to enforce more stringent emission standards for motor vehicles than those required by EPA for the explicit purpose of reducing greenhouse gas (GHG) and, indirectly, criteria air pollutants and ozone precursor emissions. This revocation became effective on November 26, 2019, restricting the ability of the California Air Resources Board (CARB) to enforce more stringent GHG emission standards for new vehicles and set zero-emission-vehicle mandates in California.⁷⁸ However, on April 26, 2021, EPA announced plans to reconsider Part One of the SAFE Rule as directed in Executive Order 13990, “Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis.” At this time, EPA is seeking public input on its reconsideration of the action. Public comments to the Notice of Reconsideration will be open until June 6, 2021.⁷⁹

Part Two addresses CAFE standards for passenger cars and light trucks for model years 2021–2026. This rulemaking proposes new CAFE standards for model years 2022–2026 and would amend existing CAFE standards for model year 2021. The proposal would retain the model year 2020 standards (specifically, the footprint target curves for passenger cars and light trucks) through model year 2026, but comment is sought on a range of alternatives discussed throughout the proposed rule. This proposal addressing CAFE standards is being jointly developed with EPA, which is simultaneously proposing tailpipe carbon dioxide standards for the same vehicles covered by the same model years. The final SAFE Rule Part Two was released on March 31, 2020, and multiple lawsuits have been filed challenging the rulemaking.

State

In December 2018, the California Supreme Court issued its decision in *Sierra Club v. County of Fresno* (226 Cal.App.4th 704), (herein referred to as the Friant Ranch decision). The case reviewed the long-term, regional air quality analysis contained in the EIR for the proposed Friant Ranch development. The Court ruled that the air quality analysis failed to adequately disclose the nature and magnitude of long-term air quality health impacts from emissions of criteria air pollutants and precursors “in sufficient detail

⁷⁸ National Highway Traffic Safety Administration. 2019. The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One Nation Program. 49 CFR Parts 531 and 533. Available: 2019-20672.pdf (govinfo.gov). Accessed January 26, 2021.

⁷⁹ U.S. Environmental Protection Agency. 2021 (April 26). EPA Reconsiders Previous Administration’s Withdrawal of California’s Waiver to Enforce Greenhouse Gas Standards for Cars and Light Trucks. Available: <https://www.epa.gov/newsreleases/epa-reconsiders-previous-administrations-withdrawal-californias-waiver-enforce>. Accessed May 6, 2021.

to enable those who did not participate in its preparation to understand and consider meaningfully the issues the proposed project raises.” The Court noted that the air quality analysis did not discuss the foreseeable adverse health effects of project-generated emissions on Fresno County’s likelihood of exceeding the NAAQS and CAAQS for criteria air pollutants, nor did it explain why it was not “scientifically possible” to determine such a connection. The Court concluded that “because the EIR as written makes it impossible for the public to translate the bare numbers provided into adverse health impacts or to understand why such translation is not possible,” the EIR’s discussion of air quality impacts was inadequate. As a result, EIR analyses must make a reasonable effort to substantively connect the project’s air quality impacts to likely health consequences and that an EIR should relate the expected adverse air quality impacts to likely health consequences or explain in meaningful detail why it is not feasible to do so. In California, CARB is the agency responsible for coordination and oversight of state and local air pollution control programs and for implementing the CCAA and demonstrating compliance with the NAAQS. California law authorizes CARB to set ambient (outdoor) air pollution standards (California Health and Safety Code Section 39606) for criteria air pollutants in consideration of public health, safety, and welfare. CARB has established CAAQS for criteria air pollutants of ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM₁₀), fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less (PM_{2.5}), and lead, as well as sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particulate matter. The standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

Local

Sacramento Metropolitan Air Quality Management District

Criteria Air Pollutants

The Sacramento Metropolitan Air Quality Management District (SMAQMD) is the primary agency responsible for planning to meet NAAQS and CAAQS in Sacramento County. SMAQMD works with other local air districts in the Sacramento region to maintain the region’s portion of the State Implementation Plan (SIP) for ozone. The SIP is a compilation of plans and regulations that govern how the region and state will comply with the CCA requirements to attain and maintain the NAAQS for ozone. The Sacramento Region has been designated as a “moderate” nonattainment area for the 2015 8-hour ozone standard.⁸⁰

SMAQMD has developed a set of guidelines for use by lead agencies when preparing environmental documents. The guidelines contain thresholds of significance for criteria

⁸⁰ U.S. Environmental Protection Agency. 2020. *Greenbook 8-Hour Ozone (2015) Designated Area (State/Area/County Report)*. Last updated December 21, 2020. Available: <https://www3.epa.gov/airquality/greenbook/jbcs.html#CA>. Accessed January 26, 2021.

air pollutants and toxic air contaminants (TACs) and make recommendations for conducting air quality analyses. Thresholds of significance adopted by SMAQMD are designed on a cumulative basis, considering regional growth and anticipated development, such that projects that do not exceed the adopted thresholds would not impede the region from achieving the CAAQS and ultimately the NAAQS. Further, because the ambient air quality standards are designed to protect public health, projects that do not exceed SMAQMD-adopted thresholds, or are reduced to below the thresholds with applied mitigation, would be considered to have a less-than-significant impact under CEQA, would not contribute to exceedance of a CAAQS or NAAQS, and would not result in adverse health effects.

After SMAQMD guidelines have been consulted and the air quality impacts of a project have been assessed, the lead agency's analysis undergoes a review by SMAQMD. SMAQMD submits comments and suggestions to the lead agency for incorporation into the environmental document.

All projects in the Sacramento area are subject to SMAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction of the Proposed Action may include but are not limited to the following:

- **Rule 201:** General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may be required to obtain permit(s) from SMAQMD before equipment operation. Portable construction equipment (e.g., generators, compressors, pile drivers, lighting equipment) with an internal combustion engine greater than 50 horsepower must have a SMAQMD permit or CARB portable equipment registration.
- **Rule 402:** Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.
- **Rule 403:** Fugitive Dust. The developer or contractor is required to control dust emissions from earthmoving activities or any other construction activity to prevent airborne dust from leaving the Project Area.

In addition, if modeled construction-generated emissions for a project are not reduced to less than SMAQMD's mass emission threshold (i.e., 85 pounds per day [lb/day]) after the standard construction mitigation is applied, then SMAQMD recommends charging an off-site construction mitigation fee. The fee must be paid before a grading permit can be issued. This fee is charged by SMAQMD to fund emission reduction programs. One example is SMAQMD's Heavy Duty Incentive Program, through which select owners of heavy-duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies.

Toxic Air Contaminants

At the local level, air districts may adopt and enforce CARB control measures. Under SMAQMD Rule 201 (“General Permit Requirements”), construction equipment that possess the potential to emit TACs must be permitted by SMAQMD. Permits may be granted if a project is constructed and operated in accordance with applicable regulations, including air toxics control measures. SMAQMD limits emissions and public exposure to TACs through several programs. SMAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. Sensitive receptors are people, or facilities that generally house people (e.g., schools, hospitals, residences), that may experience adverse effects from unhealthful concentrations of air pollutants.

In September 2020, SMAQMD released the most recent version of the Mobile Source Air Toxics Protocol (MSAT Protocol). The MSAT Protocol provides guidance to local land use jurisdictions on assessing and disclosing potential cancer risk and PM_{2.5} concentrations from major roadways and railways throughout Sacramento County. The MSAT Protocol replaces the *Recommended Protocol for the Evaluation of Sensitive Receptors Adjacent to Major Roadways*.⁸¹

Odors

Although offensive odors rarely cause any physical harm, they can be unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and SMAQMD. SMAQMD’s Rule 402 (“Nuisance”) regulates odors.

Health Effects

In October 2020 SMAQMD issued Guidance to Address the Friant Ranch decision for CEQA Projects in SMAQMD’s jurisdiction.⁸² In that decision, the California Supreme Court held that an EIR should “relate the expected adverse air quality impacts to likely health consequences or explain in meaningful detail why it is not feasible at the time of drafting to provide such an analysis.” The Final Guidance contains two screening tools, one for a “Minor Project” and another for “Strategic Area Projects.” Strategic Area Projects are projects that generate emissions two to eight times greater than the maximum thresholds of significance (derived from identifying the greatest thresholds from air districts operating within the SVAB). Minor Projects are projects that generate emissions below the maximum thresholds of significance. Given its size and estimated level of emissions, the Proposed Action is considered a Strategic Area Project and was grouped into the Strategic Area Project III, “Downtown Sacramento,” designation due to the Proposed Action’s location.

⁸¹ Sacramento Metropolitan Air Quality Management District. 2020 (September) *Mobile Source Air Toxics Protocol Guidance Document*. Available: <http://www.airquality.org/LandUseTransportation/Documents/FinalMSATProtocolGuidancev1.3Sept2020.pdf>. Accessed January 26, 2021.

⁸² Sacramento Metropolitan Air Quality Management District. 2020 (October). *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District*. Available: <http://www.airquality.org/LandUseTransportation/Documents/SMAQMDFriantRanchFinalOct2020.pdf>. Accessed January 26, 2021.

3.9.1.2 Existing Conditions

Section 3.11 (pages 230 through 235) of the ARCF GRR FEIS/FEIR adequately describes the regional and local setting of the Project Area.

3.9.2 Methodology and Basis of Significance

3.9.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.11 (page 236) of the ARCF GRR FEIS/FEIR. Project-specific material quantities, haul routes, daily equipment use/types, and construction worker information have been added and are the basis for this analysis. The types of construction activities that would generate emissions of air pollutants include clearing of trees, vegetation, and loose materials; degrading and excavating the levee; installation of rock revetment; construction of a launchable-rock-filled trench; reconstruction of the levee; associated worker haul and commute trips; and construction of mitigation sites. Refer to **Appendix E** for all inputs, assumptions, and modeling results. Where significant air quality impacts are identified, mitigation measures to reduce these impacts are specified.

Construction of Sites 2-2 and 2-3 would take place over a 1.5-year period. Based on available construction sequencing assumptions, site preparation would begin in November 2021 and last through February 2022. This would entail the removal and/or trimming of trees where access and construction activities would occur. Mobilization of construction equipment, site preparation, and construction would begin as early of May 2022 and would take approximately 7 months to complete, with another 6 months of post-construction work (e.g., plantings, irrigation, stormwater control monitoring).

The construction of the Arden Pond Mitigation Site would proceed in two phases during the same period of construction for Sites 2-2 and 2-3, starting with tree clearing as early as November 2021 with construction starting in May 2022 and ending with planting and monitoring in December 2022 through Summer 2023. Restoration of the Campus Commons Golf Course, used as a staging area for Site 2-3, would involve three-phases over a 7 month period, beginning in April 2023 through November 2023. The Rossmoor West and East Mitigation Sites would be constructed during the same time period as Sites 2-2 and 2-3.

Construction would begin Monday through Saturday at 7:00 a.m. and end by 6:00 p.m.; Sundays from 9:00 a.m. to 6:00 p.m. Based on the construction sequencing anticipated, maximum construction activity would occur from May 2022 to December 2022 when rock hauling, on-site earth movement, and bank protection work would be underway simultaneously. The air quality analysis prepared for the Proposed Action quantified a “worst case scenario” construction year for 2021, 2022, and 2023 and daily emissions were compared to SMAQMD’s thresholds of significance. A General Conformity Determination was also prepared, which quantified project emissions by calendar year and is included in **Appendix F**.

A variety of emissions modeling software and methods were used, consistent with SMAQMD guidance. The SMAQMD Roadway Construction Emissions Model Version 9.0 was used to obtain emission factors for heavy-duty construction equipment. Default off-road equipment emission factors, default horsepower, and load factors from the model were used, also consistent with defaults used in the California Emissions Estimator Model (CalEEMod) Version 2016.3.2.⁸³ Modeling incorporated the Proposed Action's commitment that heavy-duty construction equipment of 50 horsepower or greater would consist of, at a minimum, 90 percent EPA Tier 4 standards. No Tier 0 or uncontrolled equipment would be used as part of implementation without prior approval from the U.S. Army Corps of Engineers (USACE) and a proposed mitigation plan to reduce these emissions to a minimum of Tier 1 levels. Fugitive dust emissions of PM₁₀ were calculated from aggregate storage piles, dump truck travel on unpaved roads, hauling travel on paved roads, worker commute trips, and bulldozing and grading using emissions factors derived from EPA's AP-42 emissions factors using site specific information where available. Fugitive dust emissions of PM_{2.5} were calculated using a 0.1 ratio of PM_{2.5} to PM₁₀ from EPA's AP-42 emissions factors. Regarding hauling emissions, it was assumed that haul trucks to the construction site would consist of trucks with the capacity to haul 32 cubic yards (cy) of materials.

The SMAQMD's Guidance to Address the Friant Ranch Decision was used to evaluate health effects for the Proposed Action. Consistent with SMAQMD's Final Friant Ranch Guidance, the anticipated construction emissions of criteria air pollutants were used to estimate foreseeable adverse health outcomes using SMAQMD's Strategic Area Project Health Screening Tool. Strategic Area Project III, "Downtown Sacramento," was used because it is the closest to the Proposed Action. **Table 3-10**, below, summarizes the anticipated health effects in the region from the Project's unmitigated emissions across all populations in the Sacramento Region.

In addition to estimating mass emissions from criteria air pollutants, air dispersion modeling was conducted to estimate health risks from project construction. Emissions from TACs (i.e., diesel PM) was modeled using EPA's AERMOD and health risks were calculated using CARB's HARP 2. The health risk assessment (HRA) considered TAC emissions associated with the use of heavy-duty construction equipment at Sites 2-2 and 2-3, the Arden Pond Mitigation Site, and the Campus Commons Golf Course reconstruction. Because of the substantial distance between Sites 2-2 and 2-3, the Arden Pond Mitigation Site, and the Campus Commons Golf Course TACs from each individual location would not combine at any single receptor location. Further, the golf course reconstruction would not overlap in time with other work. Thus, the HRA was split into three separate analyses, one for the combined work of site 2-2 and 2-3, one for the Arden Pond Mitigation Site activities, and one for the golf course reconstruction. Further, vegetation removal activities that would occur at the Rossmoor sites were not included in the HRA dispersion modeling because these activities are anticipated to be

⁸³ California Air Pollution Control Officers Association. 2017. CalEEMod Users Guide Version 2016.3.2. Available: http://www.aqmd.gov/docs/default-source/calceemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4. Accessed January 26, 2021.

much less intense in terms of number of and duration of equipment use in comparison to the other sites, and therefore, emissions associated with these mitigation sites would not result in substantial risk levels.

TABLE 3-10
POTENTIAL ANNUAL INCREMENTAL HEALTH INCIDENCES FOR THE PROPOSED ACTION

Health Endpoint	Health Endpoint	Health Endpoint	Age Range	Incidences (Mean)	Percent of Background Incidences	Total Number of Health Incidences (per Year)
PM _{2.5}	Respiratory	Emergency Room Visits	0-99	3.3	0.018%	18,419
		Hospital Admissions, Asthma	0-64	0.22	0.012%	1,846
		Hospital Admissions, All Respiratory	65-99	0.99	0.005%	19,644
	Cardiovascular	Hospital Admissions, All Cardiovascular (less Myocardial Infarctions)	65-99	0.58	0.0024%	24,037
		Acute Myocardial Infarction, Nonfatal	18-24	0.0003	0.0079%	4
		Acute Myocardial Infarction, Nonfatal	25-44	0.024	0.0078%	308
		Acute Myocardial Infarction, Nonfatal	45-54	0.06	0.0081%	741
		Acute Myocardial Infarction, Nonfatal	55-64	0.10	0.0081%	1,239
		Acute Myocardial Infarction, Nonfatal	65-99	0.37	0.0074%	5,052
	Mortality	Mortality, All Causes	30-99	6.6	0.015%	44,766
Ozone	Respiratory	Hospital Admissions, All Respiratory	65-99	0.14	0.00070%	19,644
		Emergency Room Visits, Asthma	0-17	0.79	0.014%	5,859
		Emergency Room Visits, Asthma	18-99	1.2	0.0097%	12,560
	Mortality	Mortality, Non-Accidental	0-99	0.089	0.00029%	30,386
Total Incidences			0-99	14.46	0.0477%	184,505

NOTES:

PM_{2.5} = fine particulate matter

SOURCE: Modeling conducted by Ascent Environmental in 2021.

It was conservatively assumed that rock material could be hauled to the site from as far as 73 miles and instream woody material (IWM) from within a 100-mile radius. For the HRA, haul trucks with a capacity of 32 cy were assumed. In addition, note that if other, closer material sources were used, haul routes that could be used would result in shorter distances and associated lower emission levels, and therefore, the scenario modeled represents the highest potential diesel PM emissions, and associated risk levels.

3.9.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.11 (page 238) of the ARCF GRR FEIS/FEIR, as summarized below.

The Proposed Action would result in a significant effect related to air quality if it would:

- Conflict with, or obstruct implementation of, the applicable air quality plan;
- Violate any air quality standard or substantial contribution to existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a non-attainment area under NAAQS and CAAQS;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines were adopted. Specifically, Appendix G of the State CEQA Guidelines considers the direct, indirect, or cumulative effects of air pollutant emissions. In addition, Appendix G no longer includes the criterion of violation of any air quality standard or contribute substantially to an existing or projected air quality violation. As a result, this analysis also takes into consideration the following modified significance criterion:

- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

An air quality effect is considered significant if the Proposed Action's construction emissions would:

- Cause construction-generated criteria air pollutant or precursor emissions to exceed SMAQMD-recommended thresholds. The thresholds are as follows:
 - NO_x: 85 lb/day,
 - PM₁₀: zero, or if all feasible control measures are applied then 80 lb/day and 14.6 tons/year,
 - PM_{2.5}: zero, or if all feasible control measures are applied then 82 lb/day and 15 tons/year for PM_{2.5};
- Cause construction-generated criteria air pollutant or precursor emissions to exceed the General Conformity *de minimis* thresholds of 25 tons/year for ROG and NO_x, and 100 tons/year for CO, PM₁₀, and PM_{2.5};
- Result in a net increase in long-term operational criteria air pollutant or precursor emissions that exceed the SMAQMD-recommended thresholds of 65 lb/day for ROG

and NO_x, 80 lb/day and 14.6 tons/year for PM₁₀, and 82 lb/day and 15 tons/year for PM_{2.5};

- Result in long-term operational local mobile-source CO emissions that would violate or contribute substantially to concentrations that exceed the 1-hour CAAQS of 20 parts per million or the 8-hour CAAQS of 9 parts per million;
- Expose sensitive receptors to a substantial incremental increase in TAC emission-related health risks that exceed 10 in 1 million for carcinogenic risk (e.g., the risk of contracting cancer) and/or a noncarcinogenic hazard index of 1.0 or greater; or
- Create objectionable odors affecting a substantial number of people.

3.9.3 Impact Analysis

3.9.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would experience no change in the present level of risk of flooding due to levee failure due to seepage, slope stability, overtopping, or other erosion concerns.

Under these conditions, a flood event could cause portions of the levees to fail, possibly triggering widespread flooding and related damage. If a catastrophic flood were to occur, emergency responders would initiate flood fighting and clean-up efforts, probably involving the operation of numerous pieces of heavy-duty construction equipment. Air pollutants emitted by this equipment could contribute to an exceedance of an applicable air quality standard, expose sensitive receptors to substantial pollutant concentrations, and create objectionable odors. Depending on the magnitude of a flood, flood fighting could last for weeks or even months. Moreover, the application of best management practices to control emissions would be unlikely during such an emergency response. All of these effects on air quality could be significant; however, the timing, duration, and magnitude of a flood event is unpredictable, and therefore precise significance determination cannot be made.

3.9.3.2 Proposed Action

Construction Emissions

The ARCF GRR FEIS/FEIR Section 3.11 (pages 240 through 245) analyzed the impacts on air quality in the Project Area. Emission sources would include the operation of off-road construction equipment, on-road vehicles traveling to and from the site during construction phasing, haul truck trips, and fugitive dust associated with earth movement and soil-disturbance activities. The Proposed Action would generate emissions from all of these construction activities.

As discussed above in the *Methodology* section, construction emissions were evaluated with the assumption that haul trucks would have a 32-cy capacity. Total maximum daily

emissions for 2021, 2022, and 2023 were estimated for ROG, NO_x, CO, PM₁₀, and PM_{2.5} and evaluated against SMAQMD's thresholds and presented in **Table 3-11**.

As shown in Table 3-11, construction-related emissions under the Proposed Action, which includes reductions associated with project commitments of higher tiered engines, would exceed SMAQMD's mass daily emission threshold for NO_x, PM₁₀, and PM_{2.5} in 2022 and would exceed the mass daily emission threshold for PM₁₀ and PM_{2.5} in 2021 and 2023. USACE would be required to pay an off-site mitigation fee for NO_x emissions to reduce the impact to a less-than-significant level.

TABLE 3-11
ARCF 2016 PROJECT, AMERICAN RIVER CONTRACT 1 CONSTRUCTION EMISSIONS

Maximum Construction Activity	Maximum Daily ROG Emissions (lb/day) ¹	Maximum Daily NO _x Emissions (lb/day) ¹	Maximum Daily CO Emissions (lb/day) ¹	Maximum Daily PM ₁₀ Emissions (lb/day) ¹	Maximum Daily PM _{2.5} Emissions (lb/day) ¹
2021 (Rossmoor East & West Mitigation Sites)	2.6	15.9	44.9	6.8	1.3
Exceed Threshold?	N/A	No	N/A	Yes	Yes
2022 (Sites 2-2 and 2-3 + Mitigation Sites) ^{1,2}	9.7	119	167	38	5.1
Exceed Threshold?	N/A	Yes	N/A	Yes	Yes
2023 Golf Course Reconstruction	2.0	13	37	6.6	0.9
Exceed Threshold?	N/A	No	N/A	Yes	Yes
CEQA Threshold	N/A	85	N/A	0 ³	0 ³

NOTES:

¹ Estimates represent a worst-case construction conditions which was assumed to be from July to October 2022. For annual emissions and a comparison to Federal *de minimis* levels, see Appendix E.

² Mitigation sites include Arden Pond and Rossmoor East and West.

³ SMAQMD has a zero pound per day threshold of PM, when best available controls are not implemented but threshold with incorporated controls are 80 lb/day for PM₁₀ and 82 lb/day for PM_{2.5}.

SOURCE: Modeling conducted by Ascent Environmental in 2021.

The Strategic Area Project Health Effects Tool was used to evaluate potential health effects of mass emissions associated with implementation of the Proposed Action. The outputs reflect the potential increase in premature death over the background health incidence rate of each health endpoint in the region.⁸⁴ The outputs of the SMAQMD's Strategic Area Project Health Effects tool for the general geographic location of Sites 2-2 and 2-3 (where the greatest level of emissions would occur) under the Proposed Action indicate that ozone and PM_{2.5} exposure across the 5-air-district region would result in mortality of up to 6 persons per year above background health incidences of 75,000 mortality incidences per year, or an increase of about 0.015 percent of background incidences.

⁸⁴ Sacramento Metropolitan Air Quality Management District. 2020 (October). Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District. Available: <http://www.airquality.org/LandUse/Transportation/Documents/SMAQMDFriantRanchFinalOct2020.pdf>. Accessed January 26, 2021.

Table 3-10 summarizes the anticipated health effects in the region from the Proposed Action's emissions.

Consistent with SMAQMD's Guidance to Address the Friant Ranch Decision, the outputs summarized in Table 3-10 above should be presented in the context of the current population of Sacramento County. From 2016–2018, Sacramento County experienced an annual average of 11,692 deaths from all causes (not limited to air pollution–related mortality).⁸⁵ Using the Strategic Area Project Health Effects Tool, this total number could be increased by an annual average of 6 persons per year from increased exposure to ground-level ozone and PM_{2.5} from emissions generated by the Proposed Action as shown in Table 3-10.

Notably, the Strategic Area Project Health Effects Tool provides conservative health estimates for two reasons. The Strategic Area Project Health Effects Tool assumes that persons would be exposed to a full year of pollution at the maximum levels on a daily basis. Additionally, the Strategic Area Project Health Effects Tool assumes that a project will have emissions two to eight times SMAQMD's thresholds of significance.

The Proposed Action would generate daily mass emissions above SMAQMD's thresholds of significance; however, the estimates presented in Table 3-11 reflect a worst-case construction day where several pieces of equipment are expected to operate concurrently. Construction would not occur at those high levels every day; however, as stated above, the Strategic Area Project Health Effects Tool assumes that all persons in Sacramento County will be exposed to these levels of emissions for a full year, which would not be the case in actuality.

Additionally, the Proposed Action would not generate emissions of NO_x eight times SMAQMD's thresholds of significance. Thus, the outputs of the Strategic Area Project Health Effects Tool are inherently conservative. Nonetheless, the findings of the Strategic Area Project Health Effects Tool are presented above in Table 3-10 to provide information to the public that allow for a meaningful understanding of the Proposed Action's contribution of air pollution in Sacramento County.

As shown above, construction-generated exhaust emissions of NO_x would exceed SMAQMD's mass daily threshold of 85 lb/day. This impact would be significant; however, implementation of mitigation measures would reduce NO_x emissions to a less-than-significant level, thus not resulting in adverse health effects.

Fugitive Dust

Construction of the Proposed Action would result in short-term dust emissions from grading and earth moving activities at the project construction sites and the soil borrow sites. The amount of dust generated would be highly variable and is dependent on the size

⁸⁵ California Department of Public Health. 2020. County Health Status Profile. Available: https://www.cdph.ca.gov/Programs/CHSI/CDPH%20Document%20Library/CountyHealthStatusProfiles_2020_ADA.pdf. Accessed February 6, 2020.

of the disturbed area at any given time, amount of activity, soil conditions, and meteorological conditions. Nearby land uses, especially those residences and schools located downwind of the project sites could be exposed to dust generated during construction activities, indirectly resulting in potential adverse health effects associated with exposure to high concentrations of PM. This indirect effect would be significant, but implementation of mitigation measures set forth below would reduce dust emissions during construction to a less-than-significant level.

Toxic Air Contaminants

Construction of the Proposed Action would result in short-term diesel particulate emissions from on-site heavy-duty equipment and on-road haul trucks. Diesel PM, which is classified as a carcinogenic TAC by CARB, is the primary pollutant of concern regarding indirect health risks to sensitive receptors. Nearby land uses, especially residences and schools downwind of the project sites, could be exposed to diesel PM during construction activities, resulting in potential adverse health effects.

The assessment of health risks associated with exposure to diesel exhaust typically is associated with chronic exposure, in which a 70-year exposure period is often assumed. However, while cancer can result from exposure periods of less than 70 years, acute exposure periods (i.e., exposure periods of 2 to 3 years) to diesel exhaust are not anticipated to result in increased health risk, as health risks associated with exposure to diesel exhaust are typically seen in exposure periods that are chronic.⁸⁶ Construction activities that would require diesel-powered heavy-duty equipment associated with the Proposed Action are not expected to be used for more than 18 months. Further, construction activities would occur along the length of Sites 2-2 and 2-3, the Arden Pond Mitigation Site, and the Campus Commons Golf Course but would not occur over a prolonged period in any one specific location, minimizing exposure from diesel PM at any one receptor. Additionally, as required by 13 CCR Section 2449(d)(3), no in-use off-road diesel vehicles may idle for more than 5 consecutive minutes. Nonetheless, an HRA was prepared for the Proposed Action and is appended to this Supplemental EIS/EIS in Appendix E.

As detailed in Appendix E, construction of the Proposed Action would result in a maximum risk exposure (chances in 1 million for carcinogenic risk) of 5.97 from Sites 2-2 and 2-3, 35.6 from the Arden Pond Mitigation Site work, and 0.45 from the golf course reconstruction. For Sites 2-2 and 2-3 and the golf course, maximum estimated risk would not exceed SMAQMD's threshold of 10 in a million anywhere. Although maximum estimated risk from activities at the Arden Pond Mitigation Site exceed 10 in a million, risk at the nearest receptors located along Harrington Way would be reduced, due to dispersion and distance, to 6.54 chances in a million; thus, no sensitive receptor would be exposed to substantial TAC concentrations. Because these values do not exceed 10 in 1 million, exposure of sensitive receptors to TACs would not be considered

⁸⁶ Office of Environmental Health Hazard Assessment. 2015. Guidance Manual for Preparation of Health Risk Assessments. Available: <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>. Accessed January 27, 2021.

substantial. Moreover, the Proposed Action would apply SMAQMD-recommended construction mitigation which would further reduce emissions of TACs. For these reasons, and the reasons listed above, this impact would be less than significant.

Odors

The Proposed Action would not result in any major source of odor, and the project would 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 construction equipment may be noticeable from time to time by nearby receptors. However, the odors would be intermittent and temporary and would dissipate rapidly from the source with an increase in distance. Further, as required by 13 CCR Section 2449(d)(3), no in-use off-road diesel vehicles may idle for more than 5 consecutive minutes. Therefore, this impact would be less than significant.

Operation and Maintenance

Long-term operational and maintenance activities under the Proposed Action would result in limited emissions of criteria air pollutants and precursors from the use of on-road vehicles on the levees for inspection and maintenance activities, mowing grasses on the levees, and possibly limited heavy earth-moving equipment for repair of any damage to the site. These emissions would be limited to a temporary time frame once or twice per year. Any emissions that result from long-term operational and maintenance activities would not exceed SMAQMD or *de minimis* thresholds and would be less than significant.

ARCF GRR FEIS/FEIR Mitigation Measures

All the following mitigation measures were presented in the ARCF GRR FEIS/FEIR (pages 251 to 254) but have been revised and updated to demonstrate consistency with the most current SMAQMD recommendations. The measure to install wind breaks by planting trees or installing fences at the upstream end of construction areas was not incorporated in the Proposed Action, because it is not a practical measure for a linear construction project consisting of multiple multi-thousand-foot construction areas. Mitigation measures incorporated into the Proposed Action are:

Mitigation Measure AQ-1: Implement SMAQMD's Basic Construction Emissions Control Practices. SMAQMD requires construction projects to implement basic construction emissions control practices to control fugitive dust and diesel exhaust emissions.⁸⁷ USACE would implement the following control measures during project construction:

- Control fugitive dust as required by SMAQMD Rule 403 and enforced by SMAQMD staff.

⁸⁷ Sacramento Metropolitan Air Quality Management District. 2019. *Basic Construction Emissions Control Practices*. Available: <http://www.airquality.org/LandUseTransportation/Documents/Ch3BasicEmissionControlPracticesBMPSFinal7-2019.pdf>. Accessed January 27, 2021.

- Water all exposed surfaces twice daily. Exposed surfaces include but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of freeboard space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would travel along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible track-out of mud or dirt from adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Complete all roadways, driveways, sidewalks, or parking lots to be paved as soon as possible. In addition, lay building pads as soon as possible after grading unless seeding or soil binders are used.
- Limit vehicle speeds on unpaved roads to 15 miles per hour.
- Minimize idling time, either by shutting equipment off when not in use or by reducing the time of idling to 5 minutes (required by 13 CCR Sections 2449[d][3] and 2485). Provide clear signage that posts this requirement for workers at the site entrances.
- Maintain all construction equipment in proper working condition according to the manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

Mitigation Measure AQ-2: Implement Enhanced Fugitive Dust Control

Practices. Fugitive dust mitigation for the project would require the use of adequate measures during each construction activity and would include frequent application of water or application of soil additives, control of vehicle access, and vehicle speed restrictions. USACE would implement the dust mitigation measures listed below.⁸⁸

- Water exposed soil with adequate frequency for continued moist soil; however, do not overwater to the extent that sediment flows from the site.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 miles per hour.
- Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible.

⁸⁸ Sacramento Metropolitan Air Quality Management District. 2009. Enhanced Fugitive PM Dust Control Practices. Available: <http://www.airquality.org/LandUseTransportation/Documents/Ch3EnhancedFugitiveDustControlFINAL12-2009.pdf>. Accessed January 27, 2021.

- Install wheel washers for all exiting trucks or wash off all trucks and equipment leaving the site.
- Treat site access to 100 feet from the paved road with a 6- to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.
- Post a publicly visible sign identifying the telephone number and person to contact at the lead agency regarding dust complaints. This person would respond and take corrective action within 48 hours. To ensure compliance, SMAQMD's phone number would also be visible.

Mitigation Measure AQ-3: Develop and Implement a Plan for Enhanced On-Site Exhaust Controls.⁸⁹ Actual emissions of nonattainment and maintenance pollutants would be tracked monthly using tools acceptable to SMAQMD (e.g., construction mitigation calculator, SMAQMD's Equipment List). USACE shall submit to SMAQMD a comprehensive inventory of all off-road construction equipment (50 horsepower or more) to be used 8 hours or more during project construction. The tracking data would be used to verify that all pollutants remain below the CEQA daily thresholds, General Conformity *de minimis* thresholds, or are fully mitigated and offset if emissions exceed either.

The initial report would include all the following details:

- Information about the project information and the construction company.
- The equipment type, horsepower rating, engine model year, projected hours of use, and CARB equipment identification number for each piece of equipment in the plan.
- All owned, leased, and subcontracted equipment to be used.

Updated reports would be submitted monthly to demonstrate continued project compliance.

SMAQMD may conduct periodic site inspections to determine compliance. Nothing in this mitigation would supersede other air district, state, or federal rules or regulations.

Mitigation Measure AQ-4: Use Electric Construction Equipment. To the extent available and feasible, construction equipment would be powered by electricity, rather than diesel fuel, which would reduce construction-related criteria air pollutants, TACs, and tailpipe GHG emissions associated with diesel fuel combustion.

⁸⁹ Sacramento Metropolitan Air Quality Management District. 2019. Enhanced On-Site Exhaust Controls. Available: <http://www.airquality.org/LandUseTransportation/Documents/Ch3On-SiteEnhancedExhaustMitigationFinal4-2019.pdf>. Accessed January 27, 2021.

Mitigation Measure AQ-5: Pay NO_x Mitigation Fee to SMAQMD. Set in July 1, 2017 with no changes since writing this Draft EIR/EIS (i.e., 2021), the mitigation fee rate is \$30,000 per ton of emissions.⁹⁰ The contractor would pay the appropriate SMAQMD-required NO_x mitigation fee to offset the project's NO_x emissions when they exceed SMAQMD's threshold of 85 lb/day. The NO_x mitigation fee would apply to all emissions from the project: on-road (on- and off-site), off-road, portable, stationary equipment, and vehicles.

Summary

Implementation of the mitigation measures contained in the ARCF GRR FEIS/EIR would reduce construction-generated NO_x emissions to a less-than-significant level that would not result in adverse health effects (as was shown in the HRA). In addition, with incorporation of dust control measures, PM (fugitive dust) emissions would be further reduced (i.e., by up to 75 percent) and would not exceed applicable SMAQMD thresholds or result in adverse health effects. The application of BMPs combined with engagement in SMAQMD's NO_x mitigation fee program or offsets obtained through purchase or loan would be sufficient to reduce emissions to zero, in accordance with the Clean Air Act for projects that exceed *de minimis* levels, and consequently below SMAQMD's recommended daily mass emissions threshold of 85 lb/day. Emissions of ROG, PM₁₀, and PM_{2.5} would additionally be reduced through the application of the mitigation measures. As discussed in the General Conformity Determination, included in Appendix F, the project would be in conformity with the Clean Air Act and would not cause or contribute to a new violation, nor increase the frequency or severity of existing violations of the NAAQS. Based on the conformity analysis, no exceedance of the *de minimis* thresholds in 2022 would occur. Construction-related air quality impacts would be less than significant with mitigation.

3.10 Greenhouse Gas Emissions and Energy Consumption

3.10.1 Environmental Setting

3.10.1.1 Regulatory Setting

Section 3.12 (page 254) of the ARCF GRR FEIS/FEIR identifies applicable federal, state, and local environmental laws and regulations that apply to regulating greenhouse gas (GHG) emissions. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the Proposed Action and described the status of compliance with those laws and regulations. Additional applicable laws and regulations related to GHG emissions are summarized below.

The ARCF GRR FEIS/FEIR did not evaluate potential adverse energy impacts. Therefore, this chapter presents the applicable federal, state, and local environmental

⁹⁰ Sacramento Metropolitan Air Quality Management District, 2019 (April). Off-Site Construction Mitigation Fees. Available: <http://www.airquality.org/LandUseTransportation/Documents/Ch3Off-SiteMitigationFeesFinal4-2019.pdf>. Accessed January 27, 2021.

laws and regulations that pertain to energy demand, consumption, and generation. Energy-related impacts are evaluated in Section 3.10.3.

Federal

Energy Policy and Conservation Act and Corporate Average Fuel Economy Standards

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to conserve oil. Pursuant to this Act, the National Highway Traffic Safety Administration (NHTSA), part of the U.S. Department of Transportation (DOT), is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

Under the Energy Independence and Security Act of 2007 (described below), the CAFE standards were revised for the first time in 30 years then later updated in 2012 and 2019.

Energy Policy Act of 1992 and 2005

The Energy Policy Act of 1992 (EPAct) was enacted to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain Federal, State, and local government and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPAct. Federal tax deductions are allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs. The Energy Policy Act of 2005 provides renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a Federal purchase requirement for renewable energy.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 is designed to improve vehicle fuel economy and help reduce U.S. dependence on oil. It represents a major step forward in expanding the production of renewable fuels, reducing dependence on oil, and confronting global climate change. The Energy Independence and Security Act of 2007 increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, which represents a nearly five-fold increase over current levels; and reduces U.S. demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020—an increase in fuel economy standards of 40 percent.

By addressing renewable fuels and the CAFE standards, the Energy Independence and Security Act of 2007 builds upon progress made by the Energy Policy Act of 2005 in setting out a comprehensive national energy strategy for the 21st century; however, on August 2, 2018, the NHTSA and EPA proposed the Safer Affordable Fuel-Efficient

Vehicles Rule (SAFE Rule) (49 Code of Federal Regulations [CFR] 523, 531, 533, 536, and 537 and 40 CFR 85 and 86). This rule addresses emissions and fuel economy standards for motor vehicles and is separated in two parts as described below.

Part One, “One National Program” (84 *Federal Register* [FR] 51310), revokes a waiver granted by EPA to the State of California under Section 209 of the CAA to enforce more stringent emission standards for motor vehicles than those required by EPA for the explicit purpose of greenhouse gas (GHG) reduction and, indirectly, criteria air pollutants and ozone precursor emission reduction. This revocation became effective on November 26, 2019, restricting the ability of the California Air Resources Board (CARB) to enforce more stringent GHG emission standards for new vehicles and set zero-emission-vehicle mandates in California.⁹¹ EPA released a Notice of Reconsideration of Part One of the SAFE Rule on April 26, 2021 for public input which will end on June 6, 2021.⁹²

Part Two addresses CAFE standards for passenger cars and light trucks for model years 2021–2026. This rulemaking proposes new CAFE standards for model years 2022–2026 and would amend existing CAFE standards for model year 2021. The proposal would retain the model year 2020 standards (specifically, the footprint target curves for passenger cars and light trucks) through model year 2026, but comment is sought on a range of alternatives discussed throughout the proposed rule. This proposal addressing CAFE standards is being jointly developed with EPA, which is simultaneously proposing tailpipe carbon dioxide standards for the same vehicles covered by the same model years. The final SAFE Rule Part Two was released on March 31, 2020, and multiple lawsuits have been filed challenging the rulemaking.

State

Statewide Greenhouse Gas Emissions Targets and the Climate Change Scoping Plan

Reducing GHG emissions in California has been the focus of the state government for approximately two decades. GHG emission targets established by the State Legislature include reducing statewide GHG emissions to 1990 levels by 2020 (Assembly Bill [AB] 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (Senate Bill [SB] 32 of 2016). Executive Order S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. Executive Order B-55-18 calls for California to achieve carbon neutrality by 2045 and achieve and maintain net negative GHG emissions thereafter. These targets are in line with the scientifically established levels needed in the United States to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising

⁹¹ National Highway Traffic Safety Administration. 2019. The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One Nation Program. 49 CFR Parts 531 and 533. Available: 2019-20672.pdf (govinfo.gov). Accessed January 26, 2021.

⁹² U.S. Environmental Protection Agency. 2021 (April 26). EPA Reconsiders Previous Administration’s Withdrawal of California’s Waiver to Enforce Greenhouse Gas Standards for Cars and Light Trucks. Available: <https://www.epa.gov/newsreleases/epa-reconsiders-previous-administrations-withdrawal-californias-waiver-enforce>. Accessed May 6, 2021.

sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.⁹³

California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), prepared by CARB, outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and “substantially advance toward our 2050 climate goals.”⁹⁴ It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste). CARB and other state agencies also released the January 2019 Draft California 2030 Natural and Working Lands Climate Change Implementation Plan consistent with the carbon neutrality goal of Executive Order B-55-18.⁹⁵

The state has also passed more detailed legislation addressing GHG emissions associated with industrial sources, transportation, electricity generation, and energy consumption, as summarized below.

Warren-Alquist Act

The 1974 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission (CEC). The creation of the act occurred as a response to the state legislature’s review of studies projecting an increase in statewide energy demand, which would potentially encourage the development of power plants in environmentally sensitive areas. The act introduced state policy for siting power plants to reduce potential environmental impacts, and additionally sought to reduce demand for these facilities by directing CEC to develop statewide energy conservation measures to reduce wasteful, inefficient, and unnecessary uses of energy. Conservation measures recommended establishing design standards for energy conservation in buildings that ultimately resulted in the creation of the Title 24 Building Energy Efficiency Standards, which have been updated regularly and remain in effect today. The act additionally directed CEC to cooperate with the Governor’s Office of Planning and Research, the California Natural Resources Agency, and other interested parties in ensuring that a discussion of wasteful, inefficient, and unnecessary consumption of energy is included in all environmental impact reports required on local projects.

State of California Energy Action Plan

CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the

⁹³ United Nations. 2015. Paris Agreement. Available: https://unfccc.int/sites/default/files/english_paris_agreement.pdf. Accessed January 26, 2021.

⁹⁴ California Air Resources Board. 2017 (November). California’s 2017 Climate Change Scoping Plan. Available: https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf?_. Accessed January 26, 2021. pp. 1, 3, 5, 20, and 25–26.

⁹⁵ California Environmental Protection Agency, California Natural Resources Agency, California Department of Food and Agriculture, California Air Resources Board, and California Strategic Growth Council. 2019 (January). *Draft California 2030 Natural and Working Lands Climate Change Implementation Plan*. Available: <https://ww3.arb.ca.gov/cc/natandworkinglands/draft-nwl-ip-1.3.19.pdf>. Accessed January 26, 2021.

maintenance of a healthy economy. The current plan is the 2003 California Energy Action Plan (2008 update).⁹⁶ The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs; and encouragement of urban design that reduces vehicle miles traveled (VMT) and accommodates pedestrian and bicycle access.

Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to AB 2076 (Chapter 936, Statutes of 2000), CEC and CARB prepared and adopted a joint agency report in 2003, *Reducing California's Petroleum Dependence*. Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita VMT.⁹⁷ Further, in response to CEC's 2003 and 2005 *Integrated Energy Policy Reports*, Governor Davis directed CEC to take the lead in developing a long-term plan to increase alternative fuel use.

A performance-based goal of AB 2076 was to reduce petroleum demand to 15 percent below 2003 demand by 2030.

Integrated Energy Policy Report

SB 1389 (Chapter 568, Statutes of 2002) required CEC to: "conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety" (Public Resources Code Section 25301[a]). This work culminated in the Integrated Energy Policy Report (IEPR).

CEC adopts an IEPR every 2 years and an update every other year. The 2019 IEPR, which is the most recent IEPR, was adopted January 31, 2020. The 2019 IEPR provides a summary of priority energy issues currently facing the state, outlining strategies and recommendations to further the State's goal of ensuring reliable, affordable, and environmentally responsible energy sources. Energy topics covered in the report include progress toward statewide renewable energy targets and issues facing future renewable development; efforts to increase energy efficiency in existing and new buildings; progress by utilities in achieving energy efficiency targets and potential; improving coordination among the state's energy agencies; streamlining power plant licensing processes; results of preliminary forecasts of electricity, natural gas, and transportation

⁹⁶ California Energy Commission and California Air Resources Board. 2003. Reducing California's Petroleum Dependence. Available: <https://ww3.arb.ca.gov/fuels/carefinery/ab2076final.pdf>. Accessed January 26, 2021.

⁹⁷ California Energy Commission and California Air Resources Board. 2003. Reducing California's Petroleum Dependence. Available: <https://ww3.arb.ca.gov/fuels/carefinery/ab2076final.pdf>. Accessed December 10, 2019.

fuel supply and demand; future energy infrastructure needs; the need for research and development efforts to statewide energy policies; and issues facing California's nuclear power plants.⁹⁸

Assembly Bill 1007: State Alternative Fuels Plan

AB 1007 (Chapter 371, Statutes of 2005) required CEC to prepare a state plan to increase the use of alternative fuels in California. CEC prepared the State Alternative Fuels Plan in partnership with CARB and in consultation with other Federal, State, and local agencies. The plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes the costs to California and maximizes the economic benefits of in-state production. The plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuel use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation to public health and environmental quality.

Executive Order S-06-06

Executive Order S-06-06, signed on April 25, 2006, establishes targets for the use and production of biofuels and biopower, and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The Executive Order establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels within California by 2010, 40 percent by 2020, and 75 percent by 2050. The Executive Order also calls for the state to meet a target for use of biomass electricity. The 2011 Bioenergy Action Plan identifies those barriers and recommends actions to address them so that the State can meet its clean energy, waste reduction, and climate protection goals. The 2012 Bioenergy Action Plan updates the 2011 plan and provides a more detailed action plan to achieve the following goals:

- Increase environmentally and economically sustainable energy production from organic waste.
- Encourage development of diverse bioenergy technologies that increase local electricity generation, combined heat and power facilities, renewable natural gas, and renewable liquid fuels for transportation and fuel cell applications.
- Create jobs and stimulate economic development, especially in rural regions of the state.
- Reduce fire danger, improve air and water quality, and reduce waste.

⁹⁸ California Energy Commission. 2020. Final 2019 Integrated Energy Policy Report – Clean Version. Submission date: January 31, 2020. Available: <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2019-integrated-energy-policy-report>. Accessed January 26, 2021.

As of 2019, 2.44 percent of the total electricity system power in California was derived from biomass.⁹⁹

Local

Sacramento Metropolitan Air Quality Management District

SMAQMD provides guidance to lead agencies for conducting GHG analyses under CEQA and is currently in the process of updating their guidance and thresholds of significance for GHG emissions. In June 2020, SMAQMD adopted the final version of the *Greenhouse Gas Thresholds for Sacramento County* guidance document. However, as stated in the guidance document, the “report is not intended to replace SMAQMD’s existing thresholds or suggested GHG reduction guidance for stationary source emissions or construction emissions. Those thresholds were adopted by the Board with substantial evidence and documented through staff reports.”¹⁰⁰ Notably, the final guidance document is tailored to use for land use development projects unlike the Proposed Action. Nonetheless, methods used in this analysis are still consistent with SMAQMD guidance as they pertain to construction projects.

3.10.1.2 Existing Conditions

The ARCF GRR FEIS/FEIR Section 3.12 (pages 255 through 260) describes the regional and local setting in the vicinity of the Project Area. The ARCF GRR FEIS/FEIR did not include a summary of the environmental setting as it pertains to energy resources. Therefore, a summary is provided below.

Electricity and Natural Gas Use

Electric services are provided to the City from Sacramento Municipal Utility District (SMUD). Natural gas is supplied to the City from Pacific Gas and Electric (PG&E).

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. One-third of energy commodities consumed in California is natural gas. In 2019, approximately 34 percent of natural gas consumed in the state was used to generate electricity. Large hydroelectric powered approximately 15 percent of electricity and renewable energy from solar, wind, small hydroelectric, geothermal, and biomass combustion totaled 32 percent.¹⁰¹ In 2019, SMUD provided its customers with 28 percent eligible renewable energy (i.e., biomass combustion, geothermal, small scale hydroelectric, solar, and wind) and 44 percent and 27 percent from large scale hydroelectric and natural gas, respectively.¹⁰² The

⁹⁹ California Energy Commission. 2020. Total System Electric Generation. Available: <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation>. Accessed January 27, 2021.

¹⁰⁰ Sacramento Metropolitan Air Quality Management District. 2020 (June).

¹⁰¹ California Energy Commission. 2020. Total System Electric Generation. Available: <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation>. Accessed January 27, 2021.

¹⁰² Sacramento Metropolitan Utility District. 2020. 2019 Power Content Label. Available: <https://www.smud.org/SMUDPCL>. Accessed January 27, 2021.

contribution of in- and out-of-state power plants depends on the precipitation that occurred in the previous year, the corresponding amount of hydroelectric power that is available, and other factors. SMUD is the primary electricity and natural gas service provider in Sacramento County.

The proportion of SMUD-delivered electricity generated from eligible renewable energy sources is anticipated to increase over the next three decades to comply with the SB 100 goals described in Section 3.10.1.

Energy Use for Transportation

In 2018, the transportation sector comprised the largest end-use sector of energy in the state totaling 39.1 percent, followed by the industrial sector totaling 23.5 percent, the commercial sectors at 19.2 percent, and the residential sector of 18.3 percent.¹⁰³ On-road vehicles use about 90 percent of the petroleum consumed in California. CEC reported retail sales of 600 million and 41 million gallons of gasoline and diesel, respectively, in Sacramento County in 2019 (the most recent data available).¹⁰⁴ The California Department of Transportation projects that 996 million gallons of gasoline and diesel will be consumed in Sacramento County in 2030.¹⁰⁵

3.10.2 Methodology and Basis of Significance

3.10.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.12 (pages 261 through 262) of the ARCF GRR FEIS/FEIR. That analysis focused on evaluating GHG impacts from construction activities because operation and maintenance activities are part of the existing environmental baseline and thus would not create a substantial source of new emissions. Where significant climate change impacts are identified, mitigation measures to reduce these impacts are specified.

GHG emissions from project construction would result from fuel usage by off-road equipment, on-road vehicles, electricity consumption by office trailers, and delivery of materials. The project's potential GHG impact was analyzed using a conservative construction scenario to estimate the maximum construction emissions generated.

A variety of methods and emissions modeling software were used to quantify criteria air pollutants, described in Section 3.9, *Air Quality*. The emission factors and models described there were also used to quantify GHG emissions. GHG emissions were summed over the duration of all anticipated activity, including the use of heavy-duty

¹⁰³ U.S. Energy Information Administration. 2020. California Energy Consumption by End-Use Sector, 2018. Available: <https://www.eia.gov/state/?sid=CA#tabs-2>. Accessed January 27, 2021.

¹⁰⁴ California Energy Commission. 2020. California Annual Retail Fuel Outlet Report Results Spreadsheets. Available: <https://www.energy.ca.gov/media/3874>. Accessed January 27, 2021.

¹⁰⁵ California Department of Transportation. 2008. 2007 California Motor Vehicle Stock, Travel, and Fuel Forecast. Available: https://planning.lacity.org/eir/8150Sunset/References/6.0.%20Other%20CEQA%20Considerations/OTHER.03_2008%20California%20Motor%20Vehicle%20Stock,%20Travel%20and%20Fuel%20Forecast.pdf. Accessed January 27, 2021.

equipment, haul trucks, and worker commute trips. All inputs and assumptions are included in Appendix E.

The ARCF GRR FEIS/FEIR did not evaluate potential energy impacts. The 2018 revisions to the State CEQA Guidelines amended Appendix G to include potentially significant impacts related to energy consumption. Total gallons of diesel and gasoline were estimated for the projects using assumptions derived from CalEEMod and EMFAC.

3.10.2.2 Basis of Significance

This analysis uses a basis of significance described in in Section 3.12 (pages 262 through 263) of the ARCF GRR FEIS/FEIR, as restated below. The ARCF GRR FEIS/FEIR did not evaluate potential energy impacts, and significance thresholds were added for energy consumption.

The Proposed Action would result in a significant effect related to GHG emissions and energy consumption if it would:

- Conflict with an applicable plan adopted for the purpose of reducing GHG emissions.

SMAQMD has local jurisdiction over the Project Area. On October 23, 2014, the SMAQMD adopted GHG thresholds, which were informed by the California Air Pollution Control Officers Association, “CEQA and Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act” Document.¹⁰⁶ As noted in Section 3.10.1, SMAQMD adopted new thresholds of significance for GHG impacts; however, the June 2020 Final *Greenhouse Gas Thresholds for Sacramento County* guidance document is best applied to land use development projects, of which the Proposed Action is not.

Therefore, the mass-emissions thresholds for construction projects developed by SMAQMD using substantial evidence will continue to serve as the basis of determining the significance of the Proposed Action with respect to climate change impacts.

Based on the CEQA guidelines established by each air district, SMAQMD recommends quantifying and disclosing GHG emissions from construction activities; making a determination regarding the significance of these GHG emissions based on a threshold determined by the lead agency; and incorporating applicable BMPs to reduce GHG emissions during construction, as feasible and applicable. Based on the CEQA Guidelines and guidance provided by SMAQMD, the Proposed Action would have a significant contribution to global climate change if the project would:

- generate emissions of GHGs from construction activities exceeding 1,100 metric tons of carbon dioxide equivalent per year (MTCO₂e/year).

¹⁰⁶ California Air Pollution Control Officers Association. 2008. CEQA and Climate Change. Available: <http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA-White-Paper.pdf>. Accessed January 27, 2021.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines have been adopted that identify criteria for evaluating potentially significant energy impacts. As a result, this analysis also takes into consideration the following additional or modified significance criteria:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
- Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

Effects Not Evaluated Further

The Proposed Action would involve short-term construction activities to improve levee structures along the American River and mitigation sites. Once construction activities are complete (approximately 1.5 years), emissions-generating activities would cease. Operational activities may require maintenance crews visiting the site for short periods of time to conduct light hand work. However, these activities occur now, and therefore, the Proposed Action would not result in any long-term increase in GHG emissions. This issue is not discussed further.

3.10.3 Impact Analysis

3.10.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would experience no change in the present level of risk of flooding due to levee failure from seepage, slope stability, overtopping, or other erosion concerns.

Under these conditions, a flood event could cause portions of the levees to fail, triggering potentially widespread flooding and related damage. If a catastrophic flood were to occur, emergency flood fighting and clean-up efforts would involve the operation of heavy-duty construction equipment that would consume diesel fuel and emit GHGs. Timing and duration of use would correlate with flood fighting needs, but pollutants from this equipment could generate a notable amount of GHG emissions and fuel consumption. Depending on the magnitude of a flood, flood fighting could last for weeks or even months. All of these effects on GHG emissions would be considered significant; however, the timing, duration, and magnitude of a flood event is unpredictable and a precise significance determination cannot be made.

3.10.3.2 Proposed Action

Greenhouse Gas Emissions

The ARCF GRR FEIS/FEIR Section 3.12 (pages 261 through 266) analyzed the impacts on GHG emissions and energy consumption in the Project Area. Construction emissions associated with site-related activities and off-site commute and haul truck trips were

estimated based on the emission rates and assumptions described in Section 3.9, *Air Quality*. Emission sources associated with site-related activities include the off-road construction equipment operating at Proposed Action sites, on-road vehicles, and haul trucks traveling to and from the Proposed Action sites. As summarized in Section 3.9, *Air Quality*, GHG emissions and fuel consumption were estimated using the assumption that haul trucks with a capacity to move 32 cubic yards (cy) would be used for all construction activities. Total annual GHG emissions (expressed in MTCO₂e/year) for the Proposed Action are summarized by year and are shown in **Table 3-12**.

TABLE 3-12
ARCF 2016 PROJECT, AMERICAN RIVER CONTRACT 2 CONSTRUCTION GREENHOUSE GAS EMISSIONS
(SCENARIO 1)

Construction Year	Total GHG Emissions (MTCO ₂ e/year)
2021 (Rossmoor East & West Mitigation Sites)	179
Exceed Threshold?	No
2022 (Sites 2-2 and 2-3 + Mitigation Sites)	6,223
Exceed Threshold?	Yes
2023 (Golf Course Reconstruction)	371
Exceed Threshold?	No
CEQA Threshold	1,100

NOTE:

MTCO₂e/year = metric tons of carbon dioxide per year

SOURCE: Modeling performed by Ascent Environmental in 2021.

As shown in Table 3-12, construction-related GHG emissions caused by the Proposed Action would exceed SMAQMD's mass emission construction threshold of 1,100 MTCO₂e/year in 2022. This would constitute a significant climate change impact. Notably, however, the Proposed Action would increase the likelihood that the flood management system could accommodate future flood events because of climate change. Consequently, the Proposed Action would improve the resiliency of the levee system with respect to changing climatic conditions, potentially reducing exposure of property or persons to the effects of climate change. Nevertheless, because the Proposed Action would exceed the 1,100 MTCO₂e/year threshold established by SMAQMD, climate change impacts would be significant; however, this impact could be reduced to a less-than-significant level with mitigation that would require the purchase of GHG offsets, effectively reducing emission to the SMAQMD threshold of significance.

Energy

Construction of the Proposed Action would result in an increase in fuel consumption as compared to baseline conditions. Gasoline would be consumed from worker commute trips to and from the construction sites. Diesel fuel would be required to operate heavy-duty diesel-powered construction equipment and haul trucks. **Table 3-13** displays the

estimated total gallons of diesel fuel and gasoline consumption from implementation of the Proposed Action.

TABLE 3-13
ARCF 2016 PROJECT, AMERICAN RIVER CONTRACT 1 CONSTRUCTION FUEL CONSUMPTION

Fuel Type	Total Fuel Consumption (gallons)
Gasoline	5,703
Diesel	1,333,142

SOURCE: Modeling performed by Ascent Environmental in 2021.

As shown in Table 3-12, construction-activities would result in the consumption of approximately 5,703 and 1,333,142 gallons of gasoline and diesel fuel, respectively. This increase in fuel consumption would be met through existing fueling infrastructure and would not require the construction of new infrastructure that would result in an adverse environmental effect. Additionally, the use of fuel would not be considered wasteful, inefficient, or unnecessary because the Proposed Action would implement a method of improving the resiliency of the Sacramento region to flood impacts, which would be considered a necessary action for the protection of residents in the Sacramento region.

The Proposed Action would also not prevent the implementation of goals, policies, or actions contained in a plan to increase renewable energy usage or improve energy efficiency. The Proposed Action constitutes a construction project and would not generate operational electricity demand. Therefore, energy-related impacts would be less than significant.

ARCF GRR FEIS/FEIR Mitigation Measures

The following ARCF GRR FEIS/FEIR on-site mitigation measure is incorporated into the Proposed Action during construction. The portion of the measure committing to perform on-site material hauling using trucks equipped with on-road engines (if determined to result in lower levels of emissions than the off-road engines) was not incorporated, because it is not feasible for the Proposed Action.

Mitigation Measure GHG-1: Avoid, Minimize, and Compensate for Greenhouse Gas Emissions Effects. The U.S. Army Corps of Engineers (USACE) would implement the following measures to avoid, minimize, and compensate for the Proposed Action’s GHG emissions effects:

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

- Minimize idling time, either by shutting equipment off when not in use or by reducing the time of idling to no more than 3 minutes (a 5-minute limit is required by the State airborne toxics control measure [13 CCR Sections 2449(d)(3) and 2485]). Clear signage identifying this requirement for workers would be posted at the entrances to the site.
- Maintain all construction equipment in proper working condition according to the manufacturer's specifications. The equipment would be checked by a certified mechanic and determined to be running in proper condition before it is operated.
- Use equipment with new technologies (repowered engines, electric drive trains).
- Use a CARB-approved low-carbon fuel for construction equipment. (NO_x emissions from the use of low-carbon fuel would be reviewed and increases mitigated.)
- Purchase carbon offsets for program-wide GHG emissions (direct plus indirect emissions from on-road haul trucks plus commute vehicles) that meet the criteria of being real, quantifiable, permanent, verifiable, enforceable, and additional, consistent with the standards set forth in Health and Safety Code section 38562, subdivisions (d)(1) and (d)(2). Such credits shall be based on protocols approved by the California Air Resources Board (CARB), consistent with Section 95972 of Title 17 of the California Code of Regulations, and shall not allow the use of offset projects originating outside of California, except to the extent that the quality of the offsets, and their sufficiency under the standards set forth herein, can be verified by USACE or the Sacramento Metropolitan Air Quality Management District (SMAQMD). Such credits must be purchased through one of the following: (i) a CARB-approved registry, such as the Climate Action Reserve, the American Carbon Registry, and the Verified Carbon Standard; (ii) any registry approved by CARB to act as a registry under the California Cap and Trade program; or (iii) through the California Air Pollution Control Officers Association's (CAPCOA's) GHG Rx and SMAQMD. Purchase of carbon offsets shall be sufficient to reduce the Proposed Action's GHG emissions to below SMAQMD's significance thresholds applicable prior to the start of construction through a one-time purchase of credits, according to SMAQMD's timing requirements, based on the emissions estimates in this SEIS/SEIR or on an ongoing basis based on monthly emissions estimates that would be prepared in accordance with procedures established by Measure AQ-3.

Summary

Implementation of the Mitigation Measure GHG-1 would improve the fuel and material efficiency of construction equipment, which would generate fewer emissions of GHGs. Once all on-site mitigation has been applied to the Proposed Action, carbon offsets would be purchased to reduce the remaining MTCO_{2e} to levels at or below SMAQMD's

1,100 MTCO₂e/year significance threshold. Therefore, implementation of the measures identified above would reduce impacts to a less-than-significant level.

3.11 Noise and Vibration

3.11.1 Environmental Setting

3.11.1.1 Regulatory Setting

Section 3.13 (page 266) of the ARCF GRR FEIS/FEIR identifies local noise ordinances that apply to regulating noise in the in the Project Area of the Proposed Action. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the ARCF Project and described the status of compliance with those laws and regulations. There have been no changes to the applicable listed regulations related to Noise and Vibration. Specific regulations and guidelines used in this analysis are presented below.

Federal

Federal Transit Administration

To address the human response to ground vibration, the Federal Transit Administration (FTA) has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines are presented in **Table 3-14**, below.

TABLE 3-14
GROUND-BORNE VIBRATION IMPACT CRITERIA FOR GENERAL ASSESSMENT

Ground-borne Impact Levels (VdB re 1 micro-inch/second)			
Land Use Category	Frequent Events ^a	Occasional Events ^b	Infrequent Events ^c
<i>Category 1:</i> Buildings where vibration would interfere with interior operations.	65 ^d	65 ^d	65 ^d
<i>Category 2:</i> Residences and buildings where people normally sleep.	72	75	80
<i>Category 3:</i> Institutional land uses with primarily daytime uses.	75	78	83

NOTES:

VdB = vibration decibels referenced to 1 microinch per second and based on the root mean square velocity amplitude.

^a "Frequent Events" is defined as more than 70 vibration events of the same source per day.

^b "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

^c "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

^d This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define acceptable vibration levels.

SOURCE: Federal Transit Administration. 2018 (September). *Transit Noise and Vibration Impact Assessment*. Washington, D.C. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf. Accessed January 26, 2021.

State

California Department of Transportation

In 2013, Caltrans published the *Transportation and Construction Vibration Manual*.¹⁰⁷

The manual provides general guidance on vibration issues associated with construction and operation of projects in relation to human perception and structural damage.

Table 3-15 presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

TABLE 3-15
CALIFORNIA DEPARTMENT OF TRANSPORTATION RECOMMENDATIONS
REGARDING LEVELS OF VIBRATION EXPOSURE

Effect on Buildings	PPV (in/sec)
Architectural damage and possible minor structural damage	0.4-0.6
Risk of architectural damage to normal dwelling houses	0.2
Virtually no risk of architectural damage to normal buildings	0.1
Recommended upper limit of vibration to which ruins and ancient monuments should be subjected	0.08
Vibration unlikely to cause damage of any type	0.006-0.019

NOTES:

in/sec = inches per second; PPV = peak particle velocity

SOURCE: California Department of Transportation. 2020 (April). *Transportation and Construction Vibration Guidance Manual, 2020 Update*. Division of Environmental Analysis. Sacramento, CA. Available: <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf>. Accessed January 26, 2021.

3.11.1.2 Existing Conditions

The ARCF GRR FEIS/FEIR Section 3.13 (page 272) describes the regional and local setting in the vicinity of the Project Area. The following provides additional information specific to the Project Area.

Sensitive Receptors

Sensitive receptors along the American River include residents along the levee system and along the proposed haul routes. Refer to Figures 2-20 through 2-21 for proposed haul routes and their proximity to existing land uses. Residential areas back up to the levees and in most cases, there is very little space between the levee toe and the back fence of private properties. Because the levee is higher than the houses, noise on the levees could travel into the backyards and houses. In addition, recreationists using the American River Parkway would be considered sensitive receptors, as would the local wildlife in the Parkway.

¹⁰⁷ California Department of Transportation, 2020 (April). *Transportation and Construction Vibration Guidance Manual, 2020 Update*. Sacramento, CA: Noise, Division of Environmental Analysis. Sacramento, CA. Available: <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf>. Accessed January 26, 2021.

Sources of Noise

The majority of the Project Area, including both the American River North and South basins, is in urban and residential areas, where the primary sources of noise are traffic, trains, common urban uses, and limited air traffic. Boating operation is common along the American River. Major highways and roadways which generate noise near the American River include Business 80, U.S. Highway 50 (U.S. 50), Watt Avenue, H Street (the H Street Bridge), Fair Oaks Boulevard, Howe Avenue, and the Arden/Garden Connector. Arterial roadways and stationary sources have a localized influence on the noise environment.

Based on available existing traffic data for Interstate 80 (I-80) and U.S. 50, existing noise levels at nearby major intersections (e.g., U.S. 50/State Route 16 and I-80/Howe Avenue), range from approximately 82 A-weighted decibels (dBA) to 84 dBA community noise equivalent level, respectively (see Appendix F for modeling).

3.11.2 Methodology and Basis of Significance

3.11.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.13.2 (page 274) of the ARCF GRR FEIS/FEIR. Construction activities (including construction equipment used for long-term maintenance) are assumed to be the predominant source of noise and vibration associated with the project. Construction noise impacts were assessed using an analysis method recommended by the U.S. Department of Transportation for construction of large public works infrastructure projects.¹⁰⁸ Based on anticipated construction equipment types and methods of operation, construction noise levels for various elements of the construction process were calculated. These predicted levels were compared to significance criteria to determine whether significant impacts are predicted to occur. Where significant noise impacts are identified, mitigation measures to reduce noise impacts are specified.

Project-generated construction noise and vibration levels were determined based on methodologies, reference noise levels, and usage factors from FTA's *Transit Noise and Vibration Impact Assessment* methodology.¹⁰⁹ Reference levels for noise and vibration emissions for specific equipment or activity types are well documented and the usage thereof common practice in the field of acoustics. The magnitude of construction noise and vibration impacts at sensitive land uses depends on the type of construction activity, the noise and vibration levels generated by various pieces of construction equipment, the distance between the activity, and sensitive land uses. For this analysis, noise levels at various distances from the construction equipment were estimated using calculation

¹⁰⁸ Federal Transit Administration, 2018 (September). *Transit Noise and Vibration Impact Assessment*. Washington, D.C. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf. Accessed January 26, 2021.

¹⁰⁹ Federal Transit Administration, 2018 (September). *Transit Noise and Vibration Impact Assessment*. Washington, D.C. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf. Accessed January 26, 2021.

procedures recommended by FTA.¹¹⁰ The calculations used for this analysis include distance attenuation (6 decibels per doubling of distance) and attenuation from ground absorption for both hard ground and soft ground.

Regarding temporary increases in noise from haul trucks, noise levels were estimated based on anticipated maximum daily truck activity and traffic noise modeling using methods consistent with the Federal Highway Administration's (FHWA's) Traffic Noise Model.

3.11.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.13.2 (page 274) of the ARCF GRR FEIS/FEIR, as stated below.

Both the City and County of Sacramento noise ordinances state that a standard of 55 dBA is applied from 7:00 a.m. to 10:00 p.m., and a standard of 50 dBA is applied from 10:00 p.m. to 7:00 a.m. for residential and agricultural uses.

These noise levels are then adjusted according to the cumulative duration of the intrusive sound. For example, if the cumulative period is 5 minutes per hour, then the standard is adjusted by 10 dBA to 65 dBA during daytime hours and 60 dBA during nighttime hours. If the cumulative period is 30 minutes per hour, no adjustments are made and the standard is 55 dBA during the daytime and 50 dBA during the nighttime, functionally similar to the average hourly noise level, or L_{eq} . The noise level that must not be exceeded for any time per hour is 75 dBA during the day and 70 dBA during the night, functionally similar to a maximum noise level or L_{max} .

The Sacramento County noise ordinance further states that construction noise is exempt from 6:00 a.m. to 8:00 p.m. Monday through Friday and from 7:00 a.m. to 8:00 p.m. on Saturdays and Sundays (Chapter 6.68 Noise Control, County of Sacramento Code). The City of Sacramento exempts construction noise from 7:00 a.m. to 6:00 p.m. Monday through Saturday and from 9:00 a.m. to 6:00 p.m. on Sundays (8.68.080 Exemptions, Noise Control Standards, City of Sacramento Municipal Code). Thus, construction noise impacts were evaluated using the City and County noise codes, where applicable.

To evaluate potential structural damage from construction activities, Caltrans guidance was used. To evaluate disturbance to sensitive receptors from construction and hauling activities, FTA guidance was used. Thus, based on the aforementioned applicable regulations, the Proposed Action would result in a significant effect related to noise if it would result in:

- A substantial temporary (i.e., construction) or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Due to the

¹¹⁰ Federal Transit Administration, 2018 (September). *Transit Noise and Vibration Impact Assessment*. Washington, D.C. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf. Accessed January 26, 2021.

nature of project construction that would vary throughout the day depending on individual construction activities, applicable thresholds include construction noise levels above 55 dBA L_{eq} , or construction activity that generates excessive noise levels during sensitive times of the day; or

- Exposure of sensitive receptors or structures to groundborne vibration, that exceed the following:
 - 72 vibration decibels (VdB) for hauling activities,
 - 80 VdB for heavy-duty equipment, or
 - 0.2 peak particle velocity (PPV) for structural damage from any activity.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines that became effective in December 2018 were intended to reflect recent changes to the CEQA statutes and court decisions. To the extent that the topics or questions in Appendix G are not reflected in the ARCF GRR FEIS/FEIR significance criteria, these topics and questions have been taken into consideration in the impact analysis below, even though the determination of significance relies on City and County of Sacramento thresholds. Specifically, Appendix G no longer includes the criterion of the effect of permanent, temporary, or periodic increases in ambient noise levels in the project vicinity above levels existing without the project, but rather defers to local noise ordinances and standards as the relevant criteria.

Effects Not Evaluated Further

The Proposed Action would not result in any long-term sources of vibration such as railways or transit centers, and therefore, operational vibration impacts are not discussed further. In addition, no new stationary noise sources are proposed. Regarding permanent increases in traffic noise, once construction is complete, operational activities would be limited to small maintenance crews traveling to and from the site periodically to conduct inspections and limited work on-site. These activities are similar to current operations and would not result in traffic increases that could generate perceptible increases in noise. Issues related to long-term operational vibration, stationary noise sources, and traffic noise increases are not evaluated further.

The Proposed Action does not include any new land use development (e.g., residences, commercial) where people work or live, and therefore, would not expose people to aircraft or airport-related noise. Noise from aircraft and airports is not discussed further.

3.11.3 Impact Analysis

3.11.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would experience no change in the present level of risk of flooding due to levee failure from seepage, slope stability,

overtopping, or other erosion concerns. These events would generate noise; however, noise levels would depend on the degree of severity of these events. For instance, a catastrophic flood event could generate high volumes of noise as compared to some spillage from levee overtopping.

Under the No Action/No Project Alternative, there would be no construction-related effects on the acoustic environment, including the generation of groundborne vibration. The noise levels in the study area would remain consistent with the existing ambient noise levels present under current conditions. It is highly likely that if the project is not constructed, a large flood event could result in levee failure. The amount of noise that would be generated to repair the damaged levee and cleanup of the flooded lands could exceed noise ordinances and expose sensitive receptors near the rivers to excessive noise levels and groundborne vibration from the placement of riprap to repair levees. These effects on noise would be significant; however, the timing, duration, and magnitude of a flood event is unpredictable, and a precise significance determination is not possible.

3.11.3.2 Proposed Action

Construction Noise

The project would generate construction noise from heavy-duty equipment operating at each work location and from the use of heavy-duty trucks to haul material to and from the work sites. Although these activities are associated with proposed construction activities, they are somewhat distinct and may affect different receptors; thus, they are described separately below.

Heavy-Duty Construction Equipment

The ARCF GRR FEIS/FEIR (pages 275 through 281) characterized construction noise levels from various activities that would occur during project construction, including stripping, levee degrading, soil placement, riprap installation, and roadway construction, as shown in Table 50 of the ARCF GRR FEIS/FEIR. Based on the modeling conducted for that analysis, noise levels associated with riprap installation (i.e., 88 dBA L_{eq}) would represent the loudest anticipated noise levels, which could occur during Proposed Action activities at Site 2-2 and Site 2-3 (including the Campus Commons Golf Course reconstruction), and the mitigation sites for the Proposed Action. Based on modeled noise levels for riprap installation, ground absorption, and standard attenuation rates (i.e., 6-dBA reduction per doubling of distance), **Table 3-16** below shows anticipated noise levels at various distances from heavy-duty equipment use at any of the work and mitigation sites.

Sensitive receptors near Sites 2-2 and 2-3 include nearby existing residential neighborhoods, various community churches, and CSUS (including associated housing). Sensitive receptors near the Arden Pond Mitigation Site include residential neighborhoods and Del Dayo Elementary and Jesuit High schools. Similarly, sensitive receptors within the vicinity of the east and west Rossmoor West and East Mitigation Sites include residences and Peter J. Shields Elementary school.

TABLE 3-16
NOISE LEVELS DURING CONSTRUCTION OF EROSION PROTECTION

Distance Between Source and Receiver (feet)	Calculated 1-Hour L_{eq} Sound Level (dBA)
50	88
100	80
200	73
300	68
400	65
500	62
1,000	54
1,500	50
2,000	47
3,000	42

NOTE:

dBA = A-weighted decibels; L_{eq} = hourly average noise level

SOURCE: Modeled by Ascent Environmental Inc. 2021

The closest sensitive receptors to construction activity are approximately 150 feet from the outer boundary of construction areas at Sites 2-2 and 2-3, 225 feet from work areas at the Arden Pond Mitigation Site, 200 feet from work areas at Rossmoor West Mitigation Site and the Campus Commons Golf Course, and no receptors within 1,000 feet from Rossmoor East Mitigation Site. Based on the anticipated construction activities and associated noise levels, applicable thresholds (i.e., 55 dBA L_{eq}) would be exceeded where construction activity would occur within approximately 1,000 feet of existing sensitive land uses.

Haul Trucks

In addition to noise generated from the use of heavy-duty equipment at the work sites, riprap material (e.g., rocks) would be imported and excavated daily, at varying quantities from the different work sites. Based on aerial imagery of the sites and the anticipated haul routes, receptors are located as close as 50 feet from haul routes (i.e., from directional travel lane).

To model noise levels from hauling activities, maximum daily and hourly hauling activity was calculated based on anticipated material quantities needed, as provided in Chapter 2, *Alternatives*, and in **Appendix G**.

Based on the anticipated construction schedule and sequencing of activities, the maximum possible haul truck trips per day would occur from July to October. Eight daily one-way truck trips (16 total daily), over a period of 60 days, would be required for importing rock to Site 2-2 and 284 daily truck one-way trips would be required to haul material from Site 2-3 to the Arden Pond Mitigation Site over a period of 40 days. Additionally, 47 daily one-way truck trips (94 total daily trips), over a period of 60 days, would be required for

importing rock to Site 2-3. Based on these quantities and assuming 32 cubic-yard haul trucks, there would be a total of 394 daily truck trips, or 40 trucks per hour of the workday.

This maximum truck trip estimate was used for noise modeling purposes, but hourly and daily truck volumes may be lower in some places throughout the work sites and haul routes. Based on these quantities and assuming all trucks could be traveling on the same route, hauling activities could result in noise levels of approximately 59 dBA L_{eq} at receptors located 100 feet from the centerline of the haul routes. Predicted noise levels would not attenuate to below 55 dBA L_{eq} until the receptors are beyond 185 feet from the centerline of the haul route. Because receptors are located as close as 50 feet from haul routes (i.e., from directional travel lane), receptors along proposed haul routes would be exposed to exterior noise levels that exceed applicable thresholds of 55 dBA L_{eq} .

As discussed above, heavy-duty construction equipment at all work sites (except the Rossmoor East site), as well as peak-hourly haul truck activities would exceed City and County of Sacramento daytime noise standards of 55 dBA L_{eq} . Under the Proposed Action, there would be significant short-term impacts associated with temporary construction noise and haul truck activities; however, this impact could be reduced to a less-than-significant level with mitigation.

Vibration Generated during Construction

Regarding construction-related vibration, pile driving, and blasting activities are of primary concern for both structural damage and disturbance to sensitive receptors. Consistent with the analysis in the ARCF GRR FEIS/FEIR (pages 277 through 288) pile driving and blasting activity are not proposed. Thus, the analysis in the ARCF GRR FEIS/FEIR assumed that the highest levels of vibration could come from a vibratory compactor/roller, a likely piece of equipment that could generate groundborne vibration. In accordance with FTA guidance for determining impacts from vibration to structures (i.e., vibration levels that exceed 0.2 inch per second peak particle velocity [PPV]) and based on reference vibration levels and standard attenuation rates for a vibratory compactor, vibration from heavy-duty equipment would only be a potential issue if structures were located within 25 feet of construction activity. Regarding disturbance to sensitive land uses, construction equipment would exceed FTA-recommended criteria for infrequent events (i.e., 80 VdB) within 75 feet of construction activity. Based on aerial imagery and anticipated location of work sites, receptors are generally located beyond 75 feet. However, because the exact footprints of staging areas for all work areas are not delineated on the project plan, the potential remains for vibration impacts, depending on the location of construction activity in proximity to existing structures and receptors.

In addition to vibration from heavy-duty equipment, vibration impacts could also result from daily haul truck activity occurring near existing sensitive land uses. The ARCF GRR FEIS/FEIR did not evaluate vibration from haul trucks, so this analysis focusses on impacts from hauling activities.

Project-related construction vibration levels were calculated using FTA guidelines based on the 50-foot distance of the nearest sensitive receptor to haul routes. For purposes of this analysis, movement of loaded haul trucks was conservatively considered to produce a vibration level of approximately 86 VdB (0.076 inch per second PPV at a distance of 25 feet¹¹¹). Assuming a maximum vibration level of 86 VdB at 25 feet, with an attenuation rate of 9 VdB per doubling of distance, the construction vibration level at the closest sensitive uses would be approximately 77 VdB (0.027 inch per second PPV). This vibration level is below the FTA threshold of 0.2 inch per second PPV for structural damage of normal dwelling houses. However, this vibration level is above the FTA threshold of 72 VdB (frequent events) for human annoyance and would be perceptible.

As discussed above, the use of heavy-duty construction equipment could result in vibration impacts depending on the final location of staging areas and work areas, as well as depending on proximity to existing vibration-sensitive land uses. Further, due to the frequency (i.e., over 300 per day) of daily haul trucks, hauling activities could exceed FTA recommended guidelines for frequent events of 72 VdB at some receptors. Under the Proposed Action, there would be significant impacts associated with temporary construction-related vibration from heavy-duty equipment use and haul truck activities; however, this impact could be reduced to a less-than-significant level with mitigation incorporated.

ARCF GRR FEIS/FEIR Mitigation Measures

During construction, noise-reducing measures would be employed to ensure that construction noise would comply with local ordinances. Prior to the start of construction, a noise control plan would be prepared that would identify feasible measures to reduce construction noise, when necessary. The following ARCF GRR FEIS/FEIR mitigation measure (pages 281 to 282) is incorporated into the Proposed Action:

Mitigation Measure NOISE-1: Implement Noise Reduction Practices. The following noise reduction practices would reduce noise generated by construction activities and would apply to construction activities within 500 feet of sensitive receptors, including but not limited to residences.

- Coordinate with local residents, comply with noise ordinances, and implement Best Management Practices (BMPs).
- Provide written notice to residents within 1,000 feet of the construction zone, advising them of the estimated construction schedule. This written notice would be provided within one week to one month of the start of construction at that location.

¹¹¹ Federal Transit Administration, 2018 (September). *Transit Noise and Vibration Impact Assessment*. Washington, D.C. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf. Accessed January 26, 2021.

- Display notices with such information as contractor contact telephone number(s) and proposed construction dates and times in a conspicuous manner, such as on construction site fences.
- Schedule the loudest and most intrusive construction activities during daytime hours (7:00 a.m. to 7:00 p.m.), where feasible.
- Require that construction equipment be equipped with factory-installed muffling devices, and that all equipment be operated and maintained in good working order to minimize noise generation.
- Locate stationary noise-generating equipment as far as practicable from sensitive receptors.
- Limit unnecessary engine idling (i.e., longer than 5 minutes) as required by State air quality regulations.
- Employ equipment that is specifically designed for low noise emission levels, when feasible.
- Employ equipment that is powered by electric or natural gas engines, as opposed to those powered by gasoline fuel or diesel, when available and feasible.
- If the construction zone is within 500 feet of a sensitive receptor, place temporary barriers (e.g., noise curtains, sound walls, etc.) between stationary noise equipment and noise-sensitive receptors to block noise transmission, when feasible, or take advantage of existing barrier features, such as existing terrain or structures, when feasible.
- If the construction zone is within 500 feet of a sensitive receptor, prohibit the use of backup alarms and provide an alternate warning system, such as a flagman or radar-based alarm that is compliant with State and Federal worker safety regulations.
- Locate construction staging areas as far as practicable from sensitive receptors.
- If there are any occupied buildings with plaster or wallboard construction within 40 feet of construction equipment, prepare a vibration control plan prior to construction.

Summary

Previously adopted ARCG GRR FEIS/FEIR mitigation (Mitigation Measure NOISE-1) would be incorporated into the Proposed Action and would reduce construction noise and vibration, and associated exposure, by ensuring that proper equipment is used, by requiring the noticing and installation of sound barriers to break the line of sight to nearby receptors, and by requiring alternative equipment types or alternative construction methods to be used to reduce noise to the extent possible. The mitigation limits construction activity to between 7:00 a.m. and 7:00 p.m.; however, the Proposed Action

would limit construction activity to City of Sacramento daytime construction hours, which are from 7:00 a.m. to 6:00 p.m. on Mondays through Saturday and 9:00 a.m. to 6:00 p.m. on Sundays (see Section 2.1.2.4).

Additional Mitigation Measure

In addition to the mitigation measure incorporated from the ARCF GRR FEIS/FEIR (Mitigation Measure NOISE-1) above, a new Mitigation Measure NOISE-2 would require that a vibration control plan and site-specific measures would be implemented to ensure that applicable vibration thresholds would not be exceeded. Therefore, this mitigation measure would reduce the impact from vibration to a less-than-significant level.

Mitigation Measure NOISE-2: Implement Vibration Control Measures.

USACE and the CVFPB would implement the following vibration control measures to reduce construction-related vibration effects.

- To the extent feasible and practicable, the primary construction contractors would employ vibration-reducing construction practices so that vibration from construction would comply with applicable noise-level rules and regulations, including the construction vibration standards of the City or County of Sacramento. Project construction specifications would require the contractor to limit vibrations to less than 0.2 inch per second PPV and less than 72 VdB for frequent events (i.e., truck hauling) or 80 VdB for infrequent events (i.e., heavy-duty construction activities. If construction activity would occur within 75 feet of an occupied building or if hauling activities would occur within 50 of an occupied building, the contractor would prepare a vibration control plan prior to construction. The plan would include measures to limit vibration, including but not limited to the following:
 - Avoid vibratory rollers and packers near sensitive areas. Alternatives may include pad foot rollers drum rollers, or similar non-vibratory equipment.
 - Route heavily loaded trucks away from residential streets, if possible. If no alternatives are available, select the streets with the fewest homes. Depending on the specific truck type that would be used, the contractor could demonstrate with substantial evidence, to the City of Sacramento, that trucks would not exceed applicable thresholds mentioned above.
 - Conduct a voluntary pre- and post-construction survey to assess potential architectural damage from levee construction vibration at each residence within 75 feet of construction. The survey would include visual inspection of the structures that could be affected and documentation of structures by means of photographs and video. This documentation would be reviewed with the individual owners prior to any construction activities. Post-construction monitoring of structures would be performed to identify (and repair, if necessary) damage, if any, from construction vibration. Any damage would be documented with photographs and video. This documentation would be reviewed with the individual property owners.

- Place vibration monitoring equipment at the property line adjacent to large equipment and, with owner approval, at the back of the residential structures adjacent to the large equipment. Record measurements daily.

3.12 Recreation

3.12.1 Environmental Setting

3.12.1.1 Regulatory Setting

Section 3.14 (page 282) of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the proposed action and Chapter 5 of the ARCF GRR FEIS/FEIR described in detail the status of compliance with those laws and regulations. There has been no change to the applicable listed regulations related to recreation as listed in the ARCF GRR FEIS/FEIR.

3.12.1.2 Existing Conditions

The ARCF GRR FEIS/FEIR Section 3.14 (pages 282 through 287) describes the regional and local setting in the vicinity of the Project Area, including descriptions of the recreational facilities, uses, and access to the Project Area. These include descriptions of the following: the American River Parkway (Parkway), Jedediah Smith Recreation Trail, Guy West Bridge, the William B. Pond Recreation Area, and the Campus Commons Golf Course. In addition to the recreational facilities described in the ARCF GRR FEIS/EIR, the Proposed Action includes proposed staging areas adjacent to the University Dog Park. This park is located on the south side of University Avenue east of Howe Avenue. The Parkway's open spaces and natural resources provide a highly valued natural setting and variety of recreational activities include biking, running, walking, birding, fishing, and boating.

The majority of the Campus Commons Golf Course is located within the Site 2-3 footprint. The golf course is a nine-hole executive course located northeast of California State University Sacramento, along the American River on Cadillac Drive. The golf course was opened in 1971 and is open year-round.

The ARCF GRR FEIS/FEIR included adopted mitigation measures to replace vegetation and habitats lost from construction of levee improvements, but did not identify site details or locations, including the Arden Pond Mitigation Site and the Rossmoor West and East Mitigation Sites. Details and locations of the mitigation sites incorporated in the Proposed Action are described in Chapter 2, *Alternatives*.

The proposed Arden Pond Mitigation Site is located within the William B. Pond Recreation Area, located off Arden Way and is described in Chapter 2, *Alternatives* (see Figures 2-3 and 2-20). The existing pond is a popular spot for recreational fishing. The William B. Pond Recreation Area includes an Americans with Disabilities Act (ADA) compliant fishing pier and ramp for disabled anglers to access the dock at the pond. The

immediate surrounding area is mainly natural habitat adjacent to the river. North of the pond is the William B. Pond Recreational Area, which includes the Jedediah Smith Memorial Trail and River Access Trail, informal walking trails that provide additional access to the American River, a horse trail, picnic areas, and the parking lot for the Parkway. The Jedediah Smith Memorial Trail, also referred to as the American River Bike Trail, is a paved trail that runs along the banks of the American River in the Parkway and is a highly valued feature of the Parkway that is used by cyclists, runners, and walkers. The River Access Trail is a short trail that leads recreationalists from the William B. Pond Recreation Area or Jedediah Smith Memorial Trail to the river.

The proposed Rossmoor West and East Mitigation Sites are shown on Figures 2-22 and 2-23 in Chapter 2, *Alternatives*. The Rossmoor West Mitigation Site is bordered on the north by a narrow strip of land and the Jedediah Smith memorial Trail that divides the site from the American River. To the southeast of the site are residential homes, also divided from the site by a narrow strip of Parkway land. The Rossmoor East Mitigation Site is bordered by roads and trails, including the Jedediah Smith Memorial Trail (previously described above) as well as the Rossmoor Bar River Access point, an area that allows access to the American River and small walking trails, which can be accessed via Rossmoor Drive or the Jedediah Smith Memorial trail to Rossmoor Drive.

3.12.2 Methodology and Basis of Significance

3.12.2.1 Methodology

This analysis uses the same methodology as described in Section 3.14 (page 287) of the ARCF GRR FEIS/FEIR to analyze impacts of the Proposed Action on recreational opportunities within the Project Area based on temporary and permanent changes to recreational resources.

3.12.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.14 (page 287) of the ARCF GRR FEIS/FEIR, as restated below.

The Proposed Action would result in a significant effect related to recreation if it would:

- Eliminate or substantially restrict or reduce the availability, access, or quality of existing recreational sites or opportunities in the Project Area;
- Cause substantial long-term disruption in the use of an existing recreation facility or activity;
- Result in inconsistencies or non-compliance with regional planning documents; or
- Result in inconsistencies with the Rivers and Harbors Act or the Wild and Scenic Rivers Act.

3.12.3 Impact Analysis

3.12.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the proposed action would not be implemented, and the Sacramento metropolitan area would experience no change in the present level of risk of flooding due to levee failure from seepage, slope stability, overtopping, or other erosion concerns.

Under these conditions, a flood event could cause portions of the levees to fail, triggering widespread flooding and related damage. If a catastrophic flood were to occur, flooding and inundation of existing recreational facilities (e.g., Paradise Beach), trails, bike paths, fishing access, and other recreation areas (e.g., Glenn Hall Park) would render the American River Parkway unusable until cleanup and restoration activities could take place. All of these effects on recreation would be considered significant; however, the timing, duration, and magnitude of a flood event is unpredictable. Therefore, a precise significance determination cannot be made.

3.12.3.2 Proposed Action

The ARCF GRR FEIS/FEIR Section 3.14 (pages 282 through 293) analyzed impacts on recreation within the Project Area. The Proposed Action would result in temporary closures of parts of the Jedediah Smith Recreation Trail during construction activities, as described in Chapter 2, *Alternatives*. Haul trucks and other construction equipment would use portions of the recreational trails to move materials, temporarily reducing accessibility to recreationists.

Construction of the Arden Pond Mitigation Site would result in temporary closure of the existing pond and trails immediately adjacent, eliminating fishing and other activities for those areas of the William B. Recreation Area within the construction footprint. Construction at the Arden Pond Mitigation Site would include modification of the existing pond to construct an isolated Bass Pond that would be separated from the remainder of the pond by installing a berm. Although the Arden Pond Mitigation Site would result in a permanent reduction in pond size, the increase in depth of the Bass Pond would provide improved habitat for bass that could benefit recreational fishing conditions. Access to the ADA compliant ramp would be restricted during construction but would be restored once construction is complete. Haul routes would interrupt access to portions of the Jedediah Smith Memorial Trail and the River Access Trail. A horse trail that runs along the northern edge of the mitigation site would be realigned for haul route purposes. Although this would typically create a temporary impact, the trail washed out a few years ago at the west end of the pond and is no longer accessible. Access roads and staging areas would be restored and reseeded, as necessary, to pre-project conditions or better. Mitigation Measure REC-1 would reduce impacts on walkers, runners, cyclists, and recreationists accessing the river, by providing marked detours for bicycle trails and street bicycle routes in consultation with Sacramento County Regional Parks and the City

of Sacramento Bicycle and Pedestrian Coordinator. In addition, traffic controls would be implemented in areas where recreational traffic would intersect with construction vehicles.

The Rossmoor West and East Mitigation Sites would result in construction activities, including clearing, fencing, grading, and elderberry transplanting, that could temporarily interrupt recreational activities in the vicinity, including to the Jedediah Memorial Trail where it borders the sites, as well as the Rossmoor Bar River Access point. While temporary impacts to recreation activities would occur, both mitigation sites were chosen in part because their existing habitat quality is limited, and the sites would ultimately be improved.

As described in Section 2.3.4, *Campus Commons Golf Course Reconstruction*, the golf course would be closed for an extended period and used for staging of construction equipment, work area, and haul routes for the construction of Site 2-3. Cut bank excavation and grading would remove portions of the golf course along the riverbank. Following completion of construction activities of the site, the golf course would be restored and reopened for public use. It is anticipated that the golf course would be closed to the public for approximately two years, beginning November 2021. Course reconstruction would begin April 2023, and open to the public in October 2023. It is not feasible to allow the golf course to stay in operation during the 2-year closure period. Therefore, the impact on recreational golf would be a temporary but significant impact.

All the open available recreational trails would have some locations where construction equipment would cross from staging areas or hauling of materials from off-site to the staging areas. At these locations, flaggers would be stationed to provide traffic control of construction equipment and recreationists to prevent accidents. Construction staging areas would also restrict the use of and access to recreational areas, reducing the quality of recreational experiences in that area.

While bike trails and running paths could be rerouted or accessible a short distance away from the construction sites, there would still be an overall reduction in recreational quality with the construction over a 1.5-year period, or longer, and therefore, short-term temporary effects on recreation would be significant. Construction would also occur during the summer months at the peak of recreation activities in the American River Parkway. Further, proximity to construction equipment and activities may degrade the quality of recreational experiences due to noise, visual effects, odors, and air pollutants.

Such closures and disturbances would result in temporary non-compliance with American River Parkway Plan Policy 4.13, which states that flood control berms, levees, and other facilities should be, to the extent consistent with proper operation and maintenance of these facilities, open to the public for approved uses, such as hiking, biking, and other recreational activities. However, the Proposed Action would result in localized and temporary closures and the proposed improvements to the levees would improve stability required for the proper maintenance of the levees to prevent future flood risk, reducing potential for future closures of recreational facilities. The Proposed Action also would

also not preclude future access to recreational areas and would not conflict with the purposes and intents of the American River Parkway Plan.

Although the construction period would be short term, temporary and localized, effects on recreational access and activities during construction would be significant. Mitigation measures would be implemented to reduce impacts on recreation. However, even with mitigation measures, the Proposed Action's effects on recreation during construction would remain significant and unavoidable.

ARCF GRR FEIS/FEIR Mitigation Measures

The following 2016 ARCF GRR FEIS/FEIR mitigation measure found in Section 3.14 (page 292) is incorporated into the Proposed Action, with modifications to provide clarity and greater local specificity on notification of the public on closures of recreation facilities affected by the Proposed Action.

Mitigation Measure REC-1: Avoid and Minimize Effects on Recreational Use. USACE and the CVFPB would implement the following measures to reduce temporary, short-term construction effects on recreational facilities in the Project Area:

- Coordinate with recreation user groups prior to and during construction for input into mitigation measures that would reduce effects to the maximum extent practicable. Advance notice would be given to recreation users, informing them of anticipated activities and detours to reduce the effects. Closures of paved trails would be noticed 14-days in advance via signage at the detour locations.
- Post signs at major entry points for parks and recreation facilities clearly indicating closures and estimated duration of closures. Information signs would notify the public of alternate parks and recreation sites, including boat launch ramps, and provide a contact number to call for questions or concerns.
- Provide flaggers and post warning signs and signs restricting access before and during construction to ensure public safety.
- Provide marked detours for all bike trails and on-street bicycle routes that would be temporarily closed during construction. Detours would be developed in consultation with the City of Sacramento Bicycle and Pedestrian Coordinator at least 10 days before the start of construction activities, as applicable. Signs that clearly indicate closure routes would be posted at major entry points for bicycle trails, information signs would be posted to notify motorists to share the road with bicyclists where necessary, and a contact number would be provided to call for questions or concerns. Fences would be erected to prevent access to the Project Area.
- Provide traffic control in areas where recreational traffic would intersect with construction vehicles.

- If any access point needs to be closed during construction, post notices providing alternative access routes.
- Upon completion of levee improvements, coordinate with the City of Sacramento and Sacramento County to restore access and repair any construction-related damage to recreational facilities to pre-project conditions.

Summary

The ARCF GRR FEIS/FEIR concluded that the mitigation measure would reduce project impacts on recreation, but construction-related impacts would remain significant and unavoidable. Previously adopted ARCF GRR FEIS/FEIR Mitigation Measure REC-1, would reduce impacts on recreational activities to the extent feasible. Although the temporary closures of recreational facilities would remain significant and unavoidable, construction of the Proposed Action would not result in recreation impacts that would be new or more severe than those addressed in the ARCF GRR FEIS/FEIR.

3.13 Public Utilities and Service Systems

3.13.1 Environmental Setting

3.13.1.1 Regulatory Setting

Section 3.16 of the ARCF GRR FEIS/FEIR (page 313) identified no Federal or State environmental laws and regulations that apply to regulating public utilities and service systems. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply and described the status of compliance with those laws and regulations. There has been no change to the applicable listed regulations related to public utilities and service systems.

3.13.1.2 Existing Conditions

Although the Proposed Action contains previously unanalyzed improvements and related actions, Section 3.16 of the ARCF GRR FEIS/FEIR (pages 313 through 315) describes the regional and local setting in the vicinity of the ARCF 2016 Project, which have not changed.

3.13.2 Methodology and Basis of Significance

3.13.2.1 Methodology

This analysis uses the same methodology described in the ARCF GRR FEIS/FEIR Section 3.16 (page 316). Effects on public utilities and service systems were identified by comparing existing service capacity and facilities to public utilities and service systems during and after construction of the Proposed Action. The evaluation assumed the Proposed Action would occur in phases over approximately two years.

3.13.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.16 (page 316) of the ARCF GRR FEIS/FEIR, as summarized below.

The Proposed Action would result in a significant effect related to utilities and public services if it would:

- Require the construction or expansion of any utility systems due to project implementation;
- Disrupt or significantly diminish the quality of the public utilities and services for an extended period of time;
- Create an increased need for new fire protection, police protection, or ambulance services or significantly affect existing emergency response times or facilities;
- Create damage to public utility and service facilities, pipelines, conduits, or power lines; or
- Create inconsistencies or non-compliance with regional planning documents.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines were adopted that take into consideration the following additional or modified significance criteria:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.
- Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
- Generate solid waste more than State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.
- Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste.

Effects Not Evaluated Further

The Proposed Action includes construction activities, including clearing, grubbing, grading, bank protection, creation of planting benches, installation of launchable rock trenches, reconstruction of the Campus Commons Golf Course, and construction of the

Rossmoor Mitigation Sites. These construction activities would result in an increase in dust in the Project Area. To meet air quality requirements, some amount of water would be used for dust suppression purposes during construction activities. The Proposed Action does not include residential or commercial developments that would create new potable water demand, generate new wastewater demand or contribute to existing wastewater systems, or require new sources of gas, electricity, or other utilities that would require the expansion of public utilities. Therefore, no further evaluation of effects of the Proposed Action on these public services and utilities is necessary.

3.13.3 Impact Analysis

3.13.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would experience no change in the present risk of flooding due to levee failure from seepage, slope stability, overtopping, or other erosion concerns. If a levee failure were to occur, major government facilities would be impacted until flood waters recede. Such an event could cause inundation from high flows and destruction or damage to utility lines, natural gas supply lines, and water or wastewater piping or facilities, all of which could lead to widespread contamination, temporary power outages, and interruptions of other utilities in the Project Area and surrounding areas. This could cause a temporary shutdown or slowdown of many State and local government functions. Many transportation corridors within the Project Area could be flooded if levees were to fail. All of these effects on public utilities and service systems would be considered significant; however, the timing, duration, and magnitude of a flood event is unpredictable. Therefore, a precise significance determination cannot be made.

3.13.3.2 Proposed Action

Section 3.16 of the ARCF GRR FEIS/FEIR (pages 317 through 323) analyzed impacts on public utilities and service systems in the Project Area. The analysis determined that construction activities could adversely affect existing electric power, natural gas, or telecommunications—specifically, overhead power lines and telecommunication facilities or stormwater and wastewater infrastructure facilities and systems. Drop inlets, outfall structures, drainage pipes, and other infrastructure elements that are buried, penetrate, or protrude from the levee would have to be identified, removed, or relocated before or during construction activities. Existing utilities that are functional and operational would be relocated accordingly. Possible relocation methods could be: (1) a surface line over the levee prism; or (2) a through-levee line equipped with positive closure devices.

Under the Proposed Action, no active utilities are to be relocated by construction activities at Sites 2-2 and 2-3 (including the Campus Commons Golf Course), the Arden Pond Mitigation Site, or the Rossmoor East and West Mitigation Sites. Site 2-3 would require the removal of a section of 60-inch diameter force sewer main. However, this sewer main is abandoned and no impact would occur. Also, within Site 2-3, a stormwater

outfall would be reconstructed within the same construction season with a temporary bypass pipe to the river during construction, resulting in no interruption of service. As further described in Chapter 2, *Alternatives*, temporary irrigation systems would be installed for the establishment and maintenance period for transplant and associative plants at the Rossmoor West and East Mitigation Sites. The water sources for the Rossmoor East irrigation system would be provided through either an irrigation mainline to pump water from the river, or from a domestic water source. Irrigation would be temporary and applied by drip or spray. The Rossmoor East irrigation system would either connect to a domestic water source or via a new groundwater well. Both mitigation site irrigation systems would be temporary, use minimal water, and would not interrupt water service to the public. Therefore, there would be a less than significant impact to water availability or demand.

More information on the Proposed Action that was not available at the time of the ARCF GRR FEIS/FEIR is provided in the analysis below.

Construction Solid Waste

Construction of the Proposed Action would temporarily increase the generation of solid waste in the Project Area. Sources of solid waste related to construction activities would include cleared vegetation and debris. Waste materials (including cleared vegetation) and excess earth materials (e.g., organic soils, roots, grass, and excavated materials that do not meet levee embankment criteria) would be hauled off-site to a suitable disposal location. These materials, along with other solid waste materials, such as asphalt, concrete, pipes, etc., would also be removed from Project Area and would be disposed of at an appropriate, licensed landfill.

The location of the landfill used for disposal of construction-related waste would be determined by the construction contractor before the start of construction activity. This disposal would be determined based on capacity, type of waste, and other factors. Only those landfills determined to have the ability to accommodate the construction disposal needs of the Proposed Action would be used. The Kiefer Landfill, owned and operated by Sacramento County and located about 13 miles southeast of the Project Area, would likely be the landfill used. The Kiefer Landfill has more than 117 million cubic yards of total capacity within the 660-acre disposal area. Currently, 40 million cubic yards of waste occupy 3 of the 11 modules that are actively used for disposal of solid waste materials and these could accommodate all construction waste from the Proposed Action. Other landfills that may also be utilized include the Yolo County Central Landfill, Western Regional Landfill in Placer County, and the Lockwood landfill in Sparks Nevada. Project construction and operation would not cause existing regional landfill capacity to be exceeded; therefore, this impact would be less than significant.

Emergency Response Services

The extent and intensity of proposed construction activities, including road closures and traffic circulation patterns associated with the Proposed Action, could increase the time

for first responders to quickly respond to emergency situations in the Project Area, that could result in a temporary significant impact on the capacity of emergency response services. Implementation of mitigation measures identified in the ARCF GRR FEIS/FEIR would reduce impacts on associated emergency response service levels to a less-than-significant level, because USACE and the CVFPB would prepare and implement a response plan to streamline access points and reduce response times, and would notify first responders of the potential for disruptions in the Project Area.

ARCF GRR FEIS/FEIR Mitigation Measures

The following ARCF GRR FEIS/FEIR mitigation measure found in Section 3.16 is incorporated into the Proposed Action to mitigate potential damage to utilities and infrastructure and reduce service disruptions during construction of the Proposed Action.

Mitigation Measure UTIL-1: Avoid and Minimize Service Disruptions and Damage to Utilities and Infrastructure. USACE and the CVFPB would implement the measures listed below before construction begins to avoid and minimize potential damage to utilities and infrastructure and reduce service disruptions during construction.

- Coordinate with applicable utility and service providers to implement the orderly relocation of utilities that need to be removed or relocated.
- Notify the appropriate agencies and affected landowners regarding any potential interruptions of service.
- Verify through field surveys and the use of Underground Service Alert services the locations of buried utilities in the Project Area, including natural gas, petroleum, and sewer pipelines. Any buried utility lines would be clearly marked in construction (e.g., in the field) and on the construction specifications in advance of any earthmoving activities.
- Before the start of construction, prepare and implement a response plan that addresses potential accidental damage to a utility line. The plan would identify chain-of-command rules for notifying authorities and appropriate actions and responsibilities regarding the safety of the public and workers. A component of the response plan would include worker education training in response to such situations.
- Stage utility relocations during project construction to minimize interruptions in service.
- Communicate construction activities with first responders to avoid response delays caused by construction detours.

Summary

The previously adopted ARCF GRR FEIS/FEIR Mitigation Measure UTIL-1 would adequately reduce impacts service disruptions to a less-than-significant level. Therefore, there would be no residual significant impact.

3.14 Hazards and Hazardous Materials

3.14.1 Environmental Setting

3.14.1.1 Regulatory Setting

Section 3.17 of the ARCF GRR FEIS/FEIR (pages 322–323) identified Federal or State environmental laws and regulations that apply to hazards and hazardous materials. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the ARCF Project and described the status of compliance with those laws and regulations. Additional applicable laws and regulations not previously listed in the ARCF GRR FEIS/FEIR are listed below.

Federal

- Community Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act)
- 49 CFR 171.1—Applicability of Hazardous Materials Regulations
- 40 CFR Part 260 - Resources and Conservation Recovery Act (RCRA)
- 49 USC 5101 -Department of Transportation Hazardous Materials Transportation Act
- 29 USC 15 – Occupational Safety and Health Administration (OSHA)

State

- 19 CCR Division 2, Chapter 4, Hazardous Material Release Reporting, Inventory, and Response Plans
- 26 CCR, California Health and Safety Code [HSC], Chapter 6.95, Section 25501; Section 25503.5, Hazardous Material Management Plans and Hazardous Material Inventory Statement Programs
- 22 CCR HSC Division 4.5, Chapter 6.5, Hazardous Waste Control Law; Chapter 11, Section 66261.3; Section 66260.10, Hazardous Materials Transportation
- 22 CCR HSC Division 37, Section 57008, California Human Health Screening Levels, California Land Environmental Restoration and Reuse Act of 2001 (Chapter 764, Statutes of 2001, Office of Environmental Health Hazard Assessment, 2010)
- 19 CCR HSC Division 2, Section 25531, California Accidental Release Response Plan Programs
- 29 CFR, Occupational Safety and Health Administration (OSHA); 8 CCR, Cal/OSHA regulations for use of hazardous materials in the workplace

3.14.1.2 Existing Conditions

Section 3.17 of the ARCF GRR FEIS/FEIR (pages 323 through 325) describes the regional and local setting in the vicinity of the Project Area related to hazards and hazardous materials. A Phase 1 Environmental Site Assessment (Phase 1) was conducted as part of the ARCF GRR FEIS/FEIR. The Phase 1 identified five hazardous waste or materials sites within the entire study area. However, those five sites are not located within the Project Area. An updated review of the California Department of Toxic Substances Control's EnviroStor database and State Water Resources Control Board's Geotracker^{112, 113} was conducted in January 2021, and no new hazardous waste sites were listed or shown within the Project Area.¹¹⁴

The California Department of Forestry and Fire Protection's mapping information determined that the Project Area is not located within a very high fire hazard severity zone.¹¹⁵

3.14.2 Methodology and Basis of Significance

3.14.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.17 (page 322) of the ARCF GRR FEIS/FEIR. The methodology addressed potential sources of hazards and risks from hazardous materials that may be associated with the proposed alternatives.

3.14.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.17 (page 325) of the ARCF GRR FEIS/FEIR, as summarized below.

The Proposed Action would result in a significant impact related to hazardous wastes and materials if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

¹¹² California Department of Toxic Substances Control, 2019. Available:

<https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=Sacramento+Ca>. Accessed January 15, 2021.

¹¹³ State Water Resources Control Board. 2019. Geotracker Available: <https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=Sacramento+CA>. Accessed January 15, 2021.

¹¹⁴ California State Sacramento University, located adjacent to Site 2-3, is listed as a hazardous waste facility in the Envirostor database however the status is closed and thus there is no indication of any risk of exposure from that site.

¹¹⁵ California Department of Forestry and Fire Protection, 2007. Fire Hazard Severity Zone Maps and Adopted State Responsibility Area Fire Hazard Severity Zone Maps. https://osfm.fire.ca.gov/media/6756/fhszs_map34.pdf. Accessed January 15, 2021.

- Emit hazardous emissions or involve the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment; or
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency excavation plan.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines were adopted that address excessive noise effects on people living or working within two miles of a public airport, and risks associated with wildfire. As a result, this analysis also takes into consideration the following additional or modified significance criteria:

- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport, would the project result in a safety hazard or excessive noise for people residing or working in the Project Area.
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

Effects Not Evaluated Further

The Project Area is not located within an airport land use plan or within two miles of a public airport. The closest public airports to these project sites are Sacramento Executive Airport (5.5 miles) and Sacramento Mather (6 miles), respectively. Therefore, the Proposed Action would cause no impact to either airport. Noise impacts are analyzed in Section 3.11, *Noise and Vibration* of this document.

The Project Area is not located in a very high fire hazard severity zone as mapped by the California Department of Forestry and Fire Protection.¹¹⁶ In addition, the Proposed Action does not involve the development of occupied structures that could be at risk as a result of wildfires. Therefore, no fire hazard impact would occur. The ARCF GRR FEIS/FEIR identified five hazardous waste sites in the study area. As described previously, because none of these hazardous waste sites are within the Project Area and outside of the area of one closed site adjacent to Site 2-3 (including the Campus Commons Golf Course), no active sites were found based on an updated search, and no further evaluation is necessary.

¹¹⁶ California Department of Forestry and Fire Protection, 2007. Fire Hazard Severity Zone Maps and Adopted State Responsibility Area Fire Hazard Severity Zone Maps. https://osfm.fire.ca.gov/media/6756/fhszs_map34.pdf. Accessed January 15, 2021.

3.14.3 Impact Analysis

3.14.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the proposed action would not be implemented, and the Sacramento metropolitan area would experience no change in the present level of risk of flooding due to levee failure from seepage, slope stability, overtopping, or other erosion concerns.

Under these conditions, a flood event could cause portions of the levees to fail, possibly triggering widespread flooding and related damage. If a catastrophic flood were to occur, emergency flood fighting and clean-up efforts would commence, in part to contain releases of hazardous materials. Hazardous materials could be released in floodwaters, exposing the public and environment to possibly dangerous pollutant concentrations. The application of best management practices to control all hazards and hazardous materials might not be feasible. All of these effects on hazards and hazardous materials would be considered significant; however, the timing, duration, and magnitude of a flood event is unpredictable, and therefore precise significance determination cannot be made.

3.14.3.2 Proposed Action

Section 3.17 of the ARCF GRR FEIS/FEIR (pages 325 through 329) analyzed the impacts associated with Hazardous Wastes and Materials during construction of levee improvements throughout the Sacramento area, including construction of levee improvements in the Project Area. Over the construction period for the Proposed Action, construction contractors would be required to use, store, and transport hazardous materials (e.g., fuel, oils, lubricants, etc.) in compliance with Federal, State, and local regulations. The ARCF GRR FEIS/FEIR stated that any hazardous substance encountered during construction would be removed and properly disposed of by a licensed contractor in accordance with Federal, State, and local regulations.

Compliance with applicable regulations would reduce the potential for accidental release of hazardous materials during transport and construction activities. While the risk of exposure is considered low and potentially significant, implementation of the mitigation measures discussed below would reduce the impacts of the Proposed Action to a less-than-significant level.

While small quantities of construction related fuels, oils, and lubricants would be used and/or stored within 0.25 mile of Caleb Greenwood Elementary School and CSUS, these materials are not classified as acutely hazardous and implementation of the Proposed Action would not emit any substantive quantities of hazardous materials or require handling of acutely hazardous materials, substances or waste during construction. Only H Street, east of Caleb Greenwood Elementary School and north of CSUS, would be used as a potential haul route for the Proposed Action. However, construction activities would not require the use or handling of acutely hazardous materials, substances or waste, and transportation of all other hazardous materials would be undertaken in accordance with

U.S. Department of Transportation (DOT) and California Department of Transportation (CalTrans) requirements. Therefore, this impact would be less than significant.

Emergency Access

For Sites 2-2 and 2-3, haul routes for riprap, bedding, gravel, and IWM would travel to the sites from either Interstate 80 (I-80) to the north or from U.S. Highway 50 (U.S. 50) to the south. As discussed in Section 3.8, *Transportation and Circulation*, in this Supplemental EIS/EIR, haul trucks would travel to the staging areas using different haul routes for either Site 2-2 or 2-3 (including the Campus Commons Golf Course). Haul trucks may travel along a portion of the top levee road between Sites 2-2 and 2-3 at ingress and egress locations. Internal transfer dump trucks would utilize the levee toe road to move material from the staging areas where needed within Sites 2-2 or 2-3. In addition, soil removed during the cut bank excavation and grading at Site 2-3 would be hauled off site to the Arden Pond Mitigation Site (see description in Chapter 2, *Alternatives*) and other soil stockpile locations used by the local maintaining agency (LMA) for such purpose within a 10-mile distance of Site 2-3. See Figure 2-21 in Chapter 2, *Alternatives*, for haul routes to transport soil from Site 2-3 to the Arden Pond Mitigation Site and to major routes to Interstate 80 (I-80) and U.S. 50. Haul routes for the reconstruction of the Campus Commons Golf Course would use the same as those for Site 2-3 but would only use the entrance point to the golf course parking lot as the ingress/egress point for construction-related trips. The major haul route for the Rossmoor West and East Mitigation Sites would use U.S. 50 and Sunrise Boulevard.

Construction traffic associated with the Proposed Action could temporarily slow traffic flow and impair implementation of or physically interfere with an adopted emergency response plan or emergency excavation plan in or in areas near the haul routes within the Project Area during the construction period, which is expected to occur annually from May to October. Construction activities are anticipated during weekdays and Saturdays between 7:00 a.m. and 6:00 p.m. It is possible that during these periods, emergency response of evacuation could be briefly delayed along haul routes and within the American River Parkway maintenance roads and response times could be reduced. Therefore, the Proposed Action effects on an emergency response plan or emergency evacuation plan would be short-term and significant until construction is completed. Implementation of the mitigation measures from the ARCF GRR FEIS/FEIR as clarified in Section 3.8, *Transportation and Circulation*, and Section 3.13, *Public Utilities and Service Systems*, in this Supplemental EIS/EIR would reduce potential impacts on emergency access to a less-than-significant level.

ARCF GRR FEIS/FEIR Mitigation Measures

The following ARCF GRR FEIS/FEIR mitigation measure is incorporated into the Proposed Action with some modifications as detailed below.

Mitigation Measure HAZ-1: Avoid and Minimize Hazards. USACE and the CVFPB would implement the following measures to avoid and minimize the impact of hazards and hazardous materials.

- Comply with applicable regulations to reduce the potential for an accidental release of hazardous materials during construction. The contractor would also be required to prepare a SWPPP, which details the methods to prevent run-on and discharges from the construction sites into drainage systems, lakes, or rivers. The SWPPP would also include BMPs that detail hazardous materials handling and storage requirements as well as spill prevention and response measures that would be implemented accordingly.
- Test each erosion protection site for contaminants before construction and dispose of any materials found in accordance with all Federal, State, and local regulations at an approved disposal site.

Implementation of these mitigation measures would reduce impacts from hazardous materials at project sites to a less-than-significant level. If significant time has elapsed (i.e., five years) between approval of this document and construction, additional investigations should be performed to reduce the risk of encountering hazardous wastes during construction.

Summary

Previously adopted ARCF GRR FEIS/FEIR Mitigation Measure HAZ-1, would reduce impacts addressed to a less-than-significant level. There would be no residual significant impact.

CHAPTER 4

Cumulative and Growth-Inducing Effects

NEPA and CEQA require the consideration of cumulative effects of the proposed action, combined with the effects of other projects. NEPA defines a cumulative effect as an effect on the environment that results from the incremental effect of an action when combined with other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7). The State CEQA Guidelines define cumulative effects as “two or more individual effects which, when considered together, compound or increase other environmental impacts” (14 CCR Section 15355).

The cumulative effects of the overall ARCF project were analyzed in the 2016 ARCF GRR FEIS/FEIR (pages 335 through 357). The thorough cumulative analysis in the 2016 ARCF GRR FEIS/FEIR is incorporated by reference. But the temporal scope of the analysis was necessarily programmatic and, therefore, for the purposes of the Proposed Action, the temporal scope of the cumulative effects analysis in this Supplemental EIS/EIR considers past projects that continue to affect the Project Area in 2021, projects that are under construction in 2020, and any reasonably foreseeable future projects.

4.1 Cumulative Projects

4.1.1 Projects Contributing to Potential Cumulative Effects

This section briefly describes other similar or related projects, focusing on flood-risk reduction and habitat restoration projects that have similar effect mechanisms and affect similar resources as would the Proposed Action. Although the 2016 ARCF GRR FEIS/FEIR identified several of these projects in the cumulative scenario, the descriptions in this section include additional projects and updated timing and schedule information that provide the cumulative context based on current documentation. The following projects are a representative sample of the reasonably foreseeable and probable programs, projects, and policies that could have impacts that could cumulatively combine with the impacts of the Proposed Action, and the other programs, projects, and policies included in the cumulative impact assessment.

Past and present projects and activities have contributed on a cumulative basis to the existing environment within the Project Area via various mechanisms, such as the following:

- population growth and associated development of socioeconomic resources and infrastructure;

- conversion of natural vegetation to agricultural and developed land uses, and subsequent conversion or restoration of some agricultural lands to developed or natural lands;
- alteration of riverine hydrologic and geomorphic processes by flood management, water supply management, and other activities; and
- introduction of nonnative plant and animal species.

Past, present, and probable future projects causing related impacts are considered in this cumulative effects analysis, including regional projects for which USACE has provided approval or is in the process of considering Section 408 permission. For elements of these projects proposed for future implementation, the construction timing and sequencing is highly variable and may depend on uncertain funding sources. However, each of these past, present, and probable future projects must be considered in the context of environmental effects from the Proposed Action to properly evaluate the cumulative effects of this action and these other similar projects on the environment.

4.1.1.1 Lower American River Common Features Project

Congressional authorizations in WRDA 1996 and WRDA 1999 enabled USACE, the CVFPB, and SAFCA to undertake various improvements to the levees along the north and south banks of the American River, as well as the east bank of the Sacramento River. Under WRDA 1996, this involved the construction of 26 miles of slurry walls along the left and right banks of the American River. The WRDA 1999 authorization included a variety of additional levee improvements, such as levee raises and levee widening improvements, to ensure that the levees could pass an emergency release of 160,000 cfs. The WRDA 1996 and 1999 projects were completed in 2016, with mitigation site monitoring ongoing.

4.1.1.2 American River Watershed Common Features 2016 Project

The greater ARCF project is scheduled for construction from 2019 through 2024. The project involves construction of levee improvements along the American and Sacramento River levees as well as proposed improvements to the Natomas East Main Drainage Canal east levee and Magpie Creek (SAFCA previously completed improvements as an early implementation action in 2018). The levee improvements scheduled for implementation include construction of cutoff walls, erosion protection, seepage and stability berms, relief wells, levee raises, and a small stretch of new levee. In addition, USACE would widen the Sacramento Weir and Bypass. The project would also involve construction of several mitigation sites in the area. In addition to the improvements that are part of the Proposed Action, the ARCF GRR includes:

- construction of a seepage and stability berm along Front Street (constructed);
- construction of the Beach Stone Lakes Mitigation Site (constructed);

- construction of the large-scale fish habitat mitigation site in the Sacramento-San Joaquin Delta (planned for 2023-2024);
- Sacramento River East Levee Seepage and Stability Contract 1 (constructed);
- additional improvements to the Sacramento River East Levee between downtown Sacramento and Freeport (planned for 2021–2024);
- erosion protection on the American River (planned for 2021–2024);
- erosion protection on the Sacramento River (planned between 2021 and 2024);
- improvements to the “East Side Tributaries, including the Magpie Creek Diversion Channel, the east bank of the Natomas East Main Drainage Canal/Steelhead Creek. Pleasant Grove Creek Canal, and Dry, Robla, and Arcade Creeks (planned for 2023); and
- widening the Sacramento Weir and Bypass, located along the north edge of the City of West Sacramento in Yolo County (planned for 2022–2024).

4.1.1.3 American River Common Features Natomas Basin Project

In 2007, the Natomas Levee Improvement Project was authorized as an early-implementation project initiated by SAFCA to provide flood protection to the Natomas Basin as quickly as possible. These projects consist of improvements to the perimeter levee system of the Natomas Basin in Sutter and Sacramento Counties, as well as associated landscape and irrigation/drainage infrastructure modifications. SAFCA, DWR, the CVFPB, and USACE have initiated this effort with the aim of incorporating the Landside Improvements Project and the Natomas Levee Improvement Project into the Federally authorized American River Watershed Common Features Project. Construction of this early implementation project was completed in 2013. In 2014, the Natomas Basin Project was authorized by Section 7002 of the Water Resources Reform and Development Act of 2014 (Public Law 113-121). Construction on Reaches I and D are complete. Construction of Reach H started in 2019, and Reaches A, B, E, F, G, and are still in design. Construction on Reach A, starting with tree clearing, is expected to begin in late 2021, and construction in Reach B is planned to also begin in late 2021 and continue into 2022. Construction and construction traffic effects of this project have the potential to contribute to cumulative impacts with the Proposed Action.

4.1.1.4 Local Funding Mechanisms for Comprehensive Flood Control Improvements for the Sacramento Area

SAFCA created a new assessment district (“CCAD2”) to replace the existing Consolidated Capital Assessment District and updated the existing development impact fee to provide the local share of the cost of constructing and maintaining flood-risk reduction improvements and related environmental mitigation and floodplain habitat restoration along the American and Sacramento Rivers and their tributaries in the Sacramento metropolitan area. The program includes the projects necessary to provide at

least a 100-year level of flood protection for developed areas in Sacramento's major flood plains as quickly as possible; achieve the State's 200-year flood protection standard for these areas within the time frame mandated by the Legislature; and improve the resiliency, robustness and structural integrity of the flood control system over time so that the system can safely contain flood events larger than a 200-year flood. The program includes Yolo and Sacramento Bypass system improvements, levee modernization, and Lower Sacramento River erosion control. The Updated Local Funding Mechanisms Final Subsequent Program EIR was certified and the project was adopted in April 2016 (SAFCA 2016b).

4.1.1.5 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 was instituted in 1960 to be constructed in phases. Bank protection has generally been constructed on an annual basis. Phase I was constructed from 1963 to 1975 and consisted of 436,397 linear feet of bank protection. Phase II was authorized in 1974 and provided 405,000 linear feet of bank protection. The SRBPP directs USACE to provide bank protection along the Sacramento River and its tributaries, including that portion of the lower American River bordered by Federal flood control project levees. Beginning in 1965, erosion control projects at twelve sites covering 16,141 linear feet of the south and north banks of the lower American River have been implemented. This is an ongoing project, and additional sites requiring maintenance would continue to be identified indefinitely until authorized linear footage under the project is exhausted. WRDA 2007 authorized an additional 80,000 linear feet of bank protection to Phase II, which will be implemented under the SRBPP Post Authorization Change Report, which received approval in June 2020.

4.1.1.6 West Sacramento General Reevaluation Report

The West Sacramento GRR study determined the Federal interest in reducing the flood risk within the West Sacramento project area. The purpose of the West Sacramento GRR is to bring the 50 miles of perimeter levees surrounding West Sacramento into compliance with applicable Federal and State standards for levees protecting urban areas. Proposed levee improvements would address seepage, stability, levee height, and erosion concerns along the West Sacramento levee system. Measures to address these concerns would include: (1) seepage cutoff walls; (2) stability berms; (3) seepage berms; (4) levee raises; (5) flood walls; (6) relief wells; (7) sheet pile walls; (8) jet grouting; and (9) bank protection.

The GRR was authorized in WRDA 2016 and, in the Fiscal Year 2019 work plan, received initial funding to begin preconstruction design. However, under the West Sacramento Area Flood Control Agency Early Implementation Program, three levee segments have already been completed: a small segment along the Sacramento River adjacent to the I Street Bridge, a stretch along the Sacramento River in the northern portion of the city near the neighborhood of Bryte, and the south levee of the Sacramento

Bypass. The Southport setback levee was completed in 2020, with continued work to establish habitat vegetation in the floodplain in 2021. Construction and construction traffic effects of this project have the potential to contribute to cumulative impacts with the Proposed Action.

4.1.1.7 Central Valley Flood Protection Plan of 2017

The Central Valley Flood Management Planning Program is one of several programs managed by DWR under FloodSAFE California, a multifaceted initiative launched in 2006 to improve integrated flood management in the Central Valley, including the North Sacramento Streams and Sacramento River East Levee Improvements areas. The Central Valley Flood Management Planning Program addresses State flood management planning activities in the Central Valley.

The Central Valley Flood Protection Plan (CVFPP) is one of several documents adopted by the CVFPB to meet the requirements of flood legislation enacted in 2007 and, specifically, the Central Valley Flood Protection Act of 2008. DWR adopted the updated CVFPB in 2017, with a focus on the Sacramento and San Joaquin Watershed Basin-Wide Feasibility Studies (BWFSs), Regional Flood Management Planning, and the Central Valley Flood System Conservation Strategy. The results of these efforts would support implementation of future CVFPP actions.

The CVFPP contains a broad plan for flood management system improvements, and ongoing planning studies, engineering, feasibility studies, designs, funding, and partnering are required to better define, and incrementally fund and implement, these elements over the next 20 to 25 years. Although most CVFPP projects are not well-defined and would be implemented substantially later than the Proposed Action, it is important to consider the long-term aspects of the CVFPP in conjunction with the Proposed Action.

As part of the CVFPP, the Sacramento BWFS indicates that the following improvements to the Yolo Bypass flood control system could be made and therefore are considered as future projects: constructing a setback levee in the Lower Elkhorn Basin on the east side of the Upper Yolo Bypass and on the north side of the Sacramento Bypass (discussed separately in further detail below); widening the Fremont Weir and the Sacramento Weir; widening the Upper Yolo Bypass by constructing setback levees along the east side of the Bypass in the Upper Elkhorn Basin; constructing fix-in-place improvements to the existing levees in various locations along the west and east sides of the Upper Yolo Bypass; widening the Upper Yolo Bypass by constructing setback levees north of Willow Slough and north of Putah Creek on the west side of the Bypass; adding a tie-in to the Stockton Deep Water Ship Channel and channel closure gates; and constructing a floodwall on the west side of the Sacramento River at Rio Vista.

Additional actions contemplated under the Sacramento BWFS include the following: extending the life of the Cache Creek Settling Basin by expanding it to the north; degrading the step levees at the north end of Liberty Island; widening the Lower Yolo Bypass by

constructing a setback levee on the west side of the Bypass near the north end of Little Egbert Tract; degrading the existing levees along the Stockton Deep Water Ship Channel along the west side of Prospect Island; degrading the existing levees on the northern and southern ends of Little Egbert Tract; removing the Yolo Shortline Railroad tracks and crossing over the Yolo Bypass near the I-80 overcrossing; and raising and strengthening the levees along the entire west side of the Lower Yolo Bypass (DWR 2016).

4.1.1.8 Lower Elkhorn Basin Levee Setback Project

The project encompasses a portion of the Phase I implementation of Yolo Bypass System Improvements pursuant to DWR's Sacramento BWFS and therefore is focused on levees in the Lower Elkhorn Basin and the Sacramento Bypass. Consistent with the Sacramento BWFS, the project is intended to reduce flooding in the Lower Sacramento River Basin by increasing the capacity of the Yolo Bypass. This increased capacity would be accomplished by constructing a setback levee on the north side of the Sacramento Bypass as an early implementation action for the ARCF project and constructing a setback levee in the Lower Elkhorn Basin on the east side of the Yolo Bypass.

The Lower Elkhorn Basin Levee Setback project would also include implementing a project mitigation strategy designed to avoid, minimize, reduce, and mitigate impacts on sensitive habitats and special status species caused by the project, in a manner that optimally protects the natural environment, especially riparian habitat and stream channels suitable for native plants, wildlife habitat, agricultural lands, and public recreation. Construction of the Lower Elkhorn Basin Levee Setback project is planned for 2020 and 2021. Construction effects of this project have the potential to contribute to cumulative impacts with the Proposed Action.

4.1.1.9 Folsom Dam Safety and Flood Damage Reduction Project

The Folsom Dam Safety and Flood Damage Reduction Project, referred to as the Joint Federal Project, addressed the dam safety hydrologic risk at Folsom Dam and improved flood protection to the Sacramento area. Several activities associated with the project included: the Folsom Dam Auxiliary Spillway, static upgrades to Dike 4, Mormon Island Auxiliary Dam modifications, and seismic upgrades (piers and tendons) to the Main Concrete Dam. The project was completed in fall 2017.

4.1.1.10 Folsom Dam Water Control Manual Update

The Folsom Dam Water Control Manual (WCM) was updated on June 12, 2019 to reflect authorized changes to the flood management and dam safety operations at Folsom Dam to reduce flood risk in the Sacramento area. The WCM Update utilizes existing and authorized physical features of the dam and reservoir, specifically the recently completed auxiliary spillway. Along with evaluating operational changes to utilize the additional capabilities created by the auxiliary spillway, the WCM Update assessed the use of available technologies to enhance the flood risk management performance of Folsom

Dam to includes a refinement of the basin wetness parameters and the use of real time forecasting.

Further, the WCM Update evaluated options for the inclusion of creditable flood control transfer space in Folsom Reservoir in conjunction with Union Valley, Hell Hole, and French Meadows Reservoirs (also referred to as Variable Space Storage). The evaluation resulted in an Engineering Report as well as a Water Control Manual implementing the recommendations of the analysis.

4.1.1.11 Folsom Dam Raise

Construction of the Folsom Dam Raise project will follow completion of the Joint Federal Project and the WCM projects. The Dam Raise project includes raising the right- and left-wing dams, Mormon Island Auxiliary Dam, and Dikes 1–7 around Folsom Reservoir by 3.5 feet. The raising of Dike 8 was completed in 2020. The Dam Raise project also includes the three emergency spillway gates and three ecosystem restoration projects (automation of the temperature control shutters at Folsom Dam and restoration of the Bushy and Woodlake sites downstream). Similar to the ARCF Project, the Folsom Dam Raise Project was fully funded by the Bipartisan Budget Act of 2018. Construction activities began in 2019 included Dike 8 construction, followed by Dike 7 in 2022; Mormon Island Auxiliary Dam, the Left and Right wing of Folsom Dam, and Dikes 1–3 in 2021; and Dikes 4–6 in 2022. The ecosystem restoration projects are not scheduled at this time. Construction and construction traffic effects of this project have the potential to contribute to cumulative impacts with the Proposed Action.

4.1.1.12 SAC 5 Corridor Enhancement Project

Caltrans is constructing the SAC 5 Corridor Enhancement Project on Interstate 5 (I-5) from 1.1 miles south of Elk Grove Boulevard to the American River Viaduct. The project will rehabilitate pavement and other related assets, construct 23 miles of new High Occupancy Vehicle lanes, install new fiber optic lines, and extend the I-5 northbound #1 lane to improve merging. The project includes rehabilitating 67 lane miles of mainline and all ramps/connectors. The project also includes adding auxiliary lanes and extending acceleration and deceleration lanes. Project construction requires lane closures on I-5 and is expected to continue through December 2022. Construction and construction traffic effects of this project have the potential to contribute to cumulative impacts with the Proposed Action.

4.1.1.13 Bridge District Specific Plan

The Bridge District Specific Plan, formerly the Triangle Plan, was adopted in 1993 and significantly updated in 2009 (City of West Sacramento 2009). The intent of the Bridge District Specific Plan was to provide a framework for development of a well-planned, waterfront-oriented urban district for the City of West Sacramento, along the west bank of the Sacramento River. Several housing complexes have been built, as well as other riverfront recreational improvements, and the Barn, a local event space and beer garden

along the Sacramento River just south of Sutter Health Park (formerly known as Raley Field). Ongoing development includes additional housing units currently under construction. Construction, road construction, and construction traffic associated with the Bridge District have the potential to contribute to cumulative impacts with the Proposed Action.

4.1.1.14 Sacramento Railyards Project

The Railyards district is located just north of Downtown Sacramento and south of the River District and once served as the western terminus of the 1860s Transcontinental Railroad, with the largest locomotive repair and maintenance facility west of the Mississippi River. Today, the Railyards continue to house a major transportation hub and the City of Sacramento has proposed to redevelop the area into a mixed-use, transit-oriented development. The historic 244-acre Southern Pacific site would be transformed into a dynamic, urban environment featuring a state-of-the-art mass transit hub that would serve residents, workers, and visitors. In October 2016, the City Council approved a planning entitlement for the Sacramento Railyards. The project includes housing units, retail space, office space, a medical campus, hotels, parks, and a soccer stadium (City of Sacramento 2016). Construction, road construction, and construction traffic associated with the Railyards project have the potential to contribute to cumulative impacts with the Proposed Action.

4.1.1.15 Delta Shores Development Project

Delta Shores is an approximately 800-acre master planned development that includes an estimated 1.3 million square feet of constructed and operating retail space, an estimated 250,000 square feet of hotel and commercial uses, and an estimated 4,900 residential units. Most of the project site is located east of I-5 at Cosumnes River Boulevard, east of Freeport and north of the Sacramento Regional County Sanitation District Wastewater Treatment Plant Bufferlands. The Beach Lake Levee (operated and maintained by SAFCA) is adjacent to the Delta Shores southern boundary (east of I-5). Approximately 100 acres of the Delta Shores project site lies along the west side of I-5 and abuts the Sacramento River East Levee in the northwest corner and near the southwest corner. In this western portion of Delta Shores, medium- and high-density residential housing will be developed on the north side of Stonecrest Avenue. Adjacent to and north of the housing, and adjacent to Freeport Boulevard on the west side, a park will be developed. Medium- and low-density residential housing will be developed on the south side of Stonecrest Avenue.

Cosumnes River Boulevard was recently extended by approximately 3.5 miles (from the east side of State Route 99 to I-5), and a new I-5 interchange was constructed to provide regional connectivity for local residents and access to the future Delta Shores development (particularly the shopping center); the road and interchange improvements were completed in 2015. Construction on the shopping center began in 2016, and the complex opened in 2017. Construction, road construction, and construction traffic

associated with Delta Shores have the potential to contribute to cumulative impacts with the Proposed Action.

4.1.1.16 Caltrans SAC-51 American River Bridge Deck Replacement Project

Caltrans proposes to rehabilitate the American River Bridge along State Route (SR) 51/Business Intestate 80 in Sacramento County. The project would remove and replace the existing concrete deck, remove and replace the steel girder post-tensioning systems, modify the existing soundwall, install sheet piling around piers for scour mitigation, construct concrete catcher blocks, widen the bridge to accommodate traffic during construction, add a Class I bike/pedestrian path, and plan for future transportation needs on SR 51. The purpose of the project is to replace the deck on the American River Bridge on SR 51 in Sacramento County, prevent scour, and provide a multimodal connection between downtown and eastern Sacramento and plan for future transportation needs. The proposed work would repair, protect, and extend the service life of the deck.

Construction, road construction, and construction traffic associated with Caltrans SAC-51 project have the potential to contribute to cumulative impacts with the Proposed Action.

4.2 Cumulative Effects

4.2.1 Visual Resources

Cumulative impacts on visual resources are primarily related to other construction projects that could occur within the same visual viewscape as the Proposed Action Area at the same time and result in loss of visual quality both during construction and after construction. Construction of Alternative 2 approved of in the Record of Decision for the ARCF GRR FEIS/FEIR would result in a significant number of large trees and other vegetation removed along the Sacramento River and the American River. Other projects in the cumulative setting (see Section 4.1 in this chapter) have and could result in the removal of large trees and other vegetation. Implementation of the Proposed Action, when combined with other past, current, and future projects in the vicinity, would result in a significant cumulative impact on visual resources, primarily from removal of vegetation. Additionally, the long time period for replanted vegetation to reach a size similar to the vegetation removed as a result of construction would be considered a cumulatively significant effect on visual resources along the Sacramento and American Rivers.

As part of the Proposed Action, construction crews, equipment, and haul trucks would be visible to residents adjacent to local streets, and staging areas, and to residences adjacent to the work sites. In addition, construction would be visible to recreationists within the American River Parkway. However, construction would be temporary, and because construction would proceed along the levees in a linear fashion, the views of construction crews, equipment, and haul trucks would be of short duration, and other current projects in the cumulative setting would not be visible within the same viewshed as the Proposed Action. Additional nighttime lighting for the Proposed Action staging areas would be

short term and would add few sources of light to the current cumulative nighttime light in the urbanized areas adjacent to the staging areas. Further, nighttime light from the Proposed Action would be mitigated to reduce effects to minimal levels, as described in Chapter 3, Section 3.2, *Visual Resources*, and the Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative effects related to visual resources.

4.2.2 Hydrology and Water Quality

Most of the levee projects in the cumulative setting, including the Proposed Action, involve subsurface geotechnical work to repair levees in place and, consequently, there would be no effects on flooding. Some projects, such as the West Sacramento GRR and the SRBPP, include levee raises, flood walls, and bank protection. In addition, the West Sacramento GRR and Lower Elkhorn Basin Levee Setback Project include construction of new setback levees. The Proposed Action, in addition to other levee projects in the region, are designed to current Federal flood design criteria and include vegetation to help stabilize the banks and, thus, reduce the rate and amounts of surface run-off from the levee slope into waterways. The Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative effects related to flood system capacity.

Related projects, including the Sacramento River Bank Protection Project and the West Sacramento GRR, could be under construction during the same time frame as the Proposed Action. If construction occurs during the same time frame, water quality could be diminished, primarily due to increased turbidity from soil released during construction activities. Water quality could be affected in or adjacent to the Proposed Project area and upstream and downstream of the work area. Construction activities such as clearing and grubbing, grading, and rock placement, 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. All projects would be required to comply with the NPDES Construction General Permit requirements of the RWQCB and overall water quality would be required to meet the Basin Plan objectives. The Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative effects related to water quality.

4.2.3 Vegetation and Wildlife

The Proposed Action has the potential to contribute to the loss or degradation of sensitive habitats, including riparian woodland and scrub, waters of the United States, and waters of the State and forestland. Similar potential for adverse effects on habitats would be associated with the flood-risk reduction projects, including future ARCF contracts proposed along the Sacramento River and the American River, and removal of high-hazard vegetation by levee maintaining agencies in the Sacramento area and surrounding region. Such projects would generally continue to contribute to the loss or degradation of sensitive habitats and forestland. Most potential adverse effects of the Proposed Action

and the related levee projects would be associated with construction disturbances of habitats, but permanent loss of habitat would also result from some of the individual levee improvement projects and the development projects. Implementation of Mitigation Measures described in Section 3.4, *Vegetation and Wildlife*, would reduce or avoid the effects of the Proposed Action in accordance with the requirements of the Federal Endangered Species Act and California Fish and Game Code (including the California Endangered Species Act) and other regulatory programs that protect habitats, such as Clean Water Act (CWA) Sections 401 and 404. Although the Proposed Action's temporary impacts would be significant, the Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative effects related to the permanent loss or degradation of sensitive habitats or loss of forestland.

4.2.4 Fisheries

Project implementation has the potential to contribute to the loss or degradation of fish habitat, including near-shore aquatic SRA habitat. Similar potential for adverse effects on habitats would be associated with the flood-risk reduction projects, including future ARCF contracts proposed along the American River and Sacramento River, and construction of bank protection projects and removal of high-hazard vegetation by levee maintaining agencies in the Sacramento area and surrounding region. Such projects would generally continue to contribute to the loss or degradation of fish habitat, including SRA habitat, resulting in significant cumulative impacts. Potential adverse effects of the Proposed Action and the related levee projects would be associated with construction disturbances of aquatic habitats, but permanent loss of SRA habitat would also result from some of the individual levee improvement projects and the development projects. Implementation of Mitigation Measures described in Section 3.5, *Fisheries*, including water quality protection measures, and establishment of on-site and off-site SRA habitat creation, and would reduce or avoid the effects of the Proposed Action in accordance with the requirements of the Federal Endangered Species Act and California Fish and Game Code (including the California Endangered Species Act) and other regulatory programs that protect habitats, such as CWA Sections 401 and 404. Although the Proposed Action's temporary impacts would be significant, the Proposed Action would not result in a cumulatively considerable contribution to significant cumulative effects on the permanent loss or degradation of fish habitat.

4.2.5 Special Status Species

Project implementation has the potential to adversely affect special status species: Crotch bumble bee, valley elderberry longhorn beetle, western pond turtle, western yellow-billed cuckoo, bank swallow, Swainson's hawk, Cooper's hawk, burrowing owl, white-tailed kite, purple martin, heron- and egret rookeries, other nesting birds, and bats, American badger, Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, Central Valley fall-/late fall-run Chinook salmon, hardhead, western river lamprey, and Sanford's arrowhead. Similar potential for adverse effects on special status species and their habitats would be associated with the

flood-risk reduction projects, including future ARCF contracts proposed along the American River and Sacramento River, and removal of high-hazard vegetation by levee maintaining agencies in the Sacramento area and surrounding region. Such projects would generally continue to adversely affect special status species. Most potential adverse effects of the Proposed Action and nearby levee projects relate to plants, fish, and wildlife would be associated with construction disturbances of special status species and their habitats, but permanent loss of habitat would also result from some of the individual levee improvement projects and the development projects. These adverse effects could contribute to species declines and losses of habitat that have led to the need to protect these species under the Federal Endangered Species Act and the California Fish and Game Code (including the California Endangered Species Act). Implementation of Mitigation Measures described in Section 3.6, *Special Status Species*, would reduce or avoid the effects of the Proposed Action in accordance with the requirements of the Federal and California Endangered Species Acts, and other sections of the California Fish and Game Code. Therefore, the Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative adverse effects on special status species.

4.2.6 Cultural Resources

Implementation of the Proposed Action, other flood-risk reduction projects, including the ARCF GRR projects proposed along the American River and Sacramento River, and other projects considered in this cumulative analysis, have the potential to contribute to the loss or degradation of known and unrecorded archaeological resources, known prehistoric-period cultural landscapes, known and unknown human remains, and known and unknown historic-period archaeological resources.

Most potential effects of the Proposed Action and other related projects to cultural resources would be associated with construction disturbances of archaeological sites, prehistoric cultural landscapes, and human remains. These effects could contribute to the loss of intact cultural resources and human remains in the Sacramento region.

Implementation of the mitigation measures presented in Chapter 3, Section 3.7, *Cultural Resources*, would reduce or avoid the effects of the Proposed Action on known cultural and tribal cultural resources and on unknown archaeological resources, tribal cultural, and human remains that could potentially be discovered during project construction. As such, the Proposed Action would have a less than considerable contribution to cumulative effects on cultural resources.

4.2.7 Transportation

Most traffic effects related to the Proposed Action would occur along I-80, U.S. 50, and local roadways within the City and County of Sacramento, in the vicinity of the Proposed Action area. Other levee projects would occur at locations that are more distant from the Proposed Action. There are no known projects that would affect the local haul routes shown in Chapter 2, *Project Description*. Because potentially significant traffic effects

are only expected to occur for approximately six months during the project construction period, it is difficult to predict if other projects would have traffic volumes that would cumulatively affect traffic during these same time periods. If other projects substantially affect traffic during these peak construction periods, the potential cumulative effects would be significant on segments of I-80 and U.S. 50, and the Proposed Action would make a considerable contribution. Mitigation described in Section 3.8, *Transportation and Circulation*, includes a traffic control and road maintenance plan to reduce the Proposed Action's impact. This mitigation requires emergency service providers be notified in advance of road closures and detours and requires emergency access to be maintained. Because other major construction projects would also implement traffic control plans specifically designed to provide appropriate emergency access, the Proposed Action would not result in an incremental contribution to a significant cumulative effect related to emergency vehicle access or response times.

Bicycle and pedestrian paths affected by the Proposed Action would be in the vicinity of the construction activities and along potential haul routes within the American River Parkway and nearby neighborhoods. As part of mitigation measures, the Proposed Action would always provide signage and detours to maintain safe pedestrian and bicyclist access around the construction areas. In general, major construction projects concurrent with the Proposed Action would also implement traffic control plans specifically designed to provide continued safe routes for alternative modes of transportation during construction. Therefore, the Proposed Action would not result in an incremental contribution to a significant cumulative effect related to performance or safety of alternative modes of transportation.

4.2.8 Air Quality

Air quality is inherently a cumulative effect because existing air quality is a result of past and present projects. No single project would be sufficient in size, by itself, to result in nonattainment of the regional air quality standards.¹¹⁷ Several other construction projects (see list in Section 4.1.1, *Projects Contributing to Potential Cumulative Effects*) are expected to occur simultaneously in the Sacramento Valley Air Basin during the planned construction period for the Proposed Action. The related projects have the potential to generate construction-related emissions that individually exceed SMAQMD's threshold of significance. However, all construction projects in the SMAQMD, including the Proposed Action 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 Proposed Action is part of the larger ARCF project, which has been determined to meet the requirements of general conformity with the provisions of the Clean Air Act (CAA) through payment of fees to offset NOx emissions. As discussed in

¹¹⁷ SMAQMD. 2014 (as amended). *Guide to Air Quality Assessment in Sacramento County* (CEQA Guide). Available: <http://www.airquality.org/businesses/ceqa-land-use-planning/ceqa-guidance-tools>. Accessed March 26, 2020.

Section 3.9, *Air Quality*, the Proposed Action would result in a cumulatively considerable incremental contribution to a significant cumulative effect related to regional air quality, and this contribution would be mitigated through implementation of Mitigation Measures described in Section 3.9.

With respect to localized air pollutants such as CO, TACs, and odors, the Proposed Action and the related projects would generate these pollutants only during construction, and the construction activities for these projects would be temporary and short term. Some of the related projects may generate concentrations of these pollutants at levels that exceed applicable thresholds. However, the CEQA/NEPA documents for the related projects contain mitigation measures that must be implemented to reduce individual project emissions. As discussed in Section 3.9, the Proposed Action would not generate CO, TACs, or odors at levels that would represent a health hazard. Therefore, the proposed project would not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to generation of CO, TACs, or odors during construction.

4.2.9 Greenhouse Gas Emissions and Energy Consumption

Climate change as related to GHG emissions is inherently cumulative. Though significance thresholds can be developed by air districts and State and Federal regulatory agencies, these thresholds and their related goals are ultimately designed to affect change at a global level. Therefore, the analysis presented in Section 3.10, *Greenhouse Gas Emissions and Energy Consumption*, includes the analysis of both the project and cumulative effects. The Proposed Action and the related projects would result in the generation of GHGs, in proportion to the size of each individual project, amount and time of operation of construction equipment, and distances traveled. However, the Proposed Action and the related projects that would generate GHG emissions more than threshold levels would implement the mitigation measures identified in their respective CEQA/NEPA documents and adopted to reduce emissions and/or purchase carbon offsets. Furthermore, the Proposed Action would not exceed the Council on Environmental Quality's GHG threshold guidance levels and the Proposed Action would be consistent with Statewide climate change adaptation strategies. Therefore, the Proposed Action would not result in a considerable incremental contribution to a significant cumulative effect related to climate change or energy consumption.

4.2.10 Noise

None of the cumulative projects would be located in the immediate vicinity of the Proposed Action. A cumulative effect might occur if construction activities associated with any of the related project(s) were to occur within 500 feet of the Proposed Action's construction activities, and also, if the construction activities of other projects were to occur at the same time or overlap at some point during the construction activities of the Proposed Action. Furthermore, although any of the related cumulative projects could require construction that exceeds the respective local City or County noise ordinances,

the Proposed Action would limit noise-generating activities to the hours when the City of Sacramento exempts construction noise. Therefore, the Proposed Action would not result in a considerable incremental contribution to a significant cumulative effect related to construction equipment or traffic noise levels in excess of standards established in the local general plan or noise ordinance, in other applicable local, State, or Federal standards, or exceeding the ambient background.

4.2.11 Recreation

The Proposed Action, along with the related projects, may result in temporary closure of recreational facilities, potential damage to recreational facilities, and temporary diminishment of recreational experiences during construction. Implementation of Mitigation Measures described in Section 3.12, Recreation, would reduce the Proposed Action's effects to a less-than-significant level. Because of the temporary nature of the construction effects and the likelihood that any access restrictions or degradation of the quality of recreational experiences would last for approximately 3–7 months in any location, the Proposed Action's effects on local recreation are not anticipated to overlap with effects of other related cumulative projects. Consequently, cumulative effects related to recreation resources would be less than significant, and the Proposed Action would not result in a considerable incremental contribution to a significant cumulative effect related to short-term temporary changes in recreational opportunities during project construction activities.

4.2.12 Public Utilities and Service Systems

The Proposed Action, and future ARCF projects along the American River and Sacramento River, and all the other related cumulative projects, could temporarily disrupt utility service as a result of inadvertent damage to existing utility equipment, facilities, and infrastructure. However, any utility and service system effects would be geographically isolated, short in duration, and occur on a project-by-project basis. Thus, these disruptions would not combine to form cumulative effects. Therefore, the Proposed Action would not result in a considerable incremental contribution to a significant cumulative effect related to potential disruption of utility services.

Temporary construction activities associated with the Proposed Action and related projects in the Sacramento Region would generate organic and non-organic solid waste. Waste material that is not suitable for disposal on-site would likely be disposed of in Kiefer or the L and D Landfills. Both landfills currently provide solid waste disposal services to municipal and commercial customers and provide construction demolition and debris disposal in Sacramento County. Both landfills have sufficient permitted capacity to accommodate solid waste disposal needs for Sacramento County, including the disposal needs of the Proposed Action and the related cumulative projects. Therefore, the Proposed Action would not result in a considerable incremental contribution to a significant cumulative effect related to increases in solid waste generation.

4.2.13 Hazards and Hazardous Materials

Implementation of the Proposed Action and the related projects would include handling small quantities of hazardous materials used in construction equipment (e.g., fuels, oils, lubricants) and during construction activities. The storage, use, disposal, and transport of hazardous materials are extensively regulated by various Federal, State, and local agencies. Permits are required for the use, handling, and storage of these materials, and compliance with appropriate regulatory agency standards agencies is also required to avoid releases of hazardous waste. Construction companies that handle hazardous substances for the Proposed Action and all the related projects are required by law to implement and comply with these existing regulations. Furthermore, any effect that might occur would be localized to the area where the materials are being used and would not be additive to other hazardous materials-related effects associated with the Project Area. None of the materials would be acutely hazardous, and they would not be used in quantities that pose a hazard to schools within 0.25 mile of construction sites. Thus, the project would not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to the potential for accidental spills of materials used during construction activities or handling of hazardous materials within 0.25 mile of a school.

Project implementation could result in exposure to unknown hazardous materials sites during construction activities. It is unknown whether any of the related project sites contain existing hazards materials. However, Mitigation Measures identified in Section 3.14, *Hazards and Hazardous Materials*, would minimize potential exposure to unknown hazards and hazardous materials during implementation of the Proposed Action. Further, only future related ARCF GRR projects along the LAR are located in close proximity to the Project Area. Therefore, the Proposed Action would not result in a considerable incremental contribution to a significant cumulative effect related to existing hazardous materials.

Wildland fire represents a hazard particularly during the hot, dry summer and fall in the Central Valley. Most of the related projects, including future levee and development projects, would be implemented in urbanized areas, similar to the Proposed Action, with a relatively low risk of wildland fire, and the Proposed Action and related projects are not located in a high fire hazard severity zone. Therefore, there would be no significant cumulative impact related to wildland fire risk, and the Proposed Action would not result in a considerable incremental contribution to a significant cumulative effect related to wildland fire hazards.

4.3 Growth-Inducing Effects

Because the Proposed Action would not involve construction of housing, the action would not directly induce growth. Proposed Action-related construction activities would generate temporary and short-term employment, but the construction jobs would be filled from the existing local employment pool and would not indirectly result in a population increase or induce growth by creating permanent new jobs. Furthermore, the project

would not involve constructing businesses or extending roadways or other infrastructure that could indirectly induce population growth. Consequently, the Proposed Action would not induce growth leading to changes in land use patterns, population densities, or related impacts on environmental resources.

Levee improvements would benefit areas identified for future growth anticipated in the vicinity of the American River in the City of Sacramento and Sacramento County. Local land use decisions are within the jurisdiction of the City of Sacramento and Sacramento County, both of which have adopted general plans consistent with State law. The City of Sacramento 2035 General Plan¹¹⁸ and currently planned 2040 General Plan provide an overall framework for growth and development in the City. The City General Plan identified a few areas as “New Growth Areas” throughout the City boundaries and in “Special Study Areas.” The Sacramento County 2030 General Plan¹¹⁹ and current proposed amendments to the general plan provide a framework for development in the County, including areas identified for future growth that benefit from the levee system along the American River.

The levee improvements would increase the levee’s resistance to erosion, provide better overall levee stability and reliability, and provide additional flood protection for growth anticipated in the City’s and County’s General Plans. Growth throughout the Project Area has already been planned as part of the City’s and County’s General Plans. The Proposed Action would not allow additional growth to occur other than the growth that has already been planned and approved, nor would it change the locations where this growth is planned to occur. Consequently, implementation of the Proposed Action would not affect current and/or projected population growth patterns within the City of Sacramento as already evaluated and planned for in the City General Plan and, therefore, would not have an indirect effect on growth. The Proposed Action would mitigate flood risks by improving levees to meet engineering standards associated with the National Flood Insurance Program; it would not alter protection for the 100-year event nor does it transfer any such risk to other areas. The Proposed Action would not directly or indirectly support development in the base floodplain.

4.4 Irreversible and Irretrievable Commitment of Resources

The discussion of irreversible and irretrievable commitments of resources in the 2016 ARCF GRR FEIS/FEIR adequately describes the effects of the Proposed Action.

¹¹⁸ City of Sacramento. 2015. *2035 General Plan*. Adopted March 3, 2015.

¹¹⁹ Sacramento County. 2011. *2030 General Plan*. Adopted November 9, 2011, as amended.

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CHAPTER 5

Compliance with Federal and State Laws and Regulations

5.1 Federal Laws and Regulations

5.1.1 Clean Air Act of 1970

The Federal Clean Air Act (CAA) of 1970, as amended (42 USC 7401 et seq.) requires the U.S. Environmental Protection Agency (EPA) to establish national ambient air quality standards (NAAQS). EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, PM₁₀, PM_{2.5}, CO, NO₂, SO₂, and lead. The primary standards protect the public health and the secondary standards protect public welfare. The CAA also requires each state to prepare an air quality control plan, referred to as a State Implementation Plan.

An analysis of air quality effects of the Proposed Action is presented in Section 3.9, *Air Quality*. The Proposed Action is not expected to violate any Federal air quality standards. Although the NO_x emissions of the ARCF 16 project as a whole are expected to exceed the EPA's General Conformity *de minimis* thresholds during several of the ARCF 16 project's construction years, including 2022, and 2023, USACE expects to purchase offsets for NO_x emissions from SMAQMD. The CAA requires that EPA set emissions standards for a range of pollution sources. Specifically, EPA and the National Highway Traffic Safety Administration (NHTSA) regulate emissions from on-road vehicles include automobiles and light-duty trucks. In 2012, EPA and NHTSA established the Corporate Average Fuel Economy (CAFE) standards for automobiles and light-duty trucks for model years 2014 and beyond (77 *Federal Register* [FR] 62624). Under the original iteration of the CAFE standards, fuel economy would be raised to the equivalent of 54.6 miles per gallon by 2025 (77 FR 62630).

On April 2, 2018, EPA administrator announced a final determination that the current standards should be revised. On August 2, 2018, the U.S. Department of Transportation (DOT) and EPA proposed the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule), which would amend existing CAFE standards for passenger cars and light-duty trucks through retaining the current model year 2020 standards through model year 2026 and establish new standards covering model years 2021 through 2026 (NHTSA 2018).

The CAA grants California the ability to enact and enforce stricter fuel economy standards through the acquisition of an EPA-issued waiver. Each time California adopts a new vehicle emission standard, the State applies to EPA for a preemption waiver for

those standards. However, Part One of the SAFE Rule, which became effective on November 26, 2019, revokes California's existing waiver to establish a nation-wide standard (84 FR 51310). At the time of preparing this environmental document, the implications of the SAFE Rule on California's future emissions are contingent upon a variety of unknown factors.

5.1.2 Community Right-to-Know Act of 1986

The Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act, imposes requirements to ensure that hazardous materials are properly handled, used, stored, and disposed of and to prevent or mitigate injury to human health or the environment in the event that such materials are accidentally released. The Proposed Action would comply with this law.

5.1.3 Energy Policy and Conservation Act and Corporate Average Fuel Economy Standards

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to conserve oil. Pursuant to this Act, the National Highway Traffic Safety Administration (NHTSA), part of the U.S. Department of Transportation (DOT), is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Compliance with the CAFE standards is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the country. EPA calculates a CAFE value for each manufacturer based on the city and highway fuel economy test results and vehicle sales. The CAFE values are a weighted harmonic average of the EPA city and highway fuel economy test results. Based on information generated under the CAFE program, DOT is authorized to assess penalties for noncompliance. Under the Energy Independence and Security Act of 2007 (described below), the CAFE standards were revised for the first time in 30 years then later updated in 2012 and 2019. The Proposed Action would comply with this law.

5.1.4 Energy Policy Act of 1992 and 2005

The Energy Policy Act of 1992 (EPAct) was enacted to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain Federal, State, and local government and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPAct. Federal tax deductions are allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs. The Energy Policy Act of 2005 provides renewed and expanded tax credits

for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a Federal purchase requirement for renewable energy. The Proposed Action would comply with this law.

5.1.5 Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 is designed to improve vehicle fuel economy and help reduce U.S. dependence on oil. It represents a major step forward in expanding the production of renewable fuels, reducing dependence on oil, and confronting global climate change. The Energy Independence and Security Act of 2007 increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, which represents a nearly five-fold increase over current levels; and reduces U.S. demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020—an increase in fuel economy standards of 40 percent.

By addressing renewable fuels and the CAFE standards, the Energy Independence and Security Act of 2007 builds upon progress made by the Energy Policy Act of 2005 in setting out a comprehensive national energy strategy for the 21st century; however, on April 2, 2018, EPA administrator announced a final determination that the current standards should be revised. On August 2, 2018, DOT and EPA proposed the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule), which would amend existing CAFE standards for passenger cars and light-duty trucks through retaining the current model year 2020 standards through model year 2026 and establish new standards covering model years 2021 through 2026 (NHTSA 2018).

The CAA grants California the ability to enact and enforce stricter fuel economy standards through the acquisition of an EPA-issued waiver. Each time California adopts a new vehicle emission standard, the State applies to EPA for a preemption waiver for those standards. However, Part One of the SAFE Rule, which became effective on November 26, 2019, revokes California's existing waiver to establish a nation-wide standard (84 FR 51310). At the time of preparing this environmental document, the implications of the SAFE Rule on California's future emissions are contingent upon a variety of unknown factors. The Proposed Action would comply with this law.

5.1.6 Hazardous Materials Transportation Act

The Secretary of the U.S. Department of Transportation (DOT) receives the authority to regulate the transportation of hazardous materials from the Hazardous Materials Transportation Act, as amended and codified in 49 USC 5101 et seq. DOT, in conjunction with the USEPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to safe storage and transportation of hazardous materials. 49 CFR Sections 171 through 180, regulate the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous

materials. Contractors would be required to comply with the Act for all storage and transportation of hazardous materials and wastes to reduce the possibility of inadvertent releases and spills. The Proposed Action would comply with this law.

5.1.7 Resources Conservation and Recovery Act (RCRA) of 1976

The Resource Conservation and Recovery Act (42 USC § 6901 et seq.) was adopted in 1976 and codified in 40 CFR Part 260. RCRA Subtitle C regulates the generation, transportation, treatment, storage and disposal of hazardous waste by “large-quantity generators” (1,000 kilograms per month or more) as well as “small quantity generators” (under 1,000 kilograms) through comprehensive life cycle or “cradle to grave” tracking requirements. The requirements include maintaining inspection logs of hazardous waste storage locations, records of quantities being generated and stored, and manifests of pick-ups and deliveries to licensed treatment/storage/disposal facilities. RCRA also identifies standards for treatment, storage, and disposal. Contractors would be required to comply with RCRA hazardous waste requirements to reduce the possibility of inadvertent releases and spills. The Proposed Action would comply with this law.

5.1.8 Occupational Safety and Health Administration (OSHA) of 1970

OSHA is the Federal agency responsible for ensuring worker safety. The Occupational Safety and Health Act of 1970 (29 USC 15) and its implementing regulations provide standards for safe workplaces and work practices, including those relating to hazardous materials handling. All workers during construction would comply with OSHA’s hazardous materials management and handling requirements including such measures as having all appropriate personal protective equipment (PPE) to reduce the possibility of acute or chronic exposure hazards and protect worker safety. The Proposed Action would comply with this law.

5.1.9 Endangered Species Act of 1973

Pursuant to the Endangered Species Act (ESA), as amended (16 USC 1531 et seq.), USFWS and NMFS have regulatory authority over Federally listed species. Under the ESA, a permit to take a listed species is required for any Federal action that may harm an individual of that species. “Take” is defined under ESA Section 9 as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Under Federal regulation, take is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. ESA Section 7 outlines procedures for Federal interagency cooperation to conserve Federally listed species and designated critical habitat. Section 7(a)(2) requires Federal agencies to consult with USFWS and NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to

jeopardize the continued existence of listed species. A list of threatened and endangered species that may be affected by the Proposed Action was obtained from USFWS in 2019 (Appendix B). USACE formally consulted with USFWS on the ARCF Project and received a Biological Opinion (BO) on September 11, 2015 (08ESMF00-2014-F-0518). USACE conducted reinitiations for this BO with USFWS in June 2017, May 2019, and September 2020. The Proposed Action is an element of the ARCF Project. USACE formally consulted with NMFS on the ARCF Project and received a Biological Opinion on September 9, 2015. USACE is required to reinitiate formal consultation with USFWS and/or NMFS if effects on listed species would vary from what was provided at the time of formal consultation. USACE continues to update USFWS and NMFS on impacts and mitigation for covered species associated with implementing ARCF Project actions, and USACE would reinitiate consultation with USFWS and/or NMFS if completed design documents and specifications for associated ARCF projects provide more detailed data concerning anticipated adverse effects on listed species. Consultation with USFWS and NMFS was ongoing at the time of publication of this document. The Proposed Action would comply with this law.

5.1.10 Executive Order 11988, Floodplain Management

Executive Order (EO) 11988 directs all Federal agencies approving or implementing a project to avoid, to the extent possible, the long- and short-term adverse effects associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. Guidelines for implementing the EO include an eight-step process that agencies should carry out as part of their decision-making on projects that have potential effects on or within the floodplain. The decision-making process required in Section 2(a) of EO 11988 is reflected in the eight steps that are listed below, along with information showing how each step is being addressed for the Proposed Action. The Proposed Action would comply with this law.

1. Determine if a proposed action is in the base floodplain (that area which has a 1 percent or greater chance of flooding in any given year (i.e., the 100-year floodplain). The project includes levee improvements, some of which form the boundary of the base (FEMA's 100-year) floodplain.
2. Conduct early public review, including public notice. Public review is being accomplished through the NEPA Supplemental EA and the CEQA Supplemental EIR process; SAFCA previously conducted extensive public outreach for an earlier iteration of the project prior to authorization by Congress.
3. Identify and evaluate practicable alternatives to locating in the base floodplain, including alternative sites outside of the floodplain. Alternatives to the Proposed Action are discussed in Chapter 2, *Alternatives*.
4. Identify effects of the proposed action. This Supplemental EIS/EIR analyzes the environmental effects potentially resulting from the project, per NEPA requirements.

Effects of the Proposed Action are described in Chapter 3, *Affected Environment and Environmental Consequences*. Effects are also being evaluated in compliance with the CWA, and other Federal and State environmental regulations.

5. Minimize threats to life and property and restore and preserve natural and beneficial floodplain values. The Proposed Action would reduce flood risk to life and property by ensuring the American River Levees at Sites 2-2 and 2-3 meet the engineering standards associated with the National Flood Insurance Program (NFIP). The project includes mitigation to maintain or improve habitat values along the American River Levees at Sites 2-2 and 2-3.
6. Reevaluate alternatives. USACE is conducting an extensive engineering review of SAFCA's initial designs for improvements to address through-and under-seepage hazards on the American River Levees at Sites 2-2 and 2-3. The Proposed Action includes those portions of SAFCA's initial design which were initially reviewed and approved, in addition to several modifications that were developed because of USACE's reevaluation of the alternatives. The alternatives are also evaluated and may be refined through consultation with the resource agencies for compliance with CWA, and other project authorizations.
7. Present the findings and a public explanation. As part of the NEPA and CEQA process, the public would be able to review and comment on this Supplemental EIS/EIR.
8. Implement the action. USACE intends to implement the Proposed Action in 2020, assuming receipt of all necessary approvals, clearances, permits, and permissions.
9. The project would mitigate flood risks by improving levees to meet engineering standards associated with the NFIP; it would not alter protection for the 100-year event, nor does it transfer any such risk to other areas. Because the project would not directly or indirectly support development in the base floodplain, it would comply with EO 11988.

5.1.11 Executive Order 11990, Protection of Wetlands

The purpose of EO 11990 is to “minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.” To meet these objectives, EO 11990 requires Federal agencies, in planning their actions, to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. EO 11990 applies to:

- acquisition, management, and disposition of Federal lands and facilities construction;
- improvement projects which are undertaken, financed, or assisted by Federal agencies; and
- Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities.

- As discussed in Section 3.4, *Vegetation and Wildlife*, forested wetlands are located within the footprint of the Proposed Action and will be impacted during construction activities. However, impacts to forested wetlands will be minimized to the greatest extent feasible. Where feasible, forested wetlands will be restored onsite and additional forested wetlands will be created within the American River and other offsite locations to ensure no net loss of wetlands as a result of implementation of the Proposed Action.

The Proposed Action would comply with this law.

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

The purpose of EO 12898 is to identify and address the disproportionate placement of adverse environmental, economic, social, or health effects from Federal actions and policies on minority and/or low-income communities. EO 12898 requires that adverse effects on minority or low-income populations be taken into account during preparation of environmental and socioeconomic analyses of projects or programs that are proposed, funded, or licensed by Federal agencies. Section 2-2 of EO 12898 requires all Federal agencies to conduct programs, policies, and activities that substantially affect human health or the environment in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons the benefits of, or subjecting persons to discrimination because of their race, color or national origin. Section 1-101 of EO 12898 requires Federal agencies to identify and address, as appropriate, disproportionately high, and adverse human health or environmental effects of programs on minority and low-income populations.

The Proposed Action would reduce the risk of flooding to existing residential, commercial, and industrial development protected by the American River Levees at Sites 2-2 and 2-3. This benefit would accrue to all segments of the population in the Project Area and would have no disproportionately high adverse environmental effect on any minority or low-income population. The Proposed Action would comply with this law.

5.1.13 Executive Order 13112, Invasive Species

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 invasive species cause. EO 13112 also calls for the restoration of native plants and tree species.

Project construction activities have potential to introduce new invasive plants or spread existing invasive plants on the project site, but temporarily disturbed areas would be hydroseeded with a native seed mix for erosion protection and to prevent colonization of

exotic vegetation and mitigation measures would include planting of native riparian species. Additional information is provided in Section 3.4, *Vegetation and Wildlife*. The Proposed Action would comply with this law.

5.1.14 Farmland Protection Policy Act

The Farmland Protection Policy Act (7 USC 4201 et seq.) is intended to minimize the effect of Federal programs with respect to the conversion of farmland to nonagricultural uses. It ensures that, to the extent possible, Federal programs are administered to be compatible with State, local, and private programs and policies to protect farmland. The Natural Resources Conservation Service is the agency primarily responsible for implementing the Farmland Protection Policy Act.

There are no prime farmlands in the levee improvement area.

5.1.15 Clean Water Act

EPA is the lead Federal agency responsible for water quality management. The CWA of 1972, as amended (33 USC 1251 et seq.), is the primary Federal law that governs and authorizes water quality control activities by EPA, as well as the State.

The Proposed Action would involve the placement of fill materials or construction within surface waters, local waterways, or any other Waters of the United States and, therefore, would comply with permit requirements of Sections 401 and 404 of the Clean Water Act. USACE prepared a Section 404(b)(1) Evaluation (**Appendix H**). At the time of publication of this document, USACE was preparing an application for a Water Quality Certification to the Central Valley Regional Water Quality Control Board. Prior to construction, the contractor will be required to obtain a NPDES permit for potential effects on stormwater discharge, including preparation of a SWPPP. With the implementation of these permits, the Proposed Action would be in compliance with the Clean Water Act.

5.1.16 Fish and Wildlife Coordination Act of 1958

The Fish and Wildlife Coordination Act of 1958, as amended (16 USC 661 et seq.), ensures that fish and wildlife receive consideration equal to that of other project features for projects that are constructed, licensed, or permitted by Federal agencies. It requires that the views of USFWS, NMFS, and the applicable State fish and wildlife agency (CDFW) be considered when effects are evaluated and mitigation needs are determined.

In 2015, during preparation of the ARCF GRR FEIS/FEIR, USACE coordinated with USFWS to consider potential effects on vegetation and wildlife from implementation of the overall ARCF 2016 project. On October 5, 2015, USFWS issued a final Coordination Act Report that provided mitigation recommendations (USFWS File # 08ESMF00-20 13-CPA-0020). USACE considered all recommendations and responded to them in the final ARCF GRR FEIS/FEIR. Reinitiation of the BA was conducted in 2020. The Proposed Action would therefore comply with this act.

5.1.17 Magnuson-Stevens Fishery Conservation and Management Act

The Proposed Action would involve in-water work, and implementing standard water quality protection measures, stormwater pollution prevention BMPs, and mitigation measures for monitoring and control of turbidity would avoid indirect effects on essential fish habitat. The Proposed Action would therefore be in compliance with this act.

5.1.18 Migratory Bird Treaty Act of 1936

The Migratory Bird Treaty Act (MBTA) of 1936, as amended (16 USC 703 et seq.), implements domestically a series of international treaties that provide for migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds; the act provides that 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 ...” (16 USC 703). This prohibition includes both direct and indirect acts, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs. The current list of species protected by the MBTA includes several hundred species and essentially includes all native birds. Permits for take of nongame migratory birds can be issued only for specific activities, such as scientific collecting, rehabilitation, propagation, education, taxidermy, and protection of human health and safety and personal property.

The Proposed Action incorporates mitigation measures that minimize the potential for the take of migratory birds as a consequence of project construction, as discussed in Section 3.4, *Vegetation and Wildlife*. The Proposed Action would comply with this law.

5.1.19 National Flood Insurance Program

The National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 were intended to reduce the need for large, publicly funded flood control structures and disaster relief by restricting development on floodplains. The Federal Emergency Management Agency (FEMA) manages the National Flood Insurance Program (NFIP) to subsidize flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA issues Flood Insurance Rate Maps for communities participating in the NFIP. These maps delineate flood hazard zones in the community. The maps are designed for flood insurance purposes only and do not necessarily show all areas subject to flooding. The maps designate lands likely to be inundated during a 1 percent (100-year) storm event and elevations of the base flood. They also depict areas between the limits affected by 1 percent (100-year) and 0.2 percent (500-year) events and areas of minimal flooding. Flood Insurance Rate Maps are often used to establish building pad elevations to protect new development from flooding effects.

The Proposed Action would bring the American River South Basin and American River North Basin to Annual Exceedance Probabilities of 1 in 147 and 1 in 256, respectively. The Proposed Action would comply with this law.

5.1.20 National Historic Preservation Act of 1966

The NHPA (54 U.S.C. 300101 *et seq.*) is the primary Federal legislation specific to cultural resources. Section 106 of the NHPA and its implementing regulations (36 CFR Part 800) require Federal agencies to consider the potential effects of their proposed undertakings on historic properties. Historic properties are cultural resources that are included in, or are eligible for inclusion in, the NRHP (36 CFR § 800.16[1]). Undertakings include activities directly carried out, funded, or permitted by Federal agencies. Federal agencies must also allow the Advisory Council on Historic Preservation the opportunity to comment on proposed undertakings and their potential effects on historic properties.

Because the ARCF 2016 Project is being implemented in phases, and because implementation of phases of the ARCF 2016 Project may have an effect on historic properties, USACE consulted with the SHPO and other parties and executed a PA to govern Section 106 compliance. The PA establishes the process USACE would follow for compliance with Section 106, taking into consideration the views of the signatory and concurring parties and interested Native American Tribes.

The Proposed Action incorporates treatment measures in consideration of cultural resources listed on or eligible for listing on the NRHP, as discussed in Section 3.7, *Cultural Resources*. Determinations of the specific mitigation measures to be implemented to reduce impacts on known Historic Properties would be made by USACE, in consultation with SHPO and other PA Parties, as required by the PA and as described in detail in the HPMP for the ARCF Project. Specific mitigation measures that are consistent with the PA and the HPMP are also identified in Section 3.7 to address potential impacts on unknown cultural resources that could be discovered during construction.

In accordance with the PA and HPMP procedures, USACE has consulted with Native Americans who attach religious or cultural significance to historic properties that may be affected by the proposed undertaking, i.e., Proposed Action. A detailed description of consultation with Native Americans is provided under *Native American Consultation* in Section 3.7. In accordance with the PA, USACE will consult with the SHPO, requesting concurrence on the delineation of the APE, on the adequacy of inventory methods, and on the findings of cultural resources investigations. Through implementation of the actions specified in the PA, the Proposed Action complies with Section 106 of the NHPA.

5.1.21 Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970

Federal, State, regional, and local government agencies, and others receiving Federal financial assistance for public programs and projects that require the acquisition of real property, must comply with the policies and provisions set forth in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended in 1987 (42 USC 4601 *et seq.*), and its implementing regulation, 49 CFR Part 24.

Relocation advisory services, moving costs reimbursement, replacement housing, and reimbursement for related expenses and rights of appeal are provided in the Uniform Act.

All or portions of some uninhabited parcels within the project footprint would need to be acquired for easement for project construction. All property acquisition would be made in compliance with the Uniform Act. The Proposed Action would comply with this law.

5.1.22 Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act (16 USC 1217 et seq.) was enacted to preserve selected rivers or sections of rivers in their free-flowing condition to protect the quality of river waters and to fulfill other national conservation purposes. The Lower American River, below Nimbus Dam, has been included in the Federal Wild and Scenic Rivers system since 1981. The ARCF project is consistent with the land use management, flood risk reduction, and levee protection policies of the American River Parkway Plan, the management plan for the Wild and Scenic Rivers Act. These policies require that flood management agencies maintain and improve the existing flood control system, and manage vegetation in the Parkway to maintain the structural integrity and conveyance capacity of the flood control system, consistent with the need to provide a high level of flood risk reduction.

USACE will ensure that the Proposed Action complies with the Wild and Scenic Rivers Act by coordinating with the National Park Service to determine whether the Proposed Action would result in a direct and adverse effect on the Lower American River's free-flowing nature, water quality, anadromous fish Outstandingly Remarkable Value, or recreational Outstandingly Remarkable Value.

5.2 State Laws, Regulations, and Policies

5.2.1 Assembly Bill 1007: State Alternative Fuels Plan

Assembly Bill (AB) 1007 (Chapter 371, Statutes of 2005) required the California Energy Commission (CEC) to prepare a State plan to increase the use of alternative fuels in California. CEC prepared the State Alternative Fuels Plan in partnership with CARB and in consultation with other State, Federal, and local agencies. The plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes the costs to California and maximizes the economic benefits of in-state production. The plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuel use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation to public health and environmental quality. The Proposed Action would comply with this law.

5.2.2 Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to AB 2076 (Chapter 936, Statutes of 2000), CEC and the California Air Resources Board (CARB) prepared and adopted a joint agency report in 2003, *Reducing California's Petroleum Dependence*. Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita VMT (CEC and CARB 2003). Further, in response to CEC's 2003 and 2005 *Integrated Energy Policy Reports*, Governor Davis directed CEC to take the lead in developing a long-term plan to increase alternative fuel use.

A performance-based goal of AB 2076 was to reduce petroleum demand to 15 percent below 2003 demand by 2030. The Proposed Action would comply with this law.

5.2.3 California Clean Air Act of 1988

Section 3.9 of this document discusses the effects of the Proposed Action on local and regional air quality. CARB is responsible for the development, implementation, and enforcement of California's motor vehicle pollution control program, GHG statewide emissions and goals, and development and enforcement of GHG emission reduction rules. Section 202(a) of the California Clean Air Act requires projects to determine whether emission sources and emission levels significantly affect air quality, based on Federal standards established by EPA and State standards set by CARB.

SMAQMD has local jurisdiction over the Project Area. The analysis in Section 3.9 shows that expected short-term project-related emissions would exceed local thresholds administered by SMAQMD, but would not exceed annual general conformity thresholds. Additionally, SMAQMD recommends that a lead CEQA agency consider a GHG emissions threshold of 1,100 metric tons/year; the Proposed Action would exceed this GHG emissions threshold. Additional BMPs would be incorporated to reduce GHG emissions during construction, to the maximum extent feasible.

In December 2018, the California Supreme Court issued its decision in *Sierra Club v. County of Fresno* (226 Cal.App.4th 704), also known as the "Friant Ranch decision," which requires a project's environmental documents to include a clear analysis of potential long term air quality health impacts from the project's anticipated emissions of air pollutants.

The Proposed Action was analyzed using a health risk analysis (HRA) to identify whether there would be adverse health impacts from emissions during construction. The results of the HRA show that the Proposed Action would be in compliance with the California Clean Air Act and the court's Friant Ranch holding.

5.2.4 California Environmental Quality Act of 1970

The CVFPB, as the non-Federal sponsor and CEQA lead agency, would undertake activities to ensure compliance with CEQA. CEQA requires full disclosure of the environmental effects, potential mitigation, and environmental compliance of the project. Certification of the Final Supplemental EIS/EIR by the CVFPB, adoption and incorporation of all feasible mitigation measures into the Proposed Action, and monitoring and reporting on implementation of the adopted mitigation measures would provide full compliance with the requirements of CEQA.

5.2.5 California Environmental Protection Agency

The Secretary of the California Environmental Protection Agency (Cal EPA) is directly responsible for coordinating the administration of the Unified Program. The Secretary certifies Unified Program Agencies. The Secretary has certified 83 Certified Unified Program Agencies (CUPAs) to date. These 83 CUPAs carry out the responsibilities previously handled by approximately 1,300 State and local agencies. In January 1996, Cal EPA adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program). The program has six elements: hazardous waste generators and hazardous waste on-site treatment; underground storage tanks; aboveground storage tanks; hazardous materials release response plans and inventories; risk management and prevention programs; and Unified Fire Code hazardous materials management plans and inventories. The plan is implemented at the local level. The CUPA is the local agency that is responsible for the implementation of the Unified Program. The Proposed Action would comply with this law.

5.2.6 California Endangered Species Act

The California Endangered Species Act (CESA) requires non-Federal agencies to consider the potential adverse effects on State-listed species. As discussed in Section 3.6 of this document, with implementation of mitigation measures, activities associated with the Proposed Action are not anticipated to adversely affect any State-listed species, so no further action is required to achieve compliance with CESA.

5.2.7 California Fish and Game Code Sections 3503 and 3513

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nests of eggs of any bird. Section 3503.3 states that it is unlawful to take, possess, or destroy any raptors, including nests or eggs. With implementation of mitigation measures described in Section 3.6, activities associated with the proposed project are not anticipated to adversely affect nesting birds, raptors, or their eggs.

Section 3513 of the California Fish and Game Code states that it is unlawful to take or possess any migratory nongame bird, as designated in the Federal MBTA (16 USC 703

et seq.) before January 1, 2017; any additional migratory nongame bird designated in the MBTA after that date; or any part of a migratory nongame bird described in Fish and Game Code Section 3513, except as provided by rules and regulations adopted by the U.S. Secretary of the Interior under the MBTA, unless those rules or regulations are inconsistent with the Fish and Game Code. The Proposed Action would comply with this law.

5.2.8 California Health and Safety Code

Hazardous Waste Control Law; Hazardous Materials Transportation—CCR Title 22 and Hazardous Waste Control Law, Chapter 6.5

The California Department of Toxic Substances Control regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under the Resource Conservation and Recovery Act and the California Hazardous Waste Control Law. Both laws impose “cradle-to-grave” regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

Cal EPA has delegated some of its authority under the Hazardous Waste Control Law to county health departments and other CUPAs. The Office of the State Fire Marshal is responsible for ensuring implementation of the Hazardous Material Management Plans and the Hazardous Material Inventory Statement Programs. These programs tie in closely with the Hazardous Material Release Response Plan (Business Plan) Program. The Governor’s Office of Emergency Services is responsible for providing technical assistance and evaluation of the Business Plan Program and the California Accidental Release Response Plan Program. The Proposed Action would comply with this law.

California Human Health Screening Levels and California Land Environmental Restoration and Reuse Act of 2001

The California Human Health Screening Levels (CHHSLs) were developed as a tool to assist in the evaluation of contaminated sites for potential adverse threats to human health. Preparation of the CHHSLs was required by the California Land Environmental Restoration and Reuse Act of 2001 (SB 32) (Chapter 764, Statutes of 2001; OEHHA, 2010). The CHHSLs are concentrations of 54 hazardous chemicals in soil or soil gas that Cal EPA considers to be below thresholds of concern for risks to human health. The CHHSLs were developed by the Office of Environmental Health Hazard Assessment and are contained in its report entitled *Human-Exposure-Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil* (OEHHA and Cal EPA 2005). The thresholds of concern used to develop the CHHSLs are an excess lifetime cancer risk of 1 in 1 million and a hazard quotient of 1.0 for noncancer health effects. The CHHSLs were developed using standard exposure assumptions and chemical toxicity values published by EPA and Cal EPA. The CHHSLs can be used to screen sites for potential human health concerns where releases of hazardous chemicals to soils have occurred. Under most circumstances, the presence of a chemical in soil, soil gas, or indoor air at concentrations below the corresponding CHHSLs can be assumed to not

pose a significant health risk to people who may live (residential CHHSLs) or work (commercial/industrial CHHSLs) at the site. The Proposed Action would comply with this law.

Code of Federal Regulations Title 29 (OSHA) and California Code of Regulations Title 8 (Cal/OSHA)

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations in California. Because California has a Federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in CFR Title 29. Cal/OSHA standards are generally more stringent than Federal regulations. Cal/OSHA regulations (8 CCR) for the use of hazardous materials in the workplace require employee safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances, and communicating hazard information relating to hazardous substances and their handling. State laws, like Federal laws, include special provisions for hazard communication to employees in research laboratories, including training in chemical work practices. The Proposed Action would comply with this law.

5.2.9 Executive Order S-06-06

EO S-06-06, signed on April 25, 2006, establishes targets for the use and production of biofuels and biopower, and directs State agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The executive order establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels within California by 2010, 40 percent by 2020, and 75 percent by 2050. EO S-06-06 also calls for the State to meet a target for use of biomass electricity. The 2011 Bioenergy Action Plan identifies those barriers and recommends actions to address them so that the State can meet its clean energy, waste reduction, and climate protection goals. The 2012 Bioenergy Action Plan updates the 2011 plan and provides a more detailed action plan to achieve the following goals:

- Increase environmentally and economically sustainable energy production from organic waste.
- Encourage development of diverse bioenergy technologies that increase local electricity generation, combined heat and power facilities, renewable natural gas, and renewable liquid fuels for transportation and fuel cell applications.
- Create jobs and stimulate economic development, especially in rural regions of the state.
- Reduce fire danger, improve air and water quality, and reduce waste.

As of 2018, 2.35 percent of the total electricity system power in California was derived from biomass (CEC 2019). The Proposed Action would comply with this law.

5.2.10 Porter-Cologne Water Quality Control Act of 1970

The Porter-Cologne Water Quality Control Act requires each of the state's nine regional water quality control boards (RWQCBs) to prepare and periodically update basin plans for water quality control. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The jurisdiction of each RWQCB includes Federally protected waters as well as areas that meet the definition of "waters of the State," which are defined as any surface water or groundwater, including saline waters, within the State's boundaries.

With implementation of mitigation measures described in Section 3.4, the Proposed Action would have no effect on waters of the United States or waters of the State.

5.2.11 California Energy Action Plan

CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The current plan is the 2003 California Energy Action Plan (2008 update). The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs; and encouragement of urban design that reduces vehicle miles traveled (VMT) and accommodates pedestrian and bicycle access. The Proposed Action would comply with this law.

5.2.12 Integrated Energy Policy Report

SB 1389 (Chapter 568, Statutes of 2002) required CEC to: "conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety" (Public Resources Code Section 25301[a]). This work culminated in the Integrated Energy Policy Report (IEPR).

CEC adopts an IEPR every two years and an update every other year. The 2017 IEPR, the most recent IEPR, was adopted March 16, 2018. The 2017 IEPR summarizes priority energy issues currently facing California, outlining strategies and recommendations to

further the State's goal of ensuring reliable, affordable, and environmentally responsible energy sources. The report covers the following energy topics:

- Progress toward statewide renewable energy targets and issues facing future renewable development.
- Efforts to increase energy efficiency in existing and new buildings.
- Progress by utilities in achieving energy efficiency targets and potential.
- Improving coordination among the State's energy agencies.
- Streamlining power plant licensing processes.
- Results of preliminary forecasts of electricity, natural gas, and transportation fuel supply and demand.
- Future energy infrastructure needs.
- The need for research and development efforts to statewide energy policies.
- Issues facing California's nuclear power plants.

The Proposed Action would comply with this law.

5.2.13 Statewide Greenhouse Gas Emissions Targets and the Climate Change Scoping Plan

Reducing GHG emissions in California has been the focus of the State government for approximately two decades (State of California 2018). GHG emission targets established by the State Legislature include reducing statewide GHG emissions to 1990 levels by 2020 (Assembly Bill [AB] 32, 2006) and reducing them to 40 percent below 1990 levels by 2030 (Senate Bill [SB] 32, 2016). Executive Order S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. Executive Order B-55-18 calls for California to achieve carbon neutrality by 2045 and achieve and maintain net negative GHG emissions thereafter. These targets are in line with the scientifically established levels needed in the United States to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius (United Nations 2015:3).

California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), prepared by the California Air Resources Board (CARB), outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and "substantially advance toward our 2050 climate goals" (CARB 2017:1, 3, 5, 20, 25–26). It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming

potential, and recycling and waste). CARB and other State agencies are currently developing a Natural and Working Lands Climate Change Implementation Plan consistent with the carbon neutrality goal of EO B-55-18.

The State has also enacted more detailed legislation addressing GHG emissions associated with industrial sources, transportation, electricity generation, and energy consumption, as summarized below. The Proposed Action would comply with this law.

5.2.14 Warren-Alquist Act

The 1974 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission (CEC). This law was enacted in response to the State Legislature's review of studies projecting an increase in statewide energy demand, which would potentially encourage the development of power plants in environmentally sensitive areas. The act introduced State policy for siting power plants to reduce potential environmental impacts, and additionally sought to reduce demand for these facilities by directing CEC to develop statewide energy conservation measures to reduce wasteful, inefficient, and unnecessary uses of energy. Conservation measures recommended establishing design standards for energy conservation in buildings that ultimately resulted in the creation of the Title 24 Building Energy Efficiency Standards (California Energy Code), which have been updated regularly and remain in effect today. The act additionally directed CEC to cooperate with the Governor's Office of Planning and Research, the California Natural Resources Agency, and other interested parties in ensuring that a discussion of wasteful, inefficient, and unnecessary consumption of energy is included in all environmental impact reports required on local projects. The Proposed Action would comply with this law.

CHAPTER 6

Coordination and Review of the Draft Supplemental EIS/EIR

The Draft Supplemental EIS/EIR was circulated for 45 days (June 4, 2021 to July 19, 2021) to agencies, organizations, and the public, including, but not limited, to: NMFS, USFWS, NPS, SHPO, CVRWQCB, State Lands Commission, Sacramento County, and the City of Sacramento. Copies of the Draft Supplemental EIS/EIR are posted on the USACE and CVFPB websites and were made available for viewing at local public libraries (if open), or provided by mail upon request. This project was coordinated with all the appropriate Federal, State, and local governmental agencies including USFWS, SHPO, and DWR prior to the finalization of this document.

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CHAPTER 7

Report Preparers and Reviewers

This Supplemental EIS/EIR was prepared by Environmental Science Associates at the direction of the USACE Sacramento District and CVFPB, with assistance from SAFCA.

The following is a list of the individuals who prepared the Supplemental EIS/EIR, provided important background materials, or provided engineering clarifications for the project description.

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