## APPENDIX H WILD AND SCENIC RIVERS ACT COMPLIANCE

# 1. Collaboration and Coordination

# 1.1. Introduction

The American River Common Features, Water Resources Development Act 2016 Project (ARCF16 Project) has been, and continues to be, designed in collaboration with Federal, state, and local agencies that have jurisdiction by law or have expertise relevant to project designs. The Project Partners participate in relevant existing coordination and collaboration forums hosted by others. In these forums the Partners present developing designs and receive feedback on those designs. These forums include the Lower American River Task Force, the Lower American River and Sacramento River Technical and Resource Advisory Committees (TRAC), and the Lower American River Bank Protection Working Group. The Task Force and the Bank Protection Working Group are open to the public. The Partners also convene projectspecific interagency meetings and working groups to discuss the project and design development. The U.S. Army Corps of Engineers (USACE) hosts an agency Wild and Scenic Rivers Act (WSRA) Discussion Meeting (see Section 1.2 below). General public engagement meetings were also held as part of National Environmental Policy Act (NEPA), including public scoping meetings early in the NEPA process and public engagement meetings following release of the Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR).

# 1.2. WSRA Interagency Meetings

The first WSRA Discussion Meeting was held between USACE and the National Park Service (NPS) in May 2020. In 2021, these meetings expanded to include NPS, Sacramento County Regional Parks Department (Regional Parks), Sacramento Area Flood Control Agency (SAFCA), California Department of Water Resources (DWR), and USACE. In 2022, participation in these meetings was further expanded to include National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS). Table 1.1 provides a summary of agency participation by year. Table 1.2 shows participation by agency in each WSRA Discussion Meeting. The purpose of these meetings is to "coordinate and discuss designs, design changes and refinements. Identify any concerns early and collaboratively develop solutions." At times these meetings were convened monthly. At other times participants agreed to meet as needed when specific topics or designs were ready for review and discussion. In addition to the Discussion Meetings, USACE convened a Federal Agency Technical Meeting on June 5, 2024, among the Project Partners and key Federal regulating agencies (NMFS, NPS, USFWS) to present and discuss some of the engineering evaluations conducted in support of the Lower American River (LAR) project elements.

1

	Table 1-1. WSRA	A Interagency	Discussion	Meeting	<b>Participants</b>
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Agency	2021	2022	2023	2024
Federal Agencies				
National Marine Fisheries Service (NMFS)		Х	Х	Х
National Park Service (NPS)	Х	Х	Х	Х
U.S. Army Corps of Engineers (Federal Project Partner)	Х	Х	Х	Х
U.S. Fish and Wildlife Service (USFWS)		Х	Х	Х
State Agencies				
Central Valley Flood Protection Board (CVFPB) (State Project Partner)				х
California Department of Water Resources (DWR) (Staff to CVFPB)	x	x	х	х
Local Agencies				
Sacramento Area Flood Control Agency (SAFCA) (Local Project Partner)		x	х	х
Sacramento County Regional Parks Department (Regional Parks)		Х	Х	Х

# Table 1-2. Agency Participation in ARCF16 WSRA Discussion Meetings and the June 5,2024, Federal Agency Technical Meeting

Date	Federal NMFS	Federal NPS	Federal USFWS	State DWR <sup>1</sup>	Local SAFCA	Local Regional Parks
	Attended	Attended	Attended	Attended		Attended
December 2024	X <sup>2</sup>	Х	Х	Х	Х	Х
August 2024	Х	Х	Х	Х	Х	Х
June 2024	Х	Х	Х	Х	Х	NI <sup>3</sup>
January 2024	Invited	Х	Invited	Х	Х	Invited
December 2023	Х	Х	Invited	Х	Х	Х
October 2023	Х	Х	Invited	Х	Х	Х
August 2023	Х	Х	Invited	Х	Х	Х
June 2023	Х	Х	Х	Х	Х	Invited
February 2023	Invited	Х	Invited	Х	Х	Invited
January 2023	Х	Х	Invited	Х	Х	Invited
October 2022	Invited	Invited	Х	Х	Х	Invited
August 2022	Х	Х	Invited	Х	Х	Х
June 2022	Invited	Х	Invited	Invited	Х	Х
May 2022	Invited	Х	Invited	Х	Х	Х
April 2022	Invited	Х	Invited	Х	Х	Х
March 2022	Invited	Х	Invited	Х	Х	Invited
January 2022	Х	Х	Х	Х	Х	X
April 2021	NI	Х	NI	Х	Х	Х
February 2021	NI	Х	NI	Х	Х	Х

<sup>1</sup> DWR provided staff to support the CVFPB.  $^{2}X$  = attended.  $^{3}NI$  = not invited

# 1.3. How Collaboration has Shaped the Designs to Date

The LAR erosion protection improvements are being designed and implemented in stages (i.e., multiple construction contracts). To ensure that the design contracts are developed consistent with the requirements of the Federal and State WSRAs, Endangered Species Act, and other requirements, the design teams coordinated with NPS, Sacramento County Parks, NMFS, USFWS, and other regulatory agencies throughout the design process and when designs reached 10%, 35%, 65%, 95%, and 100% levels. This collaboration and coordination results in an iterative conversation between the USACE design teams and the other agencies – presentation of design, receipt of suggestions and other feedback from reviewing agencies, design adjustments and additional engineering analysis, followed by a new agency review of the refined design. **Table 1.3** highlights concerns raised by reviewing agencies and strategies adopted by the design teams to address the concerns.

Concern	Strategy
Habitat loss	Minimize erosion protection footprint
	<ul> <li>Replant habitat onsite - Revegetate with native species</li> </ul>
	Replant habitat offsite
	<ul> <li>Collaboration with NMFS to ensure design meets requirements for anadromous fish and fishery</li> </ul>
	<ul> <li>Establish planting benches with variable elevation to enhance fish habitat</li> </ul>
	<ul> <li>Include Instream Woody Material for aquatic habitat</li> </ul>
	<ul> <li>Select native plants for revegetation</li> </ul>
	<ul> <li>Select native plants to restore habitat and aesthetics (consistent with American River Parkway Plan)</li> </ul>
Recreation impacts	<ul> <li>Design user friendly pedestrian and bike detours</li> </ul>
	• Design consistent with American River Parkway Plan for recreation
	<ul> <li>Provide easier river access by in-filling exposed rock at the river's edge with gravel (i.e., "choke stone")</li> </ul>
Aesthetic impacts	Design buried erosion control features to minimize exposed rock
	<ul> <li>Cover rock with topsoil and revegetate with native species</li> </ul>
Tree removal	Use selective, minimal tree removal
	<ul> <li>Preserve most heritage oaks by adjusting the construction footprint</li> </ul>
	<ul> <li>Replant with native species</li> </ul>
Noise/Vibration Dust & Traffic impacts	Mitigate temporary construction impacts through various contractor controls and protocols

Table 1-3. Influence of conaboration on the Lower American River Design	Table	1-3. Influence	of collaboration	on the Lower	American	<b>River Desig</b>	ns
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### 1.3.1. LAR Contract 3B

Contract 3B's design footprint has changed substantially from earlier iterations. This is largely due to input received from the environmental and parks agencies at the 35% design milestone. The proposed 35% design footprint was significantly larger and more impactful to the parkway and river channel than is currently proposed. When the resource and parks agencies reviewed the 35% design, they strongly objected to the extent of the impacts which would be caused by the design. In response, the Project Partners convened a design charette and a series of intensive coordination efforts beginning in July 2021. The purpose of these engagements was to develop a design solution which addressed the resource and parks agencies' concerns. The result of this intense coordination and collaboration was a Contract 3B design that minimized both the design footprint and the impacts to Parkway resources to the greatest extent possible while also achieving the flood risk management objectives of the Project.

**Figure 1.1** below, provides a timeline of the Contract 3B design development process. This timeline shows the overall design development milestones and key coordination meetings. These meetings included the Bank Protection Working Group (BPWG) and TRAC, where the proposed design was presented and shared with key engineering, geological, ecological, and biological technical professionals for review, comment, and advise. Coordination with the resource and parks agencies was not limited to attendance at BPWG and TRAC meetings. Regular and recurring meetings separate from the BPWG and TRAC occurred with those agencies as detailed in Section 1.2.



Figure 1-1. Contract 3B Design Development and Coordination and Collaboration Timeline

### 1.3.2. LAR Contract 4A

The LAR Contract 4A Project Partners reached out and engaged key stakeholders including SAFCA, DWR, Regional Parks, USFWS, NMFS, and NPS early and often throughout the project. Key engagements are shown in **Table 4**. Not all communications and meetings involved in the coordination are shown in **Table 4**. Not all of those invited sent participants. Only those who participated in the meetings are shown in the table. Because no substantial changes to the design were made post 65%, the 95% design and 100% design review milestones are not shown.

Three Design Charettes were convened for LAR Contract 4A. Participants in the first Design Charette shared background information, developed the problem statement, and identified an initial array of repairs to address the problem. Following the first Design Charette, the initial array of repair options was screened, and additional analysis was completed on a select subset of the initial array. This included developing costs and identifying environmental, cultural resource, and hydraulic impacts. During the second Design Charette participants reviewed these results and selected the preferred repair for advancement to the 10% design. A third Design Charette focused on how to manage bike traffic during and after construction. During this Design Charette participants developed an initial array of bike detour alternatives and the Project Partners responded to suggestions and concerns raised by Regional Parks and the NPS.

The 10%, 35%, and 65% designs all included briefings to the TRAC. The briefings included describing any changes to the design made by the design team since the last design submittal along with an explanation for why the changes were made. After the briefings the design team requested comments from the TRAC for inclusion in updated designs for the next submittal.

The preferred repair was changed at 65% design due to complicated and numerous utility relocations and bridge modifications necessary to construct the originally preferred alternative and because the project footprint kept getting larger with increasing impacts (e.g. more elderberry shrubs needed to be transplanted than originally anticipated). The preferred alternative changed from buried rock protection with native grasses seeded on topsoil placed over the buried rock (10% to 35% design) to a berm placed upstream of the area needing protection to deflect flow away from the levee (65% to 100% design). The berm will also be covered with topsoil and seeded with native grasses based on feedback from DWR, SAFCA, Sacramento County Parks, and the NPS. The changed approach resulted from developing and considering another array of potential solutions that were developed closely with DWR, SAFCA, Sacramento County Parks, and the NPS. Costs and impacts were developed for these as well and shared with DWR, SAFCA, Sacramento County Parks, and the NPS before final selection of the berm alternative. The berm was designed to be as minimally invasive to the flowing water as possible to avoid unacceptable hydraulic impacts while also minimizing its erosion protection footprint. This is especially important as part of the wetland needs to be filled in to support the berm's construction and the team made every effort to minimize the footprint in the wetland area.

The selected berm alternative blocked the existing heavily used Jedediah Smith Memorial Bike Trail, requiring it to be permanently re-routed. The design team used the initial array of alternatives and other information gleaned from the third Design Charette to evaluate the cost and impacts of the bike trail realignment alternatives. The results of the analysis and a recommended alternative were shared with the Regional Parks and the NPS. The preferred plan was to permanently re-route the bike path south of an existing wetland along existing unsurfaced utility maintenance roads before following a new path roughly parallel with the Union Pacific Railroad property. This minimized impacts to existing wetlands and vegetation while being a cost-effective solution. Feedback during subsequent design reviews led to the design team modifying the path of the proposed bike path re-route to avoid as many trees as possible.

A design constraint became apparent during the 100% design reviews. This has required the design team to begin evaluating a potential bike trail detour redesign that would reroute the bike trail around the berm instead of into the floodplain. The design team met with County Parks and NPS on November 20, 2024, to discuss the potential redesign effort. A second meeting was held with Regional Parks, NPS, USFWS, and NMFS on December 4, 2024, to provide an update on the possible redesign.

# Table 1-4. Key Engagements for Selecting the Alternative to be Designed for LAR Contract 4A

Engagement	Date(s)	Participants
Design Charette 1 (Initial alternatives)	Sept 21 – 23, 2021	SAFCA, DWR, Regional Parks, USFWS, NMFS, USACE
Design Charette 2 (Alternative selection)	Nov 17 & 18, 2021	SAFCA, DWR, Regional Parks, USACE
10% Design Reviews	·	
10% PDT <sup>1</sup> Review	Feb 10 – Mar 7, 2022	USACE PDT Team
10% Design Management & Sponsor Briefing	Feb 18, 2022	DWR, SAFCA, SPK Section and Branch Chief's
10% Design DQC & Sponsor Review	Mar 10 – 18, 2022	USACE DQC Team, SAFCA, DWR
10% Design TRAC Briefing	Mar 16, 2022	SAFCA, DWR, NPS, Regional Parks, USACE
10% Design Risk Assessment	Mar 17 & 18, 2022	SAFCA, DWR, USACE Risk Cadre
Design Charette 3 (Bike path traffic management)	May 24 – 26, 2022	SAFCA, DWR, NPS, Regional Parks, USACE
35% Design Reviews		
35% PDT Review	Jun 13 – JUN 30, 2022	USACE PDT Team
35% DQC <sup>2</sup> Review	Jun 30 – JUL 15, 2022	USACE DQC Team
35% Design Risk Assessment	Aug 2 & 3, 2022	SAFCA, DWR, USACE Risk Cadre
35% Management Briefing	Aug 10, 2022	Sacramento District, USACE Section and Branch Chief's
35% NFS's <sup>3</sup> & TRAC Briefing	Aug 17, 2022	SAFCA, DWR, NPS, Regional Parks, USACE
LAR C4a Design Workshops	Aug 22 & 24, 2022	SAFCA, DWR, USACE
35% Design Sponsor Review	Oct 3 – 25, 2022	SAFCA, DWR, Technical Advisory Committee
65% Design Reviews		
65% Design Path Forward -SPK Management	Oct 12, 2022	Sacramento District, USACE Section and Branch Chief's
65% Design Path Forward – Sponsor	Oct 20, 2022	SAFCA, DWR, NPS, Regional Parks, USACE
65% Design Path Forward -SPK Management	Nov 14 & 17, 2022	SPK Section and Branch Chief's
65% Design Path Forward – Sponsor	Nov 23, 2022	SAFCA, DWR, NPS, Regional Parks, USACE
Site Baseline Risk Assessment Re- evaluation	Dec 6 – 8, 2022	SAFCA, DWR, USACE
65% Design Path Forward – Decision (PDT Meeting with NFS's and Site Visit)	Jan 25, 2023 & Feb 2, 2023	SAFCA, DWR, Regional Parks, USACE
Bike Trail Reevaluation		
Notification of design constraint and potential need to redesign the bike trail detours.	Nov 20, 2024	Design team, Regional Parks, NPS
Update on the potential redesign	Dec 4, 2024	Design team, Regional Parks, NPS, USFWS, NMFS

<sup>1</sup>PDT = Project Delivery Team <sup>2</sup>DQC = USACE District Quality Control <sup>3</sup>NFS = Non-Federal project cost-sharing partner

### 1.3.3. LAR Contract 4B

LAR Contract 4B includes two main evaluation and design efforts: 1) extension of tiebacks, which will be partially constructed under Contract 3B, and 2) remediation of lone tree scour risk identified on the north bank downstream of Watt Avenue and on the South bank upstream of Watt Avenue. For specifics on these two design elements please refer to the Engineering Appendix, **Appendix G**.

Contract 4B design development is in its infancy as its full scope is still being evaluated via additional hydraulic and geotechnical sensitivity analyses. Once the full scope of Contract 4B is defined by early 2025, Contract 4B will undergo the same thorough coordination and collaboration process utilized by earlier designs such as LAR Contracts 1 and 2 and outlined in the above **Table 1.3**. This coordination and collaboration process will be utilized as design alternatives are developed, as a preferred alternative (or alternatives) is selected, and as final designs are developed, refined, and finalized. Specifically, for Contract 4B it is anticipated this collaboration will mostly influence the designs required to mitigate the lone tree erosion risks identified within the Contract 4B footprint. The proposed tieback extensions included in Contract 4B will be minimally influenced by this collaboration process because the extensions are of tiebacks partially constructed as a part of Contract 3B which has already undergone through the coordination and collaboration process with the appropriate agencies. The 10% design milestone is anticipated in Summer 2025.

## 1.3.4. ARMS

As with other LAR components of the ARCF16 Project, the American River Mitigation Site (ARMS) designs are being developed in coordination with Regulators, the TRAC, and the American River BPWG. Designs are also shared and discussed in WSRA Discussion Meetings.

In April 2022, five design concepts were presented to the TRAC. Two concepts consisted primarily of terminal backwater channels, two consisted of flowthrough systems with side and backwater channels, and one design consisted of ring channels that created habitat islands. TRAC participants requested the Project Partners develop another design to retain a portion of the existing pond. The goal of this design would be to align with the design contained in the 2008 American River Parkway Plan and to focus on post-project recreation. Participants also recommended avoiding development of habitat islands due to public safety and enforcement concerns.

Using the feedback from the TRAC, USACE narrowed the number of concepts down to three for further development: one terminal backwater only concept, one backwater and flowthrough side channel concept, and a backwater/flowthrough concept with retention of 8-acres of the existing pond. All concepts included the construction of two inlets to the LAR main river channel and achieved the target compensatory mitigation acreages.

In August 2022, these three concepts were presented to USFWS and NMFS. Both agencies favored the flowthrough system for hydraulic performance and because it restored the entire area

8

of the pond to high habitat for Federally protected species, particularly salmonids. These concepts were then shared with Regional Parks; however, the agency declined to provide feedback because SAFCA was conducting site investigations to inform property acquisition, clean-up required, design development, and long-term property management/ownership.

Design development and coordination has continued through 2024 and will continue through 100% design development and review.

# 2. WSRA Guidance and Criteria

# 2.1. Introduction

This chapter discusses guidance and criteria used by NPS when conducting their consistency review under the WSRA as applied to the ARCF16 Project. The NPS administers the Federal WSRA-designated portion of the Lower American River. In this role they review proposed actions for consistency with the Federal WSRA. NPS will conduct their consistency review only once a design as reached at least 95%. Each contract within the ARCF16 LAR must receive a Consistency Determination from NPS before it can proceed to implementation. In conducting their consistency review, NPS is guided by the WSRA and supporting policy and guidance documents. In addition to the WSRA itself, NPS is guided in their review by Directors Order 46: Wild and Scenic Rivers (May 2, 2015), NPS Reference Manual 46: Wild and Scenic Rivers (April 12, 2021), the NPS 2006 Management Policies, and 47 Federal Register 39454-39461 (September 7, 1982), National Wild and Scenic Rivers System Final Revised Guidelines for Eligibility, Classification and Management of River Areas.

# 2.2. NPS Guidance and Best Management Practices

As part of coordination and early consultation, NPS provided a recommended template for the ARCF16 Project WSRA Consistency Analyses. This template includes tables of NPS-recommended best management practices (**Table 2.1**) and universal avoidance and minimization measures (**Table 2.2**). These practices and measures are consistent with the policy and guidance documents identified in Section 2.0. During design development for each of the LAR Contracts, these practices and measures are incorporated to the greatest extent feasible consistent with engineering standards and meeting the Congressionally authorized flood risk management objectives. Each draft or final Consistency Analysis includes tables in Section 3 together with the specific ways the contract design meets the requirement or provides an explanation for why the design is not able to meet the requirement. The design teams also follow a WSRA decision flow chart, which was presented in an NPS-recommended training course (**Figure 2.1**). This is discussed in Section 2.3 below.

#### Table 2-1. NPS Recommended Best Management Practices

#### Best Management Practices

Minimize the use and visibility of rock channel protection (RCP) and use only the minimum amount necessary to protect structures. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock.

If necessary, stone fill (riprap) may only be used for abutment scour protection; the use of stone fill to stabilize the riverbanks is prohibited. To stabilize the riverbanks, use approved native boulders, cobble and gravel; loam; vegetation; and bio- engineering techniques such that the banks, when fully restored, have an appearance and function similar to the natural riverbank.

Riparian areas must be restored to pre-disturbance conditions immediately after construction activities are completed.

Disturbed/exposed banks, staging and project access areas must be properly stabilized (seeded, mulched, or otherwise) with native vegetation to prevent erosion and establishment of invasive plant species. A non-persistent cover crop of annual rye or equivalent temporary seeding may be used to ensure a more rapid establishment of cover while native perennial plantings grow.

Bio-engineering methods must be used or, where deemed necessary by the [insert river managing agency/ contact], clean broken rock riprap of an adequate size specific for bank stabilization.

The use of demolition debris for slope armoring is not allowed.

Avoid unnecessary tree removal within the project work area.

A vegetation plan shall be in place to protect existing vegetation/trees from damage by construction equipment (*e.g.,* provide temporary barriers to protect existing trees, plants, root zone).

Disturbances of the riparian zone must be limited to the indicated access points; prior to the operation of heavy equipment (dozers, cranes, trucks), orange construction fencing must be erected to delineate the dripline of remaining trees to avoid compaction of tree roots.

The fastening of ropes, cables, or fencing to trees is prohibited.

To ensure bank stability, trees removed within fifteen feet of the top of the riverbank shall be cut flush to the ground; stumps and roots shall be left in place; indiscriminate bulldozing of riparian trees is prohibited.

All trees removed from the riparian corridor shall be replaced with a native tree of like species. Replace each mature tree removed (12-inch or greater diameter at breast height [DBH]) with [insert specifications, e.g., replant 3:1 ratio depending on expected survival rate and with trees that are a minimum 3- inches DBH]. Plant only local, native trees/shrubs/grasses, naturally occurring within the [insert river name] riparian zone [insert plant species list and/or to be determined in coordination with appropriate staff].

A qualified individual (arborists, foresters, or trained staff with similar experience) shall plant replacement trees at the appropriate time of year and in a random fashion to avoid a plantation effect. Cultivate and monitor planted tree seedlings/saplings for two years to ensure success; water plantings as necessary. Promptly replace planted stock showing signs of mortality.

Stakes and guide wires shall be properly removed and disposed of once seedlings are established.

Table 2-2. N	<b>IPS Recommende</b>	d Universal Avoidance	and Minimization Measures
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Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):
Levee Setbacks	Set back the levees wherever possible to allow the river to move.	Free-Flow
Bioengineering and native plantings throughout the banks and levees	Avoid riprap to the extent possible. Use bioengineering techniques including use of wood (e.g., log crib walls, tree revetments, root revetments; engineered log jams) and deformable techniques (e.g., fabric-encapsulated soil lifts (i.e., geolifts), rock bags, coir rolls (i.e., bio logs), erosion control blankets/fabrics).	Free-Flow, Anadromous Fish
Riprap at the bank toe	Riprap would only be placed at the bank toe of segments where the levee prism and associated planting berms (if included) are at the extent of the Parkway limits.	Free flow
Riprap at the bank toe	Ensure no hydraulic impacts from riprap.	Water quality
Riprap at the bank toe	Ensure no direct and adverse impacts to anadromous fish.	Anadromous Fish
Riprap at the bank toe	Minimize the use and visibility of rock channel protection (RCP) and use only the minimum amount necessary to protect structures. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock. If rock is needed utilize cobble to the extent possible.	In-water recreation
Riprap at the bank toe	Cover exposed riprap at the bank with soil and vegetation where cobble is not possible.	Aesthetics
Avoid and Minimize use of riprap on the bank above the toe to the Ordinary	Minimize the use and visibility of RCP. RCP should be avoided or minimized to the extent possible. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock. Cover any necessary riprap on the bank above the OHWM with planting benches containing	Anadromous Fish Recreation
(OHWM) and near	sufficient soil and capable of supporting riparian habitat.	Aesthetics
Minimize use of Riprap on the levee	Cover revetment on the slope with sufficient soil and native grasses or forbs, as woody vegetation may not be possible due to USACE vegetation on levees policies.	Anadromous Fish
siope		Aesthetics

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):
Removal of	Minimize vegetation removal to the maximum extent practicable.	Anadromous Fish
vegetation	Provide planting benches to reduce the affects for lost habitat on-site.	
	Riparian areas must be restored to pre-disturbance conditions immediately after construction activities are completed.	Aesthetics
	Provide restoration in the parkway when revegetation cannot be completely restored in the project footprint.	Water quality
	Re-vegetate all areas of the repair site above the waterline with native, ecotone appropriate, species. Design sites such that they are indistinguishable from the overall fabric of the Parkway.	
Closure of bike trail	The first priority is to detour the bike trail on the nearest dedicated trail. That is, the trail should not be shared with automobiles. If the bike trail segment being detoured is paved, the detour route should also be completely paved to include all transitions from permanent to temporary trails/detours. In an event due to where the trail cannot be routed near construction boundaries for safety concerns it should be detoured to surface streets with bicycle safety measures for a minimal amount time. Detours to surface streets should be considered the last option and review by all stakeholders. Provide information at both ends of the closure and on the web about the location and duration of the closure and provide a map of the detour. Minimize the extent of the closure. When feasible use flaggers instead of detours. Minimize the length of time the detours are needed. Detours will carry the same safety standards as a permanent trail and if detours go down to one bicycle lane, caution should be considered and the included use of flaggers with dismount zones in single lane areas. Any permanent re-routing of the bike trail should also include rerouting the equestrian trail. Re-routed trails should provide the same experience as the existing trail including the aesthetics. The new trail should be shaded with riparian vegetation.	Recreation
Closure of levee maintenance road	Detour the route, if normally used as a hiking, horse, or mountain bike trail. Provide information at both ends of the closure and on the web about the location and duration of the closure and provide a map of the detour. Plant vegetation to provide shading along this road once users return to the extent possible.	Recreation
General Impacts of Work in the Parkway	Reduce work limits to the maximum extent practicable. Close trails and other recreational features only when necessary for safety of the public. Advance notice of work shall be provided at the site of the closures and on the web.	Recreation
General Impacts of Work in the Parkway	Phase work appropriately such that sites do not remain incomplete for excessive periods of time (e.g., bank work completed but planting delayed for years, or tree clearance years ahead of the construction etc.)	Aesthetics

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):
Closure of boat ramp	Avoid closure of boat ramps to the maximum extent practicable. Phase work such that not more than one boat ramp is closed. Provide information at the closure and on the web about the location and duration of the closure and the nearest open boat ramp. Minimize closure time and keep it open when work is not being done on the weekends and in the evenings. Provide improvements to the boat launch once users can return to the site.	Recreation
Closure of river access points	Avoid closure of river access points to the maximum extent practicable. Phase work such that consecutive river access points are not closed for more than one consecutive mile on account of this project. Provide information at the closure(s) and on the web about the location and duration of the closure and the nearest open river access points. Minimize closure time and keep it open when work is not being done on the weekends and in the evenings. Provide improvements to the boat launch once users can return to the site.	Recreation
In water work	Abide by the National Pollution Discharge Elimination Systems (NPDES)requirements to ensure there is no adverse effect to water quality.	Water Quality
In water work	Abide by NMFS Biological Opinion to ensure there is no adverse effect to anadromous fish from water quality.	Anadromous Fish
In water work	Provide buoys or other demarcation for closed sections of the channel. The channel shall not be closed such that upstream or downstream navigation is precluded.	In-water recreation

## 2.3. Decision Flow Chart from the "Bank Stabilization on Wild and Scenic Rivers Solved" Short Course

Although not part of the formal criteria required to be followed by USACE's erosion design team, the flow chart shown in **Figure 2.1** was used as an additional tool during the development of LAR Contract 3B. The flow chart has not been formally implemented by NPS for bank stabilization efforts on designated Wild and Scenic Rivers but has been discussed and presented in NPS sponsored training seminars. The Figure 2.1 flow chart is anticipated to become formal guidance from the NPS in the near future. The analysis and application of the flow chart is provided purely as an academic exercise to demonstrate that Contract 3B's designs would comply with potential future Wild and Scenic River design criteria and shares similar logic on developing solutions based on local site conditions and constraints.



Figure 2-1. Decision matrix for selecting the most appropriate bank stabilization methods on Wild and Scenic Rivers

<u>Step 1: Are infrastructure or Outstandingly Remarkable Values (ORVs) at risk?</u> Yes. The project is being designed to protect critical flood protection infrastructure which reduces flood risk to over 440,000 people and over \$1 billion in infrastructure. Should the flood protection infrastructure fail, the life loss estimate is greater than 500 people.

<u>Step 2: Can off-site measures be taken to reduce erosion, or can at-risk infrastructure be</u> <u>relocated?</u> No. USACE evaluated the feasibility of relocating at-risk infrastructure (via levee setbacks) during the feasibility study phase of the ARCF16 Project. The encroachment of adjacent neighborhoods up to the landside toe of the levee make levee setbacks were infeasible due to the high cost of buying up and removing residential neighborhoods. During preliminary analyses of alternative site designs, the TRAC evaluated removal of the upstream berm to allow more flow to the north channel away from the design, however the effects of flow were negligible. Removal of the in-channel island were not evaluated, however, due to the expected high impacts to the parkway and environment.

<u>Step 3: Can vegetation mature sufficiently to provide stability before infrastructure or</u> <u>ORV's are threatened?</u> Unlikely. One of the potential erosion drivers at this site is due to channel scour locally steepening the channel bank causing bank instability and leading to undermining of both overbank vegetation and the levee embankment. Vegetation is not an effective countermeasure against this type of erosion as it occurs below summer water levels (where roots are not predominant). Failure of adjacent wellvegetated banks also demonstrates the inability of vegetation to resist erosion.

<u>Step 4: Are erosive forces expected to decline during the time needed for vegetation to occur?</u> No. The channel planform is generally laterally and vertically stable; meaning the river channel alignment as a whole is unlikely to migrate, or meander, from its current alignment, but that does not mean no erosion is anticipated. The primary driver for erosion is due to local erosion (general scour or localized bank scour/erosion) during high extreme events. Since the channel in planform is unlikely to significantly alter in the immediate future (i.e. migrate further away from the levee), the erosion hazard to the levees in extreme events is unlikely to decrease.

<u>Step 5: Are wood-based treatments viable?</u> No. Wood based treatments were discussed and were not preferred by the TRAC for use on the LAR. The TRAC preferred designs which would 1) limit footprint extents, and 2) provide long-term erosion protection and habitat benefits. The concern with wood-based treatments is that the planting benches could be lost over time as the wood-based treatments decay and become more susceptible to erosion. In addition, if wood-based treatments required future replacement to provide adequate erosion protection due to wood decay, the site would again be subjected to new impacts to replace the wood.

<u>Step 5a: Is the setting appropriate for flow deflection structures?</u> For Contracts 3B the answer is no. This approach was discussed by the TRAC during the initial screening of alternatives. The structures would likely induce erosion and habitat loss elsewhere in the Parkway and create impacts to hydraulic conveyance and increase risk of levee overtopping. For Contract 4A, a deflection berm is actually the proposed design. A

deflection berm was determined to be feasible at the Contract 4A location because the overall channel width (levee to levee) in that stretch of the LAR is significantly larger (~2,500-ft) compared to the Contract 3B locations (~900-ft). The wider channel width in the 4A area permits minor flow impacts in the vicinity of the berm to stay within acceptable thresholds.

Step 6: Treat Bank Toe with Appropriate Rock Treatment (and follow recommendations for mid and upper bank provided in slide 3B.) The proposed design places rock at the channel toe and extends rock to an elevation where erosion will no longer threaten the levee embankment or its foundation. Above the placed rock, existing vegetation is being protected in place to continue to provide erosion protection to the bench. The bank toe protection protects not only the levee, but also the existing vegetation on the overbank from erosion. The proposed design includes soil filling the placed rock along the riverbank, placing 12-inches above and revegetating the disturbed surface.

# 2.4. ARCF16 Project Adoption of BMPS

**Table 2.3** shows the NPS recommended best management practices and generally describes how the LAR elements of the ARCF16 Project address these practices. **Table 2.4** shows the NPS' Universal Avoidance and Minimization Measures and generally describes how the ARCF16 Project elements address them. **Attachments 1 through 4** are the USACE Consistency Analyses for each contract and ARMS. Each of the analyses include Tables that contain the same content as Tables 2.3 and 2.4, but which are tailored to the specific contract.

17

NPS Best Management Practice	Proposed Action
Minimize the use and visibility of rock channel protection (RCP) and use only the minimum amount necessary to protect structures. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock.	The minimum amount of RCP required to meet flood risk management objectives is proposed. Most RCP would be covered with soil and plantings or with choke stone to naturally accrete sediments.
If necessary, stone fill (riprap) may only be used for abutment scour protection; the use of stone fill to stabilize the riverbanks is prohibited. To stabilize the riverbanks, use approved native boulders, cobble and gravel; loam; vegetation; and bio- engineering techniques such that the banks, when fully restored, have an appearance and function similar to the natural riverbank.	Stone riprap would be placed below bridges, existing outfalls, and certain other infrastructure where required to ensure their stability during a large flood event Although these areas would not be planted they are currently mostly unvegetated. Therefore, the aesthetics of the area would not be further reduced. Stone riprap would be placed below the water surface at the time of construction. This water surface is assumed to be equivalent to the 2,660 cubic feet per second (cfs) water surface elevation. Buried stone riprap is also part of the buried launchable rock design.
Riparian areas must be restored to pre-disturbance conditions immediately after construction activities are completed.	Wherever feasible disturbed riparian areas would restored through appropriate plantings. Immediately following construction, the exposed soil would be hydroseeded with an appropriate native seed mix. Tree saplings and other companion plants would be planted as soon as practicable, but no later than one year following construction.
Disturbed/exposed banks, staging and project access areas must be properly stabilized (seeded, mulched, or otherwise) with native vegetation to prevent erosion and establishment of invasive plant species. A non-persistent cover crop of annual rye or equivalent temporary seeding may be used to ensure a more rapid establishment of cover while native perennial plantings grow.	Immediately following construction, the site would be hydroseeded with an appropriate native seed mix.
Bio-engineering methods must be used or, where deemed necessary by the [insert river managing agency/ contact], clean broken rock riprap of an adequate size specific for bank stabilization.	Bioengineering methods would not sufficiently reduce the flood risk to meet the project flood risk management objectives. Clean, broken riprap from an approved quarry would be used.
The use of demolition debris for slope armoring is not allowed.	No demolition debris would be used for slope protection.
Avoid unnecessary tree removal within the project work area.	Tree removal will be minimized to the extent feasible. Each tree within the project footprint is evaluated by the design team to determine if it can be preserved. Regulators and stakeholders participate in this process during meetings and site visits.

#### Table 2-3. Summary of Adherence to NPS Best Management Practices

NPS Best Management Practice	Proposed Action
A vegetation plan shall be in place to protect existing vegetation/trees from damage by construction equipment (e.g., provide temporary barriers to protect existing trees, plants, root zone).	Trees outside of the removal zones will be protected in place using orange construction fencing or chain-link fences. Trees with root zones extending into the construction area, and which could be damaged by grading activities, will be removed. Contract Specifications will incorporate requirements to protect trees including that an arborist be present for tree trimming or grading near roots; financial penalties for tree damage; and root protection matting.
Disturbances of the riparian zone must be limited to the indicated access points; prior to the operation of heavy equipment (dozers, cranes, trucks), orange construction fencing must be erected to delineate the dripline of remaining trees to avoid compaction of tree roots.	Orange construction fencing or chain link fences will be used to delineate the site boundaries. No work will occur outside the construction footprint or designated staging areas.
The fastening of ropes, cables, or fencing to trees is prohibited.	No ropes, cables, or fencing will be fastened to trees marked for retention.
To ensure bank stability, trees removed within fifteen feet of the top of the riverbank shall be cut flush to the ground; stumps and roots shall be left in place; indiscriminate bulldozing of riparian trees is prohibited.	Generally, tree removal would occur in two phases. In phase 1, trees would be cut 4 feet above the grade in the fall/winter prior to start of construction. In phase 2, the remaining root mass would be removed. At no point would indiscriminate bulldozing occur.
All trees removed from the riparian corridor shall be replaced with a native tree of like species. Replace each mature tree removed (12- inch or greater diameter at breast height [DBH]) with [insert specifications, e.g., replant 3:1 ratio depending on expected survival rate and with trees that are a minimum 3- inches DBH]. Plant only local, native trees/shrubs/grasses, naturally occurring within the [insert river name] riparian zone [insert plant species list and/or to be determined in coordination with appropriate staff].	Trees and vegetation will be removed from within project footprints. Trees and vegetation on the periphery of the project will be protected from construction activities. Riparian habitat acreage will be replaced by planting riparian trees and shrubs at a ratio of 2:1 (replacement habitat: affected habitat). Riparian habitat within 82 feet of elderberry shrubs, will be replaced at a ratio of 3:1. These two mitigation ratios were established during consultation with the USFWS and are specified in the Biological Opinion for the project. Compensatory mitigation planting will be accomplished on site to the extent possible with the remainder planted within the Parkway in mitigation areas that will be conserved in perpetuity. Overall, there will be greater than 3:1 native plant replacement. Only native plant species appropriate for the sites and approved by the County of Sacramento for planting in the Parkway, will be used. Three-inch DBH and larger trees of the appropriate species are not available locally in sufficient quantities and quality for the project. Therefore, smaller container plantings that adapt more readily to site conditions will be used. An establishment period of 5 years will be used, to include irrigation, to maximize growth and survival.

NPS Best Management Practice	Proposed Action
A qualified individual (arborists, foresters, or trained staff with similar experience) shall plant replacement trees at the appropriate time of year and in a random fashion to avoid a plantation effect. Cultivate and monitor planted tree seedlings/saplings for two years to ensure success; water plantings as necessary. Promptly replace planted stock showing signs of mortality.	Replacement trees will be planted at designated riparian habitat restoration areas according to designs prepared under the supervision of a California licensed USACE landscape architect with experience in developing habitat restoration. The mitigation sites will be managed and monitored according to the ARCF GRR Habitat Mitigation Monitoring and Adaptive Management Plan, which includes success criteria.
Stakes and guide wires shall be properly removed and disposed of once seedlings are established.	All stakes, fencing, and any other construction or mitigation related materials will be removed once construction is completed and once mitigation plants have become established and mature. In most cases, planting stakes and guide wires will not be used.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
Levee Setbacks	Set back the levees wherever possible to allow the river to move.	Free-Flow	Levee setbacks are not feasible in this area due to the existence of homes and businesses, and major roadways immediately behind the levee.
Bioengineering and native plantings throughout the banks and levees	Avoid riprap to the extent possible. Use bioengineering techniques including use of wood (e.g., log crib walls, tree revetments, root revetments; engineered log jams) and deformable techniques (e.g., fabric-encapsulated soil lifts (i.e., geolifts), rock bags, coir rolls (i.e., bio logs), erosion control blankets/fabrics).	Free-Flow, Anadromous Fish	Bioengineered methods to achieve flood risk reduction are not generally feasible along the LAR due to the magnitude of the hydraulic forces. The minimum amount of rock protection will be used to meet the risk reduction objectives. Soil-filled rock, planting benches, and soil placed over riprap would be incorporated where feasible to support revegetation with native species and natural soil accretion and recruitment. IWM will be placed at appropriate water surface elevations to create a naturalistic appearance and restore function.
Riprap at the bank toe	Riprap would only be placed at the bank toe of segments where the levee prism and associated planting berms (if included) are at the extent of the Parkway limits.	Free flow	USACE understands this avoidance measure to mean that when the levee prism is far from the riverbank, Riprap would not be placed at the bank toe. Site designs would be consistent with this measure by placing the erosion protection features to the protect the levee. In some locations rock would be placed at the toe of the riverbank hundreds of feet from the levee. This would occur where the topography of the site and the proximity of the levee prism to the riverbank is at risk of erosion. Rock would not be placed at the riverbank toe unless it is necessary for flood risk reduction.
Riprap at the bank toe	Ensure no hydraulic impacts from riprap.	Water quality	Site designs are consistent with this measure.

#### Table 2-4. Summary of Adherence to Universal Avoidance and Minimization Measures

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
Riprap at the bank toe	Ensure no direct and adverse impacts to anadromous fish.	Anadromous Fish	All direct and adverse effects to anadromous fish have been considered in the programmatic biological opinion for the ARCF16 project. Jointly with the NMFS, USACE has devised avoidance and minimization measures to reduce these impacts to the extent practicable. In addition, mitigation ratios of greater than 1:1, as required by the biological opinion, would reduce effects and ensure that any adverse effects are short term.
Riprap at the bank toe	Minimize the use and visibility of rock channel protection (RCP) and use only the minimum amount necessary to protect structures. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock. If rock is needed utilize cobble to the extent possible. Cover exposed riprap at the bank with soil and vegetation where cobble is not possible.	In-water recreation Aesthetics	RCP at the bank toe will be reduced to the minimum amount necessary to achieve the flood risk reduction objectives. Riprap along most of the levee and riverbank would be covered with soil and replanted. Some areas would not include soil and plantings but would incorporate choke stone to create a smoother and more aesthetic surface with some natural sediment accretion expected. Riprap would be exposed around bridge footings and outfalls, consistent with the current condition. RCP at the bank toe will be reduced to the minimum amount necessary to achieve the flood risk management objectives. Soil filled riprap would be used for tiebacks. Riprap could protrude through soil and be visible.
Avoid and Minimize use of riprap on the bank above the toe to the OHWM and near the water	Minimize the use and visibility of RCP. RCP should be avoided or minimized to the extent possible. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock. Cover any necessary riprap on the bank above	Anadromous Fish Recreation	Most riprap would be covered by soil and planting benches, except around outfalls and bridge footings. Exposed slopes will be planted with appropriate materials per the planting plans. Planting benches will be designed to have an adequate depth to support riparian trees and shrubs
	the OHWM with planting benches containing sufficient soil and capable of supporting riparian habitat.	Aesthetics	
Minimize use of Riprap on the levee slope	Cover revetment on the slope with sufficient soil and native grasses or forbs, as woody vegetation may not be possible due to USACE vegetation on levees policies.	Anadromous Fish Aesthetics	Slopes within the vegetation free zone will be hydroseeded with soil and appropriate native grasses and forbs. Site designs are consistent with this measure.

Proposed	Proposed Avoidance or Reduction of Impact	WSR	Adherence to the Measure:
Design Feature:	Measure:	Aspect(s):	
Removal of vegetation	Minimize vegetation removal to the maximum extent practicable. Provide planting benches to reduce the effects for lost habitat on-site. Riparian areas must be restored to pre- disturbance conditions immediately after construction activities are completed. Provide restoration in the parkway when revegetation cannot be completely restored in the project footprint. Re-vegetate all areas of the repair site above the waterline with native, ecotone appropriate, species. Design sites such that they are indistinguishable from the overall fabric of the Parkway.	Anadromous Fish Aesthetics Water quality	Only trees within the construction footprint, or designated haul routes will be removed. Haul routes will be placed to avoid trees and elderberry shrubs to the extent feasible. Access ramps will be oriented to minimize the area impacted to the extent practicable. Established roads will be used as haul routes wherever possible. Habitat mitigation that cannot be completed on site will be accomplished at other locations in the Parkway in at least a 1:1 ratio. Site designs are consistent with this measure.

Proposed	Proposed Avoidance or Reduction of Impact	WSR	Adherence to the Measure:
Design Feature:	Measure:	Aspect(s):	
Closure of bike trail	The first priority is to detour the bike trail on the nearest dedicated trail. That is, the trail should not be shared with automobiles. If the bike trail segment being detoured is paved, the detour route should also be completely paved to include all transitions from permanent to temporary trails/detours. In an event due to where the trail cannot be routed near construction boundaries for safety concerns it should be detoured to surface streets with bicycle safety measures for a minimal amount time. Detours to surface streets should be considered the last option and review by all stakeholders. Provide information at both ends of the closure and on the web about the location and duration of the closure and provide a map of the detour. Minimize the extent of the closure. When feasible use flaggers instead of detours. Minimize the length of time the detours are needed. Detours will carry the same safety standards as a permanent trail and if detours go down to one bicycle lane, caution should be considered and the included use of flaggers with dismount zones in single lane areas. Any permanent re-routing of the bike trail should also include rerouting the equestrian trail. Re- routed trails should provide the same experience as the existing trail including the aesthetics. The new trail should be shaded with riparian vegetation.	Recreation	Bike trail detours will be provided around the active construction. Where feasible, the existing access and trail system within the Parkway will be used for detours. Detours may use the top of the levee and/or public surface streets in some locations. Signage, physical barriers separating riders from other motorized vehicles, and/or in-person flaggers will be present to avoid safety risks to bike riders. Informational signage will be posted at the upstream and downstream ends of the detour as well as at the closure points. Information will also be provided on- line.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
Closure of levee maintenance road	Detour the route, if normally used as a hiking, horse, or mountain bike trail. Provide information at both ends of the closure and on the web about the location and duration of the closure and provide a map of the detour. Plant vegetation to provide shading along this road once users return to the extent possible.	Recreation	Where an affected levee maintenance road is used by hikers, bicycle riders and/or horseback riders, detours will be provided when safe. Information will be provided at the closure points and online. Sites are generally designed to preserve a strip vegetation adjacent to the bike trail. Otherwise, the area will be replanted where the trails are not within the vegetation free zone.
General Impacts of Work in the Parkway	Reduce work limits to the maximum extent practicable. Close trails and other recreational features only when necessary for safety of the public. Advance notice of work shall be provided at the site of the closures and on the web.	Recreation	Every effort will be made to reduce the work area to the extent practicable. Advance notice of the work will be provided on sacleveeupgrades.com.
General Impacts of Work in the Parkway	Phase work appropriately such that sites do not remain incomplete for excessive periods of time (e.g., bank work completed but planting delayed for years, or tree clearance years ahead of the construction etc.)	Aesthetics	Work will be scheduled to progress sequentially. Gaps in the construction sequence would be limited to necessary safety stand downs during the flood season when no work may be conducted in the floodway.
Closure of boat ramp	Avoid closure of boat ramps to the maximum extent practicable. Phase work such that not more than one boat ramp is closed. Provide information at the closure and on the web about the location and duration of the closure and the nearest open boat ramp. Minimize closure time and keep it open when work is not being done on the weekends and in the evenings. Provide improvements to the boat launch once users can return to the site.	Recreation	Where present within the construction footprint, boat launches will be closed during construction. In some areas parking lots will be used for construction staging or transit. When this is the case, the parking lots will not be available to the public.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
Closure of river access points	Avoid closure of river access points to the maximum extent practicable. Phase work such that consecutive river access points are not closed for more than one consecutive mile on account of this project. Provide information at the closure(s) and on the web about the location and duration of the closure and the nearest open river access points. Minimize closure time and keep it open when work is not being done on the weekends and in the evenings. Provide improvements to the boat launch once users can return to the site.	Recreation	Where active construction is in progress, public access will be prohibited or restricted. This is necessary to ensure public and construction worker safety. Unofficial, informal access to the river will be restricted from active construction zones and within the project area during vegetation establishment following construction. Portions of the Parkway that are not under construction or in the process of vegetation establishment will remain available for river access.
In water work	Abide by NPDES requirements to ensure there is no adverse effect to water quality.	Water Quality	Site designs are consistent with this measure.
In water work	Abide by NMFS Biological Opinion to ensure there is no adverse effect to anadromous fish from water quality.	Anadromous Fish	Site designs are consistent with this measure.
In water work	Provide buoys or other demarcation for closed sections of the channel. The channel shall not be closed such that upstream or downstream navigation is precluded.	In-water recreation	Buoys or other demarcation would be provided where turbidity curtains are used. At no time would navigation be completely precluded.

# 3. Consistency Determination Request Packages

# 3.1. Introduction

Section 3 documents the WSRA compliance status for each of the remaining LAR components (i.e., "contracts") of the ARCF16 Project. As discussed in Section 2 of this appendix, consistency with the WSRA is considered throughout design development for the LAR elements of the ARCF16 Project. **Attachments 1 through 4** provide the USACE WSRA Consistency Analyses for LAR Contracts 3B (final), 4A (draft), 4B (draft), and ARMS (draft) based upon the current level of design. Each Consistency Analysis will be updated as designs reach 95%, and transmitted to the NPS with a request for their consistency review. Three other LAR Contracts (Contracts 1, 2 and 3A) were the subject of previous NEPA documents and have received Consistency Determinations from NPS (see **Table 3.1**). Before each ARCF16 contract can be constructed it must receive a Consistency Determination from the NPS.

Project Contract	USACE Submited Consistency Analysis	NPS Provided Consistency Determination
LAR Contract 1	22-Jun-2021	20-Jul-2021
LAR Contract 2	22-Jun-2021	20-Jul-2021
LAR Contract 3A	4-Nov-2022	30-Nov-2022

Table 3-1. NPS Consistency Determinations for the ARCF16 Project

# 3.2. Final Request Packages

## 3.2.1. LAR Contract 3B

LAR Contract 3B has reached 100% level of design and a final Consistency Analysis has been completed and transmitted to NPS together with a request for their consistency review under the WSRA (**Attachment 1**). Contract 3B cannot be constructed until an NPS Consistency Determination is received.

# 3.3. Draft Consistency Request Packages

## 3.3.1. LAR Contract 4A

LAR Contract 4A reached 95% level of design but is reconsidering a portion of the design related to the bike trail alignment. A draft Consistency Analysis has been completed based upon the bike trail alignment that currently appears to be most feasible (**Attachment 2**). Once designs again reach 95%, the Consistency Analysis will

be updated and transmitted to NPS for their consistency review and determination. Contract 4A cannot be constructed until an NPS Consistency Determination is received.

## 3.3.2. LAR Contract 4B

LAR Contract 4B is in early conceptual design stages. Detailed engineering analyses are in development and a request for deviation from USACE levee vegetation standards (ETL 1110-2-583) is anticipated. Decision regarding the variance rests at Headquarters USACE. The best information available at this time was used to develop a draft Consistency Analysis (**Attachment 3**). Once designs reach 95% (at least two years from now), the Consistency Analysis will be updated and transmitted to NPS for their consistency review and determination. Contract 4B cannot be constructed until an NPS Consistency Determination is received.

### 3.3.3. ARMS

The ARMS designs have reached between 35% and 65%. A draft Consistency Analysis has been developed based upon these designs (**Attachment 4**). Once designs reach 95%, the Consistency Analysis will be updated and transmitted to NPS for their consistency review and determination. ARMS cannot be implemented until an NPS Consistency Determination is received.

### American River Common Features 2016 Project Section 7 Wild and Scenic Rivers Act Consistency Analysis American River Erosion Contracts 3B North and 3B South

Erosion Management Activities on the Lower American River- Sacramento County, California







February 2025

US Army Corps of Engineers Sacramento District This page intentionally left blank.

### Table of Contents

1.	Introduction 8
1.1	Authority
1.2	Need for Consistency Determination
1.3	Purpose of this report
2.	Project Description 9
2.1	Location
2.1.1	Site Condition in 1981
1.1.1	Lower American River Parkway Plan10
1.2	Schedule and Duration
1.3	General project features
1.4	Contract 3B North
1.4.1	<b>Overview</b>
1.5	Contract 3B South
1.6	On-site restoration features
1.7	Offsite Mitigation
1.8	Staging Areas and Haul Routes
1.9	Construction Phasing
3.	Effects on Wild and Scenic Values 55
3.1	Effects on Free-Flowing Nature of the River
3.2	Effects on Water Quality
3.3	Effects on the Anadromous Fishery
3.4	Effects on Recreation
3.5	Aesthetics
3.6	Avoidance and Minimization Measures
4	Conclusion 82
5	References 83

### List of Tables

Table 1. Construction Phasing and Sequencing.	12
Table 2. Contract 3B North Sites 3-1 and 4-2 Major Design Features.	16
Table 3. Contract 3B South Site 4-1 Major Design Features	23
Table 4. Species Composition of Planting Zones for LAR Contract 3B Site 3-1.	38
Table 5. Species Composition of Seed Mix for LAR Contract 3B Site 4-2	40
Table 6. Species Composition of Planting Zones for Site 4-1.	49
Table 7. Summary of Habitat Types Impacted and Associated Habitat Mitigatic	<b>n</b> 56
Table 8. Summary of Temporal Impacts.	67
Table 9. Summary of Adherence to NPS Best Practices.	71
Table 10. Summary of Adherence to Universal Avoidance and Minimization	
Measures.	75

## Table of Figures

Figure 1. Overall American River Contracts 3B North and 3B South Project Area.	
Shown within the context of the Parkway1	0
Figure 2.Location of Revetment that was Present along the LAR in 1981 when it	
was Designated as a Wild and Scenic River1	3
Figure 3. Levee Embankment Protection. The SEIS/SEIR calls this Levee Bank	
Protection	4
Figure 4. Buried Launchable Rock Trench.	4
Figure 5. Soil-filled Riverbank Revetment. The SEIS/SEIR calls this Riverbank	
Bank Protection	5
Figure 6. Launchable Rock Toe. The SEIS/SEIR calls this Launchable Toe1	5
Figure 7. Contract 3B North, Site 3-1 Project footprint and Staging Areas	
(OHWM=Ordinary High Water Mark; RM= Rivermile)1	7
Figure 8. Erosion Protection and Locations for LAR Contract 3B North, Site 3-1. 1	8
Figure 9. Example Typical Erosion Cross Section (XS A) for Site 3-1. Figure shows	;
protection methods and locations for LAR Contract 3 North, Site 3-11	9
Figure 10. Example Typical Erosion Cross Section (XS B) for Site 3-1. Figure	
shows protection methods and locations for LAR Contract 3 North, Site 3-11	9
Figure 11. Example Typical Erosion Cross Section (XS C) for Site 3-1. Figure	
shows protection methods and locations for LAR Contract 3 North, Site 3-12	20
Figure 12. Contract 3B North, Site 4-2 Project Footprint and Staging Areas2	21
Figure 13. Erosion Protection Methods and Locations for LAR Contract 3B North	,
Site 4-2	22
Figure 14. Example Typical Erosion Cross Section (XS D) for Site 4-2.	22
Figure 15. Example Typical Erosion Cross Section (XS E) for Site 4-2.	22
Figure 16. Example Typical Erosion Cross Section (XS F) for Site 4-2.	22
Figure 17. Contract 3B South, Site 4-1 Project Footprint and Staging Area	24
Figure 18. Erosion Protection Methods and Locations for LAR Contract 3B South	,

Site 4-1
Figure 19. Example Typical Erosion Cross Section (XS G) for Site 4-1. Figure
shows protection methods and locations for LAR Contract 3B south, Site 4-125
Figure 20. Example Typical Erosion Cross Section (XS H) for Site 4-1. Figure
shows protection methods and locations for LAR Contract 3B North, Site 4-126
Figure 21. Example Typical Erosion Cross Section (XS I-a) for Site 4-1. Figure
shows protection methods and locations for LAR Contract 3B North, Site 4-126
Figure 22. Example Typical Erosion Cross Section (XS I-b & J-b) for Site 4-1.
Figure shows protection methods and locations for LAR Contract 3B North, Site 4-127
Figure 23. Example Typical Erosion Cross Section (XS J-a) for Site 4-1. Figure
shows protection methods and locations for LAR Contract 3B North, site 4-127
Figure 24. Example Typical Erosion Cross Section (XS K) for Site 4-1. Figure
shows protection methods for LAR Contract 3B North, Site 4-1
Figure 25. Example Typical Erosion Cross Section (XS L) for Site 4-1. Figure shows
protection methods and locations for LAR Contract 3B North, Site 4-1
Figure 26. Example Typical Erosion Cross Section (XS M) for Site 4-1. Figure
shows protection methods and locations
Figure 27. Example Typical Erosion Cross Section (XS N) for Stie 4-1. Figure
Show's protection methods and locations for ASRE Contract 3B North, Site 4-1
Figure 28. Example Typical Erosion Cross Section (XS O) for Stie 4-1. Figure
Show's protection methods and locations
was used on the Sacramento River at mile 16.8 on the left bank as an experimental
mitigation measure to better retain soil and fine substrates. All plants shown in this
image were naturally recruited. High hydraulic forces in this area are due to the
unstream nump structure may be limiting the species currently recruited. Similar choke
stone will be added to the American River Frosion Contract 3B site due to Biological
Opinion requirements Because the sediment loading is different for the American River
success in retaining soil and fine substrates may be less than what has been
experienced on the Sacramento River 32
Figure 30. Natural Vegetation Recruitment on a Bank Protection Site on the
Sacramento River. Further downstream on the Sacramento River mile 16.8 left bank
improvement site larger native woody species have begun colonizing the site. Species
observed include white alder, boxelder maple, and western sycamore
Figure 31. LAR Contract 3B, Site 3-1 Planting Zones, Downstream Work 1. Planting
zones shown on a segment of the plan view of Site 3-1. Distributions of zones is typical
of the entire site, subject to variations in width of the relative zones
Figure 32. LAR Contract 3B North, Site 3-1 Planting Zones, Upstream Work.
Planting zones shown on a segment of the plan view of Site 3-1. Distributions of zones
is typical of the entire site, subject to variations in width of the relative zones
Figure 33. Planting Zones for LAR Contract 3B Site 3-1 Shown on a Typical Profile
View (XS B)
Figure 34 Renderings of Example Cross Section at Site 3-1 (XS B)
Figure 35. Planting Zones for LAR Contract 3B Site 3-1 Shown on a Typical Profile
View (XS C)
Figure 36. Renderings of Example Cross Section at Site 3-1 (XS C)

Figure 37. LAR Contract 3B South, Site 4-1 Planting Zones, Downstream. Planting zones shown on a segment of the plan view of Site 4-1. Distributions of zones is typical Figure 38. LAR Contract 3B South, Site 4-1 Planting Zones, Upstream. Planting zones shown on a segment of the plan view of Site 4-1. Distributions of zones is typical Figure 39. Planting Zones for LAR Contract 3B Site 4-1 Shown on a Typical Profile Figure 40. Renderings for LAR Contract 3B Site 4-1 Shown on a Typical Profile Figure 41. Planting Zones for LAR Contract 3B Site 4-1 Shown on a Typical Profile Figure 42. Renderings for LAR Contract 3B Site 4-1 Shown on a Typical Profile Figure 43. Planting Zones for LAR Contract 3B Site 4-1 Shown on a Typical Profile Figure 44. Planting Zones for LAR Contract 3B Site 4-1 Shown on a Typical Profile Figure 45. Renderings for LAR Contract 3B Site 4-1 Shown on a Typical Profile Figure 46. Planting Zones for LAR Contract 3B Site 4-1 Shown on a Typical Profile Figure 47. Renderings for LAR Contract 3B Site 4-1 Shown on a Typical Profile Figure 48. Planting Zones for LAR Contract 3B Site 4-1 Shown on a Typical Profile Figure 49. Renderings for LAR Contract 3B Site 4-1 Shown on a Typical Profile Figure 51. Proposed Construction and Haul Route Phasing for Sites 3-1 and 4-2. Figure 53. Example of River View (Summer Water Levels, Photo Taken July 2024) of Planting Benches with Launchable Toes (No Choke Stone) Constructed in 1996 Figure 56. Contract 3B North, Site 3-1, Watt Avenue Bridge Bike Trail Detours....62 Figure 58. Contract 3B North, Site 4-2 Bike Trail Detours Showing Detour 

#### Acronyms

ARCF	American River Common Features 2016
ARMS	American River Mitigation Site
BMP's	Best Management Practices
CEQA	California Environmental Quality Act
cfs	Cubic feet per second
DBH	Diameter at breast height
FEIR	Final Environmental Impact Report (CEQA)
FEIS	Final Environmental Impact Statement (NEPA)
GRR	General Reevaluation Report
IWM	Instream Woody Material
k-rail	Temporary concrete barrier
LAR	Lower American River
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
No.	Number
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
OHWM	Ordinary High Water Mark
Parkway	American River Parkway
PFM	Probable Failure Mode
PLS	Pure live seed
Proposed Action	American River Erosion Contracts 3B North and 3B South
RCP	Rock Channel Protection
RM	River Mile
Regional Parks	Sacramento County Regional Parks Department
SEIS/SEIR	2023 Draft ARCF GRR Supplemental Environmental Impact
	Statement/Subsequent Environmental Impact Report
Stat.	Statute
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VELB	Valley elderberry longhorn beetle
WRDA	Water Resources Development Act
WSR	Wild and Scenic River
WSRA	CEQ Act
XS	Cross section
YBCU	Yellow-billed cuckoo

### 1. Introduction

The American River Common Features 2016 Project (ARCF Project) is a congressionally authorized flood risk management project that is being implemented by the U.S. Army Corps of Engineers (USACE), the Central Valley Flood Protection Board, and the Sacramento Area Flood Control Agency. The full scope of the ARCF Project is described in the 2016 American River Watershed Common Features General Reevaluation Report (GRR) and joint Final Environmental Impact Statement and Environmental Impact Report (FEIS/FEIR), and as revised and supplemented in the 2023 Draft ARCF Project Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR). This consistency analysis addresses American River Erosion Contract 3B North and American River Erosion Contract 3B South, which together comprise the Proposed Action. For consistency with other project documents, American River Erosion projects will be referred to as Lower American River (LAR) projects in this document.

#### 1.1 Authority

As part of the larger ARCF Project, LAR Contracts 3B North and 3B South (Proposed Action) are authorized by Section 101(a)(1)(A) of the Water Resources Development Act (WRDA) of 1996, Public Law Number (No.) 104303 Section 101(a)(1), 110 Statute (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). Following the interim general reevaluation study, additional authority was provided 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 the Nation Act, and Public Law 115-123 (Bipartisan Budget Act of 2018).

#### 1.2 Need for Consistency Determination

The Lower American River (LAR) has been designated by the Secretary of the Interior as a Wild and Scenic River (WSR) under the Wild and Scenic Rivers Act (WSRA) Section 2(a)(ii). The ARCF Project constitutes an "Other Proposed Federally-Assisted Water Resources Project (Agency Other than the Federal Energy Regulatory Commission)" within the WSR-designated portion of the LAR (Interagency Wild and Scenic Rivers Council 2004). Section 7(a) of the WSRA requires Federal agencies to determine whether water resources projects planned in rivers under the jurisdiction of the act are consistent with WSRA requirements to protect river resources. The responsibility for the Section 7 determination is a federal responsibility not delegated to the state. Therefore Section 7 determinations are the responsibility of one of the four river administering agencies, Bureau of Land Management, U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service, or the National Park Service (NPS). As the LAR does not run through federal lands under the jurisdiction of another federal river-
administering agency, the responsibility for the Section 7 determination rests with NPS. Accordingly, the Sacramento District, USACE prepared this analysis for the NPS as agency submitted documentation to support a consistency determination.

## **1.3 Purpose of this report**

The ARCF Project was described in the American River Common Features (ARCF) Project 2016 Wild and Scenic Rivers Programmatic Consistency Analysis, dated June 22, 2021, and updated July 19, 2021 (NPS identifier 1.A.2 (PW-NR)). This projectspecific consistency analysis focuses on the potential effects of LAR Contracts 3B North and 3B South, which are part of the ARCF Project and are located on the LAR. This report considers whether the Proposed Action will directly and adversely affect the river values that were present in the LAR in 1981 when the LAR was designated as a component of the National Wild and Scenic Rivers System. The actions under LAR Contracts 3B North and 3B South are consistent with the purpose and need of the overall ARCF project. They are conducted within the overall location of the ARCF Project as described in the programmatic consistency analysis. This report was prepared using the format provided in Appendix A of the programmatic consistency analysis (USACE, 2021).

# 2. Project Description

## 2.1 Location

The LAR Contract 3B North is on the north (right) bank of the LAR between Howe Avenue and Harrington Way in Sacramento, California. LAR Erosion Contract 3B South is on the south (left) bank of the LAR between Watt Avenue and the Mayhew Drain. **Figure 1** shows the location of Contract 3B North and 3B South.

## 2.1.1 Site Condition in 1981

The LAR was designated as a WSR in 1981. Aerial photographs (or images) of the project area were taken on March 20, 1971, August 10, 1981, and January 23, 1987. These photographs were used to determine the visible conditions at the time the LAR was designated as a WSR. The photographs were acquired from the University of California at Santa Barbara's Library FrameFinder Website (UCSB 2024). **Attachment A** shows a side-by-side comparison of the proposed erosion protection features and the historic aerial photographs. The photos show that in 1981, vegetation near the levee toe consisted mostly of scattered trees. Since 1981, vegetation has generally become fuller and denser. Additionally, while vegetation existed on the riverbank it has expanded to cover a larger area. Maintenance roads and trails were present in the parkway in 1981; however, these trails appear to be far less shaded than they are today. In historic photos, sediment is visible at the river's edge. Today much of that sediment is covered in vegetation.

Some revetment was in place along the LAR at the time he river was designated a national WSR (**Figure 2**). At the LAR Contract 3B site, revetment was present at LAR Contract 3B North just downstream of Watt Avenue on the North side of the river.



Figure 1. Overall American River Contracts 3B North and 3B South Project Area. Shown within the context of the Parkway.

## 1.1.1 Lower American River Parkway Plan

The American River Parkway Plan (Parkway Plan)(2008) is the state WSRA management plan for the Lower American River. The NPS also recognizes as the management plan under the Federal WSRA. Sacramento County Regional Parks Department (Regional Parks) administers the plan, manages the Parkway, and determines consistency under the state WSRA. The NPS coordinates with Regional Parks and considers their perspective when making federal WSRA Consistency Determinations.

The LAR Contract 3B has been designed to be consistent with the Parkway Plan, which identifies balancing goals, including flood control (i.e., flood risk management), as a policy priority. Parkway Plan Concept Policy 1.1 addresses this balancing:

The American River Parkway is a unique regional asset that shall be managed to balance the goals of controlling flooding; preserving and enhancing native vegetation, native fish species, the naturalistic open space and environmental quality within the urban environment; maintaining and improving water flow and quality; providing adequate habitat connectivity and travel corridors to support migratory and resident wildlife; providing recreational opportunities; and ensuring public safety.

Flood Control Policies are enumerated in policies 4.9 through 4.18. A review of these policies shows the intended integration of flood risk management, including erosion protection, within the American River Parkway. Policies of particular interest to this project are provided below. The Parkway Plan may be accessed at <u>American River</u> <u>Parkway Plan (saccounty.gov)</u>.

4.9 Flood management agencies should continue to maintain, and improve when required, the reliability of the existing public flood-control system along the lower American River to meet the need to provide a high level of flood protection to the heavily urbanized floodplain along the lower American River consistent with other major urban areas. This effort is expected to include raising and strengthening the levees as necessary to safely contain very high flows in the river (up to 160,000 cubic feet per second) for a sustained period.

4.10 Flood control projects, including levee protection projects and vegetation removal for flood control purposes, shall be designed to avoid or minimize adverse impacts on the Parkway, including impacts to wildlife and wildlife corridors. To the extent that adverse impacts are unavoidable, appropriate feasible compensatory mitigation shall be part of the project. Such mitigation should be close to the site of the adverse impact, unless such mitigation creates other undesirable impacts.

4.12 Vegetation in the Parkway should be appropriately managed to maintain the structural integrity and conveyance capacity of the flood control system, consistent with the need to provide a high level of flood protection to the heavily urbanized floodplain along the lower American River and in a manner that preserves the environmental, aesthetic, and recreational quality of the Parkway.

4.16 Bank scour and erosion shall be proactively managed to protect public levees and infrastructure, such as bridges, piers, power line, habitat and recreational resources. These erosion control projects, which may include efforts to anchor berms and banks with rock revetment, shall be designed to minimize damage to riparian vegetation and wildlife habitat, and should include a revegetation program that screens the project from public view, provides for a naturalistic appearance to the site, and restores affected habitat values.

4.18 It is recognized that flood control agencies have the authority to take action(s) to prevent or respond to flood emergencies occurring in or adjacent to the Parkway. In the event that these action(s) have an adverse impact on

biological resources in excess of the estimated impacts of the projected flood damage to such resources, the agency(ies) undertaking the emergency work will implement feasible compensatory mitigation measures pursuant to Policies 3.1 and 3.2. Northing in this Policy shall be construed to interfere with the existing authority of flood control agencies to prevent or respond to an emergency occurring in or adjacent to the Parkway.

#### **1.2 Schedule and Duration**

The LAR Contract 3B North is comprised of two sites (Site 3-1 and Site 4-2). Contract 3B South is comprised of one site (Site 4-1). Construction will proceed in phases beginning in fall 2025 with tree clearing at three locations (Site 3-1 Downstream, Site 4-1 Downstream, and Site 4-2) and ending with revegetation of the last two sites (Site 3-1 Upstream and Site 4-1 Upstream) in spring of 2028. **Table 1** details the construction timing and sequence for all Contracts 3B North and South sites. If the LAR Contract 3B schedule is delayed, work would be pushed back to the next year.

			فكسيب المحاليات المحا					
C3-B North/South Construction Sequencing								
<b>Project Sites</b>	Contract	Tree Clearing/Transplant	Erosion Protection*	Greening				
Site 3-1 Downstream		Fall 2025 - Winter 2026	Mid-April - Oct <mark>2026</mark>	Spring 2027				
Site 3-1 Upstream	C3B - North	Fall 2026 - Winter 2027	June - Oct <b>2027</b>	Spring <b>2028</b>				
Site 4-2		Fall 2025 - Winter 2026	April - June <mark>2026</mark>	Spring 2027				
Site 4-1 Downstream	C3B - South	Fall 2025 - Winter 2026	Mid-April - Oct <b>2026</b>	Spring 2027				
Site 4-1 Upstream		Fall 2026 - Winter 2027	Mid-April - Oct <b>2027</b>	Spring 2028				
*Assuming in-water wor	k early NMFS start date June 1, N	Ion-Flood Season April 15- Oct 31						

Table 1. Construction Phasing and Sequen	cing.
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Figure 2.Location of Revetment that was Present along the LAR in 1981 when it was Designated as a Wild and Scenic River

#### 1.3 General project features

Most of the erosion protection areas included in LAR Contracts 3B North and 3B South were analyzed in the 2016 ARCF GRR FEIS/FEIR. Engineering studies conducted since then identified additional areas on the north (right) bank upstream of Watt Avenue (i.e. Site 4-2) that require erosion protection. Launchable trench and bank protection were the only erosion protection methods analyzed in the 2016 ARCF GRR FEIS/FEIR. Also, only bank protection was to be placed both on the riverbank and the levee. The current design refinements include use of additional erosion protection methods (launchable rock toe protection and tie backs) throughout the LAR Contract 3B North and South project sites and identify staging areas, haul routes, and additional areas within the construction footprint.

LAR Contract 3B North (Sites 3-1 and 4-2) will construct 1.8 miles of launchable rock toe, launchable trench, and bank protection. LAR Contract 3B South (Site 4-1) will construct approximately 1.5 miles of launchable rock toe, launchable trench, bank protection, and tie backs. **Figures 3 through 6** show the generalized repair types.



Figure 3. Levee Embankment Protection. The SEIS/SEIR calls this Levee Bank Protection.



Figure 4. Buried Launchable Rock Trench.



Figure 5. Soil-filled Riverbank Revetment. The SEIS/SEIR calls this Riverbank Bank Protection.



Figure 6. Launchable Rock Toe. The SEIS/SEIR calls this Launchable Toe.

## 1.4 Contract 3B North

#### 1.4.1 Overview

Contract 3B North is comprised of Site 3-1 and Site 4-2. The main 100% design features for Site 3-1 are shown in **Table 2** and **Figure 7 through Figure 11**. The main 100% design features for Site 4-2 are shown in **Figure 12 through Figure 16**. Each site was divided into segments for the purpose of the engineering studies, to characterize site conditions to assess need for flood risk, and for determination of the appropriate design for each segment.

		Design Feature						
		Planting Bench with						
		Launchable		Soil-filled	Buried			
Dratat		Rock Toe and	Soil-filled	Levee	Launchable			
Project		Burled Rock	Riverbank	Empankment	ROCK			
Site	River Segment	Tie-back	Revetment	Revetment	Trench			
3-1	3-9	Х	Х	Х				
3-1	3-10 <sup>1</sup>	1	No Proposed	Improvements				
3-1	3-11	Х	Х					
4-2	3-14			Х	Х			
4-2	<b>4-6</b> <sup>2</sup>			Х				
4-2	4-7 <sup>2</sup>			Х	Х			

Table 2. Contract 3B North Sites 3-1 and 4-2 Major Design Features.

<sup>1</sup> Segments with existing revetment features in place. <sup>2</sup> Segments with existing revetment features in a small portion of the segment.



Figure 7. Contract 3B North, Site 3-1 Project footprint and Staging Areas (OHWM=Ordinary High Water Mark; RM= Rivermile).



Figure 8. Erosion Protection and Locations for LAR Contract 3B North, Site 3-1.



Figure 9. Example Typical Erosion Cross Section (XS A) for Site 3-1. Figure shows protection methods and locations for LAR Contract 3 North, Site 3-1.



*Figure 10. Example Typical Erosion Cross Section (XS B) for Site 3-1. Figure shows protection methods and locations for LAR Contract 3 North, Site 3-1.* 





Figure 12. Contract 3B North, Site 4-2 Project Footprint and Staging Areas.



Figure 13. Erosion Protection Methods and Locations for LAR Contract 3B North, Site 4-2.



Figure 14. Example Typical Erosion Cross Section (XS D) for Site 4-2.



Figure 15. Example Typical Erosion Cross Section (XS E) for Site 4-2.

 						-	
					 N		



Figure 16. Example Typical Erosion Cross Section (XS F) for Site 4-2.

#### 1.5 Contract 3B South

Contract 3B South is comprised of one site, Site 4-1 (See Figure 2). Table 3 shows the design features used in different locations along Site 4-1. Figure 17 shows the project footprint and staging areas. Figure 18 through Figure 49 shows where the different design features will be applied along Site 4-1.

		Design Feature						
		Planting Bench with		Soil-filled				
		Launchable Rock	Soil-filled	Levee	Buried			
Project	River	Toe and Buried	Riverbank	Embankment	Launchable			
Site	Segment	Rock Tie-back	Revetment	Revetment	Rock Trench			
4-1	3-5			Х	Х			
4-1	3-6	Х	Х	Х	Х			
4-1	3-7*	N	No Proposed Improvements					
4-1	3-8	Х	Х					
4-1	4-1		Х		Х			
4-1	4-2*	No Proposed Improvements						
4-1	4-3	Х	Х					

 Table 3. Contract 3B South Site 4-1 Major Design Features.

\* Segments with existing revetment features in place.



Figure 17. Contract 3B South, Site 4-1 Project Footprint and Staging Area.

Sacramento District



Figure 18. Erosion Protection Methods and Locations for LAR Contract 3B South, Site 4-1.



Figure 19. Example Typical Erosion Cross Section (XS G) for Site 4-1. Figure shows protection methods and locations for LAR Contract 3B south, Site 4-1.



Figure 20. Example Typical Erosion Cross Section (XS H) for Site 4-1. Figure shows protection methods and locations for LAR Contract 3B North, Site 4-1.



Figure 21. Example Typical Erosion Cross Section (XS I-a) for Site 4-1. Figure shows protection methods and locations for LAR Contract 3B North, Site 4-1.



Figure 22. Example Typical Erosion Cross Section (XS I-b & J-b) for Site 4-1. Figure shows protection methods and locations for LAR Contract 3B North, Site 4-1.



Figure 23. Example Typical Erosion Cross Section (XS J-a) for Site 4-1. Figure shows protection methods and locations for LAR Contract 3B North, site 4-1.





Figure 24. Example Typical Erosion Cross Section (XS K) for Site 4-1. Figure shows protection methods for LAR Contract 3B North, Site 4-1.



Figure 25. Example Typical Erosion Cross Section (XS L) for Site 4-1. Figure shows protection methods and locations for LAR Contract 3B North, Site 4-1.



*Figure 26. Example Typical Erosion Cross Section (XS M) for Site 4-1. Figure shows protection methods and locations for LAR Contract 3B North, Site 4-1.* 



**Figure 27. Example Typical Erosion Cross Section (XS N) for Stie 4-1.** Figure shows protection methods and locations for ASRE Contract 3B North, Site 4-1.



*Figure 28. Example Typical Erosion Cross Section (XS O) for Stie 4-1. Figure shows protection methods and locations for ASRE Contract 3B North, Site 4-1.* 

#### **1.6 On-site restoration features**

Features intended to restore and preserve, to the extent practicable, the aesthetic, recreational, and habitat values of the project include the use of soil filled riprap, installation of planting benches, planting native grasses, shrubs and trees on slopes, placement of Instream Woody Material (IWM), and restoration of recreational features in-kind. Cobble was initially planned for the top of the planting benches but was replaced with coir fabric in response to comments received from Regional Parks following their review of the designs. Regional Parks indicated that they have observed reductions in plant growth at mitigation sites with cobble on the American River.

Mitigation for salmonid and western yellow-billed cuckoo habitat impacts will be accomplished partially on site through the incorporation of planting areas where hydraulic stage impacts have been deemed acceptable for plant establishment, and space allows and does not impose levee safety issues. Planting areas will be scaled on a site-by-site basis, based on site-specific constraints and design performance targets to create the most onsite habitat mitigation possible. The remaining impacts will be offset by establishing offsite habitat mitigation and/or through purchase of conservation bank credits.

A layer of choke stone (i.e., smaller angular rocks) on the riverside face of the riprap will minimize the potential for predatory fish to hide in rock voids. It will also improve the aesthetics by reducing the artificial appearance of the riprap. Choke stone will also be placed underneath the planting bench soil bedding to reduce internal soil migration which would result in depressions in the planting benches and reduced soil to support plant growth. USACE has found that using choke stone to fill riprap interstitial spaces may promote fine sediment capture and subsequent natural wetlands/riparian vegetation establishment. This can be seen on the left bank of the Sacramento River at mile 16.8 (**Figure 29** and **Figure 30**). Over time, sediment capture and revegetation are expected to restore or potentially improve the naturalistic appearance of the Contract 3B project site, as compared to the pre-existing condition. Smoother rocks had been considered for use as choke stone, but USACE determined that smoother rocks would be more prone to downstream transport during higher river conditions.



**Figure 29. Example of Choke Stone Use on the Sacramento River.** Choke stone was used on the Sacramento River at mile 16.8 on the left bank as an experimental mitigation measure to better retain soil and fine substrates. All plants shown in this image were naturally recruited. High hydraulic forces in this area are due to the upstream pump structure may be limiting the species currently recruited. Similar choke stone will be added to the American River Erosion Contract 3B site due to Biological Opinion requirements. Because the sediment loading is different for the American River, success in retaining soil and fine substrates may be less than what has been experienced on the Sacramento River.



*Figure 30. Natural Vegetation Recruitment on a Bank Protection Site on the Sacramento River. Further downstream on the Sacramento River mile 16.8 left bank improvement site larger native woody species have begun colonizing the site. Species observed include white alder, boxelder maple, and western sycamore.* 

LAR Contracts 3B North (Site 3-1 and Site 4-1) and South (Site 4-1) will construct onsite planting benches to restore the riparian canopy and associated aesthetic and habitat benefits. Planting bench widths will range from a minimum of 20 feet to a target width of 40 feet. Bench widths were limited to 20 feet in some areas as placing a 40-foot bench would have caused a significant stage impact. Soil depth on benches will vary from 3 to 8 feet to allow the establishment of trees and shrubs. Most of the construction area will be replanted with woody vegetation. Only areas within the vegetation free zone, tie backs, and launchable toes will not be replanted. The vegetation free zone will be reseeded with native grasses and forbs. The species composition will differ by planting zone with the goal of including a mix of tree, shrub, and herbaceous species appropriate to each zone. These zones are based on ecological parameters, primarily proximity to the river and elevation (**Figure 33** and **Figure 35**). **Figures 33 through Figure 49** show profile views of the typical planting plan for the example cross sections. They also show renderings developed to depict what USACE anticipates the mature established plantings will look like. The species used will be appropriate to each zone as reflected in **Table 4**. When plantings are under powerlines, only vegetation expected to grow 15 feet or less in height will be in the planting mix. The precise percent coverage of species will vary slightly from upstream to downstream. Additionally, planting mixes may change somewhat over time as the project approaches construction due to lessons learned from previous contracts and coordination with interested Native American Tribes.

Trees on the riparian benches include boxelder (Acer negundo), red willow (Salix laevigata), white alder (Alnus rhombifolia), Oregon ash (Fraxinus latifolia), Western sycamore (Platanus racemosa), cottonwood (Populus fremontii), and Goodding's willow (Salix gooddingii). Shrubs include buttonbush (Cephalanthus occidentalis), wild rose (Rosa californica), sandbar willow (Salix exigua), California blackberry (Rubus ursinus), mulefat (Baccharis salicifolia). and grape (Vitis californica) (grouped with shrubs for convenience). Herbaceous plants include mugwort (Artemesia douglassiana). The lower bank trees are boxelder, white alder, Oregon ash, Western sycamore, cottonwood, and valley oak (Quercus lobata). Shrubs on the lower bank are coyote bush (Baccharis pilularis), wild rose, California blackberry. Lianas and vines include pipevine (Aristilochia californica), clematis (Clematis lingustifolia), and grape. The upper bank tree canopy includes boxelder, Western sycamore, cottonwood, valley oak, and interior live oak (Quercus wislizenii). Shrubs include coyote bush, Western redbud (Cercis occidentalis), coffeeberry (Frangula calilfornica), wild rose, California blackberry, elderberry (Sambucus mexicana), snowberry (Symphoricarpus albus var. laevigatus). Lianas and vines include pipevine, clematis, and grape.

## 1.6.1 Contract 3B North, Site 3-1

**Figure 31** and **Figure 32** show examples of typical planting zones for Site 3-1. **Figures 33 through Figure 36** show an example planting profile and renderings of what the mature plantings are expected to look like. Please note that in these rendering brightly colored vegetation is planned revegetation and faded color vegetation is existing and will be protected. **Table 4** shows the species composition of planting zones for Site 3-1.



*Figure 31. LAR Contract 3B, Site 3-1 Planting Zones, Downstream Work 1.* Planting zones shown on a segment of the plan view of Site 3-1. Distributions of zones is typical of the entire site, subject to variations in width of the relative zones.



*Figure 32. LAR Contract 3B North, Site 3-1 Planting Zones, Upstream Work.* Planting zones shown on a segment of the plan view of Site 3-1. Distributions of zones is typical of the entire site, subject to variations in width of the relative zones.



Figure 33. Planting Zones for LAR Contract 3B Site 3-1 Shown on a Typical Profile View (XS B).



Graphical representation - Subject to Change. Revegetated condition reflective of mature state Figure 34 Renderings of Example Cross Section at Site 3-1 (XS B)



Figure 35. Planting Zones for LAR Contract 3B Site 3-1 Shown on a Typical Profile View (XS C).



Graphical representation - Subject to Change. Revegetated condition reflective of mature state *Figure 36. Renderings of Example Cross Section at Site 3-1 (XS C)* 

			Mixed Riparian	Upper	Willow	Planting Bench	Riparian/ Herb
Common Name	Scientific Name	Size/type	Forest	Bank	Containers	Riparian	Groundcover
Trees	I	1					
Box elder	Acer negundo	Treepot 4*	15%	25%	12%	30%	
White alder	Alnus rhombifolia	Treepot 4*			18%	15%	
Oregon ash	Fraxinus latifolia	Treepot 4*	10%			20%	
Sycamore	Platanus racemosa	Treepot 4*	35%	15%		10%	
Cottonwood	Populus fremontii	Treepot 4*	20%	10%		15%	
Valley oak	Quercus lobata	Treepot 4*	20%	35%			
Interior live oak	Quercus wislizenii	Treepot 4*		15%			
Goodding's willow	Salix gooddingii	Treepot 4*			10%	5%	
Goodding's willow	Salix gooddingii	Cuttings					
Red willow	Salix laevigata	Treepot 4*			20%	5%	
Red willow	Salix laevigata	Cuttings					
Understory (Shurbs/	Vines/etc)						
Mugwort	Artemesia douglassiana	Treeband*	15%			10%	
Coyote brush	Baccharis pilularis	Deepot 40*	10%	10%			
Mule fat	Baccharis salicifolia	Treepot 4*	10%			10%	
Buttonbush	Cephalanthus occidentalis	Treepot 4*			5%	40%	
Western Redbud	Cercis occidentalis	Deepot 40*		5%			
Western Goldenrod	Euthamia occidentalis	Treeband*					
Coffeeberry	Frangula calilfornica	Deepot 40*		5%			
Toyon	Heteromeles arbutifolia	Deepot 40*					
Wild cucumber	Mara macrocarpa	Deepot 40*		5%			
Rose	Rosa californica	Deepot 40*	25%	20%		15%	
Blackberry	Rubus ursinus	Deepot 40*	15%	15%		5%	
Sandbar willow	Salix exigua	Treepot 4*			5%	10%	
Sandbar willow	Salix exigua	Cuttings	15%				

## Table 4. Species Composition of Planting Zones for LAR Contract 3B Site 3-1.

Common Name	Scientific Name	Size/type	Mixed Riparian Forest	Upper Bank	Willow Containers	Planting Bench Riparian	Riparian/ Herb Groundcover
Pacific willow	Salix lasiandra	Treepot 4*			12%		
Pacific willow	Salix lasiandra	Cuttings					
Arroyo willow	Salix lasiolepis	Treepot 4*			18%		
Arroyo willow	Salix lasiolepis	Cuttings					
Elderberry	Sambucus mexicana	Deepot 40*		20%			
Snowberry	Symphoricarpus albus var. Laevigatus	Deepot 40*		5%			
Pipevine	Aristilochia californica	Deepot 40*		5%			
Clematis	Clematis lingustifolia	Deepot 408	5%	5%			
Grape	Vitis californica	Deepot 408	5%	5%		10%	
Herbaceous							
Santa Barbara sedge	Carex barbarae	Treeband*		20%	5%	10%	
Santa Barbara sedge	Carex barbarae	Plug*					
Western Goldenrod	Euthamia occidentalis	Treeband*		10%			
Baltic rush	Juncus balticus	Treeband*		10%	20%	15%	15%
Common bog rush	Juncus effusus	Treeband*		5%	25%	20%	25%
Creeping wildrye	Leymus triticoides	Treeband*					
Creeping wildrye	Leymus triticoides	Plug*					
Scouringrush Horsetail	<i>Equisetum hyemale</i> ssp. <i>Affine</i>	Plug*		30%	10%	15%	10%
Evening primrose	Oenothera hookerii	Treeband*		25%			
California bulrush	Schoinoplectus californicus	Treeband*			20%	20%	25%
Tule	Schoenoplectus acutus var. occidentalis	Treeband*			20%	20%	25%

\*Type of potted plant

#### 2.6.2 Contract 3B North Site 4-2

Most of Site 4-2 is within the Vegetation Free Zone. It is adjacent to a maintenance road and bike trail. The site will be seeded with native grasses and forbs. **Table 5** shows the species composition of the seed mix. Due to levee safety requirements, no trees or shrubs will be planted.

		Dimension accord mix the Dure
Common Name	Scientific Name	live seed (PLS)/ Acre
seed: forbes		
Yarrow	Achillea millefolium	0.1
	<i>Eriogonum fasciculatum</i> var.	0
California Buckwheat	fasciculatum	
Western ragweed	Ambrosia psilostachya	0
Mugwort	Artemesia douglasiana	3.5
Purple clarkia	Clarkia purpurea	0
Elegant clarkia	Clarkia unguiculata	0
Turkey mullein	Croton setigerus	0
Yerba santa	Eriodictyon californicum	0
California poppy	Eschscholzia californica	0
Western goldentop (goldenrod)	Euthamia occidentalis	0.1
Gum plant	Grindelia camporum	0.5
Telegraph weed	Heterotheca grandiflora	0
Miniature lupine	Lupinus bicolor	0
Chick lupine	Lupinus microcarpus var. densiflorus	0
Common madia	Madia elegans	0
Tomcat clover	Trifolium wildenovii	2
Seed: grasses/rushes/sedges		
Spiked bentgrass	Agrostis exarta	0.25
California brome	Bromus carinatus	0
Santa Barbara sedge	Carex barbarae	0
		0
Valley Sedge		
	Elymus glaucus	4
	Elymus triticoides	10
	Festuca microstachys	4
California barlev	californica	6
Baltic rush	Juncus balticus	0
Common bog rush	Juncus effusus	0
One sided bluegrass	Poa secunda ssp secunda	0
Purple needlegrass	Stipa pulchra	0
		30.45

Table 5. Species Composition of Seed Mix for LAR Contract 3B Site 4-2.

#### 2.6.3 Contract 3B South Site 4-1

**Figure 37** and **Figure 38** show three examples of typical planting zones for Site 4-1. **Figures 36 to 42** show an example planting profile. Please note that in these rendering brightly colored vegetation is planned revegetation and faded color vegetation is existing and will be protected. **Table 6** shows the species composition of planting zones for Site 4-1.



*Figure 37. LAR Contract 3B South, Site 4-1 Planting Zones, Downstream.* Planting zones shown on a segment of the plan view of Site 4-1. Distributions of zones is typical of the entire site, subject to variations in width of the relative zones.



*Figure 38. LAR Contract 3B South, Site 4-1 Planting Zones, Upstream.* Planting zones shown on a segment of the plan view of Site 4-1. Distributions of zones is typical of the entire site, subject to variations in width of the relative zones.



Figure 39. Planting Zones for LAR Contract 3B Site 4-1 Shown on a Typical Profile View, (XS G).



Graphical representation - Subject to Change. Revegetated condition reflective of mature state

Figure 40. Renderings for LAR Contract 3B Site 4-1 Shown on a Typical Profile View, (XS G).



Figure 41. Planting Zones for LAR Contract 3B Site 4-1 Shown on a Typical Profile View, (XS H).



Graphical representation - Subject to Change. Revegetated condition reflective of mature state

Figure 42. Renderings for LAR Contract 3B Site 4-1 Shown on a Typical Profile View, (XS H).


Figure 43. Planting Zones for LAR Contract 3B Site 4-1 Shown on a Typical Profile View, (XS lb, Ja and Jb).



Figure 44. Planting Zones for LAR Contract 3B Site 4-1 Shown on a Typical Profile View, (XS K).



Graphical representation - Subject to Change. Revegetated condition reflective of mature state

Figure 45. Renderings for LAR Contract 3B Site 4-1 Shown on a Typical Profile View, (XS K).



Figure 46. Planting Zones for LAR Contract 3B Site 4-1 Shown on a Typical Profile View, (XS L).



Figure 47. Renderings for LAR Contract 3B Site 4-1 Shown on a Typical Profile View, (XS L).



Figure 48. Planting Zones for LAR Contract 3B Site 4-1 Shown on a Typical Profile View, (XS M).



Graphical representation - Subject to Change. Revegetated condition reflective of mature state

Figure 49. Renderings for LAR Contract 3B Site 4-1 Shown on a Typical Profile View, (XS N).

Common Name	Scientific Name	Size/	Mixed Riparian Forest	Upper Bank	Lower Bank	Willow	Planting Bench Binarian	Riparian/ Herb Ground-
Troop	Colonano Hamo	(jp)		Dunit	Dunit		Tupunun	
Tiees	[	Troop of						
Box elder	Acer negundo	4*	15%	25%	25%	12%	30%	
White alder	Alnus rhombifolia	Treepot 4*			5%	18%	15%	
Oregon ash	Fraxinus latifolia	Treepot 4*	10%		10%		20%	
Svcamore	Platanus racemosa	Treepot 4*	35%	15%	25%		10%	
- cycamere		Treepot					1070	
Cottonwood	Populus fremontii	4*	20%	10%	15%		15%	
	Quaraus labota	Treepot	20%	25%	200/			
	Quercus Iobala	Treenot	2076	3370	20 /0			
oak	wislizenii	4*		15%				
Goodding's willow	Salix gooddingii	Treepot 4*				10%	5%	
Goodding's								
willow	Salix gooddingii	Cuttings						
Red willow	Salix laevigata	Treepot 4*				20%	5%	
Red willow	Salix laeviaata	Cuttinas						
Understony (S	hurbs/Vinos/oto)							
	Artemesia	Treeband						
Mugwort	douglassiana	*	10%		15%		10%	
Coyote	Baccharis	Deepot						
brush	pilularis	40*	10%	10%	15%			
Mule fat	Baccharis salicifolia	1 reepot 4*	10%		15%		10%	
Buttonbush	Cephalanthus	Treepot	5%		10%	5%	40%	
Western	Cercis	Deepot	070		1070	570	+0 /0	
Redbud	occidentalis	40*		5%				
Western Goldenrod	Euthamia occidentalis	Treeband *	10%					
	Frangula	Deepot						
Coffeeberry	calilfornica	40*		5%				
Toyon	Heteromeles	Deepot	30/					
Wild	Mara	40 Deepot	370					
cucumber	macrocarpa	40*		5%				
_		Deepot						
Rose	Rosa californica	40*	20%	20%	15%		15%	
Blackberry	Rubus ursinus	40*	12%	15%	15%		5%	
Sandbar		Treepot						
willow	Salix exigua	4*				5%	10%	
Sandbar willow	Salix exigua	Cuttings	10%					
		Treepot						
Pacific willow	Salix lasiandra	4*				12%		
Pacific willow	Salix lasiandra	Cuttings						

# Table 6. Species Composition of Planting Zones for Site 4-1.

Common Name	Scientific Name	Size/ type	Mixed Riparian Forest	Upper Bank	Lower Bank	Willow Containers	Planting Bench Riparian	Riparian/ Herb Ground- cover
Arroyo willow	Salix lasiolepis	Treepot 4*				18%		
Arroyo willow	Salix lasiolepis	Cuttings						
Elderberry	Sambucus mexicana	Deepot 40*		20%				
Snowberry	Symphoricarpus albus var. Laevigatus	Deepot 40*		5%				
Pipevine	Aristilochia californica	Deepot 40*		5%	5%			
Clematis	Clematis lingustifolia	Deepot 40*	5%	5%	5%			
Grape	Vitis californica	Deepot 40*	5%	5%	5%		10%	
Herbaceous								
Santa Barbara sedge	Carex barbarae	Treeband *	10%	25%	10%	5%		10%
Santa Barbara	Carey barbarae	Plug*						
Western Goldenrod	Euthamia occidentalis	Treeband *	5%	10%				
Low bulrush	Isolepis cernua	Plug*			15%			10%
Baltic rush	Juncus balticus	Treeband *		15%	10%	20%	20%	15%
Common bog rush	Juncus effusus	Treeband *		=	10%	20%	20%	20%
Creeping wildrye	Leymus triticoides	Treeband *						5%
Creeping wildrye	Leymus triticoides	Plug*						
Scouringrush Horsetail	Equisetum hyemale ssp. Affine	Plug*	3%	30%	20%	10%	15%	10%
Evening primrose	Oenothera hookerii	Treeband *		20%	5%	5%	5%	
California bulrush	Schoinoplectus californicus	Treeband *			15%	20%	20%	15%
Tule	Schoenoplectus acutus var. occidentalis	Treeband *			15%	20%	20%	15%

\*Type of potted plant

## 2.6.4 Instream woody material (IWM)

IWM will be installed to provide fish habitat during the plant establishment period. The IWM will degrade overtime, as the plantings establish and grow to sufficient height to provide shading and structural cover. IWM will consist of anchored whole orchard trees placed laterally to the slope, secured with manilla rope (a type of rope with natural fibers). The manila rope will last for about 5 years. Approximately 60% of the planting benches will be covered by IWM.

# 1.7 Offsite Mitigation

## 2.7.1 Rossmoor West Mitigation Site

Offsite mitigation for Contracts 3B North and South will be accomplished through elderberry transplants, additional offsite compensatory mitigation, and purchase of credits from a USFWS approved conservation bank. The elderberry shrubs removed from the project limits, will be transplanted to the Rossmoor West mitigation site during the appropriate transplant window. Transplanting will occur at the same time and under the same contract as the vegetation removal so that the elderberries are not damaged due to the vegetation removal. In addition to transplanting elderberry shrubs, compensatory mitigation for the loss of habitat for the valley elderberry longhorn beetle (VELB) is required at a 3:1 ratio through offsite mitigation and/or purchase of conservation bank credits. Pollinator habitat is also included within the Rossmoor West Mitigation Site.

The Rossmoor West mitigation site is within the American River Parkway (Parkway). Additional elderberry shrubs and associated riparian species will be planted to restore habitat within the Parkway in accordance with USFWS and NMFS biological opinions for the project. Elderberries cannot be transplanted or planted onsite, so an offsite mitigation site, like Rossmoor West is needed to mitigate for elderberry impacts.

## 2.7.2 Future Mitigation Sites

Impacts on salmonid species and riparian habitat that cannot be fully mitigated on site will be achieved via habitat restoration at the American River Mitigation Site (ARMS), previously referred to as the Urrutia mitigation site, and/or through purchase of credits from an approved mitigation/conservation bank. ARMS is within the Parkway and is anticipated to be constructed in 2026/2027. Designs for this proposed mitigation area are currently at 35% and are scheduled to reach 65% designs in March 2025.

## 1.8 Staging Areas and Haul Routes

LAR Contract 3B North Site 3-1 staging areas are shown in **Figure 7**. Site 4-2 staging areas are shown in **Figure 12**. LAR Contract 3B South Site 4-1 staging areas are shown in **Figure 17**. Staging areas are limited near the Contract 3B sites. The following areas have been identified for staging:

C3B North

- University Park.
- Staging areas between segment 3-9 levee embankment and riverbank rock slope protection.
- Staging area just downstream of Watt Avenue Bridge and haul route.
- Wilhaggin Pump Station detention basin north of American River Drive.
- Staging area on waterside of levee between Regency Circle and Jacob Lane (the Rio Americano Mitigation Site).

C3B South

- Watt Avenue River Access parking areas.
- Larchmont Community Park area adjacent to the levee embankment.

Staging areas will be used for material stockpiles, construction office and trailers, construction worker vehicle parking, and equipment staging. Haul traffic may also pass through staging areas. The limits of the areas used for staging can be seen in **Figure 7**, **Figure 12**, and **Figure 17**.

Materials will be hauled to the site by truck. Access to the Contract 3B sites will be along existing public roadways and levee patrol roads (see **Figure 50**). Shallow depths in the American River generally prohibit use of barges.

Haul trucks will pass beneath the north side of Watt Avenue bridge. Sacramento County has approved the use of the temporary haul route under the bridge. Extensive analyses were performed to assess the effects of truck traffic on the Watt Avenue Bridge substructure to ensure no detrimental effects. Haul routes and temporary ramps needed for construction have been adjusted to reduce environmental impacts to the extent feasible. Where rock toe is present, the contractor may use it as a working platform and as a haul route in addition to the bank and levee slopes.

# **1.9 Construction Phasing**

The LAR Contracts 3B North and 3B South construction will proceed in phases beginning in fall 2025 with tree clearing at three sites and ending with revegetation of the last two sites in spring of 2028. **Table 1** details the construction sequence for all sites included in LAR Contract 3B. **Figure 51** and **Figure 52** provide more details on the construction phasing and haul route access for Sites 3-1 and 4-2.



Figure 50. Proposed Haul Route for LAR Contracts 3B North and 3B South.



Figure 51. Proposed Construction and Haul Route Phasing for Sites 3-1 and 4-2.



Figure 52. Proposed Construction Phasing for Site 4-1.

# 3. Effects on Wild and Scenic Values

**Table 7** provides a summary of federally listed species habitat types impacted by the LAR Contracts 3B North and 3B South and the associated compensatory habitat mitigation. **Table 8** provides a summary of the temporal impacts.

# 3.1 Effects on Free-Flowing Nature of the River

Levees are present on both sides of the American River throughout the LAR Contracts 3B North and 3B South reach and were present in 1981 when the river was designated as Wild and Scenic. Only lands within the levees rather than the whole floodplain were included in the designation because development had already occurred on the floodplain immediately behind the levees.

The proposed work will reshape the steep banks to create a more gradual, gentle slope along much of the project. Reshaping the bank will require up to 15 vertical feet of material be placed along the river bank and extend up to 80 feet out from the existing riverbank. This extension will be farther out into the river than the riverbank was in 1981. The material will provide better habitat along the river and a more natural riverbank than just placing revetment along the existing surface as bank protection. The purpose of the features that extend into the channel is toe erosion prevention and habitat restoration. Constructed banks are expected to naturally accrete sediments and vegetation over time to provide habitat for aquatic and terrestrial species. Improvements will not further appreciably constrain the floodplain beyond its original limit at the time of WSR designation. Therefore, the improvement will not adversely impact the free flow of the river.

## 3.2 Effects on Water Quality

Water quality impacts for this project will be temporary and short-term. In-water work and/or construction site runoff could increase turbidity; however, increases will be limited by following the provisions of the Stormwater Pollution Prevention Plan for the project which is required by the National Pollution Discharge Elimination System (NPDES). Consistent with the Clean Water Act 401 water quality certification for the project, a turbidity curtain, or other similar measure, will be used where required. The work site will be monitored to ensure that turbidity increases are limited to the work area. Upstream sampling will be conducted to determine ambient conditions on site. To ensure standards are met, these results will be compared to downstream turbidity results from sampling conducted during the work. In the medium term (up to 8 to 10 years), choke stone will capture fine sediments flowing past the site which will contribute to net water clarity. In the long term (beyond 8-10 years), the planted vegetation will ensure that excess sediment will not be released into the channel. In the short term, removal of the vegetation will likely increase water temperatures near the shore. Overtime once vegetation establishes, mature vegetation will provide nearshore shade which will assist in maintaining proper water temperatures. No impacts are anticipated

to water oxygen levels or nutrient loads outside of the bounds of the turbidity curtain, and no permanent impacts are anticipated since the proposed project does not contain any elements which could lead to permanent increases. As a result, this project is anticipated to have a neutral to net positive effect on water quality, in the long run.

# 3.3 Effects on the Anadromous Fishery

The planting benches will reduce impacts by creating habitat, especially foraging and refuge, for juvenile salmonids and other fish species. The benches will provide adequate soil volume to establish native tree species and companion shrub and herbaceous species. Each planting bench will slope waterward to the toe of the planting bench and downstream to an alcove. The planting bench slopes will provide shoreline variability to allow a diverse planting palette and provide design resiliency for habitat and refuge at a range of seasonal flows.

Higher elevation areas of the bench will be planted with a mix of native riparian trees, shrubs, vines, and herbaceous plants. Lower elevation benches will coincide with more frequently inundated areas and will be planted with a mix of water-dependent herbaceous plants. Essentially construction of the planting benches at Site 3-1 (Figure **34** and **Figure 36**) and parts of the planting benches at Site 4-1 (**Figure 45**) will convert areas of open water or steep slopes (conditions of both today and 1981 (see Attachment A) into areas of riparian vegetation that will be inundated and provide fish habitat. Small dead trees with intact root wads (IWM) will be placed at these lower elevations. The planting bench will terminate at the launchable toe which will be covered with choke stone to minimize the potential for predatory fish to hide in voids. The IWM will provide fish habitat while riparian plantings mature. In the long-term, the benches will increase available high-quality habitat for anadromous fish. Consistent with LAR Contracts 1, 2, and 3A, all actions which could affect federally protected fish, wildlife, or plant species are governed by the requirements of existing biological opinions issued by the USFWS (2021) and the National Marine Fisheries Service (NMFS) (2021). These documents specify the avoidance, minimization, and compensatory mitigation measures required for all impacts to sensitive natural resources for the ARCF project. Effects on habitat and any associated restoration are summarized in **Table 7**. USACE is currently in consultation with USFWS and NMFS and any new measures, terms and conditions in updated Biological Opinions will be followed as well.

LAR Contract 3B – Habitat Impact Summary (acres)				
Riparian Habitat (Elderberry/VELB)				
Impact	10.50			
Mitigation (3:1)	31.5			
Riparian (YBCU* minus VELB)				
Impact	8.25			
Mitigation (2:1)	16.5			
Salmonid Habitat				
Impact	24.0			
Mitigation (2:1 may change depending on	48.0			

 Table 7. Summary of Habitat Types Impacted and Associated Habitat Mitigation

 LAR Contract 3B – Habitat Impact Summary (acres)

construction timeline)	
Note: Acres needed to compensate offsite for im	pacts are intended to be restored at the
ARMS and Rossmoor West	
* YBCU = Yellow-billed cuckoo	

#### 3.4 Effects on Recreation

Removal and replacement of trails follow Sacramento County standard construction specifications (Feb 1, 2017). Specifications explain the approval process the contractor will need to follow to meet all Sacramento County guidelines for final signage and the Plan sets include the detour plans that have been coordinated with Regional Parks. A planning priority was to maintain recreation detour routes within the original trail alignments where feasible. Trails were only rerouted if it was determined to be unsafe for trail users and the requirement provided a suitable trail surface. The following are guidelines agreed upon with Regional Parks: Sites 3-1 and 4-2 should never have primary detours on the city streets at the same time. Trail detours should remain in the Parkway and must be approved by Regional Parks to detour onto city streets. Any long-term detour surface must be approved, non-skid surface, hardened, and maintained free of debris. Any crossing of trail by haul trucks will require construction flaggers. Haul trucks will have the priority to cross trails. Any tree clearing or mobilization work on the bike trail will require temporary detours to be placed on top of levee.

At Site 3-1, the maintenance road along the top of is currently used for recreation. It is expected to be used for construction access and will require closure and detour of the bicycle and pedestrian traffic at the Watt Avenue Bridge and potentially other locations. Recreation traffic will be routed mainly along the existing paved bike trail. Fencing will be provided to ensure separation of recreation traffic from construction traffic. USACE is considering moving the detour from the bike trail to the top of levee, however as of the 100% designs, the detour will remain on the bike trail.

At Site 3-1 haul trucks will cross the recreation trail at four locations. For these locations, the Contractor will provide composite mats to protect the trail surface for recreation traffic and to provide a more durable surface so haul traffic doesn't degrade the surface for recreational use. The top of the levee will be used for recreation detours during tree clearing, and mobilization and demobilization of the haul truck crossings at the existing American River Bike Trail as the American River Bike Trail will not be safe for recreational access at this time

For in-water work, a turbidity curtain will be used. The turbidity curtain will only block the area adjacent to the construction work. At no time will navigation of the river from upstream to downstream be precluded.

Revetment was present at the most upstream portion of Site 3-1 when the LAR was designated as Wild and Scenic in 1981 (**Figure 1**). Erosion protection at the LAR Contract 3B site was designed to minimize the visible revetment as much as feasible while still meeting flood risk standards. At the conclusion of this project, minimal

exposed riprap will be visible on the site. The upper slopes will be covered with soil and vegetated. The lower slopes will have planting benches. Riprap at the shoreline will be covered in choke stone which will fill interstitial spaces and capture sediments. Soil filled riprap will be used for tiebacks. Generally, revetment will only be visible in areas around utilities such as outfalls and locations within tiebacks where riprap sticks out through the soil.

The project will result in some topographic changes. Some of these changes will alter the river's edge. At Site 3-1 the river's edge currently is not often used for recreation below the horse trail because there is a steep slope to reach the river's edge. Slopes will be graded to be softened and planting benches with onsite habitat mitigation will extend into the river (**Figure 34** and **Figure 36**). Though it will not be encouraged for use for recreation as the area will be replanted with habitat, the softened slopes and planting benches will likely make easier access to the river for those who travel off trail for recreation. The launchable toe will make rock visible along the water's edge as well, but the launchable toe will be covered in choke stone to minimize fish predation and will likely make the launchable toe more comfortable for recreationalists to walk on as well.

At Site 4-1 many of the erosion protection features will be topped with soil or buried under the ground and not visible. Impacts from the project will likely not be noticeable to the public once vegetation establishes (**Figure 40**, **Figure 42**, and **Figure 47**). Typically, only the launchable toes at the edge of the water (**Figure 45** and **Figure 49**, **Figure 53**), tiebacks and erosion protection around existing facilities will be visible. Additionally, the launchable toes will be topped with choke stone to minimize fish predation but will also likely make walking on the launchable toes more comfortable for recreationalist.

Overtime, the future condition of the site will be indistinguishable from the fabric of the parkway. Based on all these factors, the Proposed Action will not significantly adversely affect recreation in the long-term.



Figure 53. Example of River View (Summer Water Levels, Photo Taken July 2024) of Planting Benches with Launchable Toes (No Choke Stone) Constructed in 1996 on the LAR Upstream of the Business I-80 Bridge.

# 3.4.1 LAR Contract 3B, North Site 3-1

Bike trail detours for Site 3-1 are shown in **Figure 55**. These detours will be used during construction activities. If the Project Partners determine during construction that other detours would be safer USACE will coordinate proposed detour changes with Regional Parks.

The horse trails on the waterside of the levee will be impacted by construction of the Site 3-1 features. The University River Access and the Kadema River Access will be closed to the public in both years. The public will be able to access the bike trail from downstream of Howe Avenue or upstream of Watt Avenue at that time. The horse trail will be restored to approximately the same location after construction is completed.



Figure 54. Contract 3B North Bike Detour Overview



Figure 55. Contract 3B North, Site 3-1 Bike Trail Detours.



Figure 56. Contract 3B North, Site 3-1, Watt Avenue Bridge Bike Trail Detours.

#### 3.4.2 LAR Contract 3B North, Site 4-2

The bike trail along the toe of levee is located very close to the levee at some locations and is expected to be disturbed during construction. Construction has been phased to minimize the need for detours as much as possible. The upstream section of the erosion protection will be completed first. During construction, bike trail traffic will detour onto city streets at Estates Drive. The upstream section will be completed, and the existing bike trail will be opened as soon as possible. During construction of downstream work, measures will be put in place to safety separate construction activities and recreationalists. An approximate 400-foot section will include a k-rail (also called jersey barrier) see **Figure 59** to separate recreationists from construction haul traffic. The k-rail will be placed on the centerline of the American River Bike Trail with a chain-link covered mesh netting vertical extension. The estimated 400 feet of trail will be a dismount zone for bike users per the County's request. The decomposed granite shoulder will be temporarily paved creating a wider section in this area. The top of the levee will be used for recreation traffic during the mobilization and demobilization of the haul truck crossings at the existing American River Bike Trail.

Aston Drive River Access, Rio Americano High School Access, and Regency Circle River Access, and Jacob Lane River Access will be closed during construction of site 4-2. During the second phase of construction Estates Drive River Access will also be closed. During the first phase of Site 4-2 construction recreationalist will be able to access from Watt Avenue, Estates Drive or Harrington Way. For the second phase of construction, recreationalist will be able to access from Watt Avenue or Harrington Way. The horse trail in site 4-2 will remain open during construction.



Figure 57. Contract 3B North, Site 4-2 Bike Trail Detours Overview.



Figure 58. Contract 3B North, Site 4-2 Bike Trail Detours Showing Detour Interfaces.



Figure 59. Contract 3B North, Site 4-2 Bike Trail Restriction Areas.

# 3.4.3 LAR Contract 3B South, Site 4-1

Horse trails are present along the waterside of Site 4-1. These trails will be impacted by construction. Once construction is complete, the horse trails will be restored to approximately the same location and to their pre-impact condition. The horse trail will remain closed during active construction times and no detour will be provided per Regional Parks request.

The Watt Avenue Boat Launch roadway and parking lot will be affected by construction. They will be restored to pre-impact condition once construction is complete. The Watt Avenue boat launch will be closed during construction both years. Due to the amount of haul trucks on the top of the levee, River access from the Watt Avenue Boat Launch, river access from the apartments upstream of Watt Avenue, Waterton Way River Access, river access through SARA park, river access through Larchmont Park and Rio Bravo Circle River Access will be closed during both construction years. Access will be available from the Kanas Way River Access and the Glenbrook Park River Access.

## 3.5 Aesthetics

As discussed in section 3.4, revetment was only present at Site 3-1 when LAR was established as a WSR. Consequently, erosion protection measures were designed to hide visible revetment as much as feasible. The extensive use of planting benches, and placement of soil and vegetation along the entire slope, ensures that LAR Contracts 3B North and 3B South embankment work will not have a long-term, permanent, adverse impact on aesthetics in the parkway. Use of choke stone adjacent to the water's edge will acquire sufficient sediment, in time, to conceal the improvements and provide a naturalistic appearance. Tiebacks will be filled with soil filled revetment but not capped with soil so there may be piece of revetment sticking out through the soil in some spots. When revetment is placed around outfalls, revetment will not be soil filled or topped with soil, so unnatural rock will be visible at these locations. Planting benches, slope vegetation, and grasses will obscure the remainder of the flood management features. The primary distinguishing visual characteristic between existing areas and project areas will be the age of the vegetation. This condition will endure for about 10 years until planted trees achieve mature height. In the long term, (about 10 years), the future condition of the levee is similar to existing sections of the levee within the parkway and new repair sites will be indistinguishable from the fabric of the parkway overall.

## 3.6 Avoidance and Minimization Measures

Consistent with the guidelines set forth in the programmatic consistency analysis (USACE, 2021), **Table 9** summarizes how Contracts 3B North and South will adhere to the Best Practices for designated WSR (NPS, 2020). During discussions held during the formulation of the programmatic consistency analysis, USACE and NPS jointly devised Universal Avoidance and Minimization measures to be adopted in the remainder of ARCF Project elements (i.e., contracts). A summary of how Contracts 3B North and 3B South adhere to the measures is given in **Table 10**.

# Table 8. Summary of Temporal Impacts.

LAR CONTRACT 3B North and South - PHASE 1- VEGETATION REMOVAL				
	Deter	<b>A</b> stiens		Planned Minimization Measures for
Contract/Site	Dates	Actions	WSR Resources Temporarily Affected	l emporary impacts
Contract 3B No	orth			
Site 3-1 Downstream	Fall 2025 - Winter 2026	Vegetation Removal and elderberry	<b>Aesthetics</b> impacts from tree removal and bare slopes.	<b>Aesthetics:</b> Aesthetic riparian temporal mitigation is accounted for in an anticipated 2:1 habitat ratio.
Site 3-1 Upstream	Fall 2026 – Winter 2027	transplant	Water Quality from increased turbidity and increased water temperature near the shore.	Water Quality: Use of Best Management Practices (BMP's) to reduce runoff in compliance with NPDES permit. Turbidity will be constantly monitored to ensure that increases in turbidity are minor and do not extend beyond the bounds of the repair.
Site 4-2	Fall 2025 – Winter 2026		<b>Anadromous Fish</b> from loss of vegetative cover and increased turbidity.	<b>Anadromous Fish:</b> Habitat ratios of greater than 1:1 (anticipated 2:1) in accordance with existing biological opinions accounts for temporal effects.
			<ul><li>Recreation due to bicycle, horse, and walking trail closures/detours.</li><li>Recreation due to loss of pedestrian use of the maintenance roads.</li></ul>	<b>Recreation:</b> Detours were developed with input from Regional Parks, and NPS, to ensure the least disruption to recreational assets practicable.
Contract 3B So	uth			
Site 4-1 Downstream	Fall 2025 - Winter 2026	Vegetation Removal and	Same as for Contract 3B North sites.	Same as for Contract 3B North sites.
Site 4-1 Upstream	Fall 2026 – Winter 2027	transplant		

Table 8. Summary of Temporal Impacts (Continued).

LAR CONTRACT 3B North and South - PHASE 2 - SITE CONSTRUCTION					
Contract/Sites	Dates (Erosion Protection)	Dates (Revegetation)	Actions	WSR Resources Temporarily Affected	Planned Minimization Measures for Temporary Impacts
Contract 3B Nor	th				
Site 3-1 Downstream	Mid-April – October 2026	Spring 2027	Upper levee slope improvement work including grading and rock	Aesthetics from tree removal and bare slopes.	<b>Aesthetics:</b> Aesthetic riparian temporal mitigation is accounted for in 2:1 habitat ratio.
Site 3-1 Upstream	June – October 2027	Spring 2028	placement Lower levee slope improvement, including in-water work construction of planting benches, and installation of IWM.	Water Quality effects from increased turbidity.	Water Quality: Use of Best Management Practices (BMP's) to reduce runoff in compliance with NPDES permit. Turbidity will be constantly monitored to ensure that increases in turbidity are minor and do not extend beyond the bounds of the repair. Additionally following conditions of the Programmatic ARCF 401 Water Quality Certification and Order will minimize effects to Water Quality through implementation of measures like monitoring water quality when there is in water work, fugitive dust abatement, spill prevention, sediment control and erosion control.
				Anadromous Fish effects from loss of vegetative cover and increased turbidity.	<b>Anadromous Fish:</b> Habitat ratios of greater than 1:1 (anticipated 2:1) in accordance with existing biological opinions accounts for temporal effects.

# Table 8. Summary of Temporal Impacts (Continued).

Contract/Sites	Dates (Erosion Protection)	Dates (Revegetation)	Actions	WSR Resources Temporarily Affected	Planned Minimization Measures for Temporary Impacts
Site 4-2	April – June 2026	Spring 2027		<ul> <li>Recreation effects due to bike, horse, and walking trail closures/detour.</li> <li>Recreation due to loss pedestrian use of the maintenance road.</li> </ul>	<b>Recreation:</b> Detours were developed with input from Regional Parks and NPS groups to ensure the least disruption to recreational assets practicable. In addition, construction was phased to reduce river access closures as much as
				<b>Recreation</b> due to closure of river access points.	feasible without risking the safety of recreationalists.
Contract 3B Sou	th		-		
Site 4-1 Downstream	Mid-April – October 2026	Spring 2027	Upper levee slope improvement work	Same as for Contract 3B North sites.	Same as for Contract 3B North sites.
Site 4-1 Upstream	Mid-April – October 2027	Spring 2028	including grading and rock placement Lower levee slope improvement, including in-water work construction of planting benches, and installation of IWM.	In addition: <b>Recreation</b> due to closure of the Watt Avenue Boat Launch.	

Table 8. Summary of Temporal Impacts (Continued).

LAR CONTRACT 3B North and South- PHASE 3 – MAINTENANCE (5 years)					
Contract/Site	Dates	Actions	WSR Resources Temporarily Affected	Planned Minimization Measures for Temporary Impacts	
3B North Sites 3-1 Downstream, Site 4-2 3B South Site 4-1 Downstream	Fall/Winter 2027/ Spring 2028 – Fall/Winter 2032	Replace plantings as needed, irrigation, weeding, use of a beaver fence.	<b>Aesthetics</b> - people working on the slopes, presence of irrigation equipment, presence of beaver fencing.	None planned.	
3B North Site 3-1 Upstream 3B South Site 4-1 Upstream	Fall/Winter 2028/ Spring 2029 – Fall/Winter 2033	Replace plantings as needed, irrigation, weeding, use of a beaver fence.	<b>Aesthetics</b> - people working on the slopes, presence of irrigation equipment, presence of beaver fencing.	None planned.	
LAR CONTRACT 3B North and South-PHASE 4 - LONG TERM OPERATIONS AND MAINTENANCE					
Contract/Site	Dates	Actions	WSR Resources Temporarily Affected	Planned Minimization Measures for Temporary Impacts	
3B North and South	For the life of the site	Mowing, weeding, and other activities as provided in the Parkway Plan	None	N/A	

NPS Best Management Practice	Proposed Action
Minimize the use and visibility of rock channel protection (RCP) and use only the minimum amount necessary to protect structures. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock.	The minimum amount of RCP required to meet risk management objectives is proposed. Most RCP will be covered with soil and plantings or with choke stone to naturally accrete sediments. Only areas near utilities like outfalls will not be covered soil. Additionally, tiebacks will be made with soil filled RCP so there may be places where rock will be visible in areas where it sticks up out of the soil. Over time it is expected that the tiebacks will only be apparent if the viewer is walking over them, or immediately adjacent.
If necessary, stone fill (riprap) may only be used for abutment scour protection; the use of stone fill to stabilize the riverbanks is prohibited. To stabilize the riverbanks, use approved native boulders, cobble and gravel; loam; vegetation; and bio- engineering techniques such that the banks, when fully restored, have an appearance and function similar to the natural riverbank.	Stone riprap will be placed below the Watt Avenue bridge on the South bank to ensure the bridge abutment's stability during a large flood event. It will also be placed under existing outfalls. These areas will not be planted; however, the outfalls and bridge footings are currently unvegetated, therefore the aesthetics of the area will not be further reduced. Stone riprap will be placed below the water surface at the time of construction. This water surface is assumed to be equivalent to the 2,660 cubic feet per second (cfs) water surface elevation. Buried stone riprap is also part of the buried launchable rock design.
Riparian areas must be restored to pre- disturbance conditions immediately after construction activities are completed.	Substantial restoration of vegetation is planned for the Contracts 3B North and South sites. Immediately following construction, the sites will be hydroseeded with an appropriate native seed mix. Plantings of tree saplings and other companion plants will occur as soon as practicable thereafter, but no later than one year following construction.
Disturbed/exposed banks, staging and project access areas must be properly stabilized (seeded, mulched, or otherwise) with native vegetation to prevent erosion and establishment of invasive plant species. A non-persistent cover crop of annual rye or equivalent temporary seeding may be used to ensure a more rapid establishment of cover while native perennial plantings grow.	Immediately following construction, the site will be hydroseeded with an appropriate native seed mix.

Table 9. Summary of Adherence to NPS Best Practices.

NPS Best Management Practice	Proposed Action
Bio-engineering methods must be used or, where deemed necessary by the [insert river managing agency/ contact], clean broken rock riprap of an adequate size specific for bank stabilization.	Clean broken rock riprap of an adequate size for the minimum footprint will only be used where deemed necessary to meet flood risk and levee safety objectives for a flow of 160,000 cfs. In addition, bioengineered methods will be used across the site to address habitat and aesthetics through a combination of soil filling the riprap, topsoil placement above the riprap, planting benches, choke stone, IWM, coir fabric and native replanting efforts.
The use of demolition debris for slope armoring is not allowed.	No demolition debris will be used for slope protection.
Avoid unnecessary tree removal within the project work area.	Tree removal has been minimized to the extent feasible. The design team has looked tree by tree to determine if each tree within the project footprint can be saved. This has been accomplished in consultation with stakeholders during meetings and site visits
A vegetation plan shall be in place to protect existing vegetation/trees from damage by construction equipment ( <i>e.g.</i> , provide temporary barriers to protect existing trees, plants, root zone).	Trees outside of the removal zones will be protected in place using orange construction fencing or chain-link fences. Trees with rootzones in the construction area that would be damaged by grading activities will be removed. Contract Specifications will be put in place to protect trees including requiring an arborist be present for tree trimming or grading near roots; financial penalties for tree damage; and root protection matting.
Disturbances of the riparian zone must be limited to the indicated access points; prior to the operation of heavy equipment (dozers, cranes, trucks), orange construction fencing must be erected to delineate the dripline of remaining trees to avoid compaction of tree roots.	Orange construction fencing or chain link fences will be used to delineate the site boundaries. No work will occur outside the construction footprint or designated staging areas.
The fastening of ropes, cables, or fencing to trees is prohibited.	No ropes, cables, or fencing will be fastened to trees marked for retention.
To ensure bank stability, trees removed within fifteen feet of the top of the riverbank shall be cut flush to the ground; stumps and roots shall be left in place; indiscriminate bulldozing of riparian trees is prohibited.	Tree removal will occur in two phases. In phase 1, trees will be cut 4 feet above the grade the fall/winter prior to start of construction to avoid impacts to nesting birds. In phase 2, remaining stumps and roots will be removed, the timing is to avoid impacts to fisheries. As the projects objective is to stabilize the banks and reduce flood risk, this concern is accounted for with the overall

NPS Best Management Practice	Proposed Action
	design of the project. At no point will indiscriminate bulldozing occur.
All trees removed from the riparian corridor shall be replaced with a native tree of like species. Replace each mature tree removed (12-inch or greater diameter at breast height [DBH]) with [insert specifications, e.g., replant 3:1 ratio depending on expected survival rate and with trees that are a minimum 3- inches DBH]. Plant only local, native trees/shrubs/grasses, naturally occurring within the [insert river name] riparian zone [insert plant species list and/or to be determined in coordination with appropriate staff].	Trees and vegetation will be removed from within the project footprint to allow for erosion protection measures. Trees and vegetation on the periphery of the project will be protected from construction activities. Riparian habitat impact acreage will be replaced by planting riparian trees and shrubs at a ratio of 2:1 (replacement habitat: affected habitat), except riparian habitat within 82 feet of elderberry shrubs, will be replaced at a ratio of 3:1. These two mitigation ratios were set in coordination with the USFWS and are stated in the Biological Opinions for the project. As much vegetation as possible will be replaced on-site and the remainder will be planted within the Parkway in mitigation areas that will be conserved in perpetuity. Overall, there will be greater than 3:1 native plant replacement. Only native plant species appropriate for the sites and approved by the County of Sacramento for planting in the Parkway, will be used. Three-inch diameter and larger trees of the appropriate species are not available locally in sufficient quantities and quality for this project. The California nursery industry largely grows containerized plants, which, in the larger sizes are often root bound. The larger containerized trees also do not adapt well to natural site conditions. This is especially a problem in areas that only receive rain during the winter, as is the case in the region this project is located. Therefore, the project will utilize smaller container plantings that adapt more readily to site conditions. These smaller plantings will be provided a 5-year establishment period, which includes irrigation to maximize growth and survival
A qualified individual (arborists, foresters, or trained staff with similar experience) shall plant replacement trees at the appropriate time of year and in a random fashion to avoid a plantation effect. Cultivate and monitor planted tree seedlings/saplings for two years to ensure success; water plantings as necessary.	Replacement trees will be planted at designated riparian habitat restoration areas according to designs prepared under the supervision of a California licensed USACE landscape architect with experience in developing habitat restoration. The mitigation sites will be managed and monitored according to the ARCF GRR Habitat

NPS Best Management Practice	Proposed Action
Promptly replace planted stock showing signs of mortality.	Mitigation Monitoring and Adaptive Management Plan, which includes success criteria. Plants will be watered as needed for 3–5 years.
Stakes and guide wires shall be properly removed and disposed of once seedlings are established.	All stakes, fencing, and any other construction or mitigation related materials will be removed once construction is completed and once mitigation plants have become established and mature. The plantings will not utilize stakes or guide wires, as they are not necessary for the proposed type and sizes of plantings and are generally detrimental for revegetation plantings intended to mimic naturally occurring stands of plants.

 Table 10. Summary of Adherence to Universal Avoidance and Minimization

 Measures.

Proposed	Proposed Avoidance or	WSR	Adherence to the Measure:
Design	Reduction of Impact	Aspect(s):	
Feature:	Measure:		
Levee Setbacks	Set back the levees wherever possible to allow the river to move.	Free-Flow	Levee setbacks are not feasible in this area due to the existence of homes, businesses, and major roadways immediately behind the levee.
Bioenginee ring and native plantings throughout the banks and levees	Avoid riprap to the extent possible. Use bioengineering techniques including use of wood (e.g., log crib walls, tree revetments, root revetments; engineered log jams) and deformable techniques (e.g., fabric- encapsulated soil lifts (i.e., geolifts), rock bags, coir rolls (i.e., bio logs), erosion control blankets/fabrics).	Free-Flow, Anadromous Fish	While bioengineered methods to achieve flood risk reduction are not feasible in this area as the sole method due to the magnitude of the hydraulic forces, the minimum amount of rock protection will be used to meet the risk reduction objectives. Bioengineered methods will be used across the sites through a combination of soil-filled rock, planting benches, topsoil placed over riprap, choke stone, IWM, coir fabric and revegetation with native species. Natural soil accretion and plant recruitment is expected. IWM will be placed at appropriate water surface elevations to create a naturalistic appearance and restore function
Riprap at the bank toe	Riprap would only be placed at the bank toe of segments where the levee prism and associated planting berms (if included) are at the extent of the Parkway limits.	Free flow	USACE understands this Avoidance measure to mean that when the levee prism is far from the riverbank, the bank toe will not be used. Site designs are consistent with this measure as the erosion protection features are being placed to the protect the levee. In some locations rock will be placed at the toe of the riverbank hundreds of feet from the levee toe at both sites 3-1

Proposed	Proposed Avoidance or	WSR	Adherence to the Measure:
Design Feature:	Reduction of Impact	Aspect(s):	
Teature.			(up to 150 feet away) and 4- 1 (up to 300 feet away). This is due to the site topography and the levee prism, which is still fairly close to areas along the riverbank at risk of erosion. USACE is not placing rock at the riverbank toe unless it is absolutely necessary for flood risk reduction.
	Ensure no hydraulic impacts from riprap.	Water quality	Site designs are consistent with this measure.
	Ensure no direct and adverse impacts to anadromous fish.	Anadromous Fish	All direct and adverse effects to anadromous fish have been considered in the programmatic biological opinion for the project. Jointly with the NMFS, USACE has devised avoidance and minimization measures to reduce these impacts to the extent practicable. In addition, mitigation ratios of greater than 1:1, as required by the biological opinion, will reduce these effects and ensure that any adverse effects are short term in nature.
Riprap at the bank toe	Minimize the use and visibility of rock channel protection (RCP) and use only the minimum amount necessary to protect structures. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock. If rock is needed utilize cobble to the extent possible. Cover exposed riprap at the bank with soil and vegetation where cobble is not possible.	In-water recreation Aesthetics	RCP along the majority of the levee and riverbank will be covered with soil and replanted. Areas along the launchable toes at the riverbank toes will not be covered with soil and replanted. RCP at the bank toe has been reduced to the minimum amount necessary to achieve the flood risk reduction objectives. Riprap at the bank toe will be covered with choke stone to naturally accrete sediments. Riprap will be exposed

Reduction of Impact Measure:	Aspect(s):	Aunerence to the Measure:
Minimize the use and visibility of RCP. RCP should be avoided or minimized to	Anadromous Fish	around bridge footings and outfalls, consistent with the current condition. Soil-filled riprap will be used for tiebacks. Riprap may stick up through soil and be visible. Capping the tiebacks with soil was considered, but it was determined that this would increase the river stage to an unacceptable level. Most riprap will be covered by soil and planting benches, except around outfalls and
the extent possible. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock. Cover any necessary riprap on the bank above the OHWM with planting benches containing sufficient soil and capable of supporting riparian habitat.	Recreation Aesthetics	bridge footings, and on tiebacks. All areas of the slopes will be planted with appropriate materials per the planting plans. Some locations, listed as Planting benches have been designed to have an adequate depth to support riparian trees and shrubs
Cover revetment on the slope with sufficient soil and native grasses or forbs, as woody vegetation may not be possible due to USACE vegetation on levees policies.	Anadromous Fish Aesthetics	Slopes within the vegetation free zone will be hydroseeded with soil and appropriate native grasses and forbs. Site designs are consistent with this measure.
Minimize vegetation removal to the maximum extent practicable. Provide planting benches to reduce the affects for lost habitat on-site. Riparian areas must be restored to pre-disturbance	Anadromous Fish Aesthetics Water quality	Only trees within the construction footprint, or designated haul routes will be removed. Haul routes have been placed to avoid trees and elderberry shrubs to the extent feasible. Access ramps have been oriented to minimize the
	Reduction of Impact Measure:         Minimize the use and visibility of RCP. RCP should be avoided or minimized to the extent possible. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock.         Cover any necessary riprap on the bank above the OHWM with planting benches containing sufficient soil and capable of supporting riparian habitat.         Cover revetment on the slope with sufficient soil and native grasses or forbs, as woody vegetation may not be possible due to USACE vegetation on levees policies.         Minimize vegetation removal to the maximum extent practicable.         Provide planting benches to reduce the affects for lost habitat on-site.         Riparian areas must be restored to pre-disturbance conditions immediately after	Reduction of impact Measure:Aspect(s):Measure:Aspect(s):Minimize the use and visibility of RCP. RCP should be avoided or minimized to the extent possible. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock.Anadromous Fish Recreation AestheticsCover any necessary riprap on the bank above the OHWM with planting benches containing sufficient soil and capable of supporting riparian habitat.Anadromous Fish AestheticsCover revetment on the slope with sufficient soil and native grasses or forbs, as woody vegetation may not be possible due to USACE vegetation on levees policies.Anadromous Fish AestheticsMinimize vegetation removal to the maximum extent practicable.Anadromous Fish AestheticsProvide planting benches to reduce the affects for lost habitat on-site.Anadromous Fish AestheticsRiparian areas must be restored to pre-disturbance conditions immediately afterMinimize vegetation removal to the maximum extent practicable.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
	construction activities are completed. Provide restoration in the parkway when revegetation cannot be completely restored in the project footprint. Re-vegetate all areas of the repair site above the waterline with native, ecotone appropriate, species. Design sites such that they are indistinguishable from the overall fabric of the Parkway		<ul> <li>practicable.</li> <li>Established roads will be used as haul routes wherever possible.</li> <li>Habitat mitigation that cannot be completed on site will be accomplished at other locations in the Parkway in at least a 1:1 ratio.</li> <li>Site designs are consistent with this measure.</li> </ul>
Closure of bike trail	The first priority is to detour the bike trail on the nearest dedicated trail. That is, the trail should not be shared with automobiles. If the bike trail segment being detoured is paved, the detour route should also be completely paved to include all transitions from permanent to temporary trails/detours. In an event due to where the trail cannot be routed near construction boundaries for safety concerns it should be detoured to surface streets with bicycle safety measures for a minimal amount time. Detours to surface streets should be considered the last option and review by all stakeholders. Provide information at both ends of the closure and on the web about the location and duration of the closure and provide a map of the detour.	Recreation	Bike trail detours will be provided around the work on 3B North and 3B South. Section 3.4 and <b>Figure 54</b> <b>through Figure 59</b> of this report provide additional details. Existing trail system within the Parkway will be used for detours where feasible. Detours to the top of levee and to public surface street will also be used in certain locations. In the vicinity of Watt Bridge, two detour options will be available to bikes. Both o are within Parkway trail options. In all cases, rider safety is of paramount importance. Signage, physical barriers separating riders from other motorized vehicles, and/or in-person flaggers will be present to avoid safety risks to bike riders. Informational signage will be posted at the upstream and downstream ends of the

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
	Minimize the extent of the closure. When feasible use flaggers instead of detours. Minimize the length of time the detours are needed. Detours will carry the same safety standards as a permanent trail and if detours go down to one bicycle lane, caution should be considered and the included use of flaggers with dismount zones in single lane areas. Any permanent re-routing of the bike trail should also include rerouting the equestrian trail. Re-routed trails should provide the same experience as the existing trail including the aesthetics. The new trail should be shaded with		detour as well as at the closure points. Information will also be provided on-line.
Closure of levee maintenanc e road	riparian vegetation. Detour the route, if normally used as a hiking, horse, or mountain bike trail. Provide information at both ends of the closure and on the web about the location and duration of the closure and provide a map of the detour. Plant vegetation to provide shading along this road once users return to the extent possible.	Recreation	Where an affected levee maintenance road is used by hikers, bicycle riders and/or horseback riders, detours will be provided when safe. Generally, it has been determined not to be safe to provide a detour for equestrian or hiking at Sites 3-1 and 4-1. Information will be provided at the closure points and online. Sites were generally designed so that a strip of vegetation will remain along the bike trail. Otherwise, when trails are not within the vegetation free zone, areas will be replanted.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
General Impacts of Work in the Parkway	Reduce work limits to the maximum extent practicable. Close trails and other recreational features only when necessary for safety of the public. Advance notice of work shall be provided at the site of the closures and on the web.	Recreation	Every effort has been made to reduce the work area to the extent practicable. Advance notice of the work will be provided on sacleveeupgrades.com.
	Phase work appropriately such that sites do not remain incomplete for excessive periods of time (e.g., bank work completed but planting delayed for years, or tree clearance years ahead of the construction etc.)	Aesthetics	Work is scheduled to be conducted sequentially. Gaps in the construction sequence will be limited to necessary safety stand downs during the flood season when no work may be conducted in the floodway.
Closure of boat ramp	Avoid closure of boat ramps to the maximum extent practicable. Phase work such that not more than one boat ramp is closed. Provide information at the closure and on the web about the location and duration of the closure and the nearest open boat ramp. Minimize closure time and keep it open when work is not being done on the weekends and in the evenings. Provide improvements to the boat launch once users can return to the site.	Recreation	The Watt Avenue Boat Launch (both the ramp upstream from Watt Avenue and the ramp downstream of Watt Avenue) will be closed during construction of American River Erosion Contract 3B South. During the first year of construction the parking lots will be torn up, so the public will not have access. In year two heavy haul traffic will make it unsafe the access the area.
Closure of river access points	Avoid closure of river access points to the maximum extent practicable. Phase work such that consecutive river access points are not closed for more than one consecutive mile on account of this project. Provide information at the closure(s) and on the web about the location and duration of the closure and the nearest	Recreation	The following accesses will be affected by this work: University Park River Access, Kadema Drive River Access, Estates Drive River Access, Aston Drive River Access, Rio Americano High School Access, Regency Circle River Access, Jacob Lane River Access, the Watt Avenue Boat Launch, river access from the apartments
Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
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	open river access points. Minimize closure time and keep it open when work is not being done on the weekends and in the evenings. Provide improvements to the boat launch once users can return to the site.		upstream of Watt Avenue, Waterton Way River Access, river access through SARA park, river access through Larchmont Park and Rio Bravo Circle River Access. Construction was phased to minimize closure of consecutive river access points as much as feasible. However, Site 4-2 and 4-1 were determined to be too unsafe to allow access due to the amount of haul traffic along the top of levee. Unofficial, informal access to the river will be restricted from active construction zones and within the project area during vegetation establishment following construction. Portions of the Parkway that are not under construction or in the process of vegetation establishment will remain available for river access
In water work	Abide by NPDES requirements to ensure there is no adverse effect to water quality.	Water Quality	Site designs are consistent with this measure.
	Abide by NMFS Biological Opinion to ensure there is no adverse effect to anadromous fish from water quality.	Anadromous Fish	Site designs are consistent with this measure.
	Provide buoys or other demarcation for closed sections of the channel. The channel shall not be closed such that upstream or downstream navigation is precluded.	In-water recreation	Buoys or other demarcation will be provided at the turbidity curtain boundary. At no time will navigation be completely precluded.

#### 4 Conclusion

USACE has determined that the LAR Contracts 3B North and 3B South should be considered consistent with the mandates of the WSRA because:

- a) The project is a part of the authorized ARCF project and fits within the scope of the overall project.
- b) The minimization measures proposed for each design specific feature, as outlined in the Universal Minimization Measures, will be followed.
- c) This project will be conducted under the standing biological opinions for the ARCF project and will be subject to the terms and conditions therein.
- d) This project will be conducted in accordance with the programmatic 401 certification for the ARCF project and will be bound to the terms therein.

USACE requests concurrence from NPS within 60 days of the date of this document.

#### **5** References

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#### American River Common Features 2016 Project Section 7 Wild and Scenic Rivers Act DRAFT Consistency Analysis American River Erosion Contract 4A

Erosion Management Activities on the Lower American River- Sacramento County, California







October 2024

US Army Corps of Engineers® Sacramento District

#### Preface

As discussed in the main body of Appendix H, consistency with the Federal Wild and Scenic Rivers Act is considered throughout design development for the Lower American River (LAR) elements of the American River Common Features (2016) Project. The purpose of this attachment (**Attachment 2**) is to share with the public and decision makers the current Draft USACE Consistency Analysis for LAR Contract 4A. LAR Contract 4A reached 95% level of design but a portion of the contract is undergoing redesign at a 65% design level. This Draft Consistency Analysis evaluates LAR Contract 4A using the best available design information. Once designs have reached 95%, USACE will update this draft Consistency Analysis to provide more project specific details and will transmit it to the National Park Service together with a request that they conduct their consistency review.

i

# **Table of Contents**

1.	Intro	duction	.1
	1.1.	Authority	1
	1.2.	Need for Consistency Determination	1
	1.3.	Purpose of this report	2
2.	Proje	ct Description	.3
	2.1.	Location	3
		2.1.1. Site Condition in 1981	.3
	2.1	Schedule and Duration	5
	2.2	General project features	6
	2.1.1	Erosion Protection Features	7
	2.1.2	Preliminary Bike Trail (and Patrol Road) Reroute	9
	2.2.	Other design features	9
	2.2	On-site restoration features	9
	2.3	Offsite Mitigation1	0
	2.4	Staging Areas and Haul Routes 1	0
3	Effec	ts on Wild and Scenic Values1	3
	3.1	Effects on Free-Flowing Nature of the River 1	13
	3.2	Effects on Water Quality1	13
	3.3	Effects on the Anadromous Fishery1	14
	3.4	Effects on Recreation 1	4
	3.5	Aesthetics1	15
	3.6	Avoidance and Minimization Measures1	16
4	Conc	lusion2	25
5	Refer	ences2	26

ii

#### List of Tables

Table 1. Summary of Temporal Impacts.	. 17
Table 2. Summary of Adherence to NPS Best Practices	. 18
Table 3. Summary of Adherence to Universal Avoidance and Minimization Measures.	. 20

#### **Table of Figures**

Figure 1.Location of Revetment that was Present Along the LAR in 1981 when it was	
Designated as a Wild and Scenic River	.4
Figure 2. Overall American River Contract 4A Project Location	. 5
Figure 3 Preliminary LAR Contract 4A Construction Limits and Staging Areas	. 6
Figure 4 Overhead Drawing of Velocity Diverting Berm	.7
Figure 5 Cross Section of Velocity Diverting Berm	. 8
Figure 6. Proposed Haul Route for LAR Contract 4A	12

## **Acronyms and Abbreviations**

Acronym or Abbreviation	Description
AEP	Annual Exceedance Probability
ARCF	American River Common Features 2016
ARMS	American River Mitigation Site
cfs	Cubic feet per second
FEIR	Final Environmental Impact Report (CEQA)
FEIS	Final Environmental Impact Statement (NEPA)
GRR	General Reevaluation Report
IWM	Instream Woody Material
HMA	Hot Mix Asphalt Concrete
LAR	Lower American River
NMFS	National Marine Fisheries Service
No.	Number
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
Parkway	American River Parkway
Proposed Action	American River Erosion Contract 4A
SH	State Highway
Stat.	Statute
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VELB	Valley elderberry longhorn beetle
WRDA	Water Resources Development Act
WSR	Wild and Scenic River
WSRA	Wild and Scenic River Act
XS	Cross section

# 1. Introduction

The American River Common Features 2016 Project (ARCF Project) is a Congressionally authorized flood risk management project that is being implemented by the project cost-sharing partners the U.S. Army Corps of Engineers (USACE), the Central Valley Flood Protection Board (CVFPB), and the Sacramento Area Flood Control Association (SAFCA). The California Department of Water Resources (DWR) also participates and provides technical staff to support the CVFPB. The full scope of the ARCF Project is described in the 2016 American River Watershed Common Features General Reevaluation Report (GRR) and joint Final Environmental Impact Statement and Environmental Impact Report (FEIS/FEIR), and as revised and supplemented. This consistency analysis addresses Lower American River (LAR) Contract 4A.

# 1.1. Authority

As part of the larger ARCF Project, LAR Contract 4A (Proposed Action) is authorized by Section 101(a)(1)(A) of the Water Resources Development Act (WRDA) of 1996, Public Law Number (No.) 104303 Section 101(a)(1), 110 Statute (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). Following the interim general reevaluation study, additional authority was provided 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 the Nation Act, and Public Law 115-123 (Bipartisan Budget Act of 2018).

# **1.2. Need for Consistency Determination**

The Lower American River (LAR) has been designated by the Secretary of the Interior as a Wild and Scenic River (WSR) under the Wild and Scenic Rivers Act (WSRA) Section 2(a)(ii). The ARCF Project constitutes an "Other Proposed Federally-Assisted Water Resources Project (Agency Other than the Federal Energy Regulatory Commission)" within the WSR-designated portion of the LAR (Interagency Wild and Scenic Rivers Council 2004). Section 7(a) of the WSRA requires Federal agencies to determine whether water resources projects planned in rivers under the jurisdiction of the act are consistent with WSRA requirements to protect river resources. The responsibility for the Section 7 determination is a Federal responsibility not delegated to the state. Therefore Section 7 determinations are the responsibility of one of the four river administering agencies, Bureau of Land Management, U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service, or the National Park Service (NPS). As the LAR does not run through Federal lands under the jurisdiction of another Federal riveradministering agency, the responsibility for the Section 7 determination rests with NPS. Accordingly, the Sacramento District, USACE prepared this analysis for the NPS as agency submitted documentation to support a consistency determination.

1

## **1.3.** Purpose of this report

The ARCF project was described in the American River Common Features (ARCF) Project 2016 Wild and Scenic Rivers Programmatic Consistency Analysis, dated June 22, 2021, and updated July 19, 2021 (NPS identifier 1.A.2 (PW-NR)). This projectspecific consistency analysis focuses on the potential effects of LAR Contract 4A, which is part of the ARCF project and is located on the LAR. This report considers whether the Proposed Action would directly and adversely affect the river values that were present in the LAR in 1981, the year when the LAR was designated as a component of the National Wild and Scenic Rivers System. The actions under LAR Contract 4A are consistent with the purpose and need of the overall ARCF project. They are conducted within the overall location of the ARCF project as described in the programmatic consistency analysis. This report was prepared using the format provided in Appendix A of the programmatic consistency analysis (USACE, 2021).

# 2. Project Description

# 2.1. Location

LAR Contract 4A is just upstream of the State Highway (SH) 160 Bridge on the north side of the American River. **Figure 2** shows the location of LAR Contract 4A and **Figure 3** shows the project footprint.

#### 2.1.1. Site Condition in 1981

LAR was listed as a Wild and Scenic River in 1981. Aerials of the project area taken on April 1, 1976, August 10, 1981, and June 29, 1987, collected from the University of California Santa Barbara's Library's FrameFinder Website (UCSB 2024) were used to determine the visible conditions when LAR was listed as a Wild and Scenic River. Refer to Attachment A to see a side-by-side comparison of the proposed erosion protection features with the aerials from these dates. There was far less vegetation in 1981 (Attachment A). There was vegetation where the berm is being proposed. The wetland within the Project Footprint was present as well.

There was some revetment already installed along the LAR when LAR was established as a Wild and Scenic River in 1981 (**Figure 1**). At the LAR Contract 4A site, there was no revetment.

3



Figure 1. Location of Revetment that was Present Along the LAR in 1981 when it was Designated as a Wild and Scenic River

#### DRAFT <65% to 95% DESIGNS

# 2.2. Schedule and Duration

LAR Contract 4A construction will proceed in phases beginning in fall 2026 with tree clearing and elderberry transplants, ending with construction and reseeding finishing in fall 2027.



Figure 2. Overall American River Contract 4A Project Location



#### Figure 3. Preliminary LAR Contract 4A Construction Limits and Staging Areas

## 2.3. General project features

At the LAR Contract 4A site there are three bridge embankments that are partially blocking flood flows in the floodplain, forcing the flow through a narrower area and accelerating the velocity near the levee. Additionally, the presence of the SH 160 bridge bent columns (aka, piers) and Union Pacific Railroad (UPRR) bridge bent posts (aka, piers) near the levee toe creates additional turbulence near the levee, further increasing erosive forces. To reduce the risk of erosion at the project site, a waterside berm will be placed closed to the SH 160 bridges. The berm would divert velocities and flows away from the levee.

This berm will block the existing Jedediah Smith Memorial Trail, which is a heavily used bike path for recreation and commuter use. Therefore, this bike path will need to be permanently relocated as part of the project. Because the top of the levee drops off and becomes flood gates for road and railroad crossings in this area, the bike path also functions as a patrol road for American River Flood Control District to monitor the levee. Consideration for relocation for both recreational use and flood management use was considered when designing the project. Additionally, a 12-inch utility waterline will be relocated. The location and erosion protection method of LAR Contract 4A were not analyzed in the ARCF GRR Final EIS/FEIR. Only use of riprap in bank protection or launchable trench were considered in the ARCF GRR Final EIS/FEIR. Additionally, the ARCF GRR Final EIS/FEIR did not consider alternatives where the erosion protection features would permanently block the Jedediah Smith Memorial Trail.

#### 2.3.1. Erosion Protection Features

The berm includes a waterside embankment that is adjacent to and joined with the existing levee. **Figure 4** and **Figure 5** shows sketches of the proposed berm. The berm and surrounding scour apron will be constructed of soil-filled quarry stone. The soil-filled quarry stone and scour apron will have 1-foot of topsoil placed on top to support establishment of native grasses for erosion protection and provide a more natural appearance. Since the berm will be constructed where the existing bike path is routed, the bike path will be re-routed south and around the berm.



Figure 4. Overhead Drawing of Velocity Diverting Berm



Figure 5. Cross Section of Velocity Diverting Berm

#### 2.3.2. Preliminary Bike Trail (and Patrol Road) Reroute

At this location the top of the levee drops off for the railroad tracks and Del Paso Blvd, so the Jedediah Smith Memorial Trail at this location is also utilized as a patrol road by American River Flood Control District to inspect and maintain the levee. The design team needed to consider detour and rerouting both the recreational trail and the patrol road in this location.

Because the velocity diverting berm will be blocking the Jedediah Smith Memorial Trail, part of the project includes rerouting the Jedediah Smith Memorial Trail. Unfortunately, there is a wetland that follows the Jedediah Smith Memorial Trail in this area for almost a mile, that cannot be fully avoided. The velocity berm cannot be moved without requiring increased footprints, increased habitat impacts and decreased functionality. A bike trail reroute was considered along an existing road south of the wetland along an existing dirt road, but design constraints have prevented this option. Instead, the bike trail will be rerouted directly around the berm. Designs for the bike trail reroute are in early phases, so details are preliminary. Additional fill will be required within the wetland to construct this bike trail reroute. Fill will be reseeded and planted with native grasses. Impacts to wetlands will be mitigated at the American River Mitigation Site (ARMS), which is sometimes referred to as the Urrutia mitigation site, and/or by purchasing credits from an approved mitigation bank. The land that is now the ARMS wasa an old sand and gravel mine before being abandoned. The area will be restored for use as compensatory habitat mitigaon by reshaping the topography, reconnecting the floodplain to the American River, and establishing freshwater emergent/seasonal wetland habiat, riparian woodland, and riverine habitat.

Design of the bike path will use a recent previous design by Sacramento County Regional Parks Department (Regional Parks) and is defined by two 6-foot-wide lanes with 3-foot shoulders. The structural cross section of the bike path is anticipated to be comprised of a 21-inch total depth section (3-inches of Hot Mix Asphalt Concrete (HMA) over 6-inches of Aggregate Base Course founded on 12-inches of compacted subgrade). Shoulders are anticipated to consist of compacted decomposed granite surfacing flush with the HMA. Striping and pavement markings are anticipated to be designed to be consistent with the Caltrans Highway Design Manual.

# 2.4. Other design features

There is a 12-inch utility waterline that runs approximately along the toe of the levee on the waterside within the project footprint, upstream of the UPRR bridge trestle. The 12-inch waterline also runs approximately perpendicular from the UPRR bridge trestle towards the toe of the levee. Approximately 200 feet of this waterline will be relocated from underneath the berm.

# 2.5. On-site restoration features

Unlike all of the other LAR Projects associated with the ARCF project, LAR Contract 4A

is not anticipated to include on-site habitat mitigation. Generally, the areas impacted by the project will be a part of the Vegetation Free Zone of the Levee or the rerouted Jedediah Smith Memorial Trail. There will likely be very limited areas to plant on-site mitigation. If no on-site mitigation can be included, all mitigation plantings associated with LAR Contract 4A would be planted off-site. The LAR Contract 4A project site will be reseeded with native grasses. Additionally, the berm will be topped with topsoil so the areas can be reseeded with native grasses as well. The seeding mix is anticipated to include the following: California brome (*Bromus carinatus*), California Barley (*Hordeum brachyantherum ssp. californicum*), Blue wildrye (*Elymus glaucus*), Creeping Wild Rye (*Leymus triticoides*), Nodding Needlegrass (*Nassella cernua*), Purple needlegrass (*Poa secunda*).

#### 2.6. Offsite Mitigation

#### 2.6.1. Rossmoor West Mitigation Site

Offsite mitigation for Contract 4A will be accomplished through elderberry transplants and additional offsite compensatory mitigation. The elderberry shrubs removed from the project limits, will be transplanted the Rossmoor West mitigation site during the appropriate transplant window. Transplanting will occur at the same time and under the same contract as the vegetation removal so that the elderberries are not damaged due to the vegetation removal. In addition to transplanting elderberry shrubs, compensatory mitigation for the loss of habitat for the valley elderberry longhorn beetle (VELB) is required at a 3:1 ratio at the offsite mitigation site(s).

The Rossmoor West mitigation site is within the American River Parkway (Parkway). Additional elderberry shrubs and associated riparian species will be planted to restore habitat within the Parkway beyond what can be achieved with the on-site planting benches alone, in accordance with USFWS and NMFS BiologicalOpinions for the project.

#### 2.6.2. Future Mitigation Sites

Impacts to riparian habitat and wetlands will be achieved via habitat restoration at the American River Mitigation Site ARMS, , and/or through purchase of credits from an approved mitigation/conservation bank. ARMS is within the Parkway and is anticipated to be constructed in four years; 2026, 2027, 2028, and 2029.

# 2.7. Staging Areas and Haul Routes

Anticipated LAR Contract 4A staging areas are shown in **Figure 3**. Specifically, a parcel already used for staging by the American River Flood Control District along Lathrop Way and a grassy area in the American River Parkway could be used for staging.

Staging areas would be used for material stockpiles, construction office and trailers,

construction worker vehicle parking, and equipment staging. Haul traffic may also pass through staging areas.

Materials will be hauled on-site by truck. Access to the LAR Contract 4A site will be along existing public roadways and levee patrol roads (**Figure 6**). The project site is over 1,700 feet from the American River, which is too far to allow use of barges for materials hauling.



Figure 6. Proposed Haul Route for LAR Contract 4A

# 3. Effects on Wild and Scenic Values

**Table 1** provides a summary of LAR Contract 4A temporal impacts.

# 3.1. Effects on Free-Flowing Nature of the River

Levees are present on both sides of the American River throughout the LAR Contract 4A reach. When the river was designated, it generally only included the lands within the levees rather than the whole floodplain because development had already occurred immediately behind the levees.

The LAR Contract 4A levees are on the right side of the American River as water flows downstream. Improvements, the proposed berm, are planned just upstream of the SH 160 bridge approximately. The berm itself is almost 1,700 feet from the typical summer surface water of the American River.

The proposed berm is approximately 800 feet away from the ordinary high-water mark (OHWM). Under normal conditions the project site does not contain flows from the American River. Only under high flood conditions would the flow of the American River be obstructed by the proposed project. The berm would not be inundated with water most of the time. Water begins to touch the berm for flood events more frequent than  $\frac{1}{2}$ annual exceedance probability (AEP) (commonly known as a 2-year event) because of backwater from the intersection of the Sacramento River, the American River, and Steelhead creek. The wetland area is connected to the American River main channel through an unnamed drainage channel adjacent to the Union Pacific Railroad bridge. For flood events more frequent than the 1/10 AEP (commonly known as a 10-year event) the flow velocity is very slow near the berm. For flood events less frequent than the 1/10 AEP (i.e., larger peak discharge flood events), flood water begins to spill over from the main channel and velocity and flow depth increase on the floodplain and the berm. As mentioned in Section 2.2, the purpose of the project is to divert high velocity flows from reaching the levee at the project site. However, this does not impact the freeflowing nature of the river, as this would only occur at high flood events.

# 3.2. Effects on Water Quality

The project site is almost 800 feet away from the OHWM, but there is a wetland adjacent to the project site that connects to the American River during high flood events. Water quality impacts for this project will be short-term due the temporary nature of construction. In-water work and/or construction site runoff could increase turbidity in the wetland; however, increases would be limited by following the provisions of the Stormwater Pollution Prevention Plan for the project which is required by the National Pollution Discharge Elimination System (NPDES). Consistent with the Clean Water Act, Section 401 water quality certification (WDID No. 5A34CR00819) for the project, runoff reduction measures will be used where required to minimize impacts to the water quality in the wetland adjacent to the project site. If the wetland is wet during work, the wetland

will be monitored to ensure that turbidity increases are limited to the work area. Additionally, if the wetland is wet during construction, the portion of the wetland that resides in the project footprint would be dewatered. Clean Water Act Section 402 would be complied with if the wetland needs to be dewatered. Overall, the wetland only connects with the American River during high flood events and construction is scheduled to be outside of the flood season (April to November), so it is not anticipated that any runoff from construction would directly enter the American River.

In the long term, the area will be reseeded to ensure that excess sediment will not be released into the wetland. No impacts are anticipated to water oxygen levels or nutrient loads, and no permanent impacts are anticipated since the proposed project does not contain any elements which could lead to permanent increases. As a result, this project is anticipated to have a neutral impact to water quality in the long run.

## 3.3. Effects on the Anadromous Fishery

The project site is overt 800 feet away from the OHWM. Only at high flood events would fish reach the project area. Most of the year, river water remains in the river channel and does not enter the Parkway. In some years (see Section 3.1) during the flood season (November 1<sup>st</sup> to April 15<sup>th</sup> in the Sacramento Valley) river water does enter and may cover large parts of the Parkway for a period of time. Stormwater also enters from local runoff drainage systems. The proposed berm would be located in the Parkway and flowing water would be adjacent to or on the berm intermittently as described in Section 3.1. Fish stranding is unlikely as the berm is built on the floodplain (above elevation 26 NAFD88-feet) and outside the low-lying wetland area. In addition, the area around the berm is graded to drain with no low spots. Because the project is not within the OHWM, and any floodwaters entering the project area would drain out and not cause fish stranding, impacts to anadromous fish are not anticipated.

## 3.4. Effects on Recreation

The bike trail reroute will be designed utilizing a previously approved design by Regional Parks. Additional road striping, and pavement markings will be consistent with the Caltrans Highway Design Manual.

Early designs of the bike trail reroute are being completed to allow for construction to be phased so that the impacts to recreation could be minimized as much as feasible. Early designs indicate that there would not be a need for a full closure of the Jedediah Smith Memorial Trail during construction, though there may need to be one lane closure during construction. Flaggers would ensure bicyclists can safely pass the area during lane closures. If it is determined later that detours are needed, coordination will occur with Regional Parks to ensure an appropriate detour is selected.

Part of the access route for haul trucks is currently used for hiking and equestrian use. During construction the area would be closed to hikers and horses. The maintenance road along the top of levee, which is used for recreation, is expected to be used for construction access and will require closure during construction. The Jedediah Smith Memorial Trail reroute around the berm would be open at this point in time so those walking on the top of the levee will be detoured with Jedediah Smith Memorial Trail along the reroute.

During construction, haul trucks will cross the existing Jedediah Smith Memorial Trail. During construction of the erosion protection features, construction vehicles may also need to cross in this area to reach the construction laydown area. Flaggers will be used to ensure safety of recreationalists. There may also be a need for construction equipment to cross or drive on the bike path to reach the area of the berm for construction work at some phases of the project. This is not anticipated to occur regularly and safety precautions like flaggers will be put in place to minimize safety risks to recreationalists.

At the conclusion of this project, minimal exposed riprap will be visible on the site. The riprap armoring the velocity diverting berm will be soil capped and replanted with native grasses. Though the berm area was riparian vegetation in 1981, the vegetation free zone of the levee adjacent to the berm was grassy. Additionally, the reroute will only slightly take bicyclists off the existing route, so there will be a similar view and experience for bicyclist with the bike trail reroute.

Generally, because the Jedediah Smith Memorial Trail would remain open during construction (or if detours are determined to be needed, they will be coordinated with Regional Parks) and the bike trail reroute will be a similar experience to the existing experience, there would not be significant impacts to recreation.

# 3.1 Aesthetics

Generally, the area where LAR Contract 4A is being constructed is already developed. The velocity diverting berm is being build adjacent to the existing levee and is less than 75 feet from the SH 160 bridge (See **Figure 4**). The existing levee is already grassy and sloped, the new berm and slopes from the bike trail reroute would have a similar grassy and sloped appearance to the existing levee once grasses establish. The bridges and grassy areas on the existing levee were both present in 1981 when the river was listed as Wild and Scenic (Attachment A).

The overall aesthetic view of those on the trail would only change for approximately 550 feet of the Jedediah Smith Memorial Trail. Since vegetation would need to be removed for installation of the berm and bike trail reroute there would be less vegetation in this area. However, only approximately 550 feet of change would not impact the overall experience of those using the trail. The area would not be replanted with woody vegetation and there would be little acreage outside the trail and berm that have availability to be replanted successfully. The berm would be replanted with native grasses. The general aesthetics of the overall area will not be diminished as there is already development in the area.

#### **3.5. Avoidance and Minimization Measures**

Consistent with the guidelines set forth in the programmatic consistency analysis (USACE, 2021), **Table 2** summarizes how Contract 4A will adhere to the Best Practices for designated Wild and Scenic Rivers (NPS, 2020). During discussions held during the formulation of the programmatic consistency analysis, USACE and NPS jointly devised Universal Avoidance and Minimization measures which would be adopted in the remainder of projects on the LAR under the ARCF project. A summary of how the project adheres to the measures is given in **Table 3**.

Contract/Site	Dates	Actions	WSR Resources Temporarily Affected	Planned Minimization Measures for Temporary Impacts
LAR Contract 4A Phase 1 Vegetation Removal	Fall 2026 - Winter 2027	Vegetation removal and elderberry transplant	Aesthetics impacts from tree removal and bare ground. Water Quality from increased turbidity in wetland Recreation from horse and hiking trail closures/detours.	<ul> <li>Aesthetics: Use of Best Management Practices (BMP's) to reduce runoff.</li> <li>Water Quality: Use of Best Management Practices (BMP's) to reduce runoff.</li> <li>Recreation: Hikers will be able to detour onto the Jedediah Smith Memorial Trail.</li> <li>Signs will be placed warning recreationalist of closure. Small amount of tree removal and elderberry should occur over a short timeframe.</li> </ul>
Jedediah Smith Memorial Trail Detour Construction and Berm Construction Phase 2 Site Construction	Mid-April – October 2027	Regrading area, laying materials, paving trail, installing signage/striping, reseed trail slopes, dewatering wetland if wet, regrading site, building berm, relocate waterline, reseed berm	Aesthetics from tree removal and bare slopes. Water Quality effects from increased turbidity and possible dewatering of wetland. Recreation effects due to bike, horse, and walking trail closures/detour. Recreation due to loss pedestrian use of the top of levee.	Aesthetics: Use of Best Management Practices (BMP's) to reseed with native grasses in compliance with NPDES permit. Water Quality: Use of Best Management Practices (BMP's) to reduce runoff in compliance with NPDES permit. Turbidity will be constantly monitored if wetland is wet to ensure that increases in turbidity are minor and do not extend beyond the bounds of the repair. Recreation: Either construction will be phased so that full closure of the bike trail is not needed or detours would be put in place after coordination with Regional Parks.
LAR Contract 4A Maintenance (1- year)	Fall/Winter 2027/ – Fall/Winter 2028	Prior to closing out the contract and SWPPP, the contractor must have 75% coverage of native grasses in the seeded area	Aesthetics - people working on the slopes	None planned.
LAR Contract 4A Long Term Operations & Maintenance	For the life of the site	Mowing, weeding, and other activities as provided in the Parkway Plan	None	N/A

NPS Best Management Practice	Proposed Action
Minimize the use and visibility of rock channel protection (RCP) and use only the minimum amount necessary to protect structures. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock.	The minimum amount of RCP required to meet risk management objectives is proposed. Most RCP would be covered with soil and plantings
If necessary, stone fill (riprap) may only be used for abutment scour protection; the use of stone fill to stabilize the riverbanks is prohibited. To stabilize the riverbanks, use approved native boulders, cobble and gravel; loam; vegetation; and bio- engineering techniques such that the banks, when fully restored, have an appearance and function similar to the natural riverbank.	Stone riprap would armor the velocity diverting berm. Riprap would be topped with soil and reseeded.
Riparian areas must be restored to pre- disturbance conditions immediately after construction activities are completed.	Generally, most riparian areas impacted will be replaced with the berm or bike trail, there is little room for onsite mitigation, so no woody vegetation would be replanted onsite. All disturbed surfaces would be reseeded with native grasses.
Disturbed/exposed banks, staging and project access areas must be properly stabilized (seeded, mulched, or otherwise) with native vegetation to prevent erosion and establishment of invasive plant species. A non-persistent cover crop of annual rye or equivalent temporary seeding may be used to ensure a more rapid establishment of cover while native perennial plantings grow.	Immediately following construction, the site will be hydroseeded with an appropriate native seed mix (see section 2.3 for details).
Bio-engineering methods must be used or, where deemed necessary by the [insert river managing agency/ contact], clean broken rock riprap of an adequate size specific for bank stabilization.	No bioengineered methods are available which would meet the flood risk management objectives. Clean, broken riprap from an approved quarry would be used.
not allowed.	protection.
Avoid unnecessary tree removal within the project work area.	Tree removal has been minimized to the extent feasible. The design team has looked at each individual tree within the project footprint to determine if it can be saved as designs progress to 100% designs.
A vegetation plan shall be in place to protect existing vegetation/trees from damage by construction equipment ( <i>e.g.</i> , provide temporary barriers to protect existing trees, plants, root zone).	Contract Specifications require contractor to protect trees: "Protect existing trees that are to remain to ensure they are not injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. Coordinate with the Contracting Officer to determine appropriate action for trees and other landscape features scarred or damaged by equipment operations" Additionally Specifications require a certified arborist present for any tree trimming.

#### Table 2. Summary of Adherence to NPS Best Practices.

NPS Best Management Practice	Proposed Action		
Disturbances of the riparian zone must be limited to the indicated access points; prior to the operation of heavy equipment (dozers, cranes, trucks), orange construction fencing must be erected to delineate the dripline of remaining trees to avoid compaction of tree roots.	The Project has been designed to minimize the need to remove trees to the maximum extent feasible. This included adjusting the project boundary to minimize trees cut down. Fences will be used to delineate the site boundaries. No work will occur outside the construction footprint or designated staging areas.		
The fastening of ropes, cables, or fencing to trees is prohibited.	Contract Specifications prohibit ropes, cables, or fencing from being fastened to vegetation marked for retention.		
To ensure bank stability, trees removed within fifteen feet of the top of the riverbank shall be cut flush to the ground; stumps and roots shall be left in place; indiscriminate bulldozing of riparian trees is prohibited.	Tree removal would occur in two phases. In phase 1, trees over 6" DBH would be cut 4 feet above the grade the fall/winter prior to start of construction. In phase 2, remaining vegetation and rootmass would be removed, at no point would indiscriminate bulldozing occur.		
All trees removed from the riparian corridor shall be replaced with a native tree of like species. Replace each mature tree removed (12-inch or greater diameter at breast height [DBH]) with [insert specifications, e.g., replant 3:1 ratio depending on expected survival rate and with trees that are a minimum 3- inches DBH]. Plant only local, native trees/shrubs/grasses, naturally occurring within the [insert river name] riparian zone [insert plant species list and/or to be determined in coordination with appropriate staff].	Trees and vegetation will be removed from within the project footprint to allow for erosion protection measures and bike trail reroute. Trees and vegetation on the periphery of the project will be protected from construction activities. Riparian habitat acreage will be replaced by planting riparian trees and shrubs at a ratio of 2:1 (replacement habitat: affected habitat), except riparian habitat within 82 feet of elderberry shrubs, will be replaced at a ratio of 3:1. Due to the berm being in the vegetation free zone, there is little area for onsite mitigation, and it is anticipated that it will not feasible to do onsite mitigation for LAR Contract 4A. All mitigation would be planted offsite but will be at least replaced 1:1 within the Parkway in mitigation areas that will be conserved in perpetuity. Only native plant species appropriate for the sites and approved by the County of Sacramento for planting in the Parkway, will be used.		
A qualified individual (arborists, foresters, or trained staff with similar experience) shall plant replacement trees at the appropriate time of year and in a random fashion to avoid a plantation effect. Cultivate and monitor planted tree seedlings/saplings for two years to ensure success; water plantings as necessary. Promptly replace planted stock showing signs of mortality.	Replacement trees will be planted at designated riparian habitat restoration areas according to designs prepared under the supervision of a California licensed USACE landscape architect with experience in developing habitat restoration. The mitigation sites will be managed and monitored according to the ARCF GRR Habitat Mitigation Monitoring and Adaptive Management Plan, which includes success criteria.		
Stakes and guide wires shall be properly removed and disposed of once seedlings are established.	Contract Specifications State "Conduct a Final Cleaning of all waste, surplus materials, and rubbish removed. Remove all temporary structures, barricades, project signs, and construction facilities from the project area."		

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
Levee Setbacks	Set back the levees wherever possible to allow the river to move.	Free-Flow	Levee setbacks are not feasible in this area due to the existence of homes and businesses, and major roadways crossing the river.
Bioengineering and native plantings throughout the banks and levees	Avoid riprap to the extent possible. Use bioengineering techniques including use of wood (e.g., log crib walls, tree revetments, root revetments; engineered log jams) and deformable techniques (e.g., fabric- encapsulated soil lifts (i.e., geolifts), rock bags, coir rolls (i.e., bio logs), erosion control blankets/fabrics).	Free-Flow, Anadromous Fish	Both use of vegetation to increase roughness in the project area to reduce flows, and planting vegetation within the area of erosion concern (which required rock placement around bridge piers and abutments in addition to the vegetation) were both considered at 10% designs for LAR Contract 4A. However, running the HEC-RAS model in the area with increased vegetation in the area showed no substantial reduction of velocities near the levee. Also, use of vegetation in the area of concern was eliminated as an option since the vegetation would be required to be planted under bridges and it would have been difficult to establish vegetation with the shade from the bridges.
Riprap at the bank toe	Riprap would only be placed at the bank toe of segments where the levee prism and associated planting berms (if included) are at the extent of the Parkway limits.	Free flow	The project, and levee at the project site, is far away from the riverbank toe (erosion protection features for the levee would be approximately 1,700 feet from the water's edge). No riprap would be place at the riverbank toe.
Riprap at the bank toe	Ensure no hydraulic impacts from riprap.	Water quality	Site designs are consistent with this measure.
Riprap at the bank toe	Ensure no direct and adverse impacts to anadromous fish.	Anadromous Fish	All direct and adverse effects to anadromous fish have been considered in the programmatic biological opinion for the project, including the risk of anadromous fish stranding. Jointly with the NMFS, USACE has devised avoidance and minimization measures to reduce these impacts to the extent practicable.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
Riprap at the bank toe	Minimize the use and visibility of rock channel protection (RCP) and use only the minimum amount necessary to protect structures. Integrated plantings, soil, and native seed may be used to further reduce	In-water recreation Aesthetics	RCP will not be placed at the riverbank toe. Riprap will be located along the berm (at the levee). Riprap will be covered with soil and reseeded with native grasses.
	the profile of visible rock. If rock is needed utilize cobble to the extent possible. Cover exposed riprap at the bank with soil and		
	vegetation where cobble is not possible.		
Avoid and Minimize use of riprap on the	Minimize the use and visibility of RCP. RCP should be avoided or minimized to the extent possible. Integrated plantings, soil, and native seed may be used to further	Anadromous Fish	No work will be done below the OHWM or near the American River.
toe to the OHWM and near the water	Cover any necessary riprap on the bank above the OHWM with planting benches containing sufficient soil and capable of supporting riparian habitat	Recreation Aesthetics	
Minimize use of Riprap on the levee slope	Cover revetment on the slope with sufficient soil and native grasses or forbs, as woody vegetation may not be possible due to USACE vegetation on levees policies.	Anadromous Fish Aesthetics	Slopes within the vegetation free zone will be hydroseeded with soil and appropriate native grasses and forbs. Site designs are consistent with this measure.
Removal of vegetation	Minimize vegetation removal to the maximum extent practicable. Provide planting benches to reduce the affects for lost	Anadromous Fish	Only trees within the construction footprint, or designated haul routes will be removed. Haul routes have been placed to avoid trees and elderberry shrubs to the extent feasible
	habitat on-site. Riparian areas must be restored to pre-disturbance	Aesthetics	Access ramps have been oriented to minimize the impacted area to the extent practicable.
	conditions immediately after construction activities are completed.	Water quality	Established roads will be used as haul routes wherever possible.
	Provide restoration in the parkway when revegetation cannot be completely restored in the project footprint.		Habitat mitigation that cannot be completed on site will be accomplished at other locations in the Parkway in at least a 1.1 ratio
	waterline with native, ecotone appropriate, species. Design sites such that they are indistinguishable from the overall fabric of the Parkway.		Most areas being disturbed by the project are either in the vegetation free zone or being replaced by the bike trail reroute. All exposed areas will be reseeded with native grasses once work is completed.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
Closure of bike trail	The first priority is to detour the bike trail on the nearest dedicated trail. That is, the trail should not be shared with automobiles. If the bike trail segment being detoured is paved, the detour route should also be completely paved to include all transitions from permanent to temporary trails/detours. In an event due to where the trail cannot be routed near construction boundaries for safety concerns it should be detoured to surface streets with bicycle safety measures for a minimal amount time. Detours to surface streets should be considered the last option and review by all stakeholders. Provide information at both ends of the closure and on the web about the location and duration of the closure and provide a map of the detour. Minimize the extent of the closure. When feasible use flaggers instead of detours. Minimize the length of time the detours are needed. Detours will carry the same safety standards as a permanent trail and if detours go down to one bicycle lane, caution should be considered and the included use of flaggers with dismount zones in single lane areas. Any permanent re-routing of the bike trail should also include rerouting the equestrian trail. Re-routed trails should provide the same experience as the existing trail including the aesthetics. The new trail should be shaded with riparian vegetation.	Recreation	Construction will be phased so that the permanent bike trail reroute will be constructed first so that the bike trail does not need to be closed, though one lane closures will likely be needed during construction. Flaggers will be required in Contract Specifications if there are one lane closures. Preliminary designs indicate that detours will not be required. If design refinements require detours, all detours will be coordinated with Regional Parks to ensure that safety standards are met. Flaggers will be required where construction equipment crosses the bike trail. The permanent bike trail reroute will not effect the nearby equestrian trails. The bike trail reroute is adjacent to the existing bike trail and will provide a similar experience, though vegetation will be removed in this area, so 500 feet will be less vegetated than the current condition. This area will be within the vegetation free zone, so vegetation cannot be planted in the area
Closure of levee maintenance road	Detour the route, if normally used as a hiking, horse, or mountain bike trail. Provide information at both ends of the closure and on the web about the location and duration of the closure and provide a map of the detour. Plant vegetation to provide shading along this road once users return to the extent possible.	Recreation	Those recreating on the maintenance road of the top of the levee at this location will be able to use the Jedediah Smith Memorial Trail Reroute as a detour during construction.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
General Impacts of Work in the Parkway	Reduce work limits to the maximum extent practicable. Close trails and other recreational features only when necessary for safety of the public. Advance notice of work shall be provided at the site of the closures and on the web.	Recreation	Every effort has been made to reduce the work area to the extent practicable. Advance notice of the work would be provided on sacleveeupgrades.com.
General Impacts of Work in the Parkway	Phase work appropriately such that sites do not remain incomplete for excessive periods of time (e.g., bank work completed but planting delayed for years, or tree clearance years ahead of the construction etc.)	Aesthetics	Work is scheduled to be conducted sequentially.
Closure of boat ramp	Avoid closure of boat ramps to the maximum extent practicable. Phase work such that not more than one boat ramp is closed. Provide information at the closure and on the web about the location and duration of the closure and the nearest open boat ramp. Minimize closure time and keep it open when work is not being done on the weekends and in the evenings. Provide improvements to the boat launch once users can return to the site.	Recreation	There are no boat ramps in the LAR Contract 4A project footprint.
Closure of river access points	Avoid closure of river access points to the maximum extent practicable. Phase work such that consecutive river access points are not closed for more than one consecutive mile on account of this project. Provide information at the closure(s) and on the web about the location and duration of the closure and the nearest open river access points. Minimize closure time and keep it open when work is not being done on the weekends and in the evenings. Provide improvements to the boat launch once users can return to the site.	Recreation	Lathrop Way River Access will be closed during construction. Expo Way River Access and the Woodlake Area Access point will be open during construction. For safety reasons, it is not anticipated that Lathrop Way River Access would be available on weekends. Advance notice of the work would be provided on sacleveeupgrades.com.
In water work	Abide by NPDES requirements to ensure there is no adverse effect to water quality.	Water Quality	Site designs are consistent with this measure.
In water work	Abide by NMFS Biological Opinion to ensure there is no adverse effect to anadromous fish from water quality.	Anadromous Fish	Site designs are consistent with this measure.

Proposed	Proposed Avoidance or Reduction of Impact	WSR	Adherence to the Measure:
Design Feature:	Measure:	Aspect(s):	
In water work	Provide buoys or other demarcation for closed sections of the channel. The channel shall not be closed such that upstream or downstream navigation is precluded.	In-water recreation	There is no work in the American River for this Project.

# 4. Conclusion

USACE has determined that the LAR Contract 4A should be considered fconsistent with the mandates of the WSRA because:

- a. The project is a part of the authorized ARCF project and fits within the scope of the overall project.
- b. The minimization measures proposed for each design specific feature, as outlined in the Universal Minimization Measures, will be used.
- c. This project will be conducted under the standing biological opinions for the ARCF project and will be subject to the terms and conditions therein.
- d. This project will be conducted under the programmatic 401 certification for the ARCF project and will be bound to the terms therein.

USACE requests concurrence from NPS within 60 days of the date of this document.

# 5. References

- Central Valley Regional Water Quality Control Board (CVRWQCB). 2021. Clean Water Act Section 401 Water Quality Certification and Order for the American River Common Features Project, Sacramento County (WDID#5A34CR00819). July 2021.
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- U.S. Fish and Wildlife Service. 2021. *Biological Opinion, Reinitiation of Formal Consultation on the American River Common Features (ARCF) 2016 Project, Sacramento and Yolo Counties, California.* File No. 08ESMF00-2014-F-0518-R003.

#### American River Common Features 2016 Project Section 7 Wild and Scenic Rivers Act DRAFT Consistency Analysis American River Erosion Contract 4B

Erosion Management Activities on the Lower American River- Sacramento County, California







December 2024

US Army Corps of Engineers Sacramento District

#### Preface

As discussed in the main body of Appendix H, consistency with the Federal Wild and Scenic Rivers Act is considered throughout design development for the Lower American River (LAR) elements of the American River Common Features (2016) Project. The purpose of this attachment (Attachment 3) is to share with the public and decision makers the current Draft USACE Consistency Analysis for LAR Contract 4B. This draft is based upon the information currently available and will be updated as designs progress. LAR Contract 4B is at an early conceptual stage, or about 10% level design concepts. Therefore, this Draft Consistency Analysis is very general and includes assumptions about the design. Once designs have reached 95%, USACE will update this draft Consistency Analysis to provide more project specific details and will transmit it to the National Park Service together with a request that they conduct their consistency review.

ii
## **Table of Contents**

1.	Introduction1					
	1.1	Authority				
	1.2	Need for Consistency Determination				
	1.3	Purpose of this report	2			
2.	Proje	ect Description	3			
	2.1	Purpose of Contract 4B				
	2.2	Location	4			
	2.2.1	Site Condition in 1981	5			
	2.1	Schedule and Duration	8			
	2.2	General project features	8			
	2.3	North Side of River	10			
	2.4	South Side of River	10			
	2.5	On-site restoration features	11			
	2.6	Offsite Mitigation	12			
	2.7	Staging Areas and Haul Routes	12			
	2.1.	Access	14			
	2.2.	Construction Phasing	14			
3	Effec	cts on Wild and Scenic Values	15			
	3.1	Effects on Free-Flowing Nature of the River	15			
	3.2	Effects on Water Quality	15			
	3.3	Effects on the Anadromous Fishery	15			
	3.4	Effects on Recreation	16			
	3.5	Aesthetics	17			
	3.6	Avoidance and Minimization Measures	17			
4	Cond	clusion	27			
5	Refe	rences	28			

iii

### List of Tables

Table of Figures	
Table 4. Summary of Adherence to Universal Avoidance and Minimization Measures. 2	22
Table 3. Summary of Adherence to NPS Best Practices	20
Table 2. Summary of Temporal Impacts.	18
Table 1. Summary of Habitat Types Impacted and Associated Habitat Mitigation	16

#### Table of Figures

Figure 1. 1986 flood event aftermath on the Lower American River and localized lone	
tree scour.	4
Figure 3. LAR segments which are the focus of LAR Contract 4B (red linework)	6
Figure 4. Location of Revetment that was Present along the LAR in 1981 when it was	
Designated as a Wild and Scenic River	7
Figure 5. Example cross section (cut parallel to river) of tie backs found at American	
River Erosion Contract 3B South	9
Figure 6. Example cross section (cut perpendicular to river) of tie backs found at	
American River Erosion Contract 3B South	9
Figure 7. Preliminary Location of Erosion Protection needs at LAR Contract 4B1	0
Figure 8. Preliminary Location of Tieback extensions at LAR Contract 4B1	1
Figure 9. Possible Haul Routes for LAR Contract 4B1	3

### **Acronyms and Abbreviations**

Acronym or Abbreviation	Description
ARCF	American River Common Features 2016
ARMS	American River Mitigation Site
CEQA	California Environmental Quality Act
cfs	Cubic feet per second
FEIR	Final Environmental Impact Report (CEQA)
FEIS	Final Environmental Impact Statement (NEPA)
GRR	General Reevaluation Report
IWM	Instream Woody Material
k-rail	Temporary concrete barrier
LAR	Lower American River
LDPs	Load distribution platforms
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
No.	Number
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
Parkway	American River Parkway
Proposed Action	American River Erosion Contracts 3B North and 3B South
RCP	Rock Channel Protection
Stat.	Statute
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VELB	Valley elderberry longhorn beetle
WRDA	Water Resources Development Act
WSR	Wild and Scenic River
WSRA	Wild and Scenic River Act
XS	Cross section
YBCU	Yellow-billed cuckoo

# 1. Introduction

The American River Common Features 2016 Project (ARCF Project) is a congressionally authorized flood risk management project that is being implemented by the project cost-sharing partners the U.S. Army Corps of Engineers (USACE), the Central Valley Flood Protection Board (CVFPB), and the Sacramento Area Flood Control Association (SAFCA). The California Department of Water Resources also participates and provides technical staff to support the CVFPB. The full scope of the ARCF Project is described in the 2016 American River Watershed Common Features General Reevaluation Report (GRR) and joint Final Environmental Impact Statement and Environmental Impact Report (FEIS/FEIR), and as revised and supplemented. This consistency analysis addresses American River Erosion Contract 4B, which comprises the Proposed Action. For consistency with other project documents, American River Erosion projects will be referred to as Lower American River (LAR) projects in this document.

# 1.1. Authority

As part of the larger ARCF Project, LAR Contract 4B (Proposed Action) is authorized by Section 101(a)(1)(A) of the Water Resources Development Act (WRDA) of 1996, Public Law Number (No.) 104303 Section 101(a)(1), 110 Statute (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). Following the interim general reevaluation study, additional authority was provided 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 the Nation Act, and Public Law 115-123 (Bipartisan Budget Act of 2018).

### 1.1.1. Need for Consistency Determination

LAR has been designated by the Secretary of the Interior as a Wild and Scenic River (WSR) under the Wild and Scenic Rivers Act (WSRA) Section 2(a)(ii). The ARCF Project constitutes an "Other Proposed Federally-Assisted Water Resources Project (Agency Other than the Federal Energy Regulatory Commission)" within the WSRdesignated portion of the LAR (Interagency Wild and Scenic Rivers Council 2004). Section 7(a) of the WSRA requires Federal agencies to determine whether water resources projects planned in rivers under the jurisdiction of the act are consistent with WSRA requirements to protect river resources. The responsibility for the Section 7 determination is a Federal responsibility not delegated to the state. Therefore Section 7 determinations are the responsibility of one of the four river administering agencies, Bureau of Land Management, U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service, or the National Park Service (NPS). As the LAR does not run through Federal lands under the jurisdiction of another Federal river-administering agency, the responsibility for the Section 7 determination rests with NPS. Accordingly, the

1

Sacramento District, USACE prepared this analysis for the NPS as agency submitted documentation to support a consistency determination.

### 1.2. Purpose of this report

The ARCF project was described in the American River Common Features (ARCF) Project 2016 Wild and Scenic Rivers Programmatic Consistency Analysis, dated June 22, 2021, and updated July 19, 2021 (NPS identifier 1.A.2 (PW-NR)). This projectspecific consistency analysis focuses on the potential effects of LAR Contract 4B, which is part of the ARCF project and is located on the LAR. This report considers whether the Proposed Action would directly and adversely affect the river values that were present in the LAR in 1981 when the LAR was designated as a component of the National Wild and Scenic Rivers System. The actions under LAR Contract 4B are consistent with the purpose and need of the overall ARCF project. They are conducted within the overall location of the ARCF project as described in the programmatic consistency analysis. This report was prepared using the format provided in Appendix A of the programmatic consistency analysis (USACE, 2021).

# 2. Project Description

### 2.1. Purpose of Contract 4B

Late in the LAR Contract 3B design process (at 65% designs) a design review by the design Risk Cadre (multi-disciplinary teams within USACE with special training in risk assessments that assess USACE infrastructure across the nation) determined that there was a risk of lone tree scour within the vegetation free zone at certain locations of the LAR Contract 3B site. Trees of concern are large diameter trees (greater than 18-inch diameter at breast height (DBH)) located on or immediately adjacent to the levee at locations where the levee is not overbuilt, and at locations with relatively deep flow depths and higher velocities. Trees which stand alone or in very small groups can cause localized flow accelerations and turbulence around the tree trunk which can cause scour on the downstream side of the tree similar to a bridge pier. (See **Figure 1** for an example of tree scour from the 1986 flood on the American River and **Figure 2** to see an example of lone tree scour on a different river system).

Implementation Guidance for Section 3013 of Water Resources Reform and Development Act 2014 states that "In general, designs must be in accordance with minimum standards, and risk assessments can inform deviation from such standards. No deviations are allowed if there is an increase to incremental life safety risk. Districts must document the analysis and rationale for retaining existing vegetation, when vegetation needs to be removed, and/or design features that accommodate vegetation" (USACE 2017). Since a risk assessment determined lone trees on or near the levee embankment pose an unacceptable erosion risk to the levee, USACE cannot deviate from policy which requires removal of the trees in question unless the risk can adequately be mitigated with erosion protection measures and said measures are approved by USACE Headquarters. Because trees provide critical habitat within the Parkway and are important to recreation users of the Parkway, the purpose of Contract 4B is to perform the detailed analysis necessary to support deviation from USACE policy and preserve as many of the trees as possible. This analysis will be very time consuming and requires additional outreach and creative design consideration. Consequently, to avoid delaying Contract 3B USACE pulled the area out of the LAR Contract 3B footprint and formed LAR Contract 4B so that a new PDT, with additional resources, could thoroughly examine alternative methods to preserve the trees instead of removing them.

Additionally, since Contract 4B was initiated, additional erosion protection measures besides protection against lone tree scour are also in the Contract 4B footprint. Similar to the lone tree scour risk, Contract 3B tiebacks were terminated shorter than required to avoid encroaching into the vegetation free zone to avoid undue delay to Contract 3B. Constructing the tiebacks further landward into the vegetation free zone risked requiring a more time consuming approval process, so the tieback extents into the vegetation free zone was pulled out of Contract 3B and is now included in Contract 4B since Contract 4B will already be undergoing a time consuming approval process.



Figure 1. 1986 Flood Event Aftermath On The Lower American River and Localized Lone Tree Scour



Figure 2. Example of Localized Lone Tree Scour after the 2024 Big Sioux River Flood

## 2.2. Location

LAR Contract 4B is both on the north (right) bank of the LAR between downstream of Watt Avenue and on the south (left) bank of the LAR upstream of Watt Avenue in Sacramento County, California. Specifically, the locations being addressed with Contract 4B are classified as Segments 3-8, 3-11, and 4-1. The Figure 3 shows the location of Contract 4B.

### 2.2.1. Site Condition in 1981

LAR was listed as a Wild and Scenic River in 1981. Aerials of the project area taken on March 20, 1971, August 10, 1981, and January 23, 1987, collected from the University of California Santa Barbara's Library's Frame Finder Website (UCSB 2024) were used to determine the visible conditions when LAR was listed as a Wild and Scenic River. Refer to Attachment A to see a side-by-side comparison of the proposed erosion protection features with the aerials from these dates. Generally, it seems that vegetation has become denser since 1981 (Attachment A). The vegetation near the levee toe seemed to consist mostly of scattered trees in 1981 (Attachment A). Additionally, the vegetation on the riverbank existed but has taken over a larger area since 1981 (Attachment A). Maintenance roads and trails were present in the parkway in 1981; however, these trails seem to be far less shaded than they are today (Attachment A). It also seems that no visible revetment was present in 1981, though sediment seemed to be present at the river's edge that has sense been covered in vegetation (Attachment A).

There was some revetment already installed along LAR when LAR was established as a Wild and Scenic River in 1981 (**Figure 4**). At the LAR Contract 4B site, revetment was only present downstream of Watt Avenue on the North side of the river.



Figure 2. LAR Segments Which are the Focus Of LAR Contract 4B (Red Linework)

6



Figure 3. Location of Revetment That Was Present Along the LAR in 1981 When It Was Designated as a Wild And Scenic River

#### DRAFT 10% DESIGNS

### 2.3. Schedule and Duration

LAR Contract 4B is currently in the early design phases. Once the scope of work is established, it is anticipated that it will take 2 years for USACE to receive a Vegetation Design Deviation for approval of the work. Currently, the Contract 4B PDT is projecting construction occurring from spring to fall in 2027.

## 2.4. General project features

The erosion protection areas included in LAR Contract 4B were analyzed in the ARCF GRR Final EIS/FEIR. However, erosion protection measure concerns were discussed and considered generally in the ARCF GRR Final EIS/FEIR, so erosion protection methods to specifically address tree scour were not detailed. Currently, the methods to protect the areas around lone tree from tree scour include: determining that the tree is not a risk to the levee and taking no action, determining that the tree is a risk to the levee and placing erosion resistant materials around the trees to prevent erosion from occurring or cutting down trees. Based on cursory analyses at this early stage of design, it is anticipated that only non-native trees or unhealthy trees would be removed (however with further examination, USACE may determine that healthy native trees cannot be saved without risking levee failure). Currently, the Contract 4B PDT is assessing 50 trees to determine if they pose a risk to the levee or if intervention may be necessary.

Additional erosion protection features separate from the lone tree scour risk would be installed at the Contract 4B location include extending the Contract 3B tiebacks into the vegetation free zone (which is within the Contract 4B footprint). Tiebacks are made up of revetment placed perpendicular to the river which impedes erosion from undermining the revetment from the landward side. Example tieback cross sections from LAR Contract 3B are available in **Figure 5** and **Figure 6**. Contract 4B would extend the top of the Contract 3B tiebacks into the Contract 4B footprint, further into the vegetation free zone (**Figure 8**).

8



Figure 4. Example Cross Section (Cut Parallel to River) of Tie Backs Found At American River Erosion Contract 3B South





### 2.5. North Side of River

Trees on the north side of the river are currently being assessed for their lone tree scour risk t the levee. Once the assessment is complete, USACE will determine which trees can be treated with erosion resistant materials. Additionally, if USACE Landscape Architects determine that a tree is not healthy or would die from erosion protection features, the tree would need to be removed. Generally, trees are located within the footprint shown in **Figure 7**.



Figure 6. Preliminary Location of Erosion Protection needs at LAR Contract 4B

## 2.6. South Side of River

Similarly, trees on the south side of the river are currently being assessed for their risk to the levee. Once the assessment is complete, it is anticipated that erosion resistant material would be placed around any native tree that poses a potential risk to the levee. Any non-native tree, specifically black locust (*Robinia pseudoacacia*), posing a risk to the levee would be further considered if it has any value worth saving. In coordination with National Park Service, NMFS, USFWS, and Sacramento County Regional Parks Department (Regional Parks), if a non-native tree is determined to not have habitat or

recreational value, it will be slated to be cut down. Additionally, if USACE Landscape Architects determine that a tree is not healthy or would die from erosion protection features, the tree would need to be removed. Generally, trees are located within the footprint in shown in **Figure 7**.

Additionally, tiebacks, which will be installed by Contract 3B up to the vegetation free zone, would be extended into the vegetation free zone under Contract 4B (**Figure 8**). This would involve installing revetment into the ground in strips perpendicular to the river (**Figure 5** and **Figure 6**).



Figure 7. Preliminary Location of Tieback extensions at LAR Contract 4B

### 2.7. On-site restoration features

The Contract 4B project area is within the vegetation free zone. Consequently, USACE does not anticipate providing any onsite mitigation. Where feasible areas would be topped with topsoil and reseeded with native grasses.

11

### 2.8. Offsite Mitigation

### 2.8.1. Future Mitigation Sites

If non-native trees removed are considered by USFWS as riparian habitat or if other native trees must be removed, offsite mitigation would be needed. Impacts to riparian habitat will be achieved via habitat restoration at the American River Mitigation Site (ARMS), sometimes referred to as the Urrutia mitigation site, and/or through purchase of credits from an approved mitigation/conservation bank. ARMS is within the Parkway and is anticipated to be constructed with four years; 2026, 2027, 2028, and 2029, with tree clearing beginning in 2026. Designs for this proposed mitigation area are currently at 30% and are scheduled to reach 95% designs in November/December 2024.

Offsite valley elderberry longhorn beetle (VELB) mitigation for Contracts 4B will be accomplished through additional offsite compensatory mitigation or purchase of credits from a USFWS approved conservation bank. No elderberry shrubs are anticipated to be within the Contract 4B project site, so there should not be a need to transplant elderberries. Some trees that are flagged to be removed may be within 25 meters of elderberry shrubs and could be VELB habitat. Compensatory mitigation for the loss of habitat for the VELB is required at a 3:1 ratio at ARMS and/or purpose of conservation bank credits.

### 2.9. Staging Areas and Haul Routes

Since LAR Contract 4B is adjacent to Contract 3B, it is assumed that staging areas used for LAR Contract 3B would be used for LAR Contract 4B as well. Possible LAR Contract 4B staging areas are shown in **Figure 7**. The following areas have been identified as possible staging locations:

North side of the American River

- University Park.
- Staging areas in the Parkway just upstream of Howe Avenue.
- Staging area just downstream of Watt Avenue Bridge and haul route.

South side of the American River

- Watt Avenue River Access parking areas (limited use as part of the parking lot is below the OHWM).
- Larchmont Community Park area adjacent to the levee embankment.

Staging areas would be used for material stockpiles, construction office and trailers, construction worker vehicle parking, and equipment staging. Haul traffic may also pass through staging areas.

Materials will be hauled on-site by truck. Access to the Contract 4B sites will be along existing public roadways and levee patrol roads (see **Figure 9**). Shallow depths in the American River prohibit use of barges.

#### Appendix H, WSRA – Attachment 3



Figure 8. Possible Haul Routes for LAR Contract 4B

### 2.10. **Access**

Access to the LAR Contract 4B sites will be along existing public roadways and levee patrol roads. Construction at these sites will need to be coordinated with any other construction projects occurring in these areas at the same time period. Access to the LAR Contract 4B sites is anticipated to be from the landward side, as shallow depths in the American River generally prohibit use of barges. Load distribution platforms (LDPs) are required by the contract documents to protect the existing levee cutoff wall and utilities.

### 2.11. Construction Phasing

Designs are still in the early phase, but the current schedule projects work to begin with tree clearing in fall 2026 to early winter 2027. Construction of the erosion protection features is projected to begin spring 2027 and completing fall 2027.

# 3. Effects on Wild and Scenic Values

**Table 2** provides a summary of LAR Contracts 4B temporal impacts.

### 3.1. Effects on Free-Flowing Nature of the River

Levees are present on both sides of the American River throughout the LAR Contract 4B reach. When the river was designated, only lands within the levees were included rather than the entire floodplain since development had already occurred immediately behind the levees.

The LAR Contract 4B north levees are on the right side of the American River as water flows downstream. Improvements are planned along linear strips within 15 feet of the waterside levee toe and on the waterside slope of the levee. Similarly, the LAR Contract 4B south levees are on the left side of the river as it flows downstream. Improvements are planned within 15 feet of the levee toe on the waterside of the levee.

The proposed erosion protection features are approximately 70 to 100 feet away from the ordinary high-water mark (OHWM). Under normal conditions the project site does not contain flows from the American River. Only under high flood conditions would the flow of the American River be obstructed by any erosion features constructed from the proposed project. Additionally, the erosion protection features are not anticipated to significantly change the current topography of the site as there would only be placement of erosion resistant materials at grade or underground to match the current grade. There would be no effect to the free-flowing nature of the American River due to proposed erosion protection features.

## 3.2. Effects on Water Quality

Water quality impacts for this project will be temporary and short-term. Construction site runoff could increase turbidity; however, increases would be limited by following the provisions of the Stormwater Pollution Prevention Plan for the project as required by the National Pollution Discharge Elimination System (NPDES). All work will be above the OHWM, so it is not anticipated that there will be any direct disturbance to the water that may impact water quality. There is one possible staging area (the Watt Avenue Boat Launch Parking lot) that is partially below the OHWM. If the Watt Avenue Boat Launch Parking lot is selected for staging, activities would be limited to parking vehicles and equipment. As a result, this project is anticipated to have a neutral effect on water quality in the long term.

### 3.3. Effects on the Anadromous Fishery

As mentioned in section 3.1, the project is above the OHWM and would only be inundated with water at high flood events. Some trees may need to be removed, but the trees would be so far away from the normal water level, they would not provide benefits

#### Appendix H, WSRA – Attachment 3

to fish. Designs are very conceptual at this point in time, so it is unknown how much, if any, riparian habitat will be impacted. **Table 1** will be updated once specific details are known on any trees required to be removed and whether the non-native trees would be considered habitat.

Habitat Types	Site 3-1	Site 4-1	Site 4-2	Totals
Riparian Habitat (Elderberry/VELB)				
Impact	unknown	unknown	unknown	unknown
Onsite Mitigation	0	0	0	0
Offsite Mitigation (3:1)	unknown	unknown	unknown	unknown
Riparian (YBCU* minus VELB)				
Impact	unknown	unknown	unknown	unknown
Onsite Mitigation	0	0	0	0
Offsite Mitigation (2:1)	unknown	unknown	unknown	unknown
Salmonid Habitat				
Impact	0	0	0	0
Onsite Mitigation	0	0	0	0
Offsite Mitigation (2:1 may change depending on construction timeline)	0	0	0	0

Table 1. Summary	/ of Habitat T	vpes Im	pacted and	Associated	Habitat Mit	tigation	(acres)
		, poo	baotoa ana	/ 1000014104	I I MANTEAL IIII	gauon	(40.00)

Note: Acres needed to compensate offsite for impacts are intended to be restored at the ARMS and Rossmoor West

\* YBCU = Yellow-billed cuckoo

### 3.4. Effects on Recreation

Removal and replacement of trails follow Sacramento County standard construction specifications (Feb 1, 2017). Currently, USACE does not believe that there would be a need to detour the bike trail. However, if USACE determines later that a detour for the bike trail is needed, the detour path would be coordinated with Sacramento County. The priority of the bike trail detour route would be to stay within the original trail alignments where feasible. The trails will only be rerouted if it was determined to be unsafe for trail users and the requirement provided a suitable trail surface. Trail detours would remain in the Parkway if possible and must be approved by Sacramento County to detour on any city streets. Any long-term detour surface must be an approved, non-skid surface, hardened, and always free of debris. Any crossing of the trail by haul trucks will require construction flaggers and haul trucks will have priority to cross trails.

LAR Contract 4B is still in early design; however,43 access for construction should be similar to the detour plans of the LAR Contract 3B North 95% designs, so it is assumed similar haul traffic and trail closures would be utilized. The bike trail should be able to remain open during LAR Contract 4B construction. At the northern portion of LAR Contract 4B, the maintenance road along the top of levee and the maintenance road at the levee toe, both of which are used for recreation, are expected to be used for construction access and will require closure and detour of the recreational traffic.

Recreation traffic would be routed along the existing paved bike trail. Fencing will be provided to ensure separation of recreation traffic from construction traffic.

At the southern portion of LAR Contract 4B the maintenance road at the top of the levee would likely be used for construction access. Additionally, the trees flagged for lone tree scour are along the hiking/equestrian trail so the hiking/equestrian trail would be closed near the construction boundaries as well. It is anticipated that similar to LAR Contract 3B South, the area would be closed to recreational use and recreationalists would need to use neighborhood streets to detour around the construction.

The designs are still in the early phases, so it is unknown at this point in time what exactly the final designs will look like. It is not anticipated that woody vegetation or trees would be added to the Contract 4B project site as it is in the vegetation free zone. Additionally, where feasible, erosion protection features would be topped with soil and reseeded with native grasses. If it is determined that trees would be removed, removal of some of the trees could decrease the shade provided on the hiking/equestrian trail. Generally, in the parkway, the vegetation free zone is only planted with native grasses, so having the Contract 4B project site free of woody vegetation would match the general appearance of the levee in the parkway.

### 3.5. Aesthetics

As mentioned in section 3.4 the vegetation free zone of the levees, where LAR Contract 4B is located, is typically not planted with woody vegetation. Removing trees would be consistent with the levee along other parts of the American River. Otherwise, the designs are still in the early phases, so it is unknown at this point in time what exactly the final designs will look like. Where feasible, erosion protection features would be topped with soil and reseeded with native grasses.

### 3.6. Avoidance and Minimization Measures

Consistent with the guidelines set forth in the programmatic consistency analysis (USACE, 2021), **Table 3** summarizes how Contract 4B will adhere to the Best Practices for designated Wild and Scenic Rivers (NPS, 2020). During discussions held during the formulation of the programmatic consistency analysis, USACE and NPS jointly devised Universal Avoidance and Minimization measures which would be adopted in the remainder of projects on the LAR under the ARCF project. A summary of how the project adheres to the measures is given in **Table 4**.

Contract/Site	Anticipated Dates as of July 2024	Actions	WSR Resources Temporarily Affected	Planned Minimization Measures for Temporary Impacts
LAR Contract 4B – Phase 1 Vegetation Removal North Side of American River	Fall 2026 - Winter 2027	Vegetation Removal and elderberry transplant	Aesthetics impacts from tree removal and bare slopes. Recreation due to equestrian and walking trail closures/detours. Recreation due to loss of pedestrian use of the maintenance roads.	<b>Aesthetics:</b> Aesthetic riparian temporal mitigation is accounted for in an anticipated 2:1 habitat ratio.
LAR Contract 4B – Phase 1 Vegetation Removal South Side of American River	Fall 2026 - Winter 2027	Vegetation Removal and elderberry transplant	Aesthetics impacts from tree removal and bare slopes. Recreation due to equestrian and walking trail closures/detours. Recreation due to loss of pedestrian use of the maintenance roads.	<b>Recreation:</b> Detours will be developed with input from Regional Parks, and NPS, to ensure minimal disruption to recreational assets practicable.
LAR Contract 4B North – Phase 2 Site Construction North Side of American River	Spring – Fall 2027 (Erosion Protection) Spring 2028 (Revegetation)	Grading and placement of erosion resistant materials.	Aesthetics from tree removal and bare slopes.	<b>Aesthetics:</b> Aesthetic riparian temporal mitigation is accounted for in 2:1 habitat ratio.
LAR Contract 4B North – Phase 2 Site Construction South Side of American River	Spring – Fall 2027 (Erosion Protection) Spring 2028 (Revegetation)	Grading and placement of erosion resistant materials.	Recreation effects due to bike, equestrian, and walking trail closures/detour. Recreation due to loss pedestrian use of the maintenance road. Recreation due to closure of river access points.	<b>Recreation:</b> Detours will be coordinated with Regional Parks and NPS groups to ensure the least disruption to recreational assets practicable.
LAR Contract 4B – Phase 3 Maintenance (5-years) North Side of American River	Spring 2028 – Fall/Winter 2032	Maintaining grasses as needed	Aesthetics - people working on the slopes	None planned.

Contract/Site	Anticipated Dates as of July 2024	Actions	WSR Resources Temporarily Affected	Planned Minimization Measures for Temporary Impacts
LAR Contract 4B – Phase 3 Maintenance (5-years)	Spring 2028 – Fall/Winter 2032	Maintaining grasses as needed	Aesthetics - people working on the slopes	None planned.
South Side of American River				
LAR Contract 4B – Phase 4 Long Term Operations & Maintenance	For the life of the site	Mowing, weeding, and other activities as provided in the Parkway Plan	None	N/A
LAR Contract 4B				

NPS Best Management Practice	Proposed Action
Minimize the use and visibility of rock channel protection (RCP) and use only the minimum amount necessary to protect structures. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock.	The minimum amount of RCP required to meet risk management objectives is proposed. Design is in the early phases so it is unknown what the final erosion protection features will look like. Where feasible, erosion protection features would be topped with soil and reseeded with native grasses.
If necessary, stone fill (riprap) may only be used for abutment scour protection; the use of stone fill to stabilize the riverbanks is prohibited. To stabilize the riverbanks, use approved native boulders, cobble and gravel; loam; vegetation; and bio- engineering techniques such that the banks, when fully restored, have an appearance and function similar to the natural riverbank.	Erosion resistant materials would be placed on the levee slope and within 15 feet of the levee toe. Work would not occur on the riverbank near the water.
Riparian areas must be restored to pre- disturbance conditions immediately after construction activities are completed.	Some trees may be permanently removed from the project site. The project is within the vegetation free zone, so no new woody vegetation can be replaced onsite.
Disturbed/exposed banks, staging and project access areas must be properly stabilized (seeded, mulched, or otherwise) with native vegetation to prevent erosion and establishment of invasive plant species. A non-persistent cover crop of annual rye or equivalent temporary seeding may be used to ensure a more rapid establishment of cover while native perennial plantings grow.	Immediately following construction, the site will be hydroseeded with an appropriate native seed mix.
Bio-engineering methods must be used or, where deemed necessary by the [insert river managing agency/ contact], clean broken rock riprap of an adequate size specific for bank stabilization.	The project is within the vegetation free zone, so no new woody vegetation can be replaced onsite.
The use of demolition debris for slope armoring is not allowed.	No demolition debris would be used for slope protection.
Avoid unnecessary tree removal within the project work area.	Tree removal will be minimized to the extent feasible.
A vegetation plan shall be in place to protect existing vegetation/trees from damage by construction equipment ( <i>e.g.</i> , provide temporary barriers to protect existing trees, plants, root zone).	LAR Contract 4B is in early phases so specifications are not available at this time. LAR Contract 3B Specifications, which will likely be utilized to help make the LAR Contract 4B specifications, include measures such as: fencing off the project area, requiring an arborist present for tree trimming or grading near roots, financial penalties for tree damage, and root protection matting.
Disturbances of the riparian zone must be limited to the indicated access points; prior to the operation of heavy equipment (dozers, cranes, trucks), orange construction fencing must be erected to delineate the dripline of remaining trees to avoid compaction of tree roots.	Fences will be used to delineate the site boundaries. No work will occur outside the construction footprint or designated staging areas.

#### Table 3. Summary of Adherence to NPS Best Practices.

NPS Best Management Practice	Proposed Action
The fastening of ropes, cables, or fencing to trees is prohibited.	LAR Contract 4B is in early phases so specifications are not available at this time. LAR Contract 3B Specifications, which will likely be utilized to help make the LAR Contract 4B specifications, include measures preventing ropes, cables, or fencing from being fastened to trees marked for retention.
To ensure bank stability, trees removed within fifteen feet of the top of the riverbank shall be cut flush to the ground; stumps and roots shall be left in place; indiscriminate bulldozing of riparian trees is prohibited.	Design is in the early phases so it is unknown what the final erosion protection features will look like.
All trees removed from the riparian corridor shall be replaced with a native tree of like species. Replace each mature tree removed (12-inch or greater diameter at breast height [DBH]) with [insert specifications, e.g., replant 3:1 ratio depending on expected survival rate and with trees that are a minimum 3- inches DBH]. Plant only local, native trees/shrubs/grasses, naturally occurring within the [insert river name] riparian zone [insert plant species list and/or to be determined in coordination with appropriate staff].	Some trees may need to be removed from the site. If it is determined that these trees would be habitat, offsite mitigation for habitat would be done at a 2:1 or 3:1 ratio.
A qualified individual (arborists, foresters, or trained staff with similar experience) shall plant replacement trees at the appropriate time of year and in a random fashion to avoid a plantation effect. Cultivate and monitor planted tree seedlings/saplings for two years to ensure success; water plantings as necessary. Promptly replace planted stock showing signs of mortality.	Onsite mitigation plantings are not anticipated. Replacement trees for habitat impacts will be planted offsite at designated riparian habitat restoration areas according to designs prepared under the supervision of a California licensed USACE landscape architect with experience in developing habitat restoration. The mitigation sites will be managed and monitored according to the ARCF GRR Habitat Mitigation Monitoring and Adaptive Management Plan, which includes success criteria. Plants will be watered as needed for 3–5 years.
Stakes and guide wires shall be properly removed and disposed of once seedlings are established.	LAR Contract 4B is in early phases so specifications are not available at this time. However, it is a standard requirement of USACE construction contracts that sites be cleaned up and debris properly disposed of after construction is complete.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
Levee Setbacks	Set back the levees wherever possible to allow the river to move.	Free-Flow	Levee setbacks are not feasible in this area due to the existence of homes and businesses, and major roadways immediately behind the levee.
Bioengineering and native plantings throughout the banks and levees	Avoid riprap to the extent possible. Use bioengineering techniques including use of wood (e.g., log crib walls, tree revetments, root revetments; engineered log jams) and deformable techniques (e.g., fabric-encapsulated soil lifts (i.e., geolifts), rock bags, coir rolls (i.e., bio logs), erosion control blankets/fabrics).	Free-Flow, Anadromous Fish	The project is within the vegetation free zone, so no new woody vegetation can be replaced onsite.
Riprap at the bank toe	Riprap would only be placed at the bank toe of segments where the levee prism and associated planting berms (if included) are at the extent of the Parkway limits.	Free flow	No work is being done at the riverbank toe.
Riprap at the bank toe	Ensure no hydraulic impacts from riprap.	Water quality	Hydraulic impacts would be considered during design of LAR Contract 4B.
Riprap at the bank toe	Ensure no direct and adverse impacts to anadromous fish.	Anadromous Fish	Work is being done above the OHWM, so there is no anticipated direct and adverse impacts to fish.
Riprap at the bank toe	Minimize the use and visibility of rock channel protection (RCP) and use only the minimum amount necessary to protect structures. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock. If rock is needed utilize cobble to the extent possible. Cover exposed riprap at the bank with soil and vegetation where cobble is not possible.	In-water recreation Aesthetics	Work is being done above the OHWM. No work would be done at the riverbank toe.

 Table 4. Summary of Adherence to Universal Avoidance and Minimization Measures.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
Avoid and Minimize use of riprap on the	Minimize the use and visibility of RCP. RCP should be avoided or minimized to the extent possible.	Anadromous Fish	Work is being done above the OHWM. No work would be done between the OHWM and
bank above the toe to the OHWM and near the	Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock.	Recreation	the riverbank toe.
water	Cover any necessary riprap on the bank above the OHWM with planting benches containing sufficient soil and capable of supporting riparian habitat.	Acometics	
Minimize use of Riprap on the levee slope	Cover revetment on the slope with sufficient soil and native grasses or forbs, as woody vegetation may not	Anadromous Fish	Design is in the early phases so it is unknown what the final erosion protection features will
	be possible due to USACE vegetation on levees policies.	Aesthetics	look like. Where feasible areas would be topped with top soil and reseeded with native grasses
Removal of vegetation	Minimize vegetation removal to the maximum extent practicable. Provide planting benches to reduce	Anadromous Fish	Trees would be removed from the site only at a last resort to ensure levee safety, or if trees
	the affects for lost habitat on-site. Riparian areas must be restored to	Aesthetics	are non-native or unhealthy. Work is above the OHWM so
	pre-disturbance conditions immediately after construction	Water quality	installation of planting benches is not feasible.
	Provide restoration in the parkway when revegetation cannot be completely restored in the project		vegetation free zone, so no new woody vegetation can be replaced onsite.
	footprint. Re-vegetate all areas of the repair site above the waterline with native, ecotone appropriate, species.		If habitat is removed, mitigation would occur at an offsite mitigation site within the American River Parkway.
	Design sites such that they are indistinguishable from the overall fabric of the Parkway.		Where feasible erosion resistant materials would be topped with soil and reseeded with native grasses.

Proposed	Proposed Avoidance or	WSR	Adherence to the Measure:
Design Feature:	Reduction of Impact Measure:	Aspect(s):	
Closure of bike trail	The first priority is to detour the bike trail on the nearest dedicated trail. That is, the trail should not be shared with automobiles. If the bike trail segment being detoured is paved, the detour route should also be completely paved to include all transitions from permanent to temporary trails/detours. In an event due to where the trail cannot be routed near construction boundaries for safety concerns it should be detoured to surface streets with bicycle safety measures for a minimal amount time. Detours to surface streets should be considered the last option and review by all stakeholders. Provide information at both ends of the closure and on the web about the location and duration of the closure and provide a map of the detour. Minimize the extent of the closure. When feasible use flaggers instead of detours. Minimize the length of time the detours are needed. Detours will carry the same safety standards as a permanent trail and if detours go down to one bicycle lane, caution should be considered and the included use of flaggers with dismount zones in single lane areas. Any permanent re-routing of the bike trail should also include rerouting the equestrian trail. Re- routed trails should provide the same experience as the existing trail including the aesthetics. The new trail should be shaded with riparian vegetation.	Recreation	Bike trail detours will be provided around the work on the north side of the river if needed, however it is anticipated that the maintenance road and top of levee can be used for construction and not require the bike trail to be closed. All bike trail detours will be coordinated with County Parks and will minimize detours to streets. LAR Contract 4B is in early phases so specifications are not available at this time. LAR Contract 3B Specifications, which will likely be utilized to help make the LAR Contract 4B specifications, include measures requiring signs at trail closures and flaggers. There will be no permanent re- routing of the bike trail with LAR Contract 4B.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
Closure of levee maintenance road	Detour the route, if normally used as a hiking, horse, or mountain bike trail. Provide information at both ends of the closure and on the web about the location and duration of the closure and provide a map of the detour. Plant vegetation to provide shading along this road once users return to the extent possible.	Recreation	It is anticipated that where work would be on the South side of the river, the hiking/equestrian trail would need to be closed. As with Contract 3B, recreationalists would be required to use neighborhood streets since there is not a safe way to detour recreationalists within the parkway. The project is within the vegetation free zone, so no new woody vegetation can be replaced onsite.
General Impacts of Work in the Parkway	Reduce work limits to the maximum extent practicable. Close trails and other recreational features only when necessary for safety of the public. Advance notice of work shall be provided at the site of the closures and on the web.	Recreation	Every effort will be made to reduce the work area to the extent practicable. Advance notice of the work would be provided on sacleveeupgrades.com.
General Impacts of Work in the Parkway	Phase work appropriately such that sites do not remain incomplete for excessive periods of time (e.g., bank work completed but planting delayed for years, or tree clearance years ahead of the construction etc.)	Aesthetics	Work is scheduled to be conducted sequentially. Gaps in the construction sequence would be limited to necessary safety stand downs during the flood season when no work may be conducted in the floodway.
Closure of boat ramp	Avoid closure of boat ramps to the maximum extent practicable. Phase work such that not more than one boat ramp is closed. Provide information at the closure and on the web about the location and duration of the closure and the nearest open boat ramp. Minimize closure time and keep it open when work is not being done on the weekends and in the evenings. Provide improvements to the boat launch once users can return to the site.	Recreation	Designs are in the early phases so it is unknown if the Watt Avenue Boat ramps will be closed.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:	
Closure of river access points	Avoid closure of river access points to the maximum extent practicable. Phase work such that consecutive river access points are not closed for more than one consecutive mile on account of this project. Provide information at the closure(s) and on the web about the location and duration of the closure and the nearest open river access points. Minimize closure time and keep it open when work is not being done on the weekends and in the evenings. Provide improvements to the boat launch once users can return to the site.	Recreation	If the same closures for LAR Contract 3B are used, University Park River Access, Kadema Drive River Access, the Watt Avenue Boat Launch, river access from the apartments upstream of Watt Avenue, Waterton Way River Access, river access through SARA park, river access through Larchmont Park and Rio Bravo Circle River Access will be affected by this work. Advance notice of the work would be provided on sacleveeupgrades.com. LAR Contract 4B is in early phases so specifications are not available at this time. However, it is a standard practice to require USACE construction contractors to post signs at trail closure locations.	
In water work	Abide by NPDES requirements to ensure there is no adverse effect to water quality.	Water Quality	Site designs are consistent with this measure.	
In water work	Abide by NMFS Biological Opinion to ensure there is no adverse effect to anadromous fish from water quality.	Anadromous Fish	Site designs are consistent with this measure.	
In water work	Provide buoys or other demarcation for closed sections of the channel. The channel shall not be closed such that upstream or downstream navigation is precluded.	In-water recreation	There will be no in-water work.	

# 4. Conclusion

USACE has determined that the LAR Contract 4B should be considered consistent with the mandates of the WSRA because:

- a. The project is a part of the authorized ARCF project and fits within the scope of the overall project.
- b. The minimization measures proposed for each design specific feature, as outlined in the Universal Minimization Measures, will be used.
- c. This project will be conducted under the standing biological opinions for the ARCF project and will be subject to the terms and conditions therein.
- d. This project will be conducted above the OHWM and will not require Clean Water Act 401 permitting.

USACE requests concurrence from NPS within 60 days of the date of this document.

# 5. References

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### American River Common Features 2016 Project Section 7 Wild and Scenic Rivers Act DRAFT Consistency Analysis American River Mitigation Site

Compensatory Mitigation Sites on the Lower American River Sacramento County, California





December 2024



US Army Corps of Engineers Sacramento District This page intentionally left blank.

### Preface

As discussed in the main body of Appendix H, consistency with the Federal Wild and Scenic Rivers Act is considered throughout design development for the LAR elements of the American River Common Features (2016) Project. The purpose of this attachment (**Attachment 4**) is to share with the public and decision makers the current Draft USACE Consistency Analysis for the American River Mitigation Site (ARMS). This draft is based upon the information currently available and will be updated as designs progress. ARMS has reached 35% level of design. Therefore, this Draft Consistency Analysis reflects that early design stage. Once designs have reached 95%, USACE will update this draft Consistency Analysis to provide more project specific details and will transmit it to the National Park Service together with a request that they conduct their consistency review.

### Contents

1	Introd	duction 5	
2	Autho	rity	5
	2.1	Need for Consistency Determination	5
	2.2	Purpose of this Report	6
3	Projec	ct Description	7
	3.1	Location	7
		3.1.1 Site Conditions in 1981	7
	3.2	Existing Conditions	7
	3.3	General project features	8
	3.4	On-site habitat features	9
		3.4.1 Habitat Zones	9
		3.4.2 LAR Main Channel	10
		3.4.3 Backwater Channels and Benches	10
		3.4.4 Salmon Designs Criteria	10
		3.4.5 Yellow-billed Cuckoo and Riparian Design Criteria	11
		3.4.6 Valley Elderberry Longhorn Beetle Design Criteria	11
		3.4.7 Native Plant List	11
		3.4.8 Instream woody material	13
	3.5	Staging Areas and Haul Routes	13
	3.6	Schedule and Duration	14
	3.7	Construction Phasing	15
	3.8	Mitigation Realized	15
4	Effect	s on Wild and Scenic Values	17
	4.1	Effects on Free-Flowing Nature of the River	17
	4.2	Effects on Water Quality 1	
	4.3	Effects on the Anadromous Fishery	
	4.4 Effects on Recreation		18
	4.5 Aesthetics		19
	4.6 Avoidance and Minimization Measures		20
5	Concl	usion	31
6	Refer	ences	32

#### List of Tables

Table 1. Potential Native Plant List	. 12
Table 2. Approved Biological Work Windows within which Construction will Occur	. 15
Table 3. ARMS Construction Phasing and Sequencing	. 15
Table 4. LAR Bank Protection Site Impact Summary	. 16
Table 5. LAR Mitigation Acreage Summary	. 16
Table 6. Summary of Temporal Impacts – ARMS - Phase 1 - Vegetation Removal	. 21
Table 7. Summary of Temporal Impacts – ARMS - Phase 2 - Site Construction	. 21
Table 8. Summary of Temporal Impacts – ARMS - Phase 3 – Regreening	. 22
Table 9. Summary of Temporal Impacts – Phase 4 - Site Establishment & Maintenan	ce
	. 23
Table 10. Summary of Temporal Impacts – ARMS - Phase 5 -Long-term Operations a	and
Maintenance	. 23
Table 11. Summary of Adherence to NPS Best Practices	. 24
Table 12. Summary of Adherence to Universal Avoidance and Minimization Measure	S
	. 26

#### Table of Figures

Figure 1. ARMS location on the LAR	7
Figure 2. ARMS 35% Project Design with Bald Eagle Buffer.	8
Figure 3. Draft Habitat Zones at ARMS	
Figure 4. Access and Haul Routes	
Figure 5. Example of Edge Planting	
Figure 6. Example Upper Riparian	
Figure 7. Example Elderberry Savannah	
# Acronyms

Acronym	Term
ARCF	American River Common Features 2016
ARMS	American River Mitigation Site (Proposed Action)
CEQA	California Environmental Quality Act
cfs	Cubic feet per second
CVFPB	Central Valley Flood Protection Board
DWR	California Department of Water Resources
ESA	Endangered Species Act
FEIR	Final Environmental Impact Report (CEQA)
FEIS	Final Environmental Impact Statement (NEPA)
FWCA	Fish and Wildlife Coordination Act
GRR	General Reevaluation Report
IWM	Instream Woody Material
LAR	Lower American River
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
No.	Number
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
Parkway	American River Parkway
Proposed Action	American River Mitigation Site (ARMS)
RCP	Rock Channel Protection
SAFCA	Sacramento Area Flood Control Agency
Stat.	Statute
SWPPP	Storm Water Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VELB	Valley elderberry longhorn beetle
WRDA	Water Resources Development Act
WSR	Wild and Scenic River
WSRA	Wild and Scenic River Act
XS	Cross section
YBCU	Yellow-billed cuckoo

# 1 Introduction

The American River Common Features 2016 Project (ARCF Project) is a congressionally authorized flood risk management project that is being implemented by the project cost-sharing partners the U.S. Army Corps of Engineers (USACE), the Central Valley Flood Protection Board (CVFPB), and the Sacramento Area Flood Control Agency (SAFCA). The California Department of Water Resources also participates and provides technical staff to support the CVFPB. The full scope of the ARCF Project is described in the 2016 American River Watershed Common Features General Reevaluation Report (GRR) and joint Final Environmental Impact Statement and Environmental Impact Report (FEIS/FEIR), and as revised and supplemented. This consistency analysis addresses the American River Mitigation Site (ARMS) also known as Urrutia, which is the Proposed Action. For consistency with other project documents, American River Erosion projects will be referred to as Lower American River (LAR) projects in this document.

# 2 Authority

As part of the larger ARCF Project, ARMS (Proposed Action) are authorized by Section 101(a)(1)(A) of the Water Resources Development Act (WRDA) of 1996, Public Law Number (No.) 104303 Section 101(a)(1), 110 Statute (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). Following the interim general reevaluation study, additional authority was provided 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 the Nation Act, and Public Law 115-123 (Bipartisan Budget Act of 2018).

## 2.1 Need for Consistency Determination

The Lower American River (LAR) has been designated by the Secretary of the Interior as a Wild and Scenic River (WSR) under the Wild and Scenic Rivers Act (WSRA) Section 2(a)(ii). The ARCF Project constitutes an "Other Proposed Federally Assisted Water Resources Project (Agency Other than the Federal Energy Regulatory Commission)" within the WSR-designated portion of the LAR (Interagency Wild and Scenic Rivers Council 2004). Section 7(a) of the WSRA requires Federal agencies to determine whether water resources projects planned in rivers under the jurisdiction of the act are consistent with WSRA requirements to protect river resources. The responsibility for the Section 7 determination is a federal responsibility not delegated to the state. Therefore Section 7 determinations are the responsibility of one of the four river administering agencies, Bureau of Land Management, U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service, or the National Park Service (NPS). The LAR does not run through federal lands under the jurisdiction of another federal riveradministering agency, therefore the responsibility for the Section 7 determination rests with NPS. Accordingly, the Sacramento District, USACE prepared this analysis for the NPS as agency submitted documentation to support a consistency determination.

## 2.2 Purpose of this Report

The ARCF project was described in the American River Common Features (ARCF) Project 2016 Wild and Scenic Rivers Programmatic Consistency Analysis, dated June 22, 2021, and updated July 19, 2021 (NPS identifier 1.A.2 (PW-NR)). This projectspecific consistency analysis focuses on the potential effects and benefits of ARMS, which is intended to provide compensatory mitigation for the Lower American River Erosion Contracts. This report considers whether the Proposed Action would directly and adversely affect the river values that were present in the LAR in 1981 when the LAR was designated as a component of the National Wild and Scenic Rivers System. The actions under ARMS are consistent with the purpose and need of the overall ARCF project. They are conducted within the overall location of the ARCF project as described in the programmatic consistency analysis. This report was prepared using the format provided in Appendix A of the programmatic consistency analysis (USACE, 2021).

# **3 Project Description**

## 3.1 Location

ARMS is on the north (right) bank of the LAR between Discovery Park and Camp Pollock Sacramento, California. **Figure 1** shows the location of ARMS.



Figure 1. ARMS location on the LAR

### 3.1.1 Site Conditions in 1981

ARMS, also known as Urrutia, was previously privately held and operated as the Gardenland Sand and Gravel Mine. The area is zoned as American River Parkway Flood-Zone. Section 3.2, Existing Conditions describes conditions reflective of previous uses of this property.

## 3.2 Existing Conditions

In May of 2023 the project partners purchased all three parcels of the Urrutia property. Phase one surveys found no hazardous materials, but there are some contaminates and discarded construction materials such as concrete and asphalt. In summer 2024, SAFCA completed site cleanup to make the land usable as a mitigation project. This included removing the existing house and all outbuildings. The dilapidated bridge that crossed over Bannon Slough was removed by the previous owner, so the only access is now through Discovery Park or through Camp Pollock. Much of the vegetation onsite is nonnative, and the open grassy area around the pond is regularly mowed. The site is home to a nesting pair of bald eagles. They have had a successful nest the last two years with two chicks each year. Riparian habitat is restricted to the outer boundaries of

the property resulting in migrating wildlife moving onto the bike trail and out into the open. The pond is only connected to the River and Bannon Slough during high flow events and currently functions as a fish trap as waters recede.

## 3.3 General project features

ARMS is part of the ARCF16 Project but is not part a levee improvement. Instead, ARMS is being designed and constructed to fulfill the Endangered Species Act (ESA), Fish and Wildlife Coordination Act (FWCA) and the WSRA compensatory mitigation requirements of the Project. This ARCF16 project component was not included in previous national environmental policy act (NEPA) documents but is analyzed the 2025 Supplemental Environmental Impact Statement and Supplemental Environment Impact Report.

The site is designed to function as a backwater channel that is connected to the LAR through a single inlet and outlet, shown on **Figure 2**. Habitat benches will be constructed at various water surface elevations to provide year-round shallow water habitat for salmonids and waterfowl. During the wet season the area will also provide deep water habitat. Riparian vegetation will be used to provide habitat for western yellow billed cuckoo, and higher elevations will support oak and elderberry habitat. Site grading and placement of fill material would occur to ensure proper water flows (drainage), create low-flow channels, remove non-native vegetation, and connect to the main stem of the river.



Figure 2. ARMS 35% Project Design with Bald Eagle Buffer.

The project is primarily a process-based restoration project that will restore dynamic natural hydrology to the site to promote natural recruitment of native wetland and riparian vegetation and is not proposed to rely on intensive site planting and irrigation for most vegetation establishment. Assisted natural recruitment supplemented with focal plantings and seeding is expected to achieve habitat restoration performance standards within 10 years of site breaching. The focus in design is to provide erosion control and site conditions that produce robust vegetation, larger trees with maturing understory, and natural succession that will provide habitat for State and Federally listed species as well as local wildlife. This will require integration of civil design and landscape architecture and thorough and clearly articulated maintenance requirements that provide room for adaptive management during the establishment period.

Although not a primary goal of the ARMS design, passive recreational opportunities compatible with fish and wildlife and their habitat would be available. The property is no longer in a private holding, off-limits to the public. Once the habitat goals have been reached, the ARMS could be connected to the American River Parkway through formal or informal trail systems. The open water and young riparian habitats would allow for expanded wildlife viewing and bird watching opportunities. Additionally, the site would be protected and preserved as natural habitat, creating a natural buffer around the nesting eagle pair.

## 3.4 On-site habitat features

### 3.4.1 Habitat Zones

The ARMS site design includes five discrete habitat zones, shown in **Figure 3**. The lowest elevations (up to 8.2 ft) will be inundated year-round and will consist of open water and transitional wetland vegetation. Zone 1 is open water to wetland. Zone 2 is lower riparian, elevations 8.2 to 11ft. It will be inundated frequently and consist of willow scrub vegetation. Zone 3 is middle elevation riparian and extends from elevations 11 to 18 feet. Zone 3 will include willow, alder, birch, and other water tolerant native species. Zone 4 is upper riparian habitat and extends from elevations 18 to 24 feet. This zone will transition from riparian to woodland species, including black walnut, redbud, and milkweed. Zone 5, at elevations above 24 feet, will rarely be inundated. Zone 5 will consist of upland native vegetation such as oaks, mug wart, wild grape, and elderberry shrubs.



(Image produced by GEI)

### Figure 3. Draft Habitat Zones at ARMS.

### 3.4.2 LAR Main Channel

The main channel of the LAR largely will not be disturbed. The bank at the breach will be removed using an excavator. An excavator and a bulldozer will be used to smooth out the grade into a gentle slope that does not pose a safety risk. The breach itself will not be stabilized with rock revetment; it will be hydroseeded with a native herbaceous seed mixture. Some old debris is present along the bank of the river. Where feasible and appropriate, the debris will be removed during project construction. Soil disturbed during the debris removal will be hydroseeded with a native herbaceous seed mixture.

### 3.4.3 Backwater Channels and Benches

The design includes dendritic back water channels to expand habitat for salmonids and other aquatic species. The backwater channels will gradually slope and drain towards the main river channel to prevent fish stranding and to provide water circulation. Benches constructed at different elevations will provide diverse habitat seasonal flows and water years fluctuate.

### 3.4.4 Salmon Designs Criteria

In general, all aquatic and riparian restoration and enhancements below the ordinary

high water mark (24 feet NAVD 88) are suitable compensatory mitigation for salmonids. The design takes into consideration the flow and stage frequencies on the LAR, targeting depths and velocities to accommodate rearing fall-run Chinook salmon and Central Valley steelhead.

#### 3.4.5 Yellow-billed Cuckoo and Riparian Design Criteria

Zones 1, 2 and 3 are designed with a variety of native riparian plant species to provide elevational transitions, creating a diverse riparian corridor. This will provide habitat for yellow billed cuckoo (YBCU) along their migratory route through California and restores a migratory corridor for other wildlife in the LAR.

#### 3.4.6 Valley Elderberry Longhorn Beetle Design Criteria

Elderberry shrubs will only be located in Zone 5 as they prefer to be above the ordinary high water mark (24 feet NAV 88), either in understory of cottonwood or an open savannah with associated native vegetation. All areas planned as Valley Elderberry Longhorn Beetle (VELB) mitigation will be managed in accordance with the 2017 Framework.

#### 3.4.7 Native Plant List

The plants selected for ARMS will bel those native to the LAR and which are consistent with the LAR Natural Resource Management Plan and the LAR Parkway Plan. **Table 1** shows the plant species in relation to habitat zones.

Common Name	Scientific Name	Size/type
Trees		
Box elder	Acer negundo	Treepot 4*
White alder	Alnus rhombifolia	Treepot 4*
Oregon ash	Fraxinus latifolia	Treepot 4*
Sycamore	Platanus racemosa	Treepot 4*
Cottonwood	Populus fremontii	Treepot 4*
Valley oak	Quercus lobata	Treepot 4*
Interior live oak	Quercus wislizenii	Treepot 4*
Goodding's willow	Salix gooddingii	Treepot 4*
Goodding's willow	Salix gooddingii	Cuttings
Red willow	Salix laevigata	Treepot 4*
Red willow	Salix laevigata	Cuttings
Understory (Shrubs/Vines)		
Mugwort	Artemesia douglassiana	Treeband*
Coyote brush	Baccharis pilularis	Deepot 40*
Mule fat	Baccharis salicifolia	Treepot 4*
Buttonbush	Cephalanthus occidentalis	Treepot 4*
Western Redbud	Cercis occidentalis	Deepot 40*
Western Goldenrod	Euthamia occidentalis	Treeband*
Coffeeberry	Frangula calilfornica	Deepot 40*
Toyon	Heteromeles arbutifolia	Deepot 40*
Wild cucumber	Mara macrocarpa	Deepot 40*
Rose	Rosa californica	Deepot 40*
Blackberry	Rubus ursinus	Deepot 40*
Sandbar willow	Salix exigua	Treepot 4*
Sandbar willow	Salix exigua	Cuttings
Pacific willow	Salix lasiandra	Treepot 4*
Pacific willow	Salix lasiandra	Cuttings
Arroyo willow	Salix lasiolepis	Treepot 4*
Arroyo willow	Salix lasiolepis	Cuttings
Elderberry	Sambucus mexicana	Deepot 40*
Snowberry	Symphoricarpus albus var. Laevigatus	Deepot 40*
Pipevine	Aristilochia californica	Deepot 40*
Clematis	Clematis lingustifolia	Deepot 408
Grape	Vitis californica	Deepot 408
Herbaceous		
Santa Barbara sedge	Carex barbarae	Treeband*
Santa Barbara sedge	Carex barbarae	Plug*
Western Goldenrod	Euthamia occidentalis	Treeband*
Baltic rush	Juncus balticus	Treeband*
Common bog rush	Juncus effusus	Treeband*
Creeping wildrye	Leymus triticoides	Treeband*
Creeping wildrye	Leymus triticoides	Plug*

#### Table 1. Potential Native Plant List

Common Name	Scientific Name	Size/type
Scouringrush Horsetail	Equisetum hyemale ssp. Affine	Plug*
Evening primrose	Oenothera hookerii	Treeband*
California bulrush	Schoinoplectus californicus	Treeband*
Tule	Schoenoplectus acutus var. occidentalis	Treeband*

\*Type of potted plant

#### 3.4.8 Instream woody material

IWM is proposed with the goal of creating better habitat conditions for salmonids postrestoration. The primary purpose of IWM is to enhance the quality of fish habitat by providing refugia and increasing instream cover at low to moderate flows for the benefit of fish species. IWM also promotes bank stability and protection against wave or wake energy during the plant establishment period and encourages sediment deposition. IWM will be locally sourced hardwood, free of disease and rot. It will be placed in various locations and elevations for maximum benefits and will be anchored using natural or biodegradable materials.

### 3.5 Staging Areas and Haul Routes

The project construction limits define the temporary construction easement and limits of disturbance. This includes the site access, staging areas and grading limits. Material stockpiling, especially IWM, will require a large area. The stockpile location has not yet been identified. The primary proposed haul route (**Figure 4**) will be used by large dump trucks to transport soil fill, rock, and IWM. The trucks will travel in one direction in a circuit to and from the borrow and ARMS.

- The route from the borrow site will extend from the work area entrance via Northgate Blvd. following the powerline easement.
- The Riverdale Mobile Home Park/Camp Pollock dirt road is connected to the ARMS through (southeast corner of the site). The gate will remain closed during construction.
- The primary proposed access routes within the project area will follow existing paths.

No road closures are proposed, but the main construction access point will be reviewed by the County and the City of Sacramento Public Works Department. Before the start of construction activities, the contractor is required to prepare a Traffic Control and Road Maintenance Plan.



Figure 4. Access and Haul Routes

## 3.6 Schedule and Duration

Project construction is expected to begin in winter 2025 or spring 2026 with tree trimming along the haul route. Work behind the natural levee bank will occur over about a three year period beginning in 2026 and extending through 2028. Planting will occur sequentially over the construction period as portions of the site become ready for plant installation. In 2027 the levee bank height will be reduced to connect the river to the floodplain. This work will occur during the in-water work window of 2027. An adaptive management and monitoring phase will follow completion of construction. During this time some minor adjustments may be made to ensure the site performs as intended. This could include some minor grade adjustments and/or replanting, if needed. **Table 2** details the construction timing and sequence for ARMS.

Item	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bald Eagle <sup>1</sup>												
Fisheries												
Flood Season Avoidance												
Tree Clearing												
VELB Avoidance			*	*	*	*						
VELB Transplant Window												

#### Table 2. Approved Biological Work Windows within which Construction will Occur

\* Do Not Impact Elderberry Shrub

<sup>1</sup> USACE intends to seek a disturbance permit from USFWS that will allow work to occur in all seasons.

#### Table 3. ARMS Construction Phasing and Sequencing

Activity	Tree Trimming	Earthwork	Greening/Mitigation Plantings
Timeline	Fall 2025-Winter 2026	2027	Winter-Spring 2028

## 3.7 Construction Phasing

Construction is expected to occur over approximately 3 years, beginning with tree trimming in late 2025 or early 2026 and ending when all planting is completed in early 2028. All construction activities are anticipated to take place from land. Material will be imported by truck and relocated with either a bulldozer, excavator, or other heavy equipment. The first action will be to construct a haul route from Northgate Blvd. The second action will be to remove trees and other vegetation from the construction footprint. Where feasible, some native trees within the footprint will be preserved. The third action will be to move soil material into the current pond, which is planned for restoration to slough and emergent wetland habitat. This would take place after all appropriate environmental surveys and fish relocations have occurred. Once the pond has been filled with soil, the construction is to breach the riverbank and connect the site with the American River."

### 3.8 Mitigation Realized

The ARMS Site is intended to provide offsite compensatory mitigation to offset t impacts to species and their habitat from bank protection LAR Contracts 1 through 4. **Table 4** and **Table 5** show the amount of impact and the onsite mitigation generated from each erosion protection site, and the amount of offsite mitigation provided by ARMS.

### Appendix H, WSRA – Attachment 4

Contract	Wetland Impacts	Riparian / Cuckoo Impacts	Fisheries Impacts	Wetland Onsite Mitigation	Riparian/ Cuckoo Onsite Mitigation	Fisheries Onsite Mitigation
1	0.00	10.43	8.50	0	12.86	7.59
2	0.00	12.21	5.44	0	15.75	8.65
3a	0.00	2.62	7.04	0	3.06	2.45
3b	0.00	7.50	20.13	0	15.59	13.74
4A	0.90	1.78	0.00	0	0	0
4B						
Totals	0.90	34.54	41.11	0.00	47.26	32.43

### Table 4. LAR Bank Protection Site Impact Summary

## Table 5. LAR Mitigation Acreage Summary

Item	Wetland	Riparian/Cuckoo	Fisheries
Total Impact	1	35	41
Total Mitigation Required	2	69	82
Total Onsite Mitigation	0	47	32
Total ARMS Creation	7	72	66 to 76
Unmitigated	2	22	50

# 4 Effects on Wild and Scenic Values

## 4.1 Effects on Free-Flowing Nature of the River

When the LAR was designated as Wild and Scenic in 1981, it generally only included the lands within the federal levees rather than the whole floodplain because development had already occurred immediately behind the levees. The flows on the LAR are managed by operations at Folsom Dam and Nimbus Dam, which are located a few miles upstream of the project. The portion of the LAR that contains the ARMS site is bound by a federal levee on both the north and south sides. The Garden Highway runs along the top of the levee to the north. The southern levee is the bank of the river itself. No ARCF16 erosion protection contracts occur in this reach of the LAR.

The proposed work will reconnect floodplain that has been separated from the river for many years. It will breach the existing riverbank and allow water to flow freely into and out of a backwater channel that currently does not exist but will be created as part of ARMS. By contouring the pond and existing upland areas, the land inundated year-round by the river will be expanded. Therefore, this project will benefit and expand the free-flowing nature of the river.

## 4.2 Effects on Water Quality

Water quality impacts for this project will be temporary and short-term. In-water work and/or construction site runoff could increase turbidity; however, increases would be limited by following the provisions of the Stormwater Pollution Prevention Plan (SWPPP) for the project which is required by the National Pollution Discharge Elimination System (NPDES). Consistent with the Clean Water Act 401 water quality certification for the project, a turbidity curtain, or other similar measure, will be used where required. The work site will be monitored to ensure that turbidity increases are limited to the work area. Upstream sampling will be conducted to determine ambient conditions on site. To ensure standards are met, these results will be compared to downstream turbidity results from sampling conducted during the work.

The majority of the site grading would occur while the uplands remain disconnected from the LAR and from Bannon Slough. The rubble along the bank of the LAR will be removed and the bank will be hydroseeded and/or planted with native vegetation to prevent additional erosion and soil run off. Vegetation within the mitigation site will act as a filter for any materials entering the backwater channel through surface runoff. The water temperatures in the backwater will vary throughout the day as a result of the tidal influence, current weather patterns and downstream flows. Once vegetation has matured, the site could increase water oxygen levels and release beneficial nutrients into the downstream food web. Breaching the existing riverbank would temporarily increase noise and vibrations in the surrounding areas and would temporarily increase turbidity in the work area. However, this is expected to only last for a few days during the approved in-water biological work window. Negative impacts lasting more than a single construction season are not anticipated as a result of the mitigation site construction. Therefore, ARMS is anticipated to have a beneficial effect on water quality.

## 4.3 Effects on the Anadromous Fishery

The property in its current state is not habitat for salmonids on the LAR. As water overtops from either Bannon Slough or the American River fish may be introduced to the old gravel pit, now referred to as a pond. Then when water retreats, fish trapped within the pond are unable to migrate downstream and completed their lifecycle.

The ARMS design involves reconnecting the pond to the American River. The elevations and slopes will be graded to facilitate water draining from the backwater into the river as water recedes, eliminating the risk of fish entrapment. Emergent wetlands plants and riparian vegetation will be planted to create cover for juvenile fish enabling them to hide from predators in the slower moving, shaded water, with plentiful food sources. In addition to replacing the shaded riverine aquatic habitat impacted by the erosion protection projects, this site will also complement the placement of spawning gravel being completed upstream by Bureau of Reclamation by enhancing rearing habitat for the juvenile fish heading down stream.

## 4.4 Effects on Recreation

Before May 2023, this property was held in private ownership and was not open to the general public for use. However, this did not prevent the occasional hiker, bird water or fisherman from wandering onto the private property. The river on the south and the Jedidiah Smith Memorial Bike Trail to the north of the property have always been open to the public for recreational use.

Access and haul routes will through public space such as Discovery Park and Camp Pollock. There will also be a haul route directly off Northgate Boulevard. The timing and requirements of this use are being coordinated with Sacramento Count Regional Parks Department (Regional Parks) and the Sacramento Valley Conservancy. Signs warning of the construction activities will be posted roads and bike trails. A flagger and/ or detours will be used to ensure the safety of the public and contractors. Construction-related disruptions will not occur year-round because work within a federal floodway is restricted from November 1<sup>st</sup> to April 30<sup>th.</sup> Work will not be completed by boat or barge, so at no time would navigation of the river from upstream to downstream be restricted.

Once construction is complete and vegetation is established, the created backwater could be accessed by kayakers, as a new off channel area to explore. Once the vegetation has reached the required habitat functional levels, the maintenance routes could be adopted by the Regional Parks as official trails. This would increase public access to the site and provide new recreational opportunities for hiking, wildlife viewing and fishing opportunities. Based on all these factors, the Proposed Action will benefit recreation in this reach of the parkway.

## 4.5 Aesthetics

Currently the site looks like a large pond surrounded by a mowed field with riparian woody vegetation lining the outer boundaries. Due to the site's location, construction will be highly visible to the public from all sides.

The view from the river will be improved by the removal of old concrete blocks, where possible, the banks will be cut to a gentler, more natural, slope. In other locations, areas may be leveled off to created vegetated planting benches or mudflats. At the breach site, rather than seeing steep eroded riverbanks, the boaters or kayakers will see a channel with IWM and native vegetation leading into a backwater area.

The view from the bike trail and Camp Pollock will be similar to each other. Edge planting will be done in asymmetrical pods of riparian vegetation which will be planted to enhance the upland riparian corridor; example is shown in **Figure 5**. This area will also provide a sense of separation from the high traffic human use areas to the more isolated, natural feeling areas for both the wildlife and the hiker.



(Note: This image is a placeholder. The edge planting graphic in development)

#### Figure 5. Example of Edge Planting

Towards the middle of the site, in the lower elevations, the vegetation will change, the ground will slowly slope down. The grades slopes are being designed for both the safety of human use and of wildlife. Low flow channels that are inundated year-round will be sloped towards the breach point, preventing the stranding of any fish as water levels rise and fall.

The upper riparian areas will have mature oak and elderberry (**Figure 6** and **Figure 7**), the middle riparian areas will have cottonwood and willows transitioning into emergent plant species and open channels. The goal of the project is to mimic natural habitats along the American river, and will not have long-term, permanent, adverse impacts on the aesthetics in the parkway. Overtime, the future condition of the site will be

### Appendix H, WSRA – Attachment 4



indistinguishable from the fabric of the parkway.

(Image Provided by GEI)

## Figure 6. Example Upper Riparian



(Image Provided by GEI)

Figure 7. Example Elderberry Savannah

## 4.6 Avoidance and Minimization Measures

Consistent with the guidelines set forth in the programmatic consistency analysis (USACE, 2021), **Table 9** summarizes how ARMS will adhere to the Best Practices for designated Wild and Scenic Rivers (NPS, 2020). During discussions held during the formulation of the programmatic consistency analysis, USACE and NPS jointly devised Universal Avoidance and Minimization measures which would be adopted in the remainder of projects on the LAR under the ARCF project. A summary of how the project adheres to the reduction of temporal impacts, the NPS Best Practices and the standard minimization measures is given in **Table 6** through **Table 12**.

#### Table 6. Summary of Temporal Impacts – ARMS - Phase 1 - Vegetation Removal

Dates	Actions	WRS Resources Temporarily Affected	Planned Minimization Measures for Temporary Impacts
Fall 2025 - Spring 2026	Vegetation Removal and Elderberry	<b>Aesthetics</b> - visual impacts from the bike trail, and Garden Highway from tree removal.	<b>Aesthetics</b> - Vegetation removal will be limited to the smallest extent possible to complete the elevation contouring and access roads. Non-native, invasive species may also be removed.
	Iransplant	Water Quality - turbidity and temperature increase from bank disturbance and removal of shade along the riverbank	<b>Water Quality</b> - Use of Best Management Practices (BMP's) to reduce runoff in compliance with NPDES permit. Ground disturbance will not occur until the NMFS in water work window.
		Anadromous Fish - loss of near shore vegetative cover.	<b>Anadromous Fish</b> - Temporary impacts are unavoidable, however compensatory mitigation requires a 2:1 replacement of habitat that will be fulfilled onsite once construction is
		<b>Recreation</b> - Potential for detour or traffic flaggers along the bike trail. Increased traffic through Camp Pollock, Discovery Park.	<b>Recreation</b> - Detours and/or flaggers will be developed with input from Regional Parks, and NPS, to ensure the least disruption to recreational assets practicable

(will be updated for the 95% Designs)

#### Table 7. Summary of Temporal Impacts – ARMS - Phase 2 - Site Construction

Dates	Actions	WRS Resources Temporarily Affected	Planned Minimization Measures for Temporary Impacts
Summer 2026 - Fall 2027	Site Grading and inland elevation modification	<ul> <li>Aesthetics - visual impacts from the bike trail, and Garden Highway of active construction and ground disturbance.</li> <li>Water Quality - no effect</li> <li>Anadromous Fish - no effect</li> <li>Recreation - Potential for detour or traffic flaggers along the bike trail. Increased traffic through Camp Pollock, Discovery Park.</li> </ul>	<ul> <li>Aesthetics - Onsite habitat that is removed will be replaced at a 1:1 ratio. Also, additional vegetation will be planted to meet the 2:1 compensatory mitigation requirement applied to the ARCF construction contracts.</li> <li>Water Quality - The majority of this work will not be occurring on the American River, there should not be impacts to water quality.</li> <li>Anadromous Fish - The majority of this work will not be occurring on the American River, there should not be impacts to anadromous fish.</li> <li>Recreation - Detours and/or flaggers will be developed with input from Regional Parks, and NPS, to ensure the least disruption to recreational assets practicable</li> </ul>

#### (will be updated for the 95% Designs)

Dates	Actions	WRS Resources Temporarily Affected	Planned Minimization Measures for Temporary Impacts
Summer 2027 - Fall 2028	Breach the Riverbank - complete the site grading	Aesthetics- visual impacts from the bike trail, and Garden Highway of active construction and ground disturbance. Also, visual impacts of active construction from the Sacramento and American River of the berm being breached and debris being removed. <b>Water Quality</b> – turbidity <b>Anadromous Fish</b> - turbidity, noise, vibrations <b>Recreation</b> - Potential for detour or traffic flaggers along the bike trail. Increased traffic through Camp Pollock, Discovery Park.	<ul> <li>Aesthetics - Onsite habitat that is removed will be replaced at a 1:1 ratio. Also, additional vegetation will be planted to meet the 2:1 compensatory mitigation requirement applied to the ARCF construction contracts.</li> <li>Water Quality - Water quality testing during work in the American River. Contractor must adhere to the SWPPP.</li> <li>Anadromous Fish - work within NMFS approved window to affect the least amount of individual fish as possible.</li> <li>Recreation - Detours and/or flaggers will be developed with input from Regional Parks, and NPS, to ensure the least disruption to recreational assets practicable</li> </ul>

## Table 8. Summary of Temporal Impacts – ARMS - Phase 3 – Regreening

#### (will be updated for the 95% Designs)

Dates	Actions	WRS Resources Temporarily Affected	Planned Minimization Measures for Temporary Impacts
Fall 2028 - Fall 2029	Instillation of container plants and will stakes as well as hydroseeding and allowing natural recruitment to occur.	<ul> <li>Aesthetics - Landscapers onsite</li> <li>Water Quality - potential for turbidity increase when plants are installed.</li> <li>Anadromous Fish - potential for turbidity increase when plants are installed.</li> <li>Recreation - Potential for detour or traffic flaggers along the bike trail.</li> </ul>	<ul> <li>Aesthetics - Landscapers will be onsite during the county allowed work times.</li> <li>Water Quality - Use of Best Management Practices (BMP's) to reduce runoff in compliance with NPDES permit. Ground disturbance will not occur until the NMFS in water work window.</li> <li>Anadromous Fish - In water work will only occur during the NMFS approved work window.</li> <li>Recreation - Detours and/or flaggers will be developed with input from Regional Parks, and NPS, to ensure the least disruption to recreational assets practicable</li> </ul>

#### Table 9. Summary of Temporal Impacts – Phase 4 - Site Establishment & Maintenance

Dates	Actions	WRS Resources Temporarily Affected	Planned Minimization Measures for Temporary Impacts
2029 +10	none	Aesthetics - No Temporary Impacts	Aesthetics
		Water Quality - No Temporary Impacts	Water Quality
		Anadromous Fish - No Temporary	Anadromous Fish
		Impacts	Recreation
		<b>Recreation</b> - No Temporary Impacts	

(will be updated for the 95% Designs)

#### Table 10. Summary of Temporal Impacts – ARMS - Phase 5 -Long-term Operations and Maintenance

(will be updated for the 95% Designs)

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Dates	Actions	WRS Resources Temporarily Affected	Planned Minimization Measures for Temporary Impacts
Life of the	none	Aesthetics - No Temporary Impacts	Aesthetics
Project		Water Quality - No Temporary Impacts	Water Quality
		Anadromous Fish - No Temporary	Anadromous Fish
		Impacts	Recreation
		Recreation - No Temporary Impacts	

## Table 11. Summary of Adherence to NPS Best Practices

NPS Best Management Practice	Proposed Action		
Minimize the use and visibility of rock channel protection (RCP) and use only the minimum amount necessary to protect structures. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock.	Rock is only being considered at the breach point to prevent scour and bank collapse of the new backwater channel, otherwise the entirety of the site will be vegetated.		
If necessary, stone fill (riprap) may only be used for abutment scour protection; the use of stone fill to stabilize the riverbanks is prohibited. To stabilize the riverbanks, use approved native boulders, cobble, and gravel; loam; vegetation; and bio- engineering techniques such that the banks, when fully restored, have an appearance and function similar to the natural riverbank.	Stone riprap may be placed at the breach point to prevent scour and erosion. The remainder of the site will be vegetated. Once the vegetation is established, the site should seamlessly blend into the rest of the parkway appearance.		
Riparian areas must be restored to pre-disturbance conditions immediately after construction activities are completed.	Riparian areas will be expanded as part of the project design.		
Disturbed/exposed banks, staging and project access areas must be properly stabilized (seeded, mulched, or otherwise) with native vegetation to prevent erosion and establishment of invasive plant species. A non-persistent cover crop of annual rye or equivalent temporary seeding may be used to ensure a more rapid establishment of cover while native perennial plantings grow.	Immediately following construction, the site will be hydroseeded with an appropriate native seed mix.		
Bio-engineering methods must be used or, where deemed necessary by the [National Parks Service], clean broken rock riprap of an adequate size specific for bank stabilization.	Site preparation cannot be accomplished through bioengineering methods; however, the overall purpose of the project is to provide natural, riparian habitat. Clean, broken riprap from an approved quarry would be used if necessary.		
The use of demolition debris for slope armoring is not allowed.	No demolition debris would be used for slope protection.		
Avoid unnecessary tree removal within the project work area.	Tree removal has been minimized to the extent feasible. The tree removal will only occur where necessary to change the grade elevation or breach the riverbank. Native trees will be planted onsite.		
A vegetation plan shall be in place to protect existing vegetation/trees from damage by construction equipment (e.g., provide temporary barriers to protect existing trees, plants, root zone).	Trees that will be protected in place will be marked using orange construction fencing or chain-link fences.		
Disturbances of the riparian zone must be limited to the indicated access points; prior to the operation of heavy equipment (dozers, cranes, trucks), orange construction fencing must be erected to delineate the dripline of remaining trees to avoid compaction of tree roots.	Orange construction fencing or chain link fences will be used to delineate the site boundaries. No work will occur outside the construction footprint or designated staging areas.		
The fastening of ropes, cables, or fencing to trees is prohibited.	No ropes, cables, or fencing will be fastened to trees marked for retention.		

NPS Best Management Practice	Proposed Action
To ensure bank stability, trees removed within fifteen feet of the top of the riverbank shall be cut flush to the ground; stumps and roots shall be left in place; indiscriminate bulldozing of riparian trees is prohibited.	Tree removal to adjust the ground elevations may require the removal of the root ball, invasive trees such as locust trees will need to have the stumps and roots removed to prevent resprouting., At no point would indiscriminate bulldozing occur.
All trees removed from the riparian corridor shall be replaced with a native tree of like species. Replace each mature tree removed (12-inch or greater diameter at breast height [DBH])]. Plant only local, native trees/shrubs/grasses, naturally occurring within the [insert river name] riparian zone [insert plant species list and/or to be determined in coordination with appropriate staff].	Limited tree and herbaceous vegetation will be removed from within the project footprint. Trees and vegetation not within grading areas will be protected from construction activities, unless they are invasive, non-native species. Riparian habitat acreage will be replaced by planting riparian trees and shrubs at a ratio of 1:1 (replacement habitat: affected habitat), The ARMS design is to accommodate the mitigation that could not fit onsite resulting from bank protection impacts. Only native plant species appropriate for the sites and approved by the County of Sacramento for planting in the Parkway, will be used.
A qualified individual (arborists, foresters, or trained staff with similar experience) shall plant replacement trees at the appropriate time of year and in a random fashion to avoid a plantation effect. Cultivate and monitor planted tree seedlings/saplings for two years to ensure success; water plantings as necessary. Promptly replace planted stock showing signs of mortality.	Replacement trees will be planted at designated riparian habitat restoration areas according to designs prepared under the supervision of a California licensed USACE landscape architect with experience in developing habitat restoration. The mitigation sites will be managed and monitored according to the ARCF GRR Habitat Mitigation Monitoring and Adaptive Management Plan, and a site-specific management plan which includes short term, long term, and adaptive management actions.
Stakes and guide wires shall be properly removed and disposed of once seedlings are established.	All stakes, fencing, and any other construction or mitigation related materials will be removed once construction is completed and once mitigation plants have become established and mature.

Table 12. Summary of Adherence to U	Iniversal Avoidance and	<b>Minimization Measures</b>
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Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
Levee Setbacks	Set back the levees wherever possible to allow the river to move.	Free-Flow	Levee setbacks are not feasible in this area due to the existence of homes and businesses, and major roadways immediately behind the levee. The breach at ARMS will reconnect disconnected floodplain.
Bioengineering and native plantings throughout the banks and levees	Avoid riprap to the extent possible. Use bioengineering techniques including use of wood (e.g., log crib walls, tree revetments, root revetments; engineered log jams) and deformable techniques (e.g., fabric-encapsulated soil lifts (i.e., geolifts), rock bags, coir rolls (i.e., bio logs), erosion control blankets/fabrics).	Free-Flow, Anadromous Fish	Riprap is being avoided int eh ARMS design to the maximum extent possible. On the riverbanks, old debris is being removed to naturalize the bank line an improve aesthetics and habitat value. IWM will be placed at appropriate water surface elevations to create a naturalistic appearance and restore function.
Riprap at the bank toe	Riprap would only be placed at the bank toe of segments where the levee prism and associated planting berms (if included) are at the extent of the Parkway limits.	Free flow	The ARMS site design does not include riprap at the bank toe.
Riprap at the bank toe	Ensure no hydraulic impacts from riprap.	Water quality	It is anticipated that the completion of the ARMS project will reduce hydraulic pressures in this portion of the river by opening up disconnected floodplain.
Riprap at the bank toe	Ensure no direct and adverse impacts to anadromous fish.	Anadromous Fish	The direct and indirect impacts to anadromous fish will only occur at the breach site. Construction will be completed during daylight hours, within the appropriate work window All direct and adverse effects to anadromous fish have been considered in the programmatic biological opinion for the project. Jointly with the National Marine Fisheries Service (NMFS). Upon completion of the project, the site will be a benefit to anadromous fish that out migrate on the LAR.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
Riprap at the bank toe	Minimize the use and visibility of rock channel protection (RCP) and use only the minimum amount necessary to protect structures. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock. If rock is needed utilize cobble to the extent possible. Cover exposed riprap at the bank with soil and vegetation where cobble is not possible.	In-water recreation Aesthetics	Riprap at the bank toe is not part of the ARMS design.
Avoid and Minimize use of riprap on the bank above the toe to the OHWM and near the water	Minimize the use and visibility of RCP. RCP should be avoided or minimized to the extent possible. Integrated plantings, soil, and native seed may be used to further reduce the profile of visible rock. Cover any necessary riprap on the bank above the OHWM with planting benches containing sufficient soil and capable of supporting riparian habitat.	Anadromous Fish Recreation Aesthetics	Rip rap is not a primary element of the AMRS design. If necessary, it will only be used at the breach point to avoid scour and bank collapse. The entirety of the site will be planted, hydroseeded or naturally vegetated.
Minimize use of Riprap on the levee slope	Cover revetment on the slope with sufficient soil and native grasses or forbs, as woody vegetation may not be possible due to USACE vegetation on levees policies.	Anadromous Fish Aesthetics	After site preparation the site will be hydroseeded with appropriate native grasses and forbs. Site designs are consistent with this measure.
Removal of vegetation	Minimize vegetation removal to the maximum extent practicable. Provide planting benches to reduce the affects for lost habitat on-site. Riparian areas must be restored to pre-disturbance conditions immediately after construction activities are completed. Provide restoration in the parkway when revegetation cannot be completely restored in the project footprint. Re-vegetate all areas of the repair site above the waterline with native, ecotone appropriate, species. Design sites such that they are indistinguishable from the overall fabric of the Parkway.	Anadromous Fish Aesthetics Water quality	Tree removal has been minimized to the maximum extent possible. Only trees within the construction footprint, or designated haul routes will be removed. Haul routes have been placed to avoid trees and elderberry shrubs to the extent feasible. Access ramps have been oriented to minimize the impacted area to the extent practicable. Established roads will be used as haul routes wherever possible. This site is intended to provide the compensatory mitigation that could not be accomplished at the ARCF bank protection sites. Site designs are consistent with this measure.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
Closure of bike trail	The first priority is to detour the bike trail on the nearest dedicated trail. That is, the trail should not be shared with automobiles. If the bike trail segment being detoured is paved, the detour route should also be completely paved to include all transitions from permanent to temporary trails/detours. In an event due to where the trail cannot be routed near construction boundaries for safety concerns it should be detoured to surface streets with bicycle safety measures for a minimal amount time. Detours to surface streets should be considered the last option and review by all stakeholders. Provide information at both ends of the closure and on the web about the location and duration of the closure and provide a map of the detour. Minimize the extent of the closure. When feasible use flaggers instead of detours. Minimize the length of time the detours are needed. Detours will carry the same safety standards as a permanent trail and if detours go down to one bicycle lane, caution should be considered and the included use of flaggers with dismount zones in single lane areas. Any permanent re-routing of the bike trail should also include rerouting the equestrian trail. Re-routed trails should provide the same experience as the existing trail including the aesthetics. The new trail should be shaded with riparian vegetation.	Recreation	Bike trail detours will be provided around the work on 3B North and 3B South. Section 3.4 and Figures 36-40 of this report provides additional details. Existing trail system within the Parkway will be used for detours where feasible. Detours top of levee and to public surface street will also be used in certain locations. In the vicinity of Watt Bridge, two detour options will be available to bikes: both within Parkway trail options. In all cases, rider safety is of paramount importance. Signage, physical barriers separating riders from other motorized vehicles, and/or in-person flaggers will be present to avoid safety risks to bike riders. Informational signage will be posted at the upstream and downstream ends of the detour as well as at the closure points. Information will also be provided on-line.
maintenance road	or mountain bike trail. Provide information at both ends of the closure and on the web about the location and duration of the closure and provide a map of the detour. Plant vegetation to provide shading along this road once users return to the extent possible.	Kecreation	where an affected levee maintenance road is used by hikers, bicycle riders and/or horseback riders, detours will be provided. Information will be provided at the closure points and online. Site designs are consistent with this measure.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
General Impacts of Work in the Parkway	Reduce work limits to the maximum extent practicable. Close trails and other recreational features only when necessary for safety of the public. Advance notice of work shall be provided at the site of the closures and on the web.	Recreation	Every effort has been made to reduce the work area to the extent practicable. Advance notice of the work would be provided on sacleveeupgrades.com. and coordinated with Regional Parks.
General Impacts of Work in the Parkway	Phase work appropriately such that sites do not remain incomplete for excessive periods of time (e.g., bank work completed but planting delayed for years, or tree clearance years ahead of the construction etc.)	Aesthetics	Work is scheduled to be conducted sequentially. Gaps in the construction sequence would be limited to necessary safety stand downs during the flood season when no work may be conducted in the floodway. Work in the dry will be completed before the breach is constructed to limit impacts to fisheries.
Closure of boat ramp	Avoid closure of boat ramps to the maximum extent practicable. Phase work such that not more than one boat ramp is closed. Provide information at the closure and on the web about the location and duration of the closure and the nearest open boat ramp. Minimize closure time and keep it open when work is not being done on the weekends and in the evenings. Provide improvements to the boat launch once users can return to the site.	Recreation	The ARMS design will not require the closure of any public boat ramps.
Closure of river access points	Avoid closure of river access points to the maximum extent practicable. Phase work such that consecutive river access points are not closed for more than one consecutive mile on account of this project. Provide information at the closure(s) and on the web about the location and duration of the closure and the nearest open river access points. Minimize closure time and keep it open when work is not being done on the weekends and in the	Recreation	The ARMS design will not require the closure of any public river access points. Once establishment has been met, the site may create additional river access.
	evenings. Provide improvements to the boat launch once users can return to the site.		
In water work	Abide by NPDES requirements to ensure there is no adverse effect to water quality.	Water Quality	Site designs are consistent with this measure.

Proposed Design Feature:	Proposed Avoidance or Reduction of Impact Measure:	WSR Aspect(s):	Adherence to the Measure:
In water work	Abide by NMFS Biological Opinion to ensure there is no adverse effect to anadromous fish from water quality.	Anadromous Fish	Site designs are consistent with this measure.
In water work	Provide buoys or other demarcation for closed sections of the channel. The channel shall not be closed such that upstream or downstream navigation is precluded.	In-water recreation	Buoys or other demarcation would be provided at the turbidity curtain boundary. At no time would navigation be completely precluded.

# 5 Conclusion

USACE has determined that the ARMS should be considered consistent with the mandates of the WSRA because:

- a) The project is a part of the authorized ARCF project and fits within the scope of the overall project.
- b) The minimization measures proposed for each design specific feature, as outlined in the Universal Minimization Measures, will be used.
- c) This project will be conducted under the standing biological opinions for the ARCF project and will be subject to the terms and conditions therein.
- d) This project will be conducted under the programmatic 401 certification for the ARCF project and will be bound to the terms therein.
- e) This project will improve habitats and ecological functions to the designated river that have been impacted by historic use onsite and by authorized improvements within ARCF.
- f) This project will provide the compensatory mitigation required in previous WSRA Consistency Determinations.

USACE requests concurrence from NPS within 60 days of the date of this document.

# 6 References

- Central Valley Regional Water Quality Control Board (CVRWQCB). 2021. Clean Water Act Section 401 Water Quality Certification and Order for the American River Common Features Project, Sacramento County (WDID#5A34CR00819). July 2021.
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- National Marine Fisheries Service (NMFS). 2021. Biological Opinion, Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the American River Watershed Common Features General Reevaluation Report Reinitiation 2020. File No. WCRO-2020-03082.
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- USACE. 2022. American River Common Features Project Section 7 Wild and Scenic River Consistency Analysis Contract 3A, Site 1-1. November 2022.
- U.S. Fish and Wildlife Service. 2021. *Biological Opinion, Reinitiation of Formal Consultation on the American River Common Features (ARCF) 2016 Project, Sacramento and Yolo Counties, California.* File No. 08ESMF00-2014-F-0518-R003.