

APPENDIX A: AIR QUALITY MODELING RESULTS

Road Construction Emissions Model Data Entry Worksheet		Version 8.1.0		
Note: Required data input sections have a yellow background. Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background. The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types. Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.		To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.		
				
Input Type				
Project Name	2021_SRErosion_Contract2			
Construction Start Year	2021	Enter a Year between 2014 and 2025 (inclusive)		
Project Type	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction		
Project Construction Time	4.30	months		
Working Days per Month	22.00	days (assume 22 if unknown)		
Predominant Soil/Site Type: Enter 1, 2, or 3 <small>(for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)</small>	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs State or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)		
Project Length	1.30	miles		
Total Project Area	13.00	acres		
Maximum Area Disturbed/Day	5.00	acres		
Water Trucks Used?	1	1. Yes 2. No		
Material Hauling Quantity Input				
Material Type	Phase	Haul Truck Capacity (yd ³) (assume 20 if unknown)	Import Volume (yd ³ /day)	Export Volume (yd ³ /day)
Soil	Grubbing/Land Clearing	15.00	0.00	83.00
	Grading/Excavation	15.00	77.00	0.00
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving			
Mitigation Options				
On-road Fleet Emissions Mitigation	2010 and Newer On-road Vehicles Fleet	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer		
Off-road Equipment Emissions Mitigation	Tier 4 Equipment	Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/ceqa/mitigation.shtml).		
Will all off-road equipment be tier 4?	All Tier 4 Equipment	Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard		
The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.				

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> 2021_SRErosion_Contract2

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	1.58	36.02	7.92	50.45	0.45	50.00	10.73	0.33	10.40	0.06	6,026.69	1.16	0.08	6,079.38
Grading/Excavation	6.43	125.27	22.39	21.03	1.03	20.00	4.97	0.81	4.16	0.22	21,423.45	5.92	0.22	21,635.86
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (pounds/day)	6.43	125.27	22.39	50.45	1.03	50.00	10.73	0.81	10.40	0.22	21,423.45	5.92	0.22	21,635.86
Total (tons/construction project)	0.29	5.63	1.01	1.09	0.05	1.05	0.25	0.04	0.22	0.01	962.52	0.26	0.01	972.04

Notes: Project Start Year -> 2021
 Project Length (months) -> 4
 Total Project Area (acres) -> 13
 Maximum Area Disturbed/Day (acres) -> 5
 Water Truck Used? -> Yes

Total Material Imported/Exported Volume (yd3/day)

Phase	Soil	Asphalt
Grubbing/Land Clearing	83	0
Grading/Excavation	77	0
Drainage/Utilities/Sub-Grade	0	0
Paving	0	0

Daily VMT (miles/day)

Phase	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	240	0	1,000	40
Grading/Excavation	60	0	2,200	160
Drainage/Utilities/Sub-Grade	0	0	0	0
Paving	0	0	0	0

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

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K. CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> 2021_SRErosion_Contract2

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.12	0.03	0.17	0.00	0.17	0.04	0.00	0.03	0.00	19.89	0.00	0.00	18.20
Grading/Excavation	0.28	5.51	0.99	0.93	0.05	0.88	0.22	0.04	0.18	0.01	942.63	0.26	0.01	863.63
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (tons/phase)	0.28	5.51	0.99	0.93	0.05	0.88	0.22	0.04	0.18	0.01	942.63	0.26	0.01	863.63
Total (tons/construction project)	0.29	5.63	1.01	1.09	0.05	1.05	0.25	0.04	0.22	0.01	962.52	0.26	0.01	881.83

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

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K. CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs. The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> 2021_SRErosion_Contract2

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	2.53	30.36	21.83	51.22	1.22	50.00	11.45	1.05	10.40	0.06	6,026.69	1.16	0.08	6,079.38
Grading/Excavation	13.69	113.98	132.32	26.56	6.56	20.00	10.07	5.91	4.16	0.22	21,423.45	5.92	0.22	21,635.86
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (pounds/day)	13.69	113.98	132.32	51.22	6.56	50.00	11.45	5.91	10.40	0.22	21,423.45	5.92	0.22	21,635.86
Total (tons/construction project)	0.61	5.12	5.89	1.34	0.29	1.05	0.48	0.26	0.22	0.01	962.52	0.26	0.01	972.04

Notes: Project Start Year -> 2021
 Project Length (months) -> 4
 Total Project Area (acres) -> 13
 Maximum Area Disturbed/Day (acres) -> 5
 Water Truck Used? -> Yes

Total Material Imported/Exported Volume (yd3/day)

Phase	Soil	Asphalt
Grubbing/Land Clearing	83	0
Grading/Excavation	77	0
Drainage/Utilities/Sub-Grade	0	0
Paving	0	0

Daily VMT (miles/day)

Phase	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	240	0	1,000	40
Grading/Excavation	60	0	2,200	160
Drainage/Utilities/Sub-Grade	0	0	0	0
Paving	0	0	0	0

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

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K. CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> 2021_SRErosion_Contract2

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.10	0.07	0.17	0.00	0.17	0.04	0.00	0.03	0.00	19.89	0.00	0.00	18.20
Grading/Excavation	0.60	5.02	5.82	1.17	0.29	0.88	0.44	0.26	0.18	0.01	942.63	0.26	0.01	863.63
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (tons/phase)	0.60	5.02	5.82	1.17	0.29	0.88	0.44	0.26	0.18	0.01	942.63	0.26	0.01	863.63
Total (tons/construction project)	0.61	5.12	5.89	1.34	0.29	1.05	0.48	0.26	0.22	0.01	962.52	0.26	0.01	881.83

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

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K. CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs. The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> 2021_SRErosion_Contract2

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	2.56	30.40	23.20	51.22	1.22	50.00	11.46	1.06	10.40	0.06	6,060.60	1.16	0.08	6,113.94
Grading/Excavation	13.70	114.01	133.40	26.56	6.56	20.00	10.08	5.92	4.16	0.22	21,450.10	5.92	0.22	21,663.02
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (pounds/day)	13.70	114.01	133.40	51.22	6.56	50.00	11.46	5.92	10.40	0.22	21,450.10	5.92	0.22	21,663.02
Total (tons/construction project)	0.61	5.12	5.95	1.34	0.29	1.05	0.48	0.26	0.22	0.01	963.80	0.26	0.01	973.35

Notes: Project Start Year -> 2021
 Project Length (months) -> 4
 Total Project Area (acres) -> 13
 Maximum Area Disturbed/Day (acres) -> 5
 Water Truck Used? -> Yes

Total Material Imported/Exported Volume (yd3/day)

Phase	Soil	Asphalt
Grubbing/Land Clearing	83	0
Grading/Excavation	77	0
Drainage/Utilities/Sub-Grade	0	0
Paving	0	0

Daily VMT (miles/day)

Phase	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	240	0	1,000	40
Grading/Excavation	60	0	2,200	160
Drainage/Utilities/Sub-Grade	0	0	0	0
Paving	0	0	0	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.
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Total Emission Estimates by Phase for -> 2021_SRErosion_Contract2

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.10	0.08	0.17	0.00	0.17	0.04	0.00	0.03	0.00	20.00	0.00	0.00	18.30
Grading/Excavation	0.60	5.02	5.87	1.17	0.29	0.88	0.44	0.26	0.18	0.01	943.80	0.26	0.01	864.71
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (tons/phase)	0.60	5.02	5.87	1.17	0.29	0.88	0.44	0.26	0.18	0.01	943.80	0.26	0.01	864.71
Total (tons/construction project)	0.61	5.12	5.95	1.34	0.29	1.05	0.48	0.26	0.22	0.01	963.80	0.26	0.01	883.02

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.
 The CO2e emissions are reported as metric tons per phase.

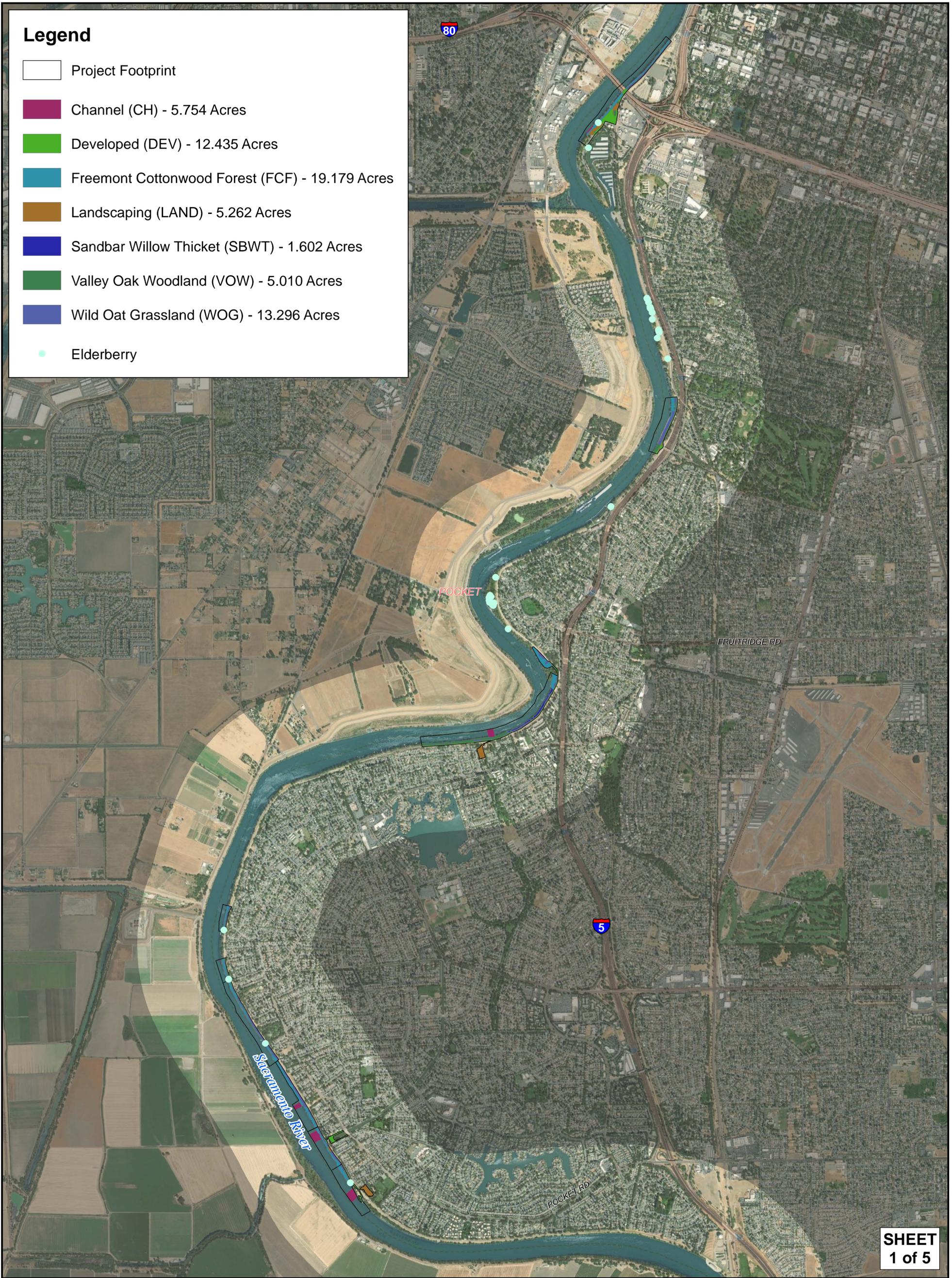
APPENDIX B: BIOLOGICAL RESOURCES DATA

Appendix B-1: Land Cover Maps and Sensitive Biological Resources

Appendix B-2: Species Lists

Legend

- Project Footprint
- Channel (CH) - 5.754 Acres
- Developed (DEV) - 12.435 Acres
- Freemont Cottonwood Forest (FCF) - 19.179 Acres
- Landscaping (LAND) - 5.262 Acres
- Sandbar Willow Thicket (SBWT) - 1.602 Acres
- Valley Oak Woodland (VOW) - 5.010 Acres
- Wild Oat Grassland (WOG) - 13.296 Acres
- Elderberry



SHEET
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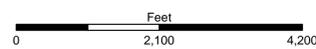


US Army Corps
of Engineers
Sacramento District



SR EROSION C2 HABITAT/ELDERBERRY

ARCF 2016

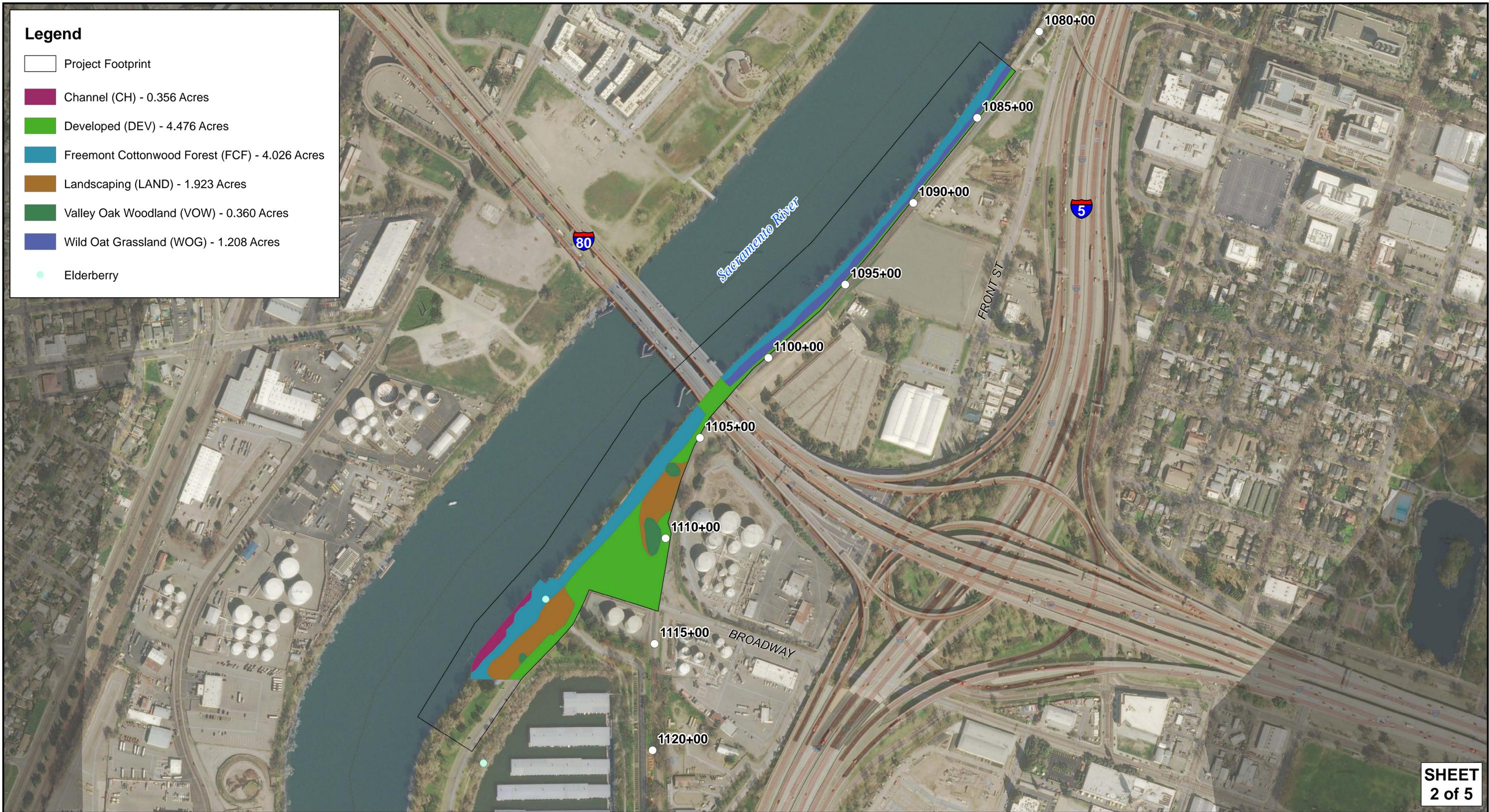


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Legend

- Project Footprint
- Channel (CH) - 0.356 Acres
- Developed (DEV) - 4.476 Acres
- Freemont Cottonwood Forest (FCF) - 4.026 Acres
- Landscaping (LAND) - 1.923 Acres
- Valley Oak Woodland (VOW) - 0.360 Acres
- Wild Oat Grassland (WOG) - 1.208 Acres
- Elderberry



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SR EROSION C2 HABITAT/ELDERBERRY

1080+00 - 1120+00
ARCF 2016

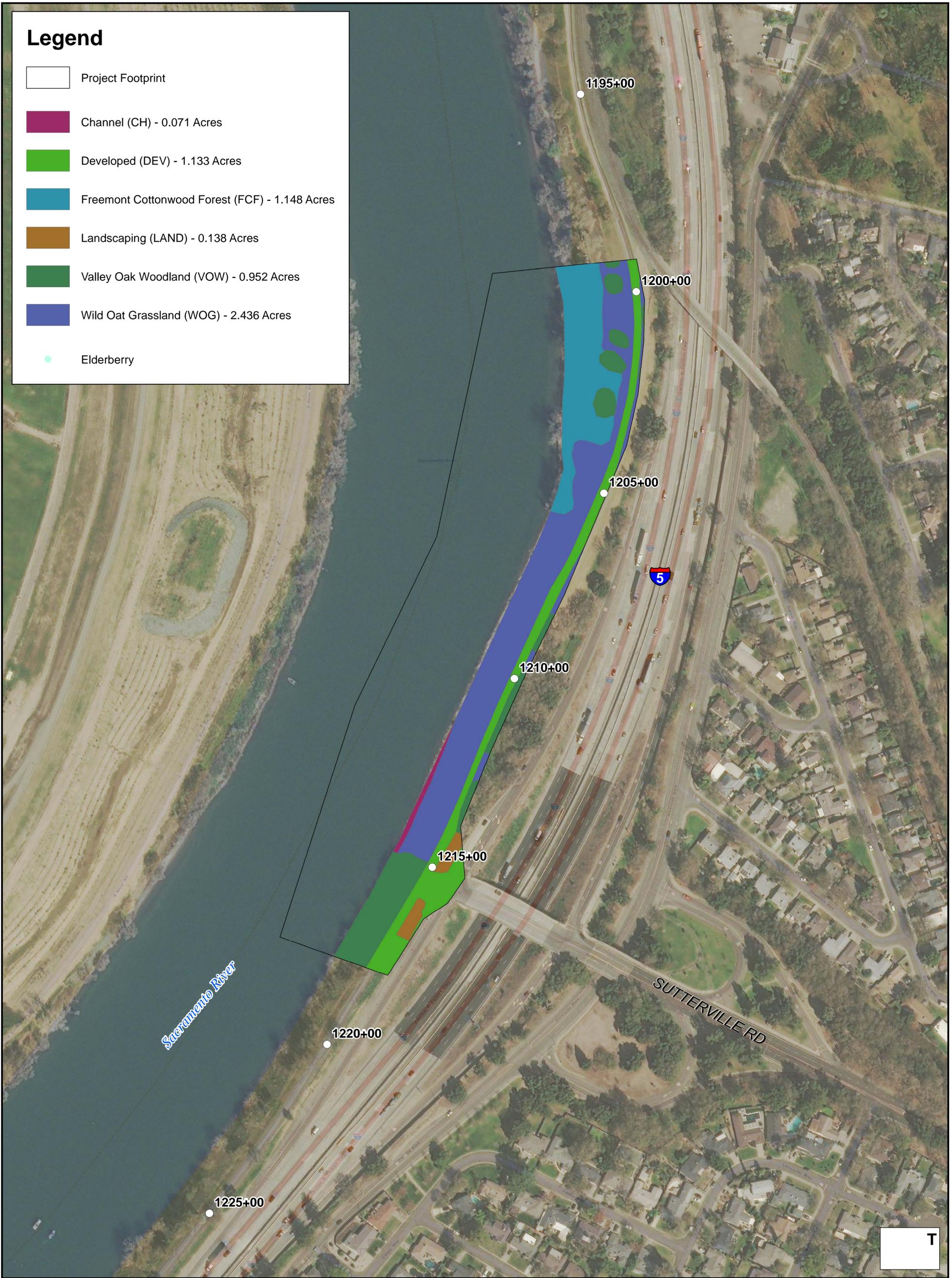


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Legend

- Project Footprint
- Channel (CH) - 0.071 Acres
- Developed (DEV) - 1.133 Acres
- Freemont Cottonwood Forest (FCF) - 1.148 Acres
- Landscaping (LAND) - 0.138 Acres
- Valley Oak Woodland (VOW) - 0.952 Acres
- Wild Oat Grassland (WOG) - 2.436 Acres
- Elderberry



US Army Corps of Engineers
Sacramento District



SR EROSION C2 HABITAT/ELDERBERRY

1185+00 - 1225+00

ARCF 2016



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Feet

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Legend

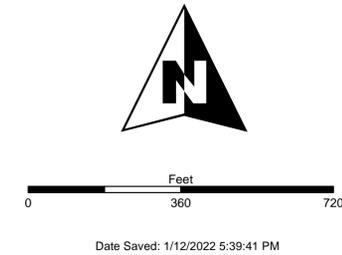
-  Project Footprint
-  Channel (CH) - 1.070 Acres
-  Developed (DEV) - 2.856 Acres
-  Freemont Cottonwood Forest (FCF) - 3.405 Acres
-  Landscaping (LAND) - 1.593 Acres
-  Sandbar Willow Thicket (SBWT) - 1.602 Acres
-  Valley Oak Woodland (VOW) - 3.573 Acres
-  Wild Oat Grassland (WOG) - 3.248 Acres
-  Elderberry

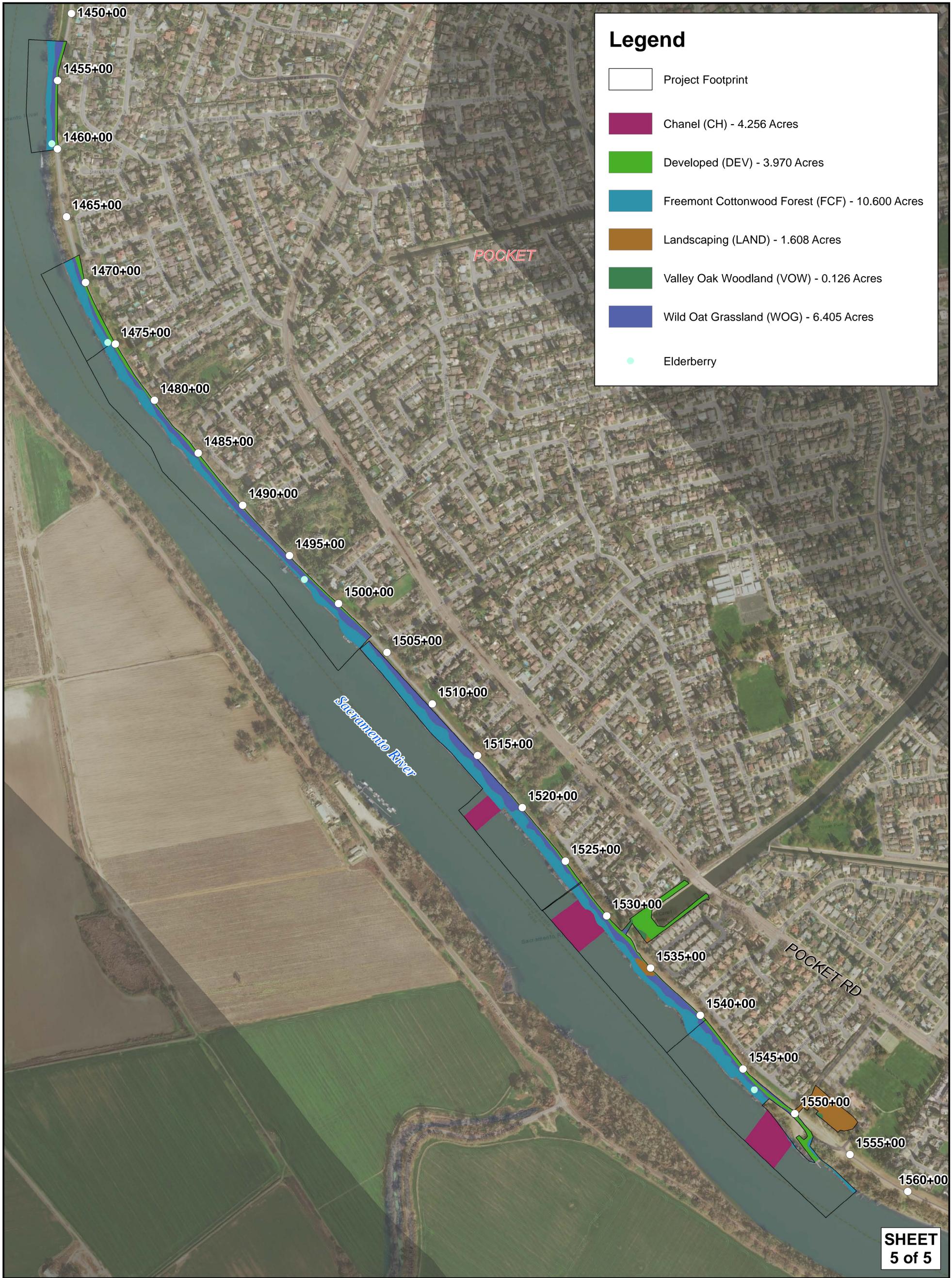


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**SR EROSION C2
HABITAT/ELDERBERRY**
1305+00 - 1370+00
ARCF 2016







Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad (Sacramento East (3812154) OR Sacramento West (3812155) OR Clarksburg (3812145) OR Taylor Monument (3812165) OR Rio Linda (3812164) OR Florin (3812144) OR Bruceville (3812134) OR Liberty Island (3812136) OR Davis (3812156) OR Grays Bend (3812166))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Accipiter cooperii</i> Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G4	S3	SSC
<i>Archoplites interruptus</i> Sacramento perch	AFCQB07010	None	None	G2G3	S1	SSC
<i>Ardea alba</i> great egret	ABNGA04040	None	None	G5	S4	
<i>Ardea herodias</i> great blue heron	ABNGA04010	None	None	G5	S4	
<i>Astragalus tener var. ferrisiae</i> Ferris' milk-vetch	PDFAB0F8R3	None	None	G2T1	S1	1B.1
<i>Astragalus tener var. tener</i> alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	None	G4	S3	SSC
<i>Atriplex cordulata var. cordulata</i> heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
<i>Atriplex depressa</i> brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
<i>Bombus crotchii</i> Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24250	None	None	G2G3	S1	
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
<i>Branchinecta mesovallensis</i> midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
<i>Brasenia schreberi</i> watershield	PDCAB01010	None	None	G5	S3	2B.3
<i>Buteo regalis</i> ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
<i>Buteo swainsoni</i> Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Carex comosa bristly sedge	PMCYP032Y0	None	None	G5	S2	2B.1
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
Charadrius montanus mountain plover	ABNNB03100	None	None	G3	S2S3	SSC
Charadrius nivosus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2	SSC
Chloropyron palmatum palmate-bracted bird's-beak	PDSCR0J0J0	Endangered	Endangered	G1	S1	1B.1
Cicindela hirticollis abrupta Sacramento Valley tiger beetle	IICOL02106	None	None	G5TH	SH	
Cicuta maculata var. bolanderi Bolander's water-hemlock	PDAP10M051	None	None	G5T4T5	S2?	2B.1
Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Cuscuta obtusiflora var. glandulosa Peruvian dodder	PDCUS01111	None	None	G5T4?	SH	2B.2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S3	
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Egretta thula snowy egret	ABNGA06030	None	None	G5	S4	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Elderberry Savanna Elderberry Savanna	CTT63440CA	None	None	G2	S2.1	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL
Fritillaria agrestis stinkbells	PMLIL0V010	None	None	G3	S3	4.2
Gonidea angulata western ridged mussel	IMBIV19010	None	None	G3	S1S2	
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Great Valley Cottonwood Riparian Forest Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	G2	S2.1	
Great Valley Mixed Riparian Forest Great Valley Mixed Riparian Forest	CTT61420CA	None	None	G2	S2.2	
Great Valley Valley Oak Riparian Forest Great Valley Valley Oak Riparian Forest	CTT61430CA	None	None	G1	S1.1	
Hibiscus lasiocarpus var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Hypomesus transpacificus Delta smelt	AFCHB01040	Threatened	Endangered	G1	S1	
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G3G4	S3S4	
Lasiurus cinereus hoary bat	AMACC05030	None	None	G3G4	S4	
Lasthenia chrysantha alkali-sink goldfields	PDAST5L030	None	None	G2	S2	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Lathyrus jepsonii var. jepsonii Delta tule pea	PDFAB250D2	None	None	G5T2	S2	1B.2
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidium latipes var. heckardii Heckard's pepper-grass	PDBRA1M0K1	None	None	G4T1	S1	1B.2
Lepidurus packardii vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030	None	Rare	G2	S2	1B.1
Limosella australis Delta mudwort	PDSCR10030	None	None	G4G5	S2	2B.1
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Myrmosula pacifica Antioch multilid wasp	IIHYM15010	None	None	GH	SH	
Nannopterum auritum double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S4	
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Oncorhynchus tshawytscha pop. 11 chinook salmon - Central Valley spring-run ESU	AFCHA0205L	Threatened	Threatened	G5T1T2Q	S2	
Oncorhynchus tshawytscha pop. 7 chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	G5T1Q	S1	
Plegadis chihi white-faced ibis	ABNGE02020	None	None	G5	S3S4	WL
Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Puccinellia simplex California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Scutellaria galericulata marsh skullcap	PDLAM1U0J0	None	None	G5	S2	2B.2
Scutellaria lateriflora side-flowering skullcap	PDLAM1U0Q0	None	None	G5	S2	2B.2
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
Symphotrichum lentum Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Valley Oak Woodland Valley Oak Woodland	CTT71130CA	None	None	G3	S2.1	
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	
Xanthocephalus xanthocephalus yellow-headed blackbird	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 81

CNPS Rare Plant Inventory



Search Results

33 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [1A:1B:2A:2B:3:4] , Quad is one of [3812155:3812165:3812164:3812144:3812154:3812145:3812166:3812156:3812134:3812136]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
<u><i>Astragalus pauperculus</i></u>	depauperate milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G4	S4	4.3	 ©2012 Tim Kellison
<u><i>Astragalus tener</i> var. <i>ferrisiae</i></u>	Ferris' milk-vetch	Fabaceae	annual herb	Apr-May	None	None	G2T1	S1	1B.1	No Photo Available
<u><i>Astragalus tener</i> var. <i>tener</i></u>	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G2T1	S1	1B.2	No Photo Available
<u><i>Atriplex cordulata</i> var. <i>cordulata</i></u>	heartscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G3T2	S2	1B.2	 © 1994 Robert E. Preston, Ph.D.
<u><i>Atriplex depressa</i></u>	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	 © 2009 Zoya Akulova
<u><i>Brasenia schreberi</i></u>	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	Jun-Sep	None	None	G5	S3	2B.3	 ©2014 Kirsten Bovee
<u><i>Brodiaea rosea</i> ssp. <i>vallicola</i></u>	valley brodiaea	Themidaceae	perennial bulbiferous herb	Apr-May(Jun)	None	None	G5T3	S3	4.2	 © 2011 Steven Perry
<u><i>Carex comosa</i></u>	bristly sedge	Cyperaceae	perennial rhizomatous herb	May-Sep	None	None	G5	S2	2B.1	 Dean Wm. Taylor 1997
<u><i>Centromadia parryi</i></u>	pappose	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.2	

<u><i>ssp. parryi</i></u>	tarplant										No Photo Available
<u><i>Centromadia parryi</i></u> <u><i>ssp. rudis</i></u>	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	None	None	G3T3	S3	4.2		No Photo Available
<u><i>Chloropyron palmatum</i></u>	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	FE	CE	G1	S1	1B.1		No Photo Available
<u><i>Cicuta maculata</i></u> <u>var. <i>bolanderi</i></u>	Bolander's water-hemlock	Apiaceae	perennial herb	Jul-Sep	None	None	G5T4T5	S2?	2B.1		No Photo Available
<u><i>Cuscuta obtusiflora</i></u> <u>var. <i>glandulosa</i></u>	Peruvian dodder	Convolvulaceae	annual vine (parasitic)	Jul-Oct	None	None	G5T4?	SH	2B.2		No Photo Available
<u><i>Downingia pusilla</i></u>	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2		No Photo Available
<u><i>Extriplex joaquinana</i></u>	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2		No Photo Available
<u><i>Fritillaria agrestis</i></u>	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	G3	S3	4.2		© 2016 Aaron Schusteff
<u><i>Gratiola heterosepala</i></u>	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	None	CE	G2	S2	1B.2		©2004 Carol W. Witham
<u><i>Hesperervax caulescens</i></u>	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2		© 2017 John Doyen
<u><i>Hibiscus lasiocarpus</i></u> var. <u><i>occidentalis</i></u>	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2		© 2020 Steven Perry
<u><i>Lasthenia chrysantha</i></u>	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1		© 2009 California State University, Stanislaus
<u><i>Lasthenia ferrisiae</i></u>	Ferris' goldfields	Asteraceae	annual herb	Feb-May	None	None	G3	S3	4.2		© 2009

<u><i>Lathyrus jepsonii</i></u> <u>var. <i>jepsonii</i></u>	Delta tule pea	Fabaceae	perennial herb	May- Jul(Aug- Sep)	None	None	G5T2	S2	1B.2	 © 2003 Mark Fogiel
<u><i>Legenere limosa</i></u>	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	 ©2000 John Game
<u><i>Lepidium latipes</i></u> <u>var. <i>heckardii</i></u>	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	None	None	G4T1	S1	1B.2	 2018 Jennifer Buck
<u><i>Lilaeopsis masonii</i></u>	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	CR	G2	S2	1B.1	No Photo Available
<u><i>Limosella australis</i></u>	Delta mudwort	Scrophulariaceae	perennial stoloniferous herb	May-Aug	None	None	G4G5	S2	2B.1	 © 2020 Richard Sage
<u><i>Navarretia</i></u> <u><i>cotulifolia</i></u>	cotula navarretia	Polemoniaceae	annual herb	May-Jun	None	None	G4	S4	4.2	 © 2020 Zoya Akulova
<u><i>Puccinellia simplex</i></u>	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G3	S2	1B.2	No Photo Available
<u><i>Sagittaria sanfordii</i></u>	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May- Oct(Nov)	None	None	G3	S3	1B.2	 ©2013 Debra L. Cook
<u><i>Scutellaria</i></u> <u><i>galericulata</i></u>	marsh skullcap	Lamiaceae	perennial rhizomatous herb	Jun-Sep	None	None	G5	S2	2B.2	 © 2021 Scot Loring
<u><i>Scutellaria</i></u> <u><i>lateriflora</i></u>	side-flowering skullcap	Lamiaceae	perennial rhizomatous herb	Jul-Sep	None	None	G5	S2	2B.2	No Photo Available
<u><i>Symphotrichum</i></u> <u><i>lentum</i></u>	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May- Nov	None	None	G2	S2	1B.2	No Photo

Available

Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.2	No Photo Available
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Showing 1 to 33 of 33 entries

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CONTACT US

Send questions and comments to rareplants@cnps.org.

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IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Sacramento and Yolo counties, California



Local offices

San Francisco Bay-Delta Fish And Wildlife

☎ (916) 930-5603

📠 (916) 930-5654

650 Capitol Mall
Suite 8-300
Sacramento, CA 95814

[http://kim_squires@fws.gov](mailto:kim_squires@fws.gov)

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📠 (916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
Least Bell's Vireo <i>Vireo bellii pusillus</i> Wherever found There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/5945	Endangered
Yellow-billed Cuckoo <i>Coccyzus americanus</i> There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
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Giant Garter Snake <i>Thamnophis gigas</i>	Threatened
Wherever found	
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i>	Threatened
Wherever found	
There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2891	
California Tiger Salamander <i>Ambystoma californiense</i>	Threatened
There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2076	

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i>	Threatened
Wherever found	
There is final critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/321	

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i>	Candidate
Wherever found	
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i>	Threatened
Wherever found	
There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/7850	

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i>	Endangered
Wherever found	
There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/8246	
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i>	Threatened
Wherever found	
There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/498	

Vernal Pool Tadpole Shrimp *Lepidurus packardii*

Endangered

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/2246>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Delta Smelt <i>Hypomesus transpacificus</i> https://ecos.fws.gov/ecp/species/321#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH
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THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

<p>Bald Eagle <i>Haliaeetus leucocephalus</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p>https://ecos.fws.gov/ecp/species/1626</p>	Breeds Jan 1 to Aug 31
<p>Black Tern <i>Chlidonias niger</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/3093</p>	Breeds May 15 to Aug 20
<p>Black-chinned Sparrow <i>Spizella atrogularis</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9447</p>	Breeds Apr 15 to Jul 31
<p>California Thrasher <i>Toxostoma redivivum</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Jan 1 to Jul 31
<p>Clark's Grebe <i>Aechmophorus clarkii</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Jun 1 to Aug 31
<p>Common Yellowthroat <i>Geothlypis trichas sinuosa</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p> <p>https://ecos.fws.gov/ecp/species/2084</p>	Breeds May 20 to Jul 31
<p>Golden Eagle <i>Aquila chrysaetos</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p>https://ecos.fws.gov/ecp/species/1680</p>	Breeds Jan 1 to Aug 31
<p>Lawrence's Goldfinch <i>Carduelis lawrencei</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9464</p>	Breeds Mar 20 to Sep 20
<p>Marbled Godwit <i>Limosa fedoa</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9481</p>	Breeds elsewhere
<p>Nuttall's Woodpecker <i>Picoides nuttallii</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p> <p>https://ecos.fws.gov/ecp/species/9410</p>	Breeds Apr 1 to Jul 20

Oak Titmouse <i>Baeolophus inornatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Short-billed Dowitcher <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Tricolored Blackbird <i>Agelaius tricolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Willet <i>Tringa semipalmata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit <i>Chamaea fasciata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10
Yellow-billed Magpie <i>Pica nuttalli</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9726	Breeds Apr 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence ()

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

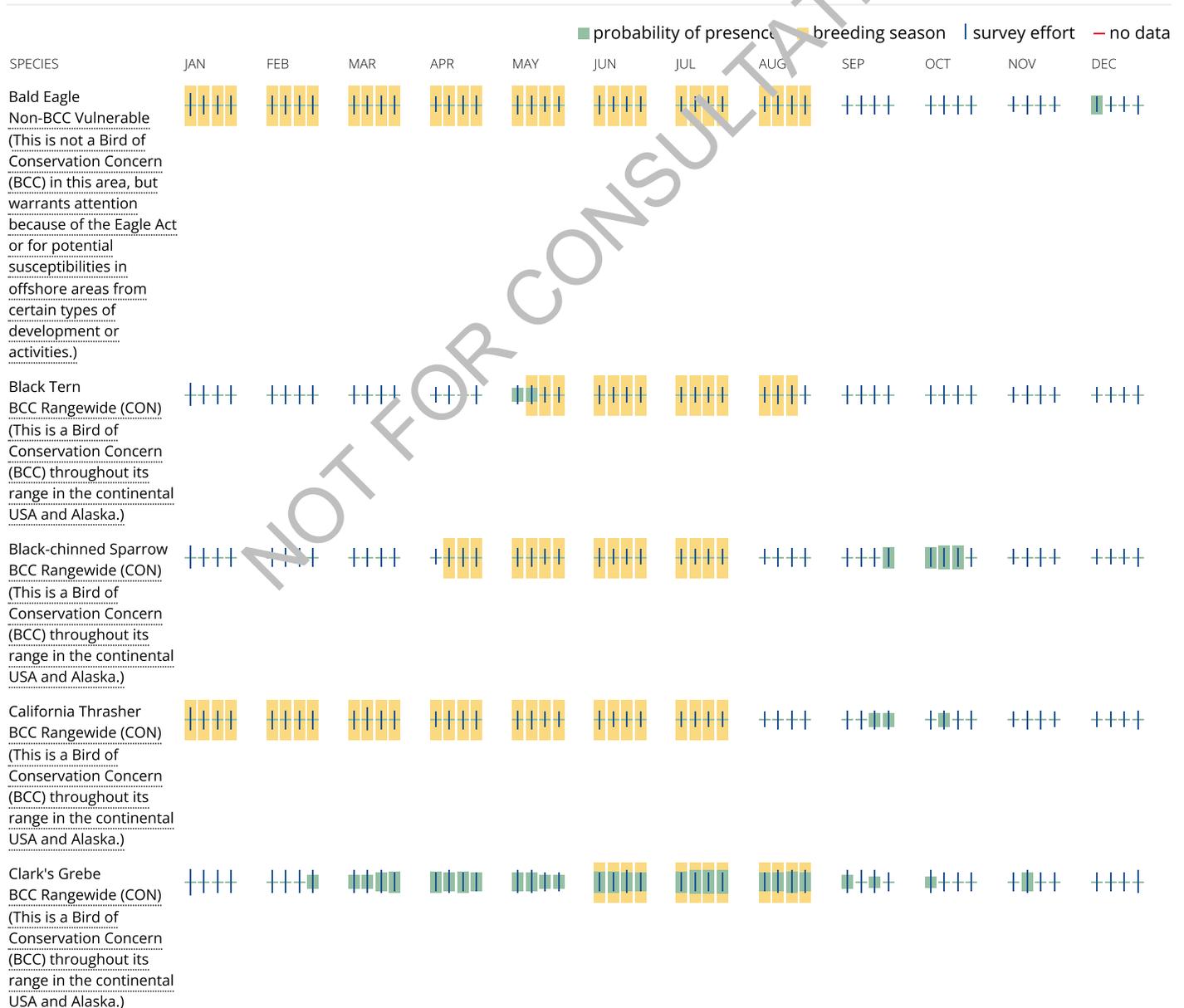
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

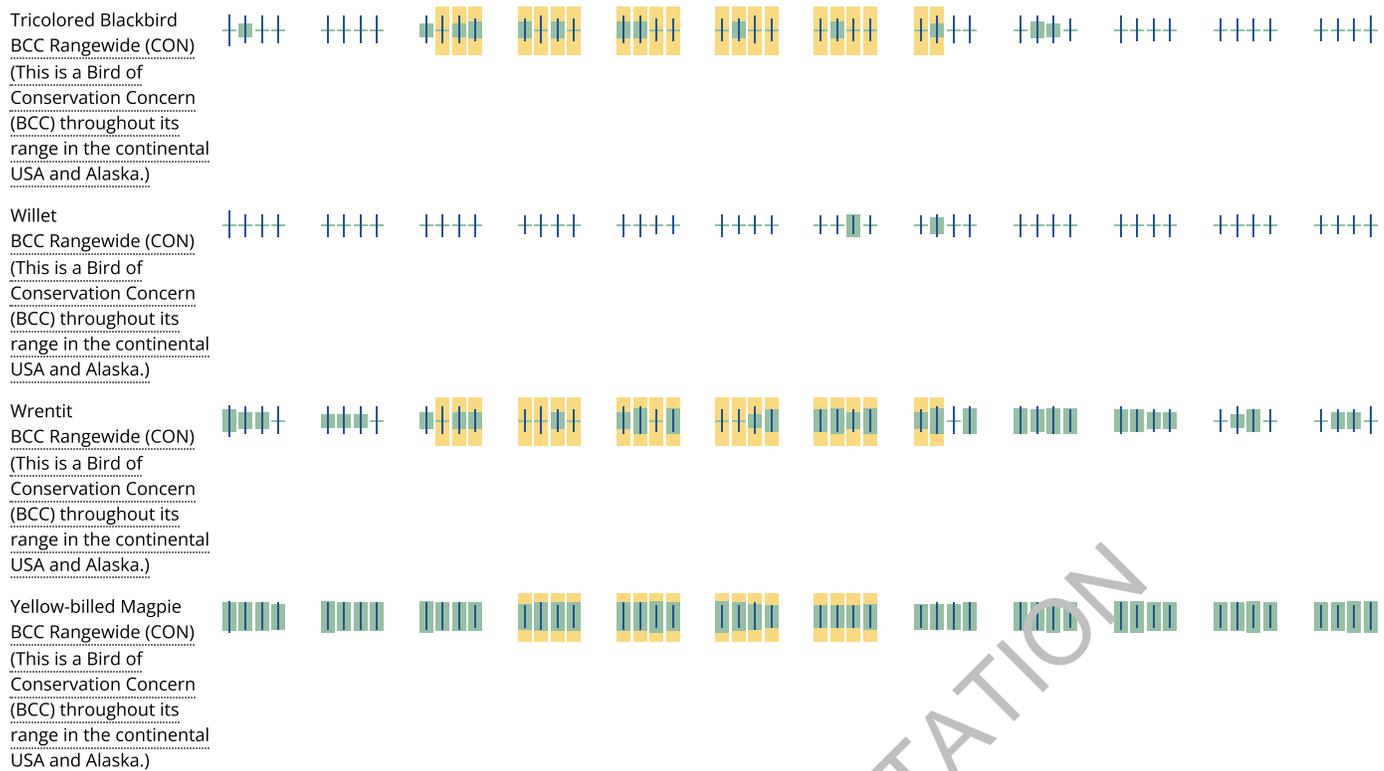
Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Common Yellowthroat BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)												
Golden Eagle Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)												
Lawrence's Goldfinch BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)												
Marbled Godwit BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)												
Nuttall's Woodpecker BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)												
Oak Titmouse BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)												
Olive-sided Flycatcher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)												
Short-billed Dowitcher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)												

NOT FOR CONSULTATION



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of US-wide [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([eagle](#) [act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analyst, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NMFS Database Query (5/11/2021)

Quad Name **Sacramento West**

Quad Number **38121-E5**

ESA Anadromous Fish

SONCC Coho ESU (T) -

CCC Coho ESU (E) -

CC Chinook Salmon ESU (T) -

CVSR Chinook Salmon ESU (T) - **X**

SRWR Chinook Salmon ESU (E) - **X**

NC Steelhead DPS (T) -

CCC Steelhead DPS (T) -

SCCC Steelhead DPS (T) -

SC Steelhead DPS (E) -

CCV Steelhead DPS (T) - **X**

Eulachon (T) -

sDPS Green Sturgeon (T) - **X**

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -

CCC Coho Critical Habitat -

CC Chinook Salmon Critical Habitat -

CVSR Chinook Salmon Critical Habitat - **X**

SRWR Chinook Salmon Critical Habitat - **X**

NC Steelhead Critical Habitat -

CCC Steelhead Critical Habitat -

SCCC Steelhead Critical Habitat -

SC Steelhead Critical Habitat -

CCV Steelhead Critical Habitat - **X**

Eulachon Critical Habitat -

sDPS Green Sturgeon Critical Habitat - **X**

ESA Marine Invertebrates

Range Black Abalone (E) -

Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -

Olive Ridley Sea Turtle (T/E) -

Leatherback Sea Turtle (E) -

North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -

Fin Whale (E) -

Humpback Whale (E) -

Southern Resident Killer Whale (E) -

North Pacific Right Whale (E) -

Sei Whale (E) -

Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -

Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -

Chinook Salmon EFH - **X**

Groundfish EFH - **X**

Coastal Pelagics EFH -

Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

**See list at left and consult the NMFS Long Beach office
562-980-4000**

MMPA Cetaceans -

MMPA Pinnipeds -

Quad Name **Clarksburg**

Quad Number **38121-D5**

ESA Anadromous Fish

SONCC Coho ESU (T) -

CCC Coho ESU (E) -

CC Chinook Salmon ESU (T) -

CVSR Chinook Salmon ESU (T) - **X**

SRWR Chinook Salmon ESU (E) - **X**

NC Steelhead DPS (T) -

CCC Steelhead DPS (T) -

SCCC Steelhead DPS (T) -

SC Steelhead DPS (E) -

CCV Steelhead DPS (T) - **X**

Eulachon (T) -

sDPS Green Sturgeon (T) - **X**

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -

CCC Coho Critical Habitat -

CC Chinook Salmon Critical Habitat -

CVSR Chinook Salmon Critical Habitat - **X**

SRWR Chinook Salmon Critical Habitat - **X**

NC Steelhead Critical Habitat -

CCC Steelhead Critical Habitat -

SCCC Steelhead Critical Habitat -

SC Steelhead Critical Habitat -

CCV Steelhead Critical Habitat - **X**

Eulachon Critical Habitat -

sDPS Green Sturgeon Critical Habitat - **X**

ESA Marine Invertebrates

Range Black Abalone (E) -

Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -

Olive Ridley Sea Turtle (T/E) -

Leatherback Sea Turtle (E) -

North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -

Fin Whale (E) -

Humpback Whale (E) -

Southern Resident Killer Whale (E) -

North Pacific Right Whale (E) -

Sei Whale (E) -

Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -

Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -

Chinook Salmon EFH - **X**

Groundfish EFH - **X**

Coastal Pelagics EFH -

Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

**See list at left and consult the NMFS Long Beach office
562-980-4000**

MMPA Cetaceans -

MMPA Pinnipeds -

APPENDIX C : Comment Response

INTRODUCTION

This Appendix provides responses to public and agency comments on the American River Watershed Common Features 2016 Project (ARCF), Sacramento River Erosion Contract 2 Draft Supplemental Environmental Assessment/Environmental Impact Report (SEA/EIR) received during the public comment period.

PUBLIC COMMENT SUMMARY

The Draft SEA/EIR was posted with the State Clearinghouse (SCH # 2020070269) on April 15, 2022. The Draft SEA/EIR was circulated for at least 45 days for review by Federal, State, and Local agencies, organizations, and members of the public from April 15, 2022, through May 31, 2022. The Notice of Availability was published in the Sacramento Bee on April 15, 2022. The Draft SEA/EIR was made available on the Sacramento District, U.S. Army Corps of Engineers (USACE) website, www.sacleveeupgrades.com, and on the Central Valley Flood Protection Board (CVFPB) website, and electronic copies of the Draft SEA/EIR were made available at the Sacramento Central Library. Hard copies of the Draft SEA/EIR were made available upon request. USACE posted information about the Proposed Action on its website at www.sacleveeupgrades.com, which included summarized information on the Proposed Action, an electronic copy of the Draft SEA/EIR, and instructions as to how to participate in the virtual public meeting. A virtual public meeting was held on April 26, 2022, to provide additional opportunities for comments on the Draft SEA/EIR. All comments received during the public review period were responded to if possible, but all were requested to be submitted in writing to be incorporated into the Final SEA/EIR as appropriate.

Instead of holding the usual in-person meeting to take comments, due the restrictions on meeting sizes and health concerns during the COVID-19 pandemic, a virtual public meeting was held using WebEx software. During the virtual public meeting on April 26, 2022, attendees could utilize the chat function to ask questions or send comments to the meeting moderator. Meeting attendees were also given an opportunity to voice comments at the end of the presentation directly over the phone or through WebEx software. During the virtual public meeting, several clarifying questions were asked by members of the public regarding the project, impacts, and other ARCF projects. No comments related to the analysis presented in the SEA/EIR were received during the public meeting. In addition to the virtual public meeting, comments could be submitted through mail or electronic mail.

During the Draft SEA/EIR public review period, written comments were submitted in letters and email. The comments were submitted by the following commenters:

- (5) Private Citizen / Company
- (1) Local / Regional Agency
- (3) State Agency
- (1) Federal Agency

COMMENTS AND RESPONSES

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



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

**75 Hawthorne Street
San Francisco, CA 94105-3901**

May 31, 2022

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

Subject: Sacramento River Erosion Contract 2 Draft Supplemental Environmental Assessment/Environmental Impact Report, part of the American River Watershed Common Features General Evaluation Report, Sacramento County, California

Dear Joe Griffin:

The U.S. Environmental Protection Agency has reviewed the Sacramento River Erosion Contract 2 Supplemental Draft Environmental Assessment/Environmental Impact Report pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508) and our NEPA review authority under Section 309 of the Clean Air Act. We also reviewed the associated Supplemental Environmental Impact Report.

The EPA has reviewed and provided comments on the following environmental documents and related components of the American River Watershed Common Features General Evaluation Report (ARCF):

- Draft Environmental Impact Report May 4, 2015
- Final Environmental Impact Report on Feb. 22, 2016
- Sacramento River East Levee Contract 1 Draft Environmental Assessment Oct. 2, 2019
- Sacramento River East Levee Contract 2 Supplemental Draft EA August 13, 2020
- Sacramento Weir Supplemental DEIS Sept 14, 2020 and Supplemental Final EIS on June 23, 2021
- American River Erosion Protection and Arden Pond Mitigation Contract 2 Supplemental Draft EIS July 19, 2021, and Supplemental Final EIS on Dec. 13, 2021.

As ARCF sites are identified and construction designs refined, we appreciate the use of Environmental Assessments and supplemental documentation to evaluate new features or information and will continue to review proposed contracts scheduled from 2022 – 2024 (SEA, p. 12).

The current Proposed Action encompasses five elements that are new or different from those set out in the 2016 ARCF Final EIS and include the locations of haul or access routes, revised methods for placement of rock revetment – the use of tiebacks, key-in and launchable toe or rock trenches to allow for riparian vegetation to grow along the water's edge – and an estimate of barge traffic needed for project activities through the Delta and along the Sacramento River.

(SEA p. 16). We provide the following comments and recommendations to assist with the development of a Final EA and a potential *Finding of No Significant Impact* (FONSI).

Biological Resources

Mitigation Measure FISH-1 was modified in a previous SEIR for Erosion Contract 1 – and is referenced in this Supplemental EIR – for consistency with the National Marine Fisheries Service (NMFS) 2021 Biological Opinion (SEIR p. 60/171). We appreciate continued consultations between the Army Corps of Engineers and NMFS that resulted in numerous additions and refinements to the FISH-1 mitigation measures, including pump screening, modifying engineering designs to avoid potential effects to listed species, and defining the monitoring period to establish the success of revegetation efforts in designated critical habitat (SEIR pgs. 60-63/171).

Recommendation for the Final DEA and FONSI: Incorporate by reference the FISH-1 Mitigation Measures into the Final EA and the FONSI, should such a determination be made.

1-1

The EPA remains concerned with the Corps’ proposed use of launchable rock trenches and their long-term ability to support planting benches and provide riparian and fish habitat mitigation over the 50-year anticipated life span of the project.¹ Planting benches are intended to provide approximately 3.00 acres of onsite mitigation (SEA p. 31). We note that the 2021 Biological Opinions of NMFS and U.S. Fish and Wildlife Service (USFWS)² required the Corps to address the potential for permanent loss of riparian vegetation, native habitat function, reduced fish habitat and food availability if normal erosion or flood scouring events would launch the rock trenches leaving only exposed riprap.

As described in the SEIR, Mitigation Measure VEG-1 discussed in Section 3.4.3 notes that project designs will be refined to reduce the loss of riparian habitat and “will include...constructing bank protection rather than launchable rock trenches whenever feasible” (SEIR p. 56/171). Although this contract proposes to construct a launchable rock toe (as opposed to a launchable rock trench), the SEA states that the effects of an actual launch would be similar because habitat could be disturbed with or without this construction method (SEA p. 26). The SEA concludes that there would be only minor impact to fisheries resources resulting from the construction of launchable rock toes (SEA p. 27).

Recommendations for the Final SEA and FONSI: Incorporate by reference the VEG-1 Mitigation Measure into the Final EA and the FONSI, should such a determination be made. Describe how the Habitat Mitigation, Monitoring and Adaptive Management Plan and Long-term Management Plans would ensure that launchable rock trenches would not compromise required long-term mitigation, including whether this conclusion was supported by consultation with NMFS and USFWS. Detail the specific strategies or remedial actions (e.g., replanting, creation of additional off-site habitat or purchase of

1-2

¹ The EPA previously noted the concerns of resource agencies regarding the proposed use of launchable rock trenches in its July 18, 2021 letter on the *American River Erosion Protection and Arden Pond Mitigation Components, Contract 2*, Draft Supplemental EIS.

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

mitigation bank credits) that would be employed to mitigate impacts if onsite mitigation is compromised in the future.

Socioeconomic Resources

The EPA appreciates that impacts to unhoused communities were raised in the SEIR. We note that the document states that there are temporary, intermittent encampments in the project area, and that it is undetermined whether such camps would be present at the time of construction. To support a conclusion of “no Socioeconomic or Environmental Justice impacts” in the SEA, the document describes how the Corps, Central Valley Flood Protection Board and the construction contractor would work with the City and County of Sacramento and the City’s Police Department to “notify and remove encampments while construction occurs” (SEIR p. 45/171).

Without describing what would happen to the unhoused community after removal from the project area, it is unclear how this removal would not be a significant impact to the community. The SEA does not include any estimates for the number of people who may be displaced or describe outcomes that have historically been experienced after a such a removal occurs.

Recommendations for the Final Supplemental EA and FONSI: To support a no impact conclusion to unhoused communities, include an assessment of the scope of the unhoused community in the project area, including seasonality of occupancy if available, and describe what post-removal support would be provided. In Section 3.2.1:

- Estimate the numbers of individuals who would be impacted, and the length of time unhoused communities have been utilizing the area.³
- Based on historic information about seasonality, determine if there is an appropriate project timeframe that would minimize the number of people who would be removed from the site. If feasible, commit to this timeframe in the Final SEA.
- Discuss whether exclusionary fencing, large boulder placement, gating, detours, or other proposed activities would permanently inhibit the ability of displaced persons to reoccupy the area.
- To ensure impacts would be less than significant, describe who would be responsible for assisting the unhoused communities after removal from the project area and how that assistance would be accomplished.

1-3

Water Resources

As described in the document, a Clean Water Act 404(b)(1) sufficiency review will be prepared and included in the Final SEA to demonstrate compliance with Section 404 of the CWA and Section 10 of the Rivers and Harbors Act. Prior to construction, the contractor would be required to obtain a Construction General Permit for potential effects from storm water discharges and prepare a Stormwater Pollution Prevention Plan. To complete the requirement for a CWA Section 401 Water Quality Certification from the State Water Quality Control Board, a “Report 3” would be submitted in compliance with the programmatic certification that was issued on July 13, 2021. The EPA understands that the Corps could begin work when the State Regional Water Quality Control Board issues a Notice of Applicability.

³ HUD may have point in time survey data that may assist with this determination. See, e.g., [Point-in-Time \(PIT\) Count Standards and Methodologies Training - HUD Exchange](#)

Recommendation for the Final SEA: Include the Notice of Applicability and Construction General Permit and any conditions they contain in the Final Supplemental EA or provide an estimated schedule for obtaining each.

1-4

The SEIR discloses potential cumulative impacts to water quality should seven other projects be conducted during the same timeframe. Although this project is the only ARCF project on the Sacramento River that includes bank protection placement below the ordinary high-water mark, construction or project activities undertaken during the same timeframe that involve levee raises or setbacks, flood wall and bank protection construction could release soil and cause turbidity which could diminish water quality (SEIR p. 120, 171).

Recommendations for the Final SEA: Incorporate by reference the cumulative impact analysis in the Final SEA.⁴ Consider managing the start dates and duration of Sacramento River Erosion Contract 2 activities in conjunction with the construction schedules of ongoing or other proposed projects mentioned in Section 4.1.1 of the SEIR to minimize the potential for adverse cumulative impacts to water quality in the Sacramento River.

1-5

The EPA appreciates the opportunity to review this Draft SEA. We request an opportunity to review draft environmental documentation of other ARCF projects. When the Final SEA is issued, please send an electronic copy to Robin Truitt, the lead reviewer for these projects, at truitt.robin@epa.gov. If you have any questions, please contact me at (415) 947-4167, or Robin at (415) 972-3742.

Sincerely,

JEAN PRIJATEL

Digitally signed by JEAN
PRIJATEL
Date: 2022.05.31 16:06:33
-07'00'

Jean Prijatel
Manager, Environmental Review Branch

Cc: Nicole Schleeter, Army Corps of Engineers
Allison Bosworth, National Marine Fisheries Service
Jennifer Norris, U.S. Fish and Wildlife Service
David Moldoff, Department of Water Resources
Dan Tibbetts, Sacramento Area Flood Control Agency
Leslie Gallagher, Central Valley Flood Protection Board

⁴ The Council for Environmental Quality recently restored the definition of ‘effects’ to require an evaluation of all cumulative impacts of the proposed action in NEPA documents (40 CFR 1508.1). These include evaluating potential climate change effects (e.g., effects on water resources, potential sea level rise).

From: [DWR Public Comment ARCF 16](#)
To: [Sutton, Drew](#); [Schleeter, Nicole Marie CIV USARMY CESP \(USA\)](#)
Subject: [Non-DoD Source] FW: American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River Erosion Contract 2
Date: Wednesday, May 18, 2022 2:37:19 PM
Attachments: [American River Watershed Common Features Sacramento River Erosion Contract 2.pdf](#)

Comment 2.

Doreen

From: McCreary, Gavin@DTSC <Gavin.McCreary@dtsc.ca.gov>
Sent: Friday, May 13, 2022 11:24 AM
To: DWR Public Comment ARCF 16 <PublicCommentARCF16@water.ca.gov>
Cc: Kereazis, Dave@DTSC <Dave.Kereazis@dtsc.ca.gov>; OPR State Clearinghouse <State.Clearinghouse@opr.ca.gov>
Subject: American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River Erosion Contract 2

Good morning.

Please see the attached comments for American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River Erosion Contract 2.

Thank you.

Gavin McCreary
Project Manager
Site Evaluation and Remediation Unit
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826
(916)255-3710
Gavin.McCreary@dtsc.ca.gov



Jared Blumenfeld
Secretary for
Environmental Protection



Department of Toxic Substances Control

Meredith Williams, Ph.D.
Director
8800 Cal Center Drive
Sacramento, California 95826-3200



Gavin Newsom
Governor

SENT VIA ELECTRONIC MAIL

May 13, 2022

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

NOTICE OF AVAILABILITY OF DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT/ENVIRONMENTAL IMPACT REPORT (EA/EIR) FOR AMERICAN RIVER WATERSHED COMMON FEATURES, WATER RESOURCES DEVELOPMENT ACT OF 2016 PROJECT, SACRAMENTO RIVER EROSION CONTRACT 2 – DATED APRIL 2022 (STATE CLEARINGHOUSE NUMBER: 2005072046)

Flood Projects Branch:

The Department of Toxic Substances Control (DTSC) received a Notice of Availability of Draft Supplemental Environmental Assessment/Environmental Impact Report (EA/EIR) for the American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River Erosion Contract 2 (Project). The Lead Agency is receiving this notice from DTSC because the Project includes one or more of the following: groundbreaking activities, work in close proximity to a roadway, presence of site buildings that may require demolition or modifications, and/or importation of backfill soil. Additionally, a [former manufactured gas plant \(MGP\) site](#) was identified at the approximate location at the end of Broadway at the Sacramento River, which the proposed Project may intersect. Potential contaminants of concern at MGPs can include polycyclic aromatic hydrocarbons, metals, total petroleum hydrocarbons, and others. DTSC recommends evaluating the proposed Project's location for concerns related to MGP operations and mitigating them if necessary.

DTSC recommends that the following issues be evaluated in the Hazards and Hazardous Materials section of the EA/EIR:

1. The EA/EIR should acknowledge the potential for historic or future activities on or near the project site to result in the release of hazardous wastes/substances on the project site. In instances in which releases have occurred or may occur, further studies should be carried out to delineate the nature and extent of the contamination, and the potential threat to public health and/or the environment should be evaluated. The EA/EIR should also identify the mechanism(s) to initiate any required investigation and/or remediation and the government agency who will be responsible for providing appropriate regulatory oversight. 2-1
2. Refiners in the United States started adding lead compounds to gasoline in the 1920s in order to boost octane levels and improve engine performance. This practice did not officially end until 1992 when lead was banned as a fuel additive in California. Tailpipe emissions from automobiles using leaded gasoline contained lead and resulted in aerially deposited lead (ADL) being deposited in and along roadways throughout the state. ADL-contaminated soils still exist along roadsides and medians and can also be found underneath some existing road surfaces due to past construction activities. Due to the potential for ADL-contaminated soil, DTSC recommends collecting soil samples for lead analysis prior to performing any intrusive activities for the project described in the EA/EIR. 2-2
3. If buildings or other structures are to be demolished on any project sites included in the proposed project, surveys should be conducted for the presence of lead-based paints or products, mercury, asbestos containing materials, and polychlorinated biphenyl caulk. Removal, demolition and disposal of any of the above-mentioned chemicals should be conducted in compliance with California environmental regulations and policies. In addition, sampling near current and/or former buildings should be conducted in accordance with DTSC's 2006 [Interim Guidance Evaluation of School Sites with Potential Contamination from Lead Based Paint, Termiticides, and Electrical Transformers.](#) 2-3
4. If any projects initiated as part of the proposed project require the importation of soil to backfill any excavated areas, proper sampling should be conducted to ensure that the imported soil is free of contamination. DTSC recommends the imported materials be characterized according to [DTSC's 2001 Information Advisory Clean Imported Fill Material.](#) 2-4
5. If any sites included as part of the proposed project have been used for agricultural, weed abatement or related activities, proper investigation for 2-5

organochlorinated pesticides should be discussed in the EA/EIR. DTSC recommends the current and former agricultural lands be evaluated in accordance with DTSC's 2008 [Interim Guidance for Sampling Agricultural Properties \(Third Revision\)](#).

DTSC appreciates the opportunity to comment on the EA/EIR. Should you need any assistance with an environmental investigation, please visit DTSC's [Site Mitigation and Restoration Program](#) page to apply for lead agency oversight. Additional information regarding voluntary agreements with DTSC can be found at [DTSC's Brownfield website](#).

If you have any questions, please contact me at (916) 255-3710 or via email at Gavin.McCreary@dtsc.ca.gov.

Sincerely,



Gavin McCreary
Project Manager
Site Evaluation and Remediation Unit
Site Mitigation and Restoration Program
Department of Toxic Substances Control

cc: (via email)

Governor's Office of Planning and Research
State Clearinghouse
State.Clearinghouse@opr.ca.gov

Mr. Dave Kereazis
Office of Planning & Environmental Analysis
Department of Toxic Substances Control
Dave.Kereazis@dtsc.ca.gov

CALIFORNIA STATE LANDS COMMISSION

100 Howe Avenue, Suite 100-South
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Established in 1938

JENNIFER LUCCHESI, *Executive Officer*
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from Voice Phone **800.735.2929**
or for Spanish **800.855.3000**

Contact Phone: (916) 574-1890

May 25, 2022

File Ref: SCH #2022040317
(2005072046)

Doreen Kiruja
Central Valley Flood Protection Board
3464 El Camino Avenue, Room 200
Sacramento, CA, 95821

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

Subject: Draft Supplemental Environmental Impact Report /Environmental Assessment (SEIR/EA) for the American River Watershed Common Features Project, Sacramento River Erosion Contract 2, Sacramento County

Dear Doreen Kiruja:

The California State Lands Commission (Commission) staff has reviewed the Draft SEIR/EA for the American River Common Features Development Act of 2016, Sacramento River Erosion Contract 2 (Project), which is being prepared by the Central Valley Flood Protection Board (CVFPB), as the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.), and the U.S. Army Corps of Engineers (USACE) as the lead agency under the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.). The Commission is a trustee agency for projects that could directly or indirectly affect State sovereign land and their accompanying Public Trust resources or uses. Additionally, because the Project involves work on State sovereign land, the Commission will act as a responsible agency.

Commission Jurisdiction and Public Trust Lands

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

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

The Sacramento River at the various Project sites is natural, subject to artificial conditions (levees, dredging, dams, fill), navigable, and tidal. In addition, the proposed Project appears to extend onto the bed of the Sacramento River. Therefore, an application is required for the project. The application is available on our website at OSCAR.slc.ca.gov.

As the Project proceeds, please submit additional information, including but not limited to ordinary high-water mark (OHWM) and boundary surveys, for a determination of the extent of the Commission's jurisdiction. Please contact Marlene Schroeder, Public Land Management Specialist, for jurisdiction and leasing requirements for the Project (see contact information at end of letter). Additionally, please ensure that the Commission's Land Management Division staff is included on any future distribution mailing list for the Project.

Proposed Project Description

The USACE, CVFPB, and Sacramento Area Flood Control Agency propose to construct levee improvements consisting of approximately 3.4 miles of bank protection. Improvements will include riprap and planting benches to reduce erosion risk along the Sacramento River east levee. Project objectives include the following:

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

Commission staff understand that removal of vegetation and the installation of bank protection and riparian benches on Sites 1 through 6 would take place on State sovereign land.

Environmental Review

Commission staff request that the lead agencies consider the following comments on the Draft SEIR/EA.

Cultural Resources

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

3-1

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

Please send copies of future project-related documents, including electronic copies of the final SEIR/EA, an accessible copy of the Mitigation Monitoring and Reporting Program, Notice of Determination, Findings, Statement of Overriding Considerations (if applicable), and approving resolution when they become available. Please refer questions concerning environmental review to Cynthia Herzog, Senior Environmental Scientist, at (916) 574-1310 or cynthia.herzog@slc.ca.gov. For questions concerning archaeological or historic resources under Commission jurisdiction, please contact Staff Attorney Jamie Garrett, at (916) 574-0398 or jamie.garrett@slc.ca.gov. For questions concerning Commission leasing jurisdiction, please contact Marlene Schroeder, Public Land Management Specialist, at (916) 574-2320 or marlene.schroeder@slc.ca.gov.

Sincerely,



Nicole Dobroski, Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
C. Herzog, Commission
J. Garrett, Commission
M. Schroeder, Commission

Central Valley Regional Water Quality Control Board

31 May 2022

Doreen Kiruja
Central Valley Flood Protection Board
3464 El Camino Avenue, Room 200
Sacramento, CA 95821
doreen.kiruja@water.ca.gov

COMMENTS TO REQUEST FOR REVIEW FOR THE SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT, AMERICAN RIVER WATERSHED COMMON FEATURES PROJECT, SACRAMENTO RIVER EROSION CONTRACT 2, SCH#2022040317, SACRAMENTO COUNTY

Pursuant to the State Clearinghouse's 14 April 2022 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Supplemental Environmental Impact Report* for the American River Watershed Common Features Project, Sacramento River Erosion Contract 2, located in Sacramento County.

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

I. Regulatory Setting

Basin Plan

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

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has

4-1

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

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

Antidegradation Considerations

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

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

In part it states:

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

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

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

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention

Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits¹

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ. For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration

¹ Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

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

Waste Discharge Requirements – Discharges to Waters of the State

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

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board’s Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation

activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

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

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

Peter Minkel

Peter Minkel
Engineering Geologist

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



May 26, 2022

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

Public Affairs Office
U.S. Army Corps of Engineers
1325 J Street Room 1513
Sacramento, CA 95814
ARCF_SREroC2@usace.army.mil

Subject: American River Watershed Common Features Project Water Resources Development Act 2016 Project, Sacramento River Erosion Contract 2, Draft Supplemental Environmental Impact Report and Draft Supplemental Environmental Assessment (SAC201301442)

To Whom It May Concern:

Thank you for providing the American River Watershed Common Features Project Water Resources Development Act 2016 Project, Sacramento River Erosion Contract 2, Draft Supplemental Environmental Impact Report (DSEIR) and Draft Supplemental Environmental Assessment (DSEA) to the Sacramento Metropolitan Air Quality Management District (Sac Metro Air District) for review. The project includes the construction of levee improvements (riprap and planting benches) to reduce erosion along 3.4 miles of the Sacramento River east levee between Front Street and the Pocket-Greenhaven neighborhood. The Sac Metro Air District is required by the California Health and Safety Code to represent the residents of Sacramento County in influencing the decisions of other agencies whose actions may have an adverse impact on air quality. In that spirit, Sac Metro Air District staff provides the following comments on the DSEIR and DSEA.

Air Quality Analysis, Mitigation and General Conformity

The DSEIR reports Contract 2 and the American River Common Features project overall emissions for 2023 and 2024 in Tables 3.8-5 through 3.8-8 in the air quality chapter. The emissions cannot be reconciled with the air quality modeling results provided in Appendix A. For full disclosure and to support the emissions tables, Appendix A should include the Road Construction Emissions Model data entry and results sheets for all scenarios analyzed in addition to the inputs and outputs of the Harborcraft, Dredge and Barge Emission Factor Calculator.

5-1

Sac Metro Air District appreciates that mitigation measure AIR-3 incorporates the requirement to use construction equipment with Tier 4 off-road engines and haul trucks with 2010 or newer engines from the American River Common Features General Conformity Determination¹. Sac Metro Air District recommends AIR-3 include the following revisions:

5-2

¹ ARCF Final General Conformity Determination:

https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/WRDA16/Documents/ARCF16_Final-GenConform_Determination-w-AppendixA_Jun2021.pdf?ver=56b3EYmyrsKSWSzYI5ncsQ%3d%3d

1. Add the prohibition of the use of tier 0 engines (General Conformity Determination).
2. Modify the requirement to submit an inventory of off-road construction equipment to be used 40 hours or more on the project to equipment that will be used 8 hours or more (Sac Metro Air District's current mitigation language²).

5-2
cont'd

Although the General Conformity Determination did not anticipate emissions in calendar year 2024, the DSEIR air quality chapter reports NOx emissions in 2024 would exceed the General Conformity de minimis threshold. Mitigation measure AIR-4 states the Army Corps would enter into an agreement with the air district to purchase offsets in years that NOx emissions exceed the de minimis threshold. To ensure NOx offsets will be available for 2024, the Army Corps must coordinate with Sac Metro Air District staff and submit the emission reduction credit loan application and supporting documentation at least 6 months prior to needing the offsets.

5-3

Greenhouse Gas Mitigation

Mitigation measure GHG-1 in the DSEIR climate change chapter includes the purchase of greenhouse gas offsets/credits for emissions that exceed Sac Metro Air District's construction threshold. Although this is consistent with the American River Common Features project mitigation³, Sac Metro Air District recommends the project proponents review and consider the additional detail provided in mitigation measure GHG-1 for the American River Common Features, American River Contract 3A project DSEIR⁴.

5-4

Bicycle and Pedestrian Considerations

As part of transportation mitigation measure TR-1 and recreation mitigation measure REC-1, in addition to working with the City of Sacramento Bicycle and Pedestrian Coordinator, Sac Metro Air District encourages the Army Corps to consult with Civic Thread (formerly WalkSacramento)⁵, Sacramento Area Bicycle Advocates⁶, and neighborhood associations⁷ in the impacted areas to ensure safe and convenient bicycle and pedestrian detour routes are established during construction and the community is well informed of the changes (DSEIR sections 3.1.2 and 3.11.3).

5-5

Implementing Mitigation and Environmental Commitments

Sac Metro Air District recommends that all air quality and greenhouse gas mitigation measures from the DSEIR and DSEA and environmental commitments from the General Conformity Determination be clearly stated in construction specifications and contracts. This will help to ensure the measures will be implemented.

5-6

² Sac Metro Air District On-Site Enhanced Exhaust Control Mitigation:

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

³ American River Watershed Common Features General Reevaluation Report, Final EIS/EIR (December 2015), page 266: https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/ARCF_GRR_Final_EIS-EIR_Jan2016.pdf

⁴ American River Common Features, American River Contract 3A, Draft Supplemental EIR (April 2022), page 3-142: https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/WRDA16/Documents/AmericanRiver/ARCF_ARC3_Draft-SEIR-SEA_April2022.pdf?ver=fVpMUcarpFSyFGM99f7WPQ%3d%3d

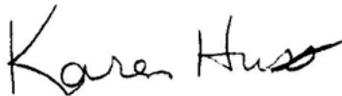
⁵ Civic Thread: <https://civicthread.org/>

⁶ Sacramento Area Bicycle Advocates: <https://sacbike.org/>

⁷ City of Sacramento Neighborhood Directory: <https://www.cityofsacramento.org/economic-development/community-engagement/neighborhood-directory>

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

Sincerely,

A handwritten signature in black ink that reads "Karen Huss". The signature is written in a cursive style with a long, sweeping underline.

Karen Huss

Associate Air Quality Planner/Analyst

cc: Paul Philley, AICP, Program Supervisor, Sac Metro Air District
Kevin Williams, Program Supervisor, Sac Metro Air District
Kathryn Canepa, Civic Thread
Deb Banks, Sacramento Area Bicycle Advocates
Timothy Murphy, Army Corps Environmental Manager

From: [DWR Public Comment ARCF 16](#)
To: [Don Murphy](#); [ARCF_SREroC2](#); [DWR Public Comment ARCF 16](#)
Cc: [Desmond, Nolan, Livaich & Cunningham](#); [Kiruja, Doreen@DWR](#)
Subject: [Non-DoD Source] RE: Draft Environmental Impact Report - Erosion Contract 2
Date: Tuesday, May 17, 2022 3:16:52 PM

Mr. Murphy,

Thank you for your comment on the Sacramento River Erosion Contract 2 project. Your comment has been received and will be evaluated.

Susie Real
Division of Flood Management
CA Department of Water Resources

-----Original Message-----

From: Don Murphy <donald.murphy.33@gmail.com>
Sent: Tuesday, May 17, 2022 10:34 AM
To: ARCF_SREroC2@usace.army.mil; [DWR Public Comment ARCF 16](#)
<PublicCommentARCF16@water.ca.gov>
Cc: [Desmond, Nolan, Livaich & Cunningham](#) <bmannings@dnlc.net>
Subject: Draft Environmental Impact Report - Erosion Contract 2

Re: Contract 2 Questions

To Whom It May Concern:

In reading the Draft E.I.R. there is mention of the removal of trees and brush to allow for placement of RIP Rap along the water side of the levee but there is no mention of the removal of any elements in the Sacramento River itself.

Will legally-permitted boat docks and boathouses, or any other structures in the river, be removed, either temporarily or permanently, for Contract 2? If so, please update and recirculate the E.I.R. to include any impacts - temporary or permanent, regarding docks, boathouses and any/all other structures currently in the river.

6-1

Such impacts should also be identified in the E.I.R. in order for other agencies, e.g., CA State Lands Commission, to comment on dock/boathouse lease-revenue implications. Also, recreational agencies such as Boat US and RBOC ([Blockedhttps://www.rboc.org/regional-issues/tag/Delta](https://www.rboc.org/regional-issues/tag/Delta)) should be allowed to weigh in on any impacts to boating recreation.

Thank you for providing the opportunity to present these concerns.

Regards,
Don Murphy
7260 Pocket Road
916-607-1551

From: [G. Mills](#)
To: [ARCF_SREroC2](#); publiccommentarcf16@water.ca.gov
Subject: [Non-DoD Source] Comments
Date: Saturday, May 28, 2022 9:00:47 PM

Hi I have a number of comments upon reading: ARCF_SRC2_Draft-SEIR-SEA_April2022.pdf

Can you please address these?

1. In the land use area it stated " the entire Sacramento River East Bank is zoned for parks and recreation..." however the area behind many of the properties along the river are privately owned and revenue-generating revenue from taxes. 7-1
2. Earlier erosion work behind Zacharias park -- did raise the river bed and create riprarian planting benches-- which in the last 3 years have now become high water levee benches for homeless / transients to camp on. There has been 2 recent fires that destroyed some of the trees there and the transients are now actively chopping large branches down to provide firewood for their night time camp fires... Comment-- If riprarian benches are proposed future Erosion contracts-- then a permanent longitudinal fence needs to be installed to keep levee users on top of the levee path -- and unable to access such planting berms--- to reserve them for active wildlife , protect the riprarian plants that get planted there-- and to eliminate the use by transients for overnight camping. 7-2
3. For areas that are currently privately owned-- the removal of boat docks will cause the riverfront owner to give up chasing off campers / transients and instead defer to City of Sac to handle such issues-- Deferring to City of Sac to take action -- has resulted in prolonged transient camping and entrenched homelessness. Dock removal also eliminates legitimate boating access , loss of littoral rights and loss of State Lands commission dock lease revenue. 7-3
4. for areas that are public -- and already accommodate beach areas-- some folks use the beaches as river landing areas --for legitimate fishing / paddle boarding and taking dogs to the rivers edge. Raising such beach areas with rip rap and then planting them with riprarian vegetation -- will only eliminate such public uses and users. Once those public members leave- due to rocky banks with thick vegetation --- - it will then lead to transient camping instead-- as they will be left alone because no other public users are going there anymore. 7-4
5. The removal of cross levee fences near the old Garcia Marina -- was done without any public hearings or notice-- and caused the nesting bald eagle pair at Arabella way-- to abandon their nest and relocate it to the deep water ship channel. These eagles do however still perch early mornings on several cottonwood trees near the removed pipe gates-- any erosion work to re-establish riprarian benches along the river-- needs to take into account if any pipe gates or cross levee fences will be replaced to limit public access-- or if not-- then longitudinal fences between the levee and riverside berm will be needed instead to limit human access to all or portions of the proposed riprarian rip rap restoration areas -- to insure they are successful and not destroyed as is happening behind Zacharias park and South Chickory Bend. 7-5

From: [Mer Mills](#)
To: [ARCF_SREroC2](#); publiccommentarcf16@water.ca.gov
Subject: [Non-DoD Source] Upcoming erosion work
Date: Saturday, May 28, 2022 8:49:54 PM

Hello,

We believe that erosion work is important. However, there has been an increase in homeless camps along the River and boats that are anchored along the shore as past work has been done. There have been 2 recent fires that burned trees and also trees are being used for firewood for campfires. These issues should be addressed and possibly a fence installed to keep people on top of the levee and not camping on the riparian planting benches.

8-1

Another concern is that if docks are removed, there may be potential for more erosion as the docks can protect the shore from waves and water that causes the erosion. If docks are removed at owner's expense, the docks will be less likely to be replaced and cause more crowding at the marinas and less revenue for the State Lands Commission from leases.

8-2

Thank you for your time,

Meredith Mills

From: [Don Murphy](#)
To: [ARCF_SREroC2](#)
Subject: [Non-DoD Source] Comments/Questions about Draft E.I.R. Erosion Contract 2
Date: Sunday, May 29, 2022 9:18:36 AM

To Whom It May Concern:

- Please describe the details of the potential for altering the river depth and flow caused by planting benches when you place rip rap in the water. 9-1
- Is there a significant cost difference to place the rip rap from barges instead of from the levee top? 9-2
- What are the potential side effects/damages to marine life (fish, otters, seals, etc.) along the levee resulting from the planting benches? 9-3
- What are the effects on private boat docks resulting from the planting benches? 9-4

Thank you,
Don Murphy

From: [richard.hartzell](mailto:richard.hartzell@water.ca.gov)
To: ARCF_SREroC2; PublicCommentARCF16@water.ca.gov
Subject: [Non-DoD Source] SRE C2 -- request to design the water side planting berms to avoid taking existing tidal beaches and to create some protected wildlife berms.
Date: Sunday, May 29, 2022 10:52:42 PM

To Whom it may concern.

My concern regarding the upcoming Sacramento River erosion contract -- is the loss of some tidal sandy beaches-- that are on the INSIDE bend of the Sacramento river in Pocket. These beaches provide habitat for some of the rare riparian wildlife that currently live in our area-- These beaches also provide river "landing" areas for boats, kayaks and paddleboards as well as for people to bring their dogs to the river edge to play.

Previous erosion work in 2006--- placed rock berms on top of such tidal beaches behind North Point Way and Zacharias park -- The rock berms were built high enough to permanently raise the tidal beaches above the high tidal mark/ wake zone-- and were planted with Trees.

The trees and planting on these berms have been very successful and a great aesthetic asset to the riverbank. Well done.

However -- these new berms also permanently eliminated the tidal beaches that were once there. These tidal beaches were used as river landing areas for boats and kayaks,-- and by Geese in the spring and at night by foxes and racoons. Some folks also used these beaches as areas to bring their dogs to the water's edge , to play as well as to fish.

The request-- is for the upcoming erosion contracts to -- as much as possible --- instead plant the trees on the existing berm areas and thereby protect the remaining tidal beaches in our area.- -- This is particularly needed for the river lot behind Arabella as well as behind Dumfries Court which both have EXISTING wide riverside berms that could be planted -- instead of covering the tidal beaches with riprap rock and new planting berms.

10-1

The low water planting berms that were built between 2006 & 2007 behind Zacharias park -- no longer have a beach where fisherman or dog owners use to go-- Instead these planting berms have become private sanctuaries for several transient camps. These transients have unfortunately created fires and even chopped some of the smaller trees down to clear portions of the berm areas for their tents and to build their campfires.

IN addition to the foxes there was a nesting pair of Bald Eagles in a large redwood tree near Harmon Drive. This nesting pair of Eagles used to roost and perch in cotton wood trees above the beaches near the old Garcia Marina-- Unfortunately DWR's recent removal of the pipe Gates at the Old Garcia Marina caused these Eagles to permanently relocate their nest to the Deep water Channel @ Prospect Slough. The Eagles (even during the current SREL 3 work) are still perching early mornings in the cotton wood trees over the remaining Pocket tidal beaches, waiting to catch fish.

For these reasons -- please design the upcoming riverbank berms to avoid covering the beach areas or at least , scallop the planting berms so smaller pockets of sandy beaches can still co-exist with the proposed planting berms.

Please also PERMANENTLY restrict public access to some of the upcoming RIVER bank/ Beach planting berms by installing vandal resistant 5' tall fencing running parallel to the river -- to create protected Riparian wildlife berms.

Thank you for your consideration to adjust the upcoming erosion work to protect the remaining tidal beaches in our area-- and avoid the chasing away of any more rare wildlife.

Regards,

Richard C Hartzell

LETTER 1: U.S. ENVIRONMENTAL PROTECTION AGENCY

1-1: Comment accepted; the Supplemental EA (SEA) will reference FISH-1 in Section 3.8. Full text is included in the SEIR, Section 3.5.3.

1-2: Comment accepted; the SEA will reference VEG-1 in Section 3.6.3 by reference to the text on Section 3.4.3 of the Supplemental Environmental Impact Report (SEIR). Appendix I of the 2016 ARCF General Reevaluation Report Final EIS EIR, the Habitat Mitigation Monitoring and Adaptive Management Plan and the Long Term Management Plan include regular ongoing maintenance and management for the mitigation sites. The launchable rock toe and planting benches have been engineered to withstand large flood events for the next 50 years. In the scenario that the launchable toe does activate, the damage would be assessed and would be compensated through adaptive management actions that would be coordinated with National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS). The management of the launchable features included in the project design is discussed in the Operation & Maintenance (O&M) manuals. The O&M manuals will be updated before the project is handed over to the Non-Federal Sponsor (NFS). The flood risk reduction features are managed and maintained by the NFS. This method of mitigation is covered in the 2021 Biological Opinions (BOs).

1-3: A section on Socioeconomic, Population, and Environmental Justice has been added to the SEA, see Chapter 3.9.

Local ordinance (Sacramento City Code Chapter 8.140) and USACE, CVFPB, and local maintaining agency safety requirements prohibit camping on levees and within 25 feet of levees to avoid damage to critical infrastructure and to ensure that levees can be easily inspected and maintained. These local agency requirements will also be implemented under the No Project Alternative and require the removal of encampments within the Sacramento River Erosion project site to prevent threats to public health, safety, and welfare from damage to critical infrastructure. Encampments on the project site would therefore be subject to removal regardless of USACE action to implement the Sacramento River Erosion Contract 2 project.

Services for those displaced from along the Sacramento River are offered by both Sacramento City and Sacramento County. The City of Sacramento operates “safe ground” and “safe parking” locations where people may safely camp or park vehicles and RVs. These sites are staffed 24 hours a day and offer services including portable toilets and cleaning stations. Case managers operate on these sites and offer support for mental health needs, substance use disorders, and assist with housing coordination. Individuals using these sites are connected to additional service providers through a centralized information system. Several of these locations are in the immediate vicinity of the Sacramento River Erosion Contract 2 project site, including South Front Street, Miller Park, and along the U.S. Highway 50 Viaduct at 6th Street between W and X Streets. The city is also implementing a Comprehensive Siting Plan, which includes congregate shelters, safe ground/safe parking sites, emergency shelters, and rooms available through motel vouchers.

1-4: These documents will not be included with the Final SEA USACE anticipates obtaining them in October 2022, before the contract is awarded. The contractor is required to follow any, and all, conditions of the Construction General Permit.

1-5: A cumulative impacts analysis, including water quality impacts, has been included in the Final SEA in Chapter 4.

LETTER 2: CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

2-1: The Hazardous Wastes and Materials section of the SEIR (Section 3.13) identifies the potential for past or future release of hazardous materials on the project site. The former Manufactured Gas Plant (MGP) identified by the commenter is included in the Environmental Setting information in Section 3.13.1. Although the MGP site is several hundred feet from the project site, the SEIR nevertheless identifies the potential that contaminated soil and groundwater could be encountered at the project site. To address this potential, Mitigation Measure HAZ-1 requires testing for hazardous materials, including metals and other EPA test methods as appropriate based on-site conditions prior to construction and Phase II investigations for any recognized environmental conditions identified during Phase I ESAs.

2-2: The project does not include activities on roadway medians or roadsides; erosion repairs would be constructed along the waterside of levees. Mitigation Measure HAZ-1 does require testing prior to construction.

2-3: No buildings are proposed to be demolished as part of the project. Construction will occur on the waterside of levees and not in proximity to existing or former buildings.

2-4: USACE requires representative sampling for hazardous materials, including metals and other EPA test methods as appropriate based on-site conditions of borrow material prior to placement as part of the project.

2-5: The construction footprint does not include areas that were in agricultural use, and due to their proximity to the river, substantial weed abatement activities are not believed to have occurred. Mitigation Measure HAZ-1 nevertheless requires sampling prior to construction.

LETTER 3: CALIFORNIA STATE LANDS COMMISSION

3-1: The comment requests additional text be added to the description of the archaeological discovery plan in Mitigation Measure CR-2. Because the suggested text clarifies State law requirements which would apply to historic or cultural resources discovered on State lands rather than imposing a project-specific mitigation requirement, USACE and CVFPB do not propose to modify the text of Mitigation Measure CR-2. No change to the SEA/EIR is necessary.

LETTER 4: CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD

4-1: The comment letter describes regulatory setting and permitting requirements under the Regional Water Quality Control Board's jurisdiction. The Project Partners will ensure that all applicable permits are obtained from the Central Valley Regional Water Quality Control Board prior to project construction. The comment does not identify any changes or comments related to the analysis in the SEA/EIR. No change to the SEA/EIR is necessary.

LETTER 5: SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

5-1: Several sheets (including information from the “data entry” tabs of the Road Construction Emissions Model and the Harborcraft, Dredge, and Barge Emission Factor Calculator) were inadvertently omitted from the Draft SEIR/SEA document. These sheets have been included in Appendix A to the Final SEIR/SEA document.

5-2: As shown below, the requested changes to Mitigation Measure AIR-3 have been incorporated in the Final SEIR/SEA document and will be incorporated in the Mitigation, Monitoring, and Reporting Program (MMRP) for the project.

Mitigation Measure AIR-3: Require Lower Exhaust Emissions for Construction Equipment.

The Project Partners shall require contractors to use a fleet-wide average of 90 percent Tier 4 emissions vehicles for off-road construction equipment and on-road haul trucks must be equipped with 2010 or newer engines. Tier 0 engines will not be permitted. In order to demonstrate compliance with this requirement

- The construction contractor shall submit to USACE and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that would be used an aggregate of ~~840~~ or more hours during any portion of the construction project.
- The inventory shall include the horsepower rating, engine model year, and projected hours of use for each piece of equipment. The construction contractor shall provide the anticipated construction timeline including start date, and the name and phone numbers of the project manager and the on-site foreman. This information shall be submitted at least 4 business days prior to the use of subject heavy-duty off-road equipment. The SMAQMD Construction Mitigation Tool can be used to submit this information. The inventory shall be updated and submitted monthly throughout the duration of the project, except for any 30-day period in which no construction activity occurs.
- The construction contractor shall provide a plan for approval by USACE and SMAQMD demonstrating that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project-wide fleet average of 90 percent Tier 4 emissions vehicles. This plan shall be submitted in conjunction with the equipment inventory. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.
- SMAQMD’s Construction Mitigation Tool can be used to identify an equipment fleet that achieves this reduction. The construction contractor shall ensure that emissions from all off-road diesel-powered equipment used in the project area do not exceed 40 percent opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately. Non-compliant equipment will be documented and a summary provided monthly to USACE and SMAQMD. A visual survey of all in-operation equipment shall be made

at least weekly. A monthly summary of the visual survey results shall be submitted throughout the duration of the project, except for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed, as well as the dates of each survey.

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

5-3: USACE intends to coordinate with SMAQMD staff to purchase offsets as specified by the commenter and required in Mitigation Measure AIR-4.

5-4: As shown below, changes to Mitigation Measure GHG-1 have been incorporated in the Final SEIR/SEA document and will be incorporated in the Mitigation, Monitoring, and Reporting Program (MMRP) for the project:

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

5-5: The Project Partners will continue to coordinate with the City of Sacramento regarding temporary closures and detours affecting pedestrian and bicycle facilities as specified in Mitigation Measure REC-1. Project partners anticipate that the City will consult with neighborhood associates and advocate groups, likely including those identified by the commenter.

5-6: USACE's environmental managers review construction specifications prior to the release of these documents for bid by contracting. This review includes a requirement to confirm that all actions required by adopted mitigation measures are incorporated into the specifications.

LETTER 6: INDIVIDUAL (MURPHY)

6-1: Docks, boathouse, and any other encroachments within the erosion construction footprint are required to be removed prior to initiation of construction of Contract 2. The removal of encroachments is the responsibility of the property owners and will have to be completed in accordance with the CVFPB's notification letters. The landowners are required to apply for a CVFPB permit and obtain CVFPB's approval before they reconstruct any facilities. They must also obtain permits/lease from all governing agencies prior to replacing encroachments.

The following text has been added to the third bullet under "Construction Details" in Section 2.3 of the Final SEIR/SEA:

- Clear and grub work area, including, but not limited to, removing trees and vegetation along the levee embankment and boat docks and other encroachments.

Physical impacts associated with the removal of the docks and associated features (pilings, access ramps/gangways) are addressed as part of the footprint impacts evaluated throughout the SEIR, particularly including biological resources and water quality impacts. The commenter does not provide evidence that potential economic or revenue effects associated with the removal of private boat docks would result in indirect physical environmental effects that would warrant consideration under CEQA. Recreational effects of the project, including effects on boat traffic in the Sacramento River, are addressed in Section 3.12, "Recreation." The closure or removal of dock facilities that are not open to the public would not create new impacts to recreational activities not already considered in the SEIR.

LETTER 7: INDIVIDUAL (G MILLS)

7-1: The comment expresses concern that the project improvements would increase the number of unsanctioned campers or unhoused people in the project area, and states that new cross-levee fences would be necessary to avoid increasing the use of the project site by unhoused individuals. The Sacramento River Erosion Contract 2 project does not include any changes that affect public access to the levees following construction. The replacement of fences or gates on the levee following the completion of ARCF 2016 construction would be subject to permits by the CVFPB. If fences are required to be removed for construction, the owners of these fences, whether permitted or not permitted, will be required to go through the Central Valley Flood Protection Board's permitting process prior to rebuilding the fence. Local ordinance (Sacramento City Code Chapter 8.140) and USACE, CVFPB, and local maintaining agency safety requirements prohibit camping on levees and within 25 feet of levees to avoid damage to critical infrastructure and to ensure that levees can be easily inspected and maintained. Riparian planting benches and other habitat restoration included in the project will be subject to monitoring and maintenance for a period up to 8 years following construction to ensure that plantings are successfully established. Additional information can be found in the 2016 FEIS/EIR GRR, Appendix I Habitat Mitigation, Monitoring and Adaptive Management Plan.

LETTER 8: INDIVIDUAL (M MILLS)

8-1: Please refer to the response to Comment 7-1.

8-2: The Sacramento River Erosion Contract 2 project has been designed to meet USACE's standards for erosion protection, including addressing wavewash. Boat docks are not considered an effective forms of erosion protection by USACE.

LETTER 9: INDIVIDUAL (MURPHY 2)

9-1: Engineering designs have been developed to retain the existing river depth and flow characteristics. Some local scour is expected to occur and is accounted for in modern riprap designs.

9-2: USACE's cost estimates identified a significant cost savings for delivering rip rap by barge and work from barges compared to land hauling of materials on trucks, and access for construction of the erosion protection from the top of the levee.

9-3: Impacts to fish related to the construction activities and changes to habitat conditions are addressed in Section 3.5, "Fisheries," and Mitigation Measures FISH-1, GEO-1, and SRA-1 have been identified to reduce these impacts. As the planting benches mature, they will provide food and shelter for fish, the main food source for otters and seals.

9-4: There is no anticipated effect on private boat docks resulting from the planting benches. The current planting benches are designed to be approximately 50 feet away from existing docks.

LETTER 10: INDIVIDUAL (HARTZELL)

10 -1: Leaving the tidal benches identified by the author undisturbed would result in continued wave wash damage to the levee. Over time, wave wash damage can increase the chance of erosion during a flood event and can over steepen the levee. The designs included in the Sacramento River Erosion Contract 2 project are similar to those constructed in 2006. Those projects have been studied and have performed well from a flood risk reduction and ecological perspective

APPENDIX E
SECTION 404(b)(1) WATER QUALITY EVALUATION
AMERICAN RIVER COMMON FEATURES
GENERAL REEVALUATION REPORT
SACRAMENTO, CALIFORNIA

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

I. Project Description

a. Proposed Project

The American River Common Features General Reevaluation Report (ARCF GRR) is a cooperative effort by the Corps, the Central Valley Flood Protection Board, the non-federal sponsor, and the Sacramento Area Flood Control Agency, the local sponsor. The Corps completed the ARCF GRR final Environmental Impact Assessment/Environmental Impact Report (EIS/EIR) in September 2015. The final EIS/EIR will be referenced throughout the document to describe the existing conditions in the study area, as well as some potential impacts of the proposed project and the other alternatives.

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

No Action Alternative

The No Action Alternative, under NEPA, is the expected future without-project condition. Under CEQA, the No Action Alternative is the existing condition at the time the notice of preparation was published (February 28, 2008) as modified by what would reasonably be expected to occur in the foreseeable future if the project were not approved. The No Action Alternative assumes that no work would be completed by the Corps and the study area would continue to be at a very high risk of levee failure and subsequent flooding of the Sacramento Metropolitan area. This area includes the California State Capitol and many other State and Federal Agencies. For the purposes of this 404(b)(1) analysis, the No Action Alternative is also the no fill alternative. Under the no fill alternative, no measures would

be proposed to place fill material in waters of the U.S. As a result, under the no fill alternative, the levee system’s identified erosion problem would not be addressed, and the Sacramento area would remain at risk of a levee failure.

Alternative 1 – Improve Levees

Alternative 1 involves the construction of fix-in-place levee remediation measures to address seepage, slope stability, erosion, and overtopping concerns identified for the American River and Sacramento River, Natomas East Main Drainage Canal (NEMDC), Arcade Creek, and Magpie Creek levees. Table 1 summarizes the measures proposed under Alternative 1.

Table 1. Alternative 1 – Proposed Levee Improvement Measures by Waterway.

Waterway	Seepage Measures	Stability Measures	Erosion Protection Measures	Overtopping Measures
American River ¹	---	---	Bank Protection, Launchable Rock Trench	---
Sacramento River	Cutoff Wall	Cutoff Wall, Geotextile, Slope Flattening	Bank Protection, Launchable Rock Trench	Levee Raise
NEMDC	Cutoff Wall	Cutoff Wall	---	Floodwall/Levee Raise
Arcade Creek	Cutoff Wall	Cutoff Wall, Geotextiles	---	Floodwall/Levee Raise
Dry/Robla Creeks	---	---	---	Floodwall
Magpie Creek ²	---	---	---	Floodwall/New Levee/Detention Basin

Notes: ¹American River seepage, stability, and overtopping measures were addressed in the ARCF WRDA 1996 and 1999 construction projects. ²In addition to the listed measures, some improvements would need to occur on Raley Boulevard, including widening of the Magpie Creek bridge, raising the elevation of the roadway, and removing the Don Julio Creek culvert.

Figure 1 shows the reaches where seepage, slope stability, erosion, and overtopping measures would be required.

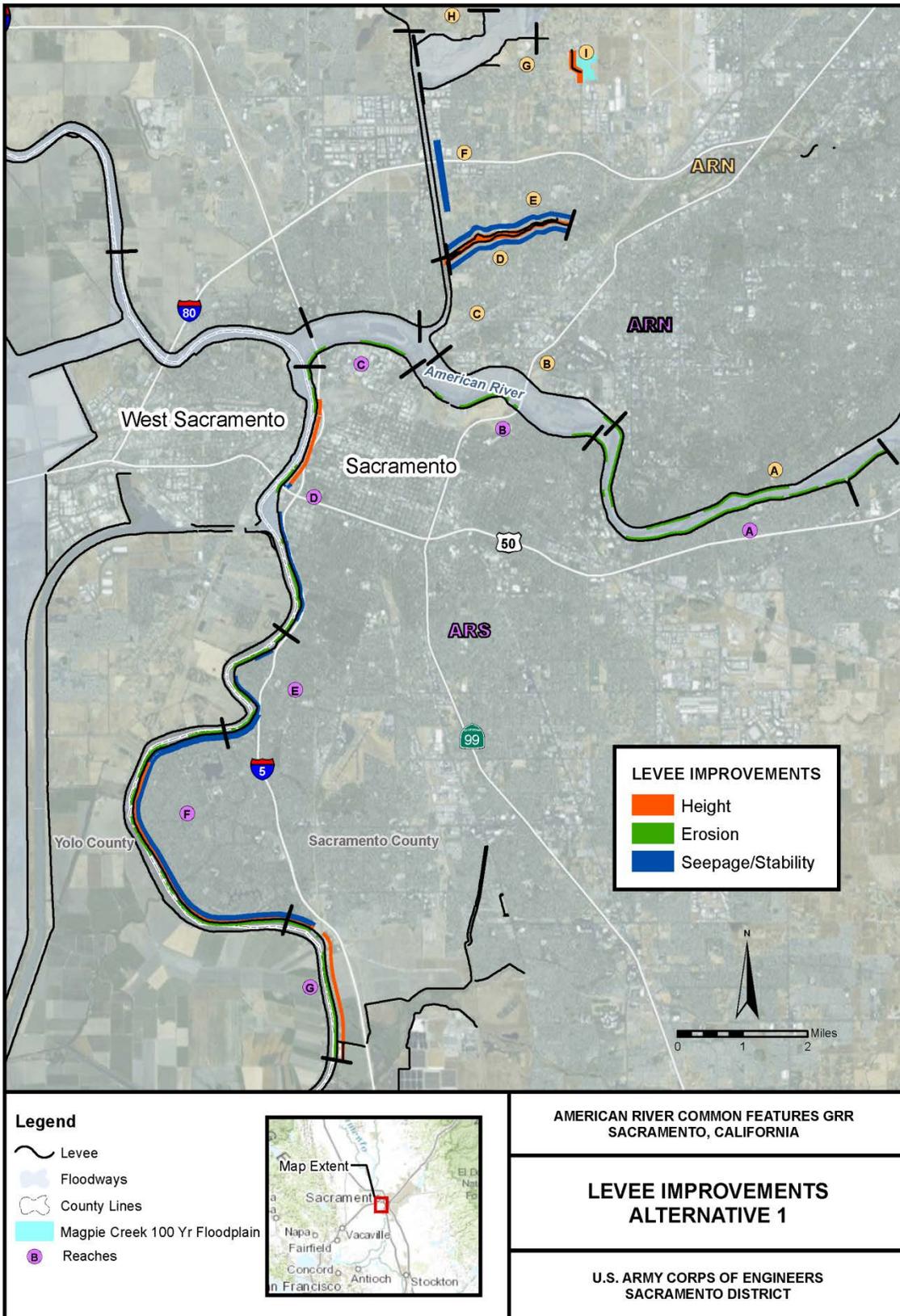


Figure 1. Alternative 1 Proposed Measures.

The proposed project would require discharge of fill material into waters of the U.S. The following subsections describe the measures proposed for Alternative 1 and identify any possible discharge of fill material associated with each measure.

Seepage and Slope Stability Measures

To address seepage concerns, a cutoff wall would be constructed through the levee crown. The cutoff wall would be installed by one of two methods: (1) conventional open trench cutoff walls, or (2) deep soil mixing (DSM) cutoff walls. The method of cutoff wall construction selected for each reach would depend on the depth of the cutoff wall needed to address the seepage. The open trench method can be used to install a cutoff wall to a depth of approximately 80 feet. For cutoff walls of greater depth, the DSM method would be utilized. Prior to construction of the cutoff wall, the construction site and any staging areas would be cleared, grubbed, and stripped. The levee crown would be degraded up to half the levee height to create a large enough working platform (approximately 30 feet) and to reduce the risk of hydraulically fracturing the levee embankment from the insertion of slurry fluids.

This measure is proposed along the Sacramento River, the east bank of the NEMDC, and Arcade Creek. Because seepage and slope stability measures would be installed directly into the levee as a cutoff wall, no fill material would be placed into waters of the U.S. by implementing this measure.

Erosion Protection

Erosion protection along the American River and Sacramento River would be addressed via either the launchable rock trench method or by standard bank protection. There are no erosion protection measures proposed for the East Side Tributaries. The erosion protection measures would involve the placement of fill into waters of the U.S. Construction methods for the bank protection and launchable rock trench measures are described in Section h below.

Overtopping Measures

Levee raises are proposed for the Sacramento River and the East Side Tributaries to address the potential for floodwaters overtopping the levees. For the Sacramento River, Arcade Creek, and NEMDC, there would be no placement of fill into waters of the U.S., because levee raises would be conducted primarily on the crown and landside of the levees and would be designed to avoid placement of fill in the waterways. At Magpie Creek, there is the potential for approximately 0.25-acre of vernal pool habitat on the landside of the levee to be permanently impacted by construction of a levee raise. Construction methods for the levee raise are described in Section h below.

Alternative 2 – Improve Levees and Widen the Sacramento Weir and Bypass

Alternative 2 includes all of the measures proposed under Alternative 1, with the exception of the approximately 7 miles of levee raises on the Sacramento River. Instead, under Alternative 2, the Sacramento Weir and Bypass would be widened to lower the water surface elevations on the Sacramento River to a level that would only require approximately 1 mile of levee raises and would divert more flows into the Yolo Bypass. Table 2 shows the measures that would be implemented under Alternative 2. Figure 2 shows the project area and extent of proposed measures under Alternative 2.

Table 2. Alternative 2 - Proposed Levee Improvement Measures by Waterway.

Waterway	Seepage Measures	Stability Measures	Erosion Protection Measures	Overtopping Measures
American River¹	---	---	Bank Protection, Launchable Rock Trench	---
Sacramento River	Cutoff Wall	Cutoff Wall, Geotextile, and Slope Flattening	Bank Protection, Launchable Rock Trench	Sacramento Bypass and Weir Widening
NEMDC	Cutoff Wall	Cutoff Wall	---	Floodwall/Levee Raise
Arcade Creek	Cutoff Wall	Cutoff Wall, Geotextile	---	Floodwall/Levee Raise
Magpie Creek²	---	---	---	Floodwall/New Levee/Detention Basin

Note: ¹ American River seepage, stability, and overtopping measures were addressed in the American River Common Features, WRDA 1996 and 1999 construction projects.

²In addition to the listed measures, some improvements would need to occur on Raley Boulevard, including widening of the Magpie Creek bridge, raising the elevation of the roadway, and removing the Don Julio Creek culvert.

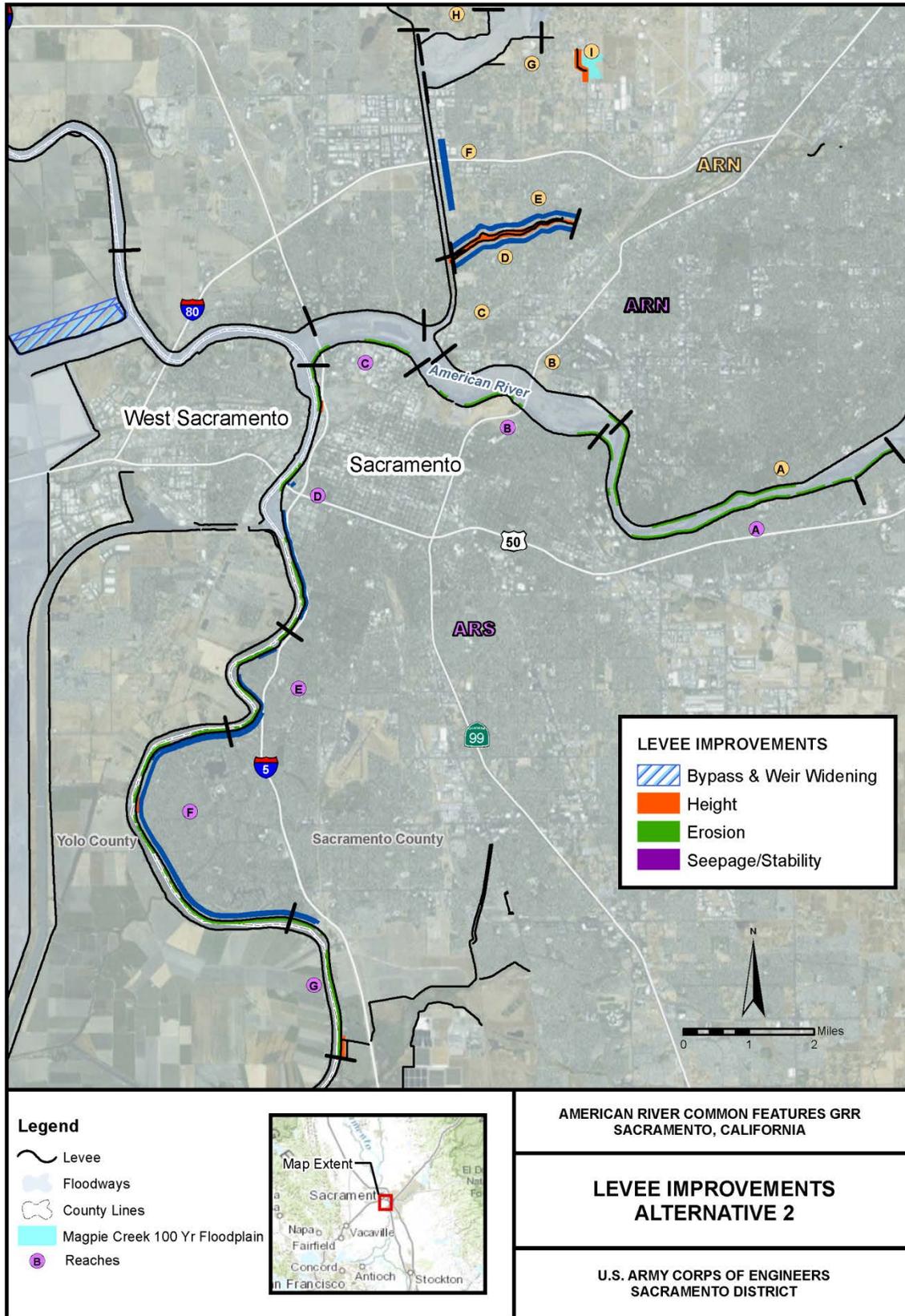


Figure 2. Alternative 2 Proposed Measures.

Sacramento Weir and Bypass Widening

The Sacramento Bypass and Weir currently allow excess flood waters to spill out of the system into the Yolo Bypass thereby reducing the loading on the levee system below. Alternative 2 leverages this existing structure by constructing a new weir structure, and relocating the levee 1,500 feet to the north. The existing weir would not be altered under this measure. The weir, combined with the increased bypass width and operations change, would allow more water to be released out of the system eliminating the need for most of the height improvements along the ARS sub-basin, Reaches D to G. However, this alternative does not reduce the need for seepage, stability and erosion improvements within those reaches. Relocation of the Sacramento Bypass levee would result in the placement of fill in waters of the U.S. Construction methods for this measure are described in Section h below.

b. Location

The proposed project is located in and around the city of Sacramento, California. The ARCF GRR study area includes: (1) approximately 12 miles of the north and south banks of the American River immediately upstream from the confluence with the Sacramento River; (2) the east bank of the NEMDC, Arcade Creek, and the Magpie Creek Diversion Channel (collectively referred to as the East Side Tributaries); (3) the east bank of the Sacramento River downstream from the American River to Freeport, where the levee ties into Beach Lake Levee, the southern defense for Sacramento; and (4) the Sacramento Weir and Bypass, located along the north edge of the city of West Sacramento. Figure 1 shows the proposed study area for Alternative 1 and Figure 2 shows the Alternative 2 study area, which includes the additional measures to the Sacramento Weir and Bypass.

c. Purpose and Need

The purpose of this project is to reduce the flood risk and damage in the greater Sacramento area. The Sacramento Metropolitan area is one of the most at risk areas for flooding in the United States. There is a high probability that flows in either the American River or Sacramento River would stress the network of levees protecting the study area to the point that levees could fail. The consequences of such a levee failure would be catastrophic since the inundated area is highly urbanized and the flooding could be up to 20 feet deep. Providing flood damage reduction would reduce loss of life and damage to property in the project area.

The Sacramento metropolitan area has a high probability of flooding due to its location at the confluence and within the floodplain of two major rivers. Both of these rivers have large watersheds with very high potential runoff which has overwhelmed the existing flood management system in the past. The existing levee system was designed and built many years ago, before modern construction methods were employed. These levees were constructed close to the river, which increases velocities associated with flood flows. This results in increased erosion of levees, which are critical components of the flood management system needed to reduce the flood risk in the study area.

In addition to the high probability of flooding, the consequences of flooding in the study area would be catastrophic. The flooding would rapidly inundate a highly urbanized area with minimal warning or evacuation time. As the Capital of California, the Sacramento metropolitan area is the center of State government and many essential statewide services are located here. The study area is also at the crossroads of four major highway/interstate systems that would be impassable should a flood occur. The effects of flooding within the study area would be felt not only at the local level, but at the regional, State, and National level as well.

Because of the deposits of hydraulic mining debris that washed into the American River and Sacramento River valleys, early levee builders constructed the flood management features by dredging material from the river beds and placing it on the bank near the river. This served several purposes. First, the resulting levee provided a degree of protection from flooding. Second, it removed material from the river bed, allowing it to convey more water. And finally, by placing the levees close to the river's edge, the river flow was confined, speeding its flow, and causing it to erode away the material that had been deposited by hydraulic mining, further increasing the river's capacity.

The levees continue to confine the flow into a relatively narrow channel, still eroding and degrading the river channel. However, by now, most of the sediment deposited in the river channels has been removed. Both the Sacramento River and the American River are confined by levees and have very little sediment in the water. Additionally, on the American River, Folsom Dam blocks sedimentation from upstream sources. Therefore, the energy of the flow tends to erode riverbanks and levees. This channel erosion and degradation could have detrimental effects on the levees by undercutting the foundation materials beneath the levees, particularly if the riverbank consists of easily erodible materials. The erosion of the riverbank adjacent to levee embankments may increase the underseepage through the foundation soils. It can also reduce the stability of the levee slopes by undermining the levee embankment and eroding the levees themselves. Significant erosion can lead to the failure of the levee.

Empirical evidence and prototype experiments indicate that stream bank erosion in the area can be gradual or episodic. That is to say, some erosion occurs almost every year. This is primarily due to the fact that materials have been placed on the banks by landowners in an effort to halt erosion. These materials are generally random materials, placed without regard to engineering standards. The Sacramento District is currently evaluating erosion trends as part of the Sacramento River Bank Protection Project (SRBPP).

d. Authority

The authority for the Corps to study water resource related issues in the American and Sacramento Rivers is Section 209 of the Flood Control Act of 1962, Pu. L. No.87-875, § 209, 76 Stat. 1180, 1196-98 (1962). The EIS/EIR for the project was prepared as part of the interim general reevaluation study of the ARCF Project, which was authorized by Section 130 Section 130 of the Energy and Water Development and Related Agencies Appropriations Act of 2008, Pub. L. No. 110-161, § 130,

121 Stat. 1844, 1947 (2007). Additional authority was provided in Section 366 of WRDA of 1999. WRDA 1999, Pub. L. No. 106-53, § 366, 113 Stat. 269, 319-320 (1999). Significant changes to the project cost were recommended in the Second Addendum to the Supplemental Information Report of March 2002. This report was submitted to the Assistant Secretary of the Army for Civil Works, but before it could be forwarded to Congress, authorized total cost of the project was increased to \$205,000,000 by Section 129 of the Energy and Water Development Appropriations Act of 2004, Pub. L. No. 108-137, § 129, 117 Stat. 269, 1839 (2003). The current estimated cost of the authorized project is \$305,340,000. The allowable cost limit is \$307,071,000.

e. Alternatives [40 CFR 230.10]

Unless otherwise noted, the information is from the September 2015 American River Common Features EIS/EIR.

(1) No action:

The No-Action Alternative is also the no fill alternative. The No Action Alternative assumes that no work would be completed by the Corps that would result in placement of fill in waters of the U.S. As a result, the identified erosion problem would not be addressed and the study area would continue to be at a very high risk of levee failure and subsequent flooding of the Sacramento Metropolitan area. Although the No Action Alternative would have no impacts on waters of the U.S., it does not meet the project purpose since it does not address the flood risk in the study area, and is, therefore, not considered to be one of the least environmentally damaging practicable alternatives (LEDPA).

(2) Other project alternatives:

Alternative 1 – Improve Levees

Alternative 1 involves the construction of fix-in-place levee remediation measures to address seepage, slope stability, erosion, and overtopping concerns identified for the American and Sacramento River, NEMDC, Arcade Creek, and Magpie Creek levees. A complete summary of the measures proposed under Alternative 1 can be found above in Table 1. The project area for Alternative 1 is shown above in Figure 1. This action is considered a practicable alternative and will be retained and evaluated in determining the LEDPA.

Alternative 2 – Improve Levees and Widen the Sacramento Weir and Bypass

Alternative 2 would include all of the levee improvements described for Alternative 1, except that instead of approximately 7 miles of levee raises along the Sacramento River there would be approximately 1 mile of levee raises. Instead of the full extent of levee raises, the Sacramento Weir and Bypass would be widened to divert more flows into the Yolo Bypass, as described above. A complete summary of the proposed measures can be found in Table 2 above. The project area for Alternative 2 is

shown above in Figure 3. This action is considered a practicable alternative and will be retained and evaluated in determining the LEDPA.

f. General Description of Dredged or Fill Material

(1) General Characteristics of Material

Erosion Protection

Erosion protection measures would involve the discharge of fill material into waters of the U.S. Fill materials for erosion protection would consist of large stone riprap, ranging from 18 to 36 inches, to armor the waterside slope, or to construct a launchable rock trench, with a fine sand or silt fill over the top to allow for vegetation planting. The proposed sand or silt for the erosion protection measures would come from clean, imported fill material.

Overtopping Measures

The implementation of levee raises at Magpie Creek would involve the discharge of fill material into waters of the U.S. Fill materials for levee raises would be silty and clayey soils with a minimum content of 20% fine particles, a Liquid Limit less than 45, and a plasticity index between 7 and 15. No organic material or debris may be present in the soil. The proposed soil would be clean and would be imported from either a tested and approved borrow site, or from a commercial source.

Sacramento Bypass Widening

Relocation of the Sacramento Bypass north levee, as part of the Sacramento Bypass widening, would involve placement of fill into waters of the U.S. Fill materials associated with this action would consist of silty and clayey soils with a minimum content of 20% fine particles, a Liquid Limit less than 45, and a plasticity index between 7 and 15. No organic material or debris may be present in the soil. The proposed soil would be clean and would likely consist of the current Sacramento Bypass north levee soils, as the existing levee material is proposed for reuse to the maximum extent practicable. Any borrow material necessary would be clean and would be imported either from a tested and approved borrow site, or from a commercial source.

(2) Quantity of Material

Erosion Protection

Approximately 2.75 million tons of rock would be required to construct bank protection sites on the American River and Sacramento River. This would result in approximately 11 miles of bank protection fill on the American River and approximately 10 miles on the Sacramento River. Approximately 17 acres of fill would be placed in the American River. Approximately 15 acres of fill

would be placed into the Sacramento River. Additionally, approximately 0.4 acre of wetland would be impacted by construction of a proposed launchable rock trench on the south bank of the American River.

Overtopping Measures

Approximately 0.25 acre of soil fill would be placed in waters of the U.S. to construct the levee raise at Magpie Creek.

Sacramento Weir and Bypass

There are approximately 14 acres of soil that would be placed in farm canals and drainage ditches in the widened Sacramento Weir and Bypass area. However, the widened Sacramento Bypass area of approximately 325 acres would become permanent waters of the U.S., therefore the effect from this measure could be offset by the new floodplain habitat created within the widened bypass, due to the potential for natural establishment of wetlands within this area.

(3) Source of Material

Erosion Protection

Riprap for bank protection, seepage berms, and adjacent levees would be imported from a licensed, permitted facility that meets all Federal and State standards and requirements. The material would be transported along either existing roadways and construction access roads, or for Sacramento River sites could be imported via river barge hauling.

Overtopping Measures

Potential locations for borrow material, soil maps and land use maps were obtained for a 25-mile radius surrounding the project area. Borrow sites would be lands that are the least environmentally damaging and would be obtained from willing sellers. Material would be excavated from upland areas and not waterways, wetlands, or water bodies. The criteria used to determine potential locations were based on current land use patterns, soil types from Natural Resources Conservation Service (NRCS), and Corps' criteria for material specifications. The data from land use maps and NRCS has not been field verified, therefore, to ensure that sufficient borrow material would be available for construction the Corps looked at all locations within the 25 miles radius for 20 times the needed material. This would allow for sites that do not meet specifications or are not available for extraction of material.

It is estimated that a maximum of 1 million cubic yards (CY) of borrow material (soil) could be needed to construct the project. Because this project is in the preliminary stages of design, detailed studies of borrow material needs for each alternative have not been completed. For the purposes of

NEPA/CEQA, the analysis evaluates the maximum foreseeable volume of borrow material that could be needed to construct the project. Actual volumes exported from any single borrow site would be adjusted to match demands for fill. The source of the material would come from inland areas (i.e. rock quarries).

The excavation limits on the borrow sites would provide a minimum buffer of 50 feet from the edge of the borrow site boundary. From this setback, the slope from existing grade down to the bottom of the excavation would be no steeper than 3H:1V. Excavation depths from the borrow sites would be determined based on available suitable material and local groundwater conditions. The borrow sites would be stripped of top material and excavated to appropriate depths. Once material is extracted, borrow sites would be returned to their existing use whenever possible, or these lands could be used to mitigate for project impacts, if appropriate. Waters of the U.S. would not be impacted by source material being used.

Sacramento Weir and Bypass

Soil necessary for the Sacramento Weir and Bypass levee relocation would be reused from the existing levee and the footprint of the new Sacramento Bypass. Any additional borrow soil needed would be acquired through the methods discussed above for Overtopping Measures.

g. Description of the Proposed Discharge Site

(1) Location

Erosion Protection

Erosion protection measures would be constructed along approximately 12 miles of the north and south banks of the American River immediately upstream from the confluence with the Sacramento River. In addition, there would be construction along the east bank of the Sacramento River downstream from the American River to Freeport, where the levee ties into Beach Lake Levee, the southern defense for Sacramento. On the American River south levee, a short stretch of launchable rock trench is proposed for an area that includes wetlands adjacent to the levee.

Overtopping Measures

Overtopping measures are proposed along the west bank of the Magpie Creek Diversion Canal from just downstream from Raley Boulevard to about 100 feet south of Vinci Avenue Bridge.

Sacramento Weir and Bypass

The Sacramento Bypass is located in Yolo County approximately 4 miles west of Sacramento along the northern edge of the city of West Sacramento. The Sacramento Weir runs along the west bank of the Sacramento River and separates the river from the Bypass. The Sacramento Bypass is located in a rural area owned by the State of California and operated as the Sacramento Bypass Wildlife Area. The area proposed for the Sacramento Bypass widening is currently active farm fields which include row crops and newly planted nut orchards. A series of farm canals and drainage ditches separate the fields in this area.

*(2) Size***Erosion Protection**

Approximately 17 acres of fill would be placed in the American River. Approximately 15 acres of fill would be placed into the Sacramento River.

Overtopping Measures

Approximately 1 acre of fill would be placed in vernal pool habitat.

Sacramento Weir and Bypass

Approximately 14 acres of fill would be placed in canals and drainage ditches in the widened Sacramento Bypass.

*(3) Type of Site***Erosion Protection**

To construct the erosion protection measures, riprap would be placed in the American River and Sacramento River along the waterside slope of the levee. Additionally, on the south bank of the American River, a trench comprised of riprap would be buried adjacent to the levee.

Overtopping Measures

To construct the levee raise along the Magpie Creek levee, soil would be placed along the landside of the levee in vernal pool habitat.

Sacramento Weir and Bypass

To relocate the Sacramento Bypass levee and grade the bypass area, soil would be placed in canals and drainage ditches.

(4) Type of Habitat

Erosion Protection

Habitat types along the footprint of the bank protection measures include valley foothill riparian habitat and open water habitat. These habitat types are described below.

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

Open Water. The American River and Sacramento River are located within the study area and would both be impacted by placement of fill into waters of the U.S. Both of these rivers are navigable waterways that are jurisdictional under Section 404 of the Clean Water Act.

Wetlands. Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas (40 CFR 230.3[t]). Representative species observed in seasonal wetlands include Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), Italian ryegrass (*Lolium multiflorum*), water pepper (*Persicaria hydropiperoides*), and alkali mallow (*Malvella leprosa*). Wetlands in the study area are assumed to be jurisdictional waters of the United States subject to regulation under CWA Section 404. Within the study area, wetlands also include features such as drainage ditches and farm canals, vernal pools, and open water habitat such as rivers and creeks. Vernal pools are discussed further in Section 3.8. Wetlands and vernal pools are considered sensitive habitats under CEQA.

Overtopping Measures

Habitat types in the footprint of the levee raises at Magpie Creek include potential vernal pool habitat. Vernal pool habitat is described below.

Vernal Pools. Vernal pools are depressions in areas where a hard underground layer prevents rainwater from draining downward into the subsoils. When rain fills the pools in the winter and spring, the water collects and remains in the depressions. In the springtime the water gradually evaporates away, until the pools become completely dry in the summer and fall. Vernal pools support plants and animals that are specifically adapted to living with very wet winter and spring conditions followed by very dry summer and fall conditions. The pools are most beautiful in the spring, when many specially-adapted flowering plants are in full bloom following initial evaporation of surface water. Almost all plants that occur in vernal pools are annuals, meaning they germinate, flower, set seed, and die all within one year. Many vernal pool plant species have seeds that can remain dormant for many years, an adaptation that allows them to survive through periods of drought. Many specially-adapted crustaceans, amphibians, and insects also occur only in vernal pools.

Sacramento Weir and Bypass

Habitat types in the expanded Sacramento Weir and Bypass area include primarily agricultural habitats, such as irrigated grain, row, and field crops. The habitat impacted by placement of fill is primarily open water habitat, as described above for the bank protection sites, in the form of small canals and drainage ditches.

(5) Timing and Duration of Discharge

Erosion Protection

The construction schedule for the ARCF project was estimated based on a 3 month construction window per year due to logistical constraints. Construction would likely occur during the summer months due to special status species work windows and the flood season. Construction of erosion protection measures on the American River would take approximately 9 years. Construction of the overall work proposed for the Sacramento River, including the seepage, slope stability, and height improvements, would take approximately 8 years, with bank protection construction occurring intermittently throughout that time frame.

Overtopping Measures

Construction of the levee raises at Magpie Creek would occur in one construction year. Similar to the erosion protection schedule discussed above, this schedule assumes a 3 month construction window. Construction would likely occur during the summer months due to special status species work windows and the flood season.

Sacramento Weir and Bypass

Relocation of the Sacramento Bypass levee would occur in one construction year. Similar to the erosion protection schedule discussed above, this assumes a 3 month construction window. Construction would likely occur during the summer months due to special status species work windows and the flood season.

h. Description of Disposal Method

Erosion Protection

Erosion protection along the American River and Sacramento River would be addressed via either the launchable rock trench method or by standard bank protection. There are no erosion protection measures proposed for the East Side Tributaries. Construction methods for the bank protection and launchable rock trench measures are described below.

Bank Protection

This measure consists of placing riprap on the river's bank, and in some locations on the levee slope, to prevent erosion (Figure 3). Bank protection is proposed along the American River and Sacramento River and would result in the placement of fill in waters of the U.S. Construction methods are described below.

When necessary, the eroded portion of the bank would be filled and compacted prior to the rock placement. The sites would be prepared by clearing and stripping the site prior to construction. Small vegetation and loose materials would be removed. In most cases, large vegetation would be permitted to remain at these sites. Temporary access ramps would be constructed, if needed, using imported borrow material that would be trucked on site.

Riprap would be imported from an offsite location via haul trucks and temporarily stored at a staging area located in the immediate vicinity of the construction site. A loader would be used to move riprap from the staging area to an excavator that would be placing the material. The excavator would place a large rock berm in the water up to an elevation slightly above the mean summer water surface. A planting trench would be established on this rock surface for revegetation purposes. The excavator would either be working from the top of the bank placing riprap on the bank beneath it and in the water, or from on top of the rock berm that it established.

The placement of rock onto the levee slope would occur from atop the levee. Rock placement from atop the levee would require one excavator and one loader for each potential placement site. The loader would then bring the rock from a staging area to the excavator and the excavator then places it on the waterside of the levee slope

The riprap would be placed on the existing bank at a slope varying from 2V:1H to 3V:1H depending on site specific conditions. After riprap placement has been completed, a small planting berm would be constructed in the rock where feasible to allow for some revegetation of the site, outside of the vegetation free zone required by ETL 1110-2-583. This vegetation would be designed on a site specific basis to minimize the O&M responsibility of the LMA and in such a way to not impact the hydraulic conveyance of the channel.

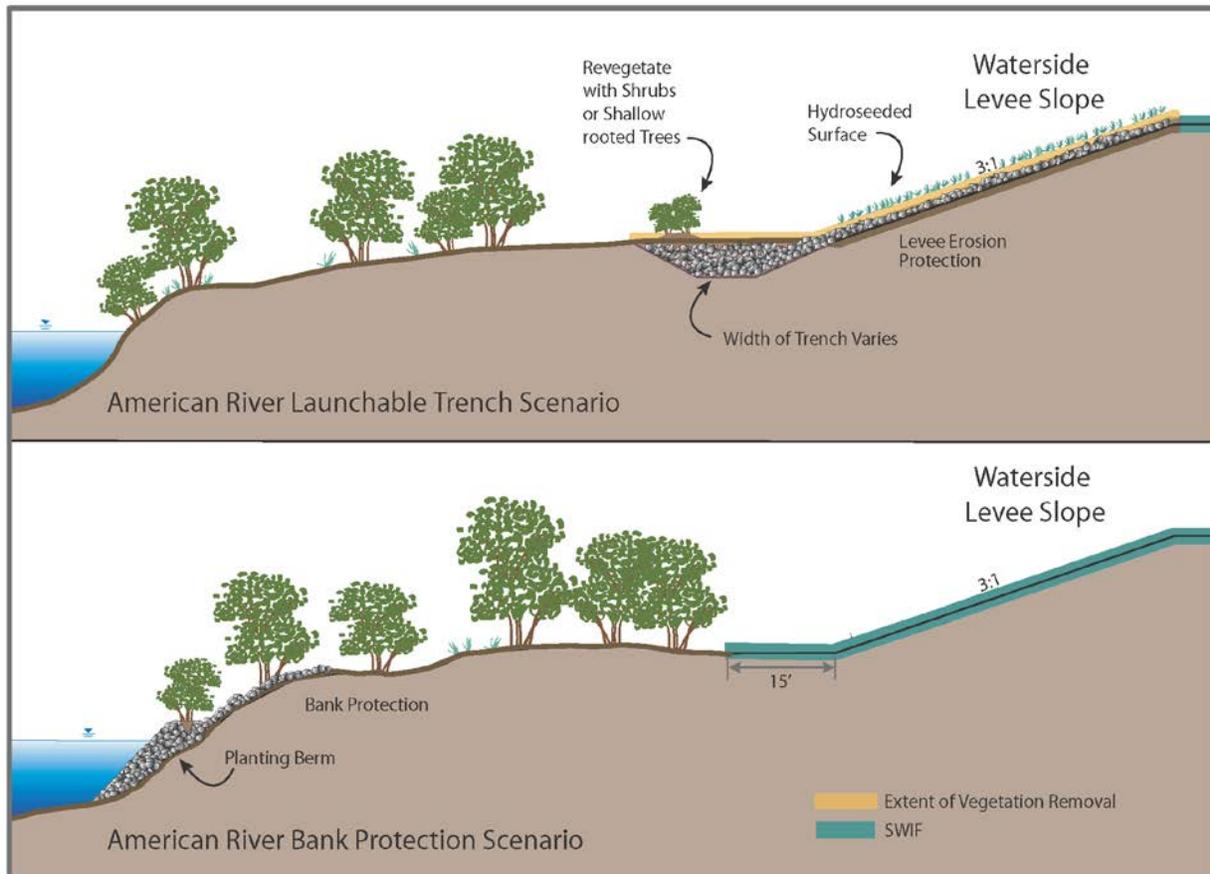


Figure 3. Erosion Protection Measures Typical Design.

Launchable Rock Trench

This measure includes construction of a launchable rock filled trench, designed to deploy once erosion has removed the bank material beneath it (Figure 3). All launchable rock trenches would be constructed outside of the natural river channel. As a result, launchable rock trenches would be above the ordinary high water mark and fill materials would not be placed into waters of the U.S. However, this measure is described in detail below because it is a practicable alternative to the bank protection measure.

The vegetation would be removed from the footprint of the trench and the levee slope prior to excavation of the trench. The trench configuration would include a 2:1 landside slope and 1:1 waterside slope and would be excavated at the toe of the existing levee. All soil removed during trench excavation would be stockpiled for reuse or disposal. The bottom of the trench would be constructed close to the summer mean water surface elevation in order to reduce the rock launching distance and amount of rock required.

After excavation, the trench would be filled with riprap that would be imported from an offsite location. After rock placement the trench would be covered with a minimum of 3 feet of the stockpiled soil to allow for planting over the trench. Rock placed on the levee slope would be covered with the stockpiled soil. All disturbed areas would be reseeded with native grasses and small shrubs where appropriate. Some vegetation could be permitted over the trench if planted outside the specified vegetation free zone required by ETL 1110-2-583. This vegetation would likely be limited to native grasses, shrubs, and trees with shallow root systems to ensure that they do not limit the functionality of the trench during a flood event.

Overtopping Measures

To begin levee raising, the area would be cleared, grubbed, stripped, and, where necessary, portions of the existing embankment would be excavated to allow for bench cuts and keyways to tie in additional embankment fill. Excavated and borrow material (from nearby borrow sites) would be stockpiled at staging areas. Haul trucks or scrapers would bring borrow materials to the site, which would then be spread evenly and compacted according to levee design plans. The existing levee centerline would be shifted landward, where necessary, in order to meet the Corps' standard levee footprint requirements. The levee crown patrol road would be re-established and a new toe access corridor would be added 10 feet landward of the levee toe in areas where levee raises are required.

Sacramento Weir Bypass

For this alternative, the existing north levee of the Sacramento Bypass would be degraded and a new levee constructed approximately 1,500 feet to the north. A new weir would be extended north of the existing Sacramento Weir without impacting the existing structure. The new weir would be extended approximately 1,500 feet and include a seepage cutoff wall below. The increase in Bypass flows through the new weir would occur during high water events only, when the flow released from Folsom Dam on the American River exceeds 115,000 cfs. The existing Sacramento Weir and Bypass would be operated consistent with current conditions based on the stage at the I Street gage.

The new north levee of the Sacramento Bypass would be constructed per new levee construction standards, including 3H:1V waterside and landside slopes and a minimum crest width of 20 feet. As both the existing north and south levees have experienced underseepage and slope stability related distress, the new north levee would include a 300-foot wide drained landside seepage berm (5 feet thick at the landside levee toe tapering to 3 feet thick at the berm toe and constructed of random

fill with a 1.5-foot thick drainage and filter layer at the base) with a system of relief wells located at least 15 feet landward of the berm toe and spaced at 200-foot intervals. Existing infrastructure, including roads, railways, canals, and pump stations would be relocated to maintain current operation. Placement of fill into waters of the U.S. would occur as a result of the relocation of canals and drainage ditches associated with the Bypass widening.

II. Factual Determinations

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

(1) Comparison of Existing Substrate and Fill

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

As discussed in Section I.f(1) above, fill material for bank protection construction would consist of large stone riprap ranging from 18 to 36 inches, to armor the waterside slope, with a fine sand or silt fill over the top to allow for vegetation planting on the berms. Approximate size of the berms would be 5 feet thick at the berm toe and construction of random fill with a 1.5-foot thick drainage and filter layer at the base). The proposed sand or silt for the bank protection would come from clean, imported fill material. The fill material for the overtopping measures and the Sacramento Bypass levee relocation would consist of silty and clayey soils with a minimum content of 20% fine particles, a liquid limit less than 45, and a plasticity index between 7 and 15. No organic material or debris may be present in the soil. The proposed soil would be clean and would be imported from either a tested and approved borrow site, or from an commercial source.

*(2) Changes to Disposal Area Elevation***Erosion Protection**

Due to the placement of rock bank protection along the river banks, there would be an increase in elevation of approximately 1.5 feet in the locations where fill is placed in the waters of the U.S. Launchable rock trenches would be buried beneath the surface and would not result in a change in elevation.

Overtopping Measures

Raising the Magpie Creek levee would increase the ground elevation in the footprint of the fill placement by anyway from a few inches to a few feet, depending on the slope of the levee.

Sacramento Weir and Bypass

There would be a significant increase in elevation in the footprint of the new Sacramento Bypass levee, as the levee would be constructed above the existing ground surface elevation.

*(3) Migration of Fill***Erosion Protection**

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

A typical bank protection site has an approximate life span of 50 years. Over that time period, there would be a natural erosion and migration of fill occurring at the site; however it would occur at a slightly slower rate than natural conditions if no bank protection were to occur. Riprap established along the waterside levee toe is designed to stay in place and prevent further erosion. However, there is a possibility that there may be slight degradation or migration of riprap material over the years as well. The sites would be designed to avoid significant migration of newly placed fill through the use of geotextiles and the establishment of on-site vegetation.

Sediment associated with the launchable rock trench measure is not expected to migrate over time. The soil placed on the trench would be compacted and vegetation would be established to avoid long-term erosion impacts.

Overtopping Measures

Sediment associated with the levee raise at Magpie Creek is not expected to migrate over time. The soil placed would be compacted and would be seeded with natural grasses to avoid long-term erosion impacts.

Sacramento Weir and Bypass

Sediment placed to construct the relocated Sacramento Bypass levee is not expected to migrate over time. The Bypass is dry the majority of the time. During a flood event there would be some natural erosion associated with flood flows in the bypass, however, the levee would be constructed in a manner to ensure that it would not significantly degrade during a typical flood event.

*(4) Duration and Extent of Substrate Change***Erosion Protection**

There would be a permanent change of substrate on the riverbanks from alluvial soils to stone riprap. However the rock berms would be covered with a silty or sandy layer of soil in order to allow for the planting of vegetation along the river banks. This silty or sandy layer of soil would be of a similar substrate type to the existing condition. The launchable rock trench measure would result in a change in substrate of approximately 0.4-acre from undrained hydric soils to buried stone riprap with a silty or sandy layer of soil on the surface to allow for revegetation of the site.

Overtopping Measures

There would be a permanent change of substrate from vernal pool hardpan soils to the silty clayey soils described above for levee construction.

Sacramento Weir and Bypass

There would be a permanent change of substrate in the drainage canals to the silty clayey soils described above for levee construction. However, relocation of the Sacramento Bypass levee would not substantially alter the majority of the soil in the footprint of the new levee construction. Since the existing levee would be used to construct the new levee, and the borrow material used in the levees likely originated in the Bypass footprint, these soils would be consistent with the soil content of the overall area.

(5) Changes to Environmental Quality and Value

Alternative 1 would result in potential impacts to water quality, including increased turbidity during bank protection construction, runoff of exposed soils, and cement, slurry, or fuel spills during construction. Emissions from construction equipment, haul trucks, and barges also pose a potential impact to environmental quality and value during the duration of construction activities. BMPs would be implemented during construction to reduce these impacts to less than significant. There would be a permanent change in substrate in the footprint of the erosion protection areas; however these sites would be designed to be as consistent as feasible with natural riverbanks through the placement of silt over the rock layer and the planting of on-site shrubby vegetation and native grasses. To the extent feasible, large trees on the lower waterside slope would be left in place to maintain shaded riverine aquatic habitat for special-status fish species and new vegetation would be established to provide mitigation for vegetation that must be removed in order to construct the project.

Alternative 2 would reduce water surface elevation in the Sacramento River downstream of the confluence of the American River without significantly increasing water surface elevation in the Yolo Bypass downstream of the confluence of the Sacramento Bypass. Impacts associated with the placement of fill in waters of the U.S. to water quality, air quality, vegetation, and listed fish species are the same as discussed above for Alternative 1, with the addition of the 14 acres of canals and drainage ditches that would be permanently impacted as part of the Sacramento Bypass widening. However, Alternative 2 would also create approximately 300 acres of new floodplain habitat within the widened Sacramento Bypass. Impacts to existing soil and substrate conditions are the same as Alternative 1.

(6) Actions to Minimize Impacts

The following mitigation measures would be used during construction of Alternative 1 to reduce impacts to environmental quality:

- Prior to construction, the Corps or its contractor would be required to acquire all applicable permits for construction.
- Prior to construction, a Stormwater Pollution Protection Plan (SWPPP), Spill Prevention Control and Countermeasures Plan, and a bentonite slurry spill contingency plan would be prepared, and best management practices (BMPs) would be proposed to reduce potential erosion and runoff during rain events.
- Minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations.

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

Additional mitigation associated with Alternative 2 includes:

- Planting riparian tree species within the widened Sacramento Bypass to compensate for 8 acres of permanent, direct impacts associated with construction of the new Sacramento Weir.
- Grading the new portion of the Sacramento Bypass to ensure positive drainage with the design of the existing Sacramento Bypass.
- Inclusion of fish passage features and ramp down of operation following flood events to reduce potentially adverse effects to listed fish species due to stranding within the Sacramento Bypass.

b. Water Circulation, Fluctuation, and Salinity Determinations

(1) Alternation of Current Patterns and Water Circulation

Since Alternative 1 consists of fix-in-place levee improvements, implementation of these measures would have no effect on current patterns and water circulation.

Alternative 2 would result in a diversion of flows from the Sacramento River to the Yolo Bypass that would slightly raise water surface elevations by approximately 0.10-foot in the Yolo Bypass during large flood events (200 year) compared to both the existing and future without project conditions. To avoid potential effects to the Yolo Bypass, the widened portion of the Sacramento Weir would only be operated when the release from Folsom Dam is increased to above 115,000 cfs. With the Folsom Dam improvements in place, releases from Folsom Dam would be above 115,000 cfs for flood events greater than 1/100 ACE event. Operation of the existing segment of the Sacramento Weir would not change from current practices.

Therefore, for events up to and including the 1/100 ACE event, only the existing weir would be operated per the criteria previously established. For events greater than the 1/100 ACE event when the release from Folsom Dam would go above 115,000 cfs, the new weir would be opened. As a result of the increased flood storage space and anticipatory releases at Folsom Dam, this translates into a reduction of flows into the Yolo Bypass with Alternative 2 in place compared to the existing conditions. Table 3 compares the flows at various locations for the Existing, Future Without Project, and with Alternative 2 in place. For the 1/100 ACE event and greater, the benefits of the Folsom Dam improvements would be realized in the form of reduced flows compared to the Existing condition.

Table 3. Comparison of 10-, 100-, and 200-year Frequency Flows under Various Conditions.

10 year event	Existing Condition	Future Without Project Condition (also Alternative 1)	Alternative 2
American River	43,000 cfs	72,000 cfs	72,000 cfs
Sacramento Bypass	50,000 cfs	66,000 cfs	66,000 cfs
Yolo Bypass below Sac Bypass	270,000 cfs	296,000 cfs	296,000 cfs
100 year event	Existing	Future Without Project and Alt. 1	Alt. 2 (TSP)
American River	145,000 cfs	115,000 cfs	115,000 cfs
Sacramento Bypass	131,000 cfs	115,000 cfs	115,000 cfs
Yolo Bypass below Sac Bypass	555,000 cfs	535,000 cfs	535,000 cfs
200 year event	Existing	Future Without Project and Alt. 1	Alt. 2 (TSP)
American River	320,000 cfs	160,000 cfs	160,000 cfs
Sacramento Bypass	183,000 cfs	149,000 cfs	164,000 cfs
Yolo Bypass below Sac Bypass	656,000 cfs	631,000 cfs	643,000 cfs

Although Alternative 2 would result in the creation of a new drainage area within the Sacramento Bypass, the area would be contained within the levee system and would not result in substantial additional erosion, siltation, or runoff. The expanded bypass would not create or contribute flows in excess of the existing capacity of the system, as shown in Table 12 above.

(2) Interference with Water Level Fluctuation

Because the Sacramento River and American River systems are regulated by upstream dams which allow a specific amount of water to be released into systems, the Alternative 1 and the no action/no project alternative would not change water level fluctuation patterns. Alternative 2 would change the water level fluctuation patterns by reducing and stabilizing the maximum water surface elevations on the Sacramento River during flood events, as described in Table 3 above.

Potential implications of the simulated long-term changes in bed profiles can be increased stress along the toe of the project levees or overbank berms in the degradational reaches, which may result in increased scour along unrevetted channel sections. In the aggradational reaches, an increase in bed elevations may result in higher flood stages and reduced flood conveyance.

(3) Salinity Gradients Alteration

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

(4) Effects on Water Quality

The Basin Plan states that where ambient turbidity is between 5 and 50 nephelometric turbidity units (NTUs), projects would not increase turbidity on the Sacramento River by more than 20 percent above the ambient conditions. Furthermore, if the ambient diurnal variation in turbidity fluctuates in and out of the 5 and 50 NTUs threshold, the Basin Plan states that averaging periods can be applied to data to determine compliance. For example, during the summer months, the Sacramento River turbidity could be less than 50 NTUs, and during the winter months, the turbidity could be more than 50 NTUs because of the higher flow rate causing more river scouring. Thus, the monthly average was calculated using hourly CDEC data and is presented in Table 3-3 below. Specific construction activities that are part of the potential alternatives would need to comply with the above-stated thresholds for turbidity.

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

Table 3-3. Monthly Average Total Suspended Sediment and Turbidity for the Sacramento River at Freeport from 1997 to 2007.

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

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

Source: USGS 2013; DWR 2012b.

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

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

Effects to water quality for Alternative 2 would be the same as Alternative 1 with the additional effects associated with the widening of the Sacramento Weir and Bypass. Construction of the new north levee would occur when water is not flowing through the bypass, and therefore there would be no impacts to water quality during construction of the new north levee of the bypass. However, effects could occur during the construction of the expanded weir along the Sacramento River. There is a potential for water quality impacts to occur if the weir is constructed in a way that debris or other construction materials could enter the Sacramento River. However, it is likely that the weir could be constructed behind the existing levee, which would result in no impacts to water quality.

(a) Water Chemistry

The potential of hydrogen (pH) is a unit for measuring the concentration of hydrogen ion activity in water and is reported on a scale from 0 to 14. If a solution measures less than 7, it is considered acidic. If a solution measures more than 7, it is considered basic, or alkaline. If a solution measures 7, it is considered neutral. Many biological functions occur only within a narrow range of pH values. The Basin Plan objective for pH is between 6.5 and 8.5. Furthermore, discharges cannot result in changes of pH that exceed 0.5. The monthly average pH of the Sacramento River from 2003 to 2009 remained stable throughout the year (Table 3-4). Construction materials such as concrete or other chemicals could affect the pH of the Sacramento River if a discharge were to occur. The proposed materials and construction activities have the potential to affect water chemistry during the duration of construction. Construction contractors would be required to prepare and implement a SWPPP and comply with the conditions of the NPDES general stormwater permit for construction activity. The contractor would be required to obtain a permit from the CVRWQCB detailing a plan to control any spills that could occur during construction. The plan would describe the construction activities to be conducted, BMPs that would be implemented to prevent discharges of contaminated stormwater into waterways, and inspection and monitoring activities that would be conducted.

(b) Salinity

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

(c) Clarity

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

(d) Color

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

(e) Odor

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

(f) Taste

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

(g) Dissolved Gas Levels

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

(h) Temperature

Construction activities have the potential to create substantial turbidity affecting water temperature. Implementing the BMPs established in the SWPPP, conducting work during low flow periods, and installing sediment barriers to reduce sediment from entering waterways would be required to control turbidity and the mobilization of pollutants that may be present in sediments. There is the potential for some increases in water temperature, due to the removal of waterside vegetation during construction. However, the vegetation that would be removed would primarily consist of shrubby vegetation and grasses, which do not significantly contribute to shade. The larger trees in the bank protection footprint, which are the primary contributors to shade, would be protected in place, which would help to maintain consistent long-term water temperatures after construction. Additionally, shrubs would be planted on the bank protection planting berms during construction to allow the vegetative cover near the banks to redevelop long-term.

(i) Nutrients

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

(j) Eutrophication

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

c. Suspended Particulate/Turbidity Determinations

(1) Alteration of Suspended Particulate Type and Concentration

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

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

(2) Particulate Plumes Associated with Discharge

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

(3) Changes to Environmental Quality and Value

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

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

(4) Actions to Minimize Impacts

Environmental commitments included in the project to reduce the potential for impacts to water quality include: preparation and implementation of the SWPPP, Spill Prevention Control and Countermeasures Plan (SPCCP), and a bentonite slurry spill contingency plan (BSSCP).

d. Contaminant Determinations

The proposed project is not expected to add contaminants to any body of water; however, if there were a release of contaminants into adjacent water bodies, that could result in significant effects. Therefore, BMPs are proposed during construction to ensure that no contaminants enter the waterways.

Under Alternative 1, construction activities would involve the use of potentially hazardous material, such as fuels, oils and lubricants, and cleaners, which are commonly used in construction projects. Construction contractors would be required to use, store, and transport hazardous materials in compliance with Federal, State, and local regulations during project construction and operation. Testing of borrow sites would occur prior to the use of material and sites which have contaminated soils would not be used for this project. Any hazardous substance encountered during construction would be removed and properly disposed of by a licensed contractor in accordance with Federal, State, and local regulations. Compliance with applicable regulations would reduce the potential for accidental release of hazardous materials during transport and construction activities. The risk of significant hazards associated with the transport, use, and disposal of these materials is low.

Project areas would be tested for HTRW contaminants prior to construction, and any materials found would be disposed of by the non-federal sponsor in accordance with all Federal, State, and local laws and regulations at an approved disposal site. Implementation of these mitigation measures would reduce the impacts from hazardous materials at project sites to less than significant. If significant time has elapsed between approval of this document and construction, additional investigations should be done to reduce the risk of encountering a site during construction. If construction activities would occur in close proximity to sites listed in the existing conditions section, a Phase II ESA should also be conducted. This would further reduce the risk of exposure to workers and the public during construction and assist in the remediation planning.

Alternative 2 would have the same impacts as Alternative 1, with the additional affects associated with the expansion of the Sacramento Weir and Bypass. A known HTRW site, the Old Bryte Landfill, is currently present within the area proposed for the expanded Sacramento Bypass. No construction activities would occur in proximity to this site until the site has been completely remediated and meets all Federal, State, and local regulatory requirements. Therefore, this alternative would have no impacts.

Compliance with applicable laws and regulations would reduce the potential for accidental release of hazardous materials during construction of both Alternatives 1 and 2. The contractor would also be required to prepare a SWPPP, which details the contractors plan to prevent discharge from the construction site into drainage systems, lakes, or rivers. This plan would include BMPs, as detailed in Section 3.5.6 of the ARCF GRR EIS/EIR, which would be implemented at each construction site.

In addition, a SPCCP would be prepared prior to project construction. An SPCCP is intended to prevent any discharge of oil into navigable water or adjoining shorelines. The contractor would develop and implement an SPCCP to minimize the potential for adverse effects from spills of hazardous, toxic, or petroleum substances during construction and operation activities. The SPCCP would be completed before any construction activities begin. Implementation of this measure would comply with state and Federal water quality regulations. The SPCCP would describe spill sources and spill pathways in addition to the actions that would be taken in the event of a spill (e.g., an oil spill from engine refueling would be immediately cleaned up with oil absorbents). The SPCCP would outline descriptions of containments

facilities and practices such as doubled-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures and spill response kits. It would also describe how and when employees are trained in proper handling procedure and spill prevention and response procedures.

e. Aquatic Ecosystem and Organism Determinations

(1) Effects on Plankton

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

(2) Effects on Benthos

Benthic organisms may be disturbed during construction, but following construction, the rock berm would be covered with a silty soil layer, and native benthic organisms would be expected to recolonize the area.

(3) Effects on Nekton

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

Within the ARCF GRR study area, the Sacramento River and Sacramento Bypass are designated critical habitat for winter-run Chinook salmon. Critical habitat for spring-run Chinook salmon includes all river channels and sloughs within the ARCF study area on the Sacramento River and on the American River from the confluence to the Watt Avenue bridge (NMFS 2006b). Critical habitat for Central Valley steelhead includes the stream channels and the lateral extent as defined by the ordinary high-waterline or bank-full elevation in the designated stream reaches of the Sacramento and American River, NEMDC and Dry/Robla Creek portions of the ARCF project area. Critical habitat for delta smelt consists of all water and all submerged lands below ordinary high water and the entire water column bounded by and contained in Suisun Bay (including the contiguous Grizzly and Honker bays); the length of Goodyear, Suisun, Cutoff, First Mallard (Spring Branch), and Montezuma sloughs; and the contiguous waters in the Delta (USFWS 1994). Critical habitat for delta smelt is designated in the following California counties: Alameda, Contra Costa, Sacramento, San Joaquin, Solano, and Yolo (USFWS 2003). Designated critical habitat for the southern DPS of green sturgeon includes the Sacramento River downstream of Keswick

Dam, the Feather River downstream of Oroville Dam, and the Yuba River downstream of Daguerre Dam; portions of Sutter and Yolo Bypasses; the legal Delta, excluding Five Mile Slough, Seven Mile Slough, Snodgrass Slough, Tom Paine Slough and Trapper Slough; and San Francisco, San Pablo, and Suisun bays.

Under Alternative 1 and 2, rock placement on the Sacramento River and American River would most likely disturb the native resident fish by increasing vibration, water turbulence, and turbidity, causing them to move away from the area of placement. In some pelagic native juvenile species utilizing the near shore habitat for cover, moving away from that cover could put them at a slight risk of predation. Direct effects to resident native fish species are less than significant, with the implementation of mitigation. Proposed mitigation for salmonid species includes the creation of planting berms to provide shade and instream woody material elements of SRA habitat. The natural bank element of SRA would be lost with the placement of rock along the levee slope. Over time sediment would settle into the rock voids and provide similar substrate characteristics as a natural bank. The direct effects would also not result in a substantial reduction in population abundance, movement, and distribution for salmonid species.

Alternative 1 and 2 would result in permanent impacts to 14 acres of Delta smelt shallow water habitat, and a change in substrate to 32 acres of Delta smelt spawning habitat. Construction-related effects include disruption of spawning activities, disturbance or mortality of eggs and newly hatched larvae, and alteration of spawning and incubation habitat. With the implementation of compensation for the impacts to Delta smelt shallow water habitat and spawning habitat, these effects would be reduced to less than significant.

Alternative 1 and 2 would result in significant, direct effects to green sturgeon through the loss of benthic feeding habitat due to the change in substrate at the bank protection sites. If larvae or juveniles are present during construction, in-water activities could result in localized displacement and possible injury or mortality to individuals that do not readily move away from the channel or nearshore areas. Project actions associated with bank protection measures may increase sediment, silt, and pollutants, which could adversely affect rearing habitat or reduce food production, such as aquatic invertebrates, for larval and juvenile green sturgeon. Compensation would be implemented for the impacts to benthic substrate, and construction-related monitoring would occur to help to better identify additional measures to reduce significant effects to green sturgeon.

Effects associated with Alternative 2 would be the same as described for Alternative 1 above. Proposed construction in the Sacramento Bypass would take place during the dry season when no water would be flowing through the project area from the Sacramento River. There would be no significant direct effects to native fish populations because they would not be present in the construction footprint during the proposed construction. By widening the Sacramento Weir and Bypass, the project would create additional floodplain habitat, which could benefit native fish consistent with the results of the Knaggs Ranch Study. The increase of floodplain habitat could increase opportunities for successful rearing and feeding during seasonal flooding.

Widening of the weir and bypass will increase the entrainment and stranding exposure and rates of juvenile fish species. When the weir is overtopping and water is flowing down the bypass, adult fish are attracted to the flow and follow it upstream in an attempt to reach their holding and spawning habitat. Widening the weir and bypass would increase the amount of water going over the weir and increase the attraction rate of sturgeon, salmon and steelhead. Without fish passage in place, the stranding rates of these fish would increase. Given that green sturgeon are long-lived species that have the strongest upstream migration and cohort replacement rates during wet water years and especially after high river flow conditions, the effect of the stranding occurring only two to three times over a 50 year period could be significant to sturgeon. Implementation of fish passage features, operational considerations, and grading of the expanded bypass to reduce stranding pits and ensure positive drainage would reduce these impacts to less than significant.

(4) Effects on Aquatic Food Web

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

(5) Effects on Special Aquatic Sites

(a) Sanctuaries and Refuges

No sanctuaries and refuges are within the project area.

(b) Wetlands

Approximately 0.4-acre of wetland could be filled and permanently lost during construction of both Alternatives 1 and 2. The Corps has proposed to purchase one acre of credit from a mitigation bank in order to compensate for this loss of habitat.

Wetlands in the existing Sacramento Bypass would not be impacted by construction of Alternative 2. There is a potential for additional wetlands to develop in the additional 300 acres since this land would no longer be farmed. The conversion of this land back to its natural state would have benefits to other wildlife and could become an expansion of the Sacramento Bypass Wildlife Refuge in Alternative 2.

Reasonable effort would be taken in the detailed design of the project to avoid disturbance to existing wetlands and implementation of environmentally sustainable designs. Any destruction, loss, or degradation of wetlands would be compensated through creation of new wetland habitat.

(c) Mud Flats

No mud flats are within the project area.

(d) Vegetated Shallows

No vegetated shallows are within the project area.

(e) Coral Reefs

No coral reefs are within the project area.

(f) Riffle and Pool Complexes

No riffle pool and complexes are within the project area.

(6) Threatened and Endangered Species

Implementation of Alternative 1 or 2 would result in direct effects to giant garter snake, valley elderberry longhorn beetle, salmonids, green sturgeon, Delta smelt, Western yellow-billed cuckoo, vernal pool crustaceans, and Swainson's Hawks. Impacts to special status fish species were addressed above in Section e(3), nekton.

Construction activities under Alternative 2 have the potential to affect giant garter snake and their habitat, due to the removal and relocation of farm canals and drainage ditches during construction of the Sacramento Weir and Bypass Widening. Giant garter snake habitat would be restored on site to the maximum extent practicable. Permanent impacts to giant garter snake habitat would be compensated through the purchase of credits at a mitigation bank.

Direct effects would occur to valley elderberry longhorn beetle due to the removal and transplanting of shrubs from the construction footprint on the American River and Sacramento River. Additionally, elderberry shrubs could be incidentally damaged by construction personnel or equipment. Potential impacts due to damage or transplantation include direct mortality of beetles and/or disruption of their lifecycle. The Corps will compensate for lost habitat onsite to the maximum extent practicable, create new offsite mitigation areas in coordination with the Sacramento County Department of Parks and Recreation, or purchase credits at a mitigation bank.

Adverse effects could occur to Western yellow-billed cuckoo and Swainson's hawk due to the removal of riparian vegetation during construction of Alternative 1 and 2 on the Sacramento River and American River. Swainson's hawk is known to nest within the study area. Prior to construction, the Corps would survey the construction area per the CDFW survey protocols and determine if nesting

hawks are present. If they are present, buffers would be set up and the nests would be monitored. Additional avoidance and minimization measures would be coordinated with CDFW, as needed. Western yellow-billed cuckoo is not currently known to nest in the project area, however the riparian habitat along the American River is suitable nesting habitat for the cuckoo. Additionally, both rivers lie within the cuckoo's migratory corridor and they are likely to be present during their migration period. As a result, the Corps proposes to compensate for the removal of riparian vegetation onsite to the maximum extent possible. If onsite mitigation is not possible, offsite mitigation would occur in coordination with the Sacramento County Department of Parks and Recreation, or credits would be purchased at a mitigation bank.

Vernal pool tadpole shrimp and vernal pool fairy shrimp could be adversely affected by the removal of 0.25 acre of vernal pool habitat due under both Alternatives 1 and 2. During the design phase of the project, a wetland delineation and survey would be conducted near Magpie Creek to verify this impact. The Corps will compensate for this impact by purchasing 1 acre of credit from a mitigation bank.

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

(7) Other Wildlife

Wildlife effects associated with the construction are expected to be temporary and no additional measures to minimize effects are needed for fill occurring in the area. Under Alternative 1, construction of levee improvements and vegetation removal would result in significant loss of vegetation and wildlife habitat on the landside of the Sacramento River Parkway, and along Arcade Creek. Alternative 2 would have the same impacts on the project area in addition to the construction of the Sacramento Weir extension. That would require the widening of the Sacramento Weir and Bypass which would result in a reduced affect to landside vegetation and wildlife.

Because this area is very urbanized under Alternative 1, the primary effects to wildlife would be to avian species. Surveys would be conducted to determine if any nesting birds are present prior to construction. If nesting birds are located adjacent to the project area, coordination with the resource agencies would occur. Trees where nesting birds are located would not be removed while they are actively nesting. However, once the young have fledged the trees may be removed to construct the project. The same impacts apply to Alternative 2 with the addition of construction activities causing any wildlife within the bypass and adjacent areas to relocate to nearby rural lands and away from human activities. Once construction is complete the wildlife is expected to return to the area. Therefore, the impacts to wildlife in the Sacramento Bypass would be less than significant. Both native and non-native

fish species, along with some endangered species, use this area of the river and are discussed in Fisheries (Section 3.7) and Special Status Species (Section 3.8).

Mitigation measures would include, when possible, in-kind compensation would be planted on planting berms, on top of launchable rock trenches, or on other lands within the Parkway. A hydraulic evaluation would be conducted to determine whether mitigation could occur in the Sacramento Bypass. Additional mitigation sites are identified in Section 3.6.6 of the ARCF EIS/EIR.

To compensate for the removal of 134 acres of riparian habitat supporting Swainson's hawks and other migratory birds approximately 268 acres of replacement habitat would be created as a mitigation area. Some areas that may be considered for mitigation are Cal Expo and Woodlake. For those mitigation lands within the American River Parkway species selected to compensate for the riparian corridor removal would be consistent with the approved list of trees, shrubs, and herbaceous plants native to the Parkway. Mitigation within the Parkway would provide contiguous habitat connectivity with wildlife migratory corridors that supports the needs of important native wildlife species, without compromising the integrity of the flood control facilities, the flood conveyance capacity of the Parkway, and Parkway management goals in the Parkway Plan. To comply with the Parkway Plan, lands within the Parkway will be evaluated for compensation opportunities for any riparian habitat removed from Parkway. The exact location of the compensation lands in the Parkway would be coordinated in the design phase of the project with Sacramento County Parks Department and comply with the Parkway Plan objectives and goals. It is assumed that sufficient lands will be available within the Parkway, however, if there is not sufficient land, other locations within Sacramento County will be identified and public coordination will occur. Additional mitigation may be planted in the expanded Sacramento Bypass or on other lands within the Sacramento area that provide similar value to those removed.

(8) Actions to Minimize Impacts

The proposed project is not likely to result in take to these species for either Alternative as long as the applicable conservation and mitigation measures, as detailed in Section 3.8.6 of the ARCF GRR EIS/EIR are adhered to. Among other measures listed in the EIS/EIR, the conclusion of non-jeopardy is based on the Corps' commitments to: (1) avoid direct impacts by maintaining buffers around sensitive habitat (e.g. 100-foot buffer for elderberry shrubs) and/or conducting construction activities outside of sensitive timeframes (e.g. during the giant garter snake active window or fledging period of special-status birds); (2) minimize wetland losses through the purchase of credits from an approved mitigation bank; (3) implement a SWPPP and associated BMPs; including the designation of staging areas for stockpiling of construction materials, portable equipment, vehicles, and supplies and (4) appoint onsite biologists to provide worker environmental awareness training to contractors and to monitor, report, and remove and transport special-status species if necessary or suspend construction activities until special-status species leave the project on their own. Concurrent implementation of these conservation measures would adequately avoid, minimize, and mitigate adverse effects on the special-status fish, wildlife and plant species discussed in this document.

f. Proposed Disposal Site Determinations*(1) Mixing Zone Size Determination*

Not applicable.

(2) Determination of Compliance with Applicable Water Quality Standards

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

The ARCF study is located within the jurisdiction of the Central Valley RWQCB, within the greater Sacramento Valley watershed. The preparation and adoption of water quality control plans, or Basin Plans, and statewide plans, is the responsibility of the SWRCB. State law requires that Basin Plans conform to the policies set forth in the California Water Code beginning with Section 13000 and any State policy for water quality control. These plans are required by the California Water Code (Section 13240) and supported by the Federal CWA. Section 303 of the CWA requires states to adopt water quality standards which "consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses." According to Section 13050 of the California Water Code, Basin Plans consist of a designation or establishment for the waters within a specified area of beneficial uses to be protected and water quality objectives to protect those uses. Adherence to Basin Plan water quality objectives protects continued beneficial uses of water bodies. Because beneficial uses, together with their corresponding water quality objectives, can be defined per Federal regulations as water quality standards, the Basin Plans are regulatory references for meeting the State and Federal requirements for water quality control (40 CFR 131.20). The potential effects of the proposed project on water quality have been evaluated and are discussed in Section 3.5 of the ARCF EIS/EIR. Compliance with the California Water Code will be accomplished by obtaining certifications from the Central Valley RWQCB prior to construction. In addition a CWA Section 404 review has been conducted internally by the Corps.

*(3) Potential Effects on Human Use Characteristics**a) Municipal and Private Water Supplies*

The Sacramento River waterways historically were used as places to dispose of contaminants. In recent decades, treatment for municipal wastewater, industrial wastewater, and management of urban stormwater runoff have increased and improved greatly. Industries and municipalities now provide at least secondary treatment of wastewater. The American River originates in the high Sierra Nevada just

west of Lake Tahoe, in the Tahoe and El Dorado National Forests. Its three main forks – the South, Middle, and North – flow through the Sierra foothills and converge east of Sacramento. The waters of the American River provide recreation, municipal power, and irrigation for the northern California area. The fill material would not violate Environmental Protection Agency or State water quality standards or violate the primary drinking water standards of the Safe Drinking Water Act (42 USC 300f-300j). Project design, compliance with State water quality thresholds and standard construction and erosion practices would preclude the introduction of substances into surrounding waters. The groundwater table is separated from the slurry wall by a non-permeable layer of soil, therefore there would be minimal risk to groundwater supply. Materials removed for disposal off-site would be disposed of in an appropriate landfill or other upland area.

b) Recreation and Commercial Fisheries

Under Alternative 1, there would be temporary closure of recreation facilities in the American River Parkway during construction, including the bike trails, walking trails, and boat launches. Alternative 2 would affect the same facilities as Alternative 1, but the possible closure of the Sacramento Bypass during hunting season. Notification and coordination with recreation users and bike groups would be arranged. Flaggers, signage, detours, and fencing would be present to notify and control recreation access and traffic around construction sites.

Alternative 1 would cause indirect effects to fish habitat from the removal of vegetation from the levee slopes. Direct effects from the placement of rock at a bank protection sites would cause an increase in turbidity. The same effects for Alternative 1 apply for Alternative 2, with the addition of widening the Sacramento Bypass, which would create a floodplain that could provide a benefit to fish species. For Alternatives 1 and 2, a vegetation variance would allow waterside vegetation, which would include native grasses, shrubs, and trees, to remain on the lower one-third of the waterside slope along the Sacramento River. Bank protection sites and launchable rock trenches would be revegetated with native grasses, shrubs and trees following construction. BMPs would be implemented to address turbidity.

c) Water-related recreation

Recreational boating is one of the primary uses of the American River. Boat access is located at Discovery Park on both the Sacramento and American River side of the park. Boat launches within the Parkway are located at Howe Avenue, Watt Avenue, and Gristmill Park. The river can become very shallow between Sunrise and Howe Avenue when releases from Folsom Dam are reduced, making motorized boating impracticable. Rafting on this stretch of the river is very common during summer months with the highest use on the weekends and holidays.

Under Alternative 1, recreational resources that could potentially be affected by construction of the erosion protection measures include Paradise Beach, the Campus Commons Golf Course, the Guy West Bridge, and the boat launches at Howe Avenue, Watt Avenue, and Gristmill Park. Construction will

also occur during the summer months when the Parkway recreation activities are at the peak. There would be short-term term significant effects along the Sacramento River reach of the project, however, there would be no long-term effects because the area would be returned to the pre-construction conditions once completed. The timing of construction cannot be mitigated as it is unsafe to perform construction activities in the floodway during the flood season.

Effects to recreation from the construction of levee improvements under Alternative 2 would be consistent with those analyzed for Alternative 1 with the addition of effects resulting from construction of levee improvements associated with the Sacramento Weir and Bypass widening. Impacts to water-related recreation are the same for both Alternatives.

If any access point needs to be closed during construction, notices will be posted providing alternative access routes. Any recreation facilities affected by the project would be replaced in-kind within the existing area and no long-term impacts are anticipated.

d) Aesthetics

Alternatives 1 and 2 would result in vegetation loss and construction activities would disrupt the existing visual conditions in the Parkway and along the Sacramento River. Native trees would be planted after construction is completed on planting berms and on top of launchable rock trenches; however, there would still be a temporal loss of vegetation. Disturbed areas would be reseeded with native grasses.

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

Many parks are located within the American River Parkway portion of the study. Following is a description of the parks and their activities.

Discovery Park. Located just north of downtown Sacramento at the confluence of the American River and the Sacramento River, this 302-acre park is a popular site for rafters and waders. Discovery Park is the trailhead for the 32-mile long Jedediah Smith Memorial Trail. The park also features a boat launch. Discovery Park was designed to flood and take pressure off American River levees during high water events. For safety reasons, the park closes when water flows into the public areas and remains closed until the water subsides.

Sutter's Landing Regional Park. Nestled along the banks of the American River about a mile northeast of downtown Sacramento, this 172-acre park currently offers a wide variety of recreational opportunities including a covered skateboard park, a dog park, picnic areas, basketball and bocce ball courts, as well as access to trails along the American River and a boat launch for kayaks, canoes, and other non-motorized boats. Visitors can also see a diversity of wildlife at this site including river otters, beavers, jackrabbits, cottontails, coyotes, raccoons, gopher snakes, fence lizards, skunks, ground

squirrels, voles, and an occasional sea lion, as well as a wide variety of bird species ranging from shorebirds and waterfowl to raptors making it an ideal location for nature watching as well as birding. Other popular activities at this location include walking, jogging, and biking.

Paradise Beach. Just off of U.S. 50 at Howe Avenue, Paradise Beach offers a sandy beach area and is a popular spot for swimming.

Campus Commons Golf Course. Built in 1972, the 1,699 yard Campus Commons Golf Course is a public nine hole executive course located just north of California State University Sacramento, along the American River.

Guy West Bridge. The Guy West Bridge is a pedestrian-only suspension bridge crossing the historic Lower American River. It is modeled after the famed Golden Gate Bridge in San Francisco, but spans only 600 feet compared to the Golden Gate's 6,450 feet. The bridge was constructed to tie the California State University campus to a business and residential community on the north side of the American River.

Howe Avenue. Located down river from California State University, Sacramento, this car-top launch site allows small boats and rafts to be launched into the American River. Because of the swift rapids, this site is not conducive to swimming and wading.

Waterton and Save the American River Association. Just off of U.S. 50 at Watt Avenue, Waterton Access is a small site providing access along the river. The area is inhabited by deer and jackrabbits, so it is ideal for nature watching. The nearby Save the American River Association Access offers similar opportunity.

Watt Avenue. Just off Watt Avenue is an American River access point popular as a take-out spot for rafters, canoeists, and kayakers. Fishing is also popular here because of the range of shallow and deep water.

Gristmill Park. Located off Mira Del Rio Drive and Folsom Boulevard in Rancho Cordova, Gristmill Park is a popular place for fishing, bird watching, and nature watching/photography. The area also has some nice walking paths popular with the locals that wind through oak woodlands along the southern bank of the river in either direction from the parking area. In addition to the usual assortment of birds in these woodlands such as woodpeckers, Northern flickers, and red-shouldered hawks, it is not unusual to spot deer and coyote here as well. Due to the calmness of the river at this location, it is a popular launch spot for kayaking and canoeing.

William Pond Recreation Area. Located off Arden Way, the William Pond Recreation Area is one of the most well-established and popular parks along the river. Named in honor of the first director of County Parks, the park is handicap-friendly and offers a man-made fishing pond with a specialized fishing pier and ramp and paved walking trails that gently slope around the park.

River Bend Park (formerly Goethe Park). River Bend Park, formerly C.M. Goethe Park, is one of Sacramento's oldest county parks. It is located at U.S. 50 and Bradshaw Road and offers many recreation facilities. Horse and hiking trails wind through the park for plenty of wildlife viewing. This facility also has large group picnic sites often used for community events. River Bend Park is the endpoint for many recreational rafters on the American River.

Soil Born Farms. Located on the American River in Rancho Cordova (40 acres) and in Sacramento on Hurley Way (1.5 acres), Soil Born Farms organically grows a wide variety of fruits and vegetables linked to the seasons and temperament of the Sacramento region. All produce is harvested within a day of distribution to local restaurants, farmers markets, and at their own farm stand at the American River ranch location from May to November. This nonprofit farm is actively involved in fostering organic farming through their farm apprentice program and youth education. All water used in irrigation comes from the American River and no synthetic pesticides or fertilizers are used.

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

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

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

For Alternative 1, construction of erosion protection measures is expected to take up to 10 years, with construction occurring in multiple locations within the Parkway at the same time. While this would not be a permanent long-term affect, 10 years of linear construction would be considered a significant effect to recreation activities because it would reduce the quality of existing recreation activities. Portions of the road on top of the levee would be closed to pedestrian access during the construction period. Additionally, construction of the launchable rock trench would temporarily disturb several miles of bike trails as well as access to public parks and boat launches within or adjacent to the Parkway. Such closures and disturbances would result in non-compliance with the American River Parkway Plan which states that flood control berms, levees and other facilities should be, to the extent consistent with proper operation and maintenance of these facilities, open to the public for approved uses, such as hiking, biking and other recreational activities. Once construction is complete the recreation facilities would be returned to the pre-construction conditions and long term effects would be less than significant.

These closures and disturbances would also result in direct and adverse effects to recreation, an outstandingly remarkable value under the Wild and Scenic Rivers Act. Recreational resources that could potentially be affected by construction of the erosion protection measures include Paradise Beach, the Campus Commons Golf Course, the Guy West Bridge, and the boat launches at Howe Avenue, Watt Avenue, and Gristmill Park.

Effects to recreation from the construction of levee improvements under Alternative 2 would be consistent with those analyzed for Alternative 1 with the addition of effects resulting from construction of levee improvements associated with the Sacramento Weir and Bypass widening. Construction of levee improvements associated with the Sacramento Weir and Bypass widening would have possible short-term effects on recreational use. During construction, certain areas would be closed to the public while other areas might be used as haul routes or borrow/disposal sites. Activities such as bird watching, walking, running, and jogging along the Sacramento Bypass levee crown and nearby roads would be restricted. Construction activities could potentially overlap with hunting season in the Sacramento Bypass Wildlife Area, which occurs from September 1 through January 31, restricting hunting activities for a limited period of time. In addition, there may be temporary effects to the Yolo Shortline Railroad. Construction activities would have a significant effect on the Yolo Shortline Railroad as portions of the railway may have to be shut down or relocated during construction activities.

To ensure public safety, flaggers, warning signs, and signs restricting access would be posted before and during construction, as necessary. In the event that bike trails would be disrupted, detours would be provided. Detour routes would be clearly marked, and fences would be erected in order to prevent access to the project area. In areas where recreational traffic intersects with construction vehicles, traffic control will be utilized in order to maintain public safety. The public will have continued access to the Parkway and recreation facilities during construction, but bike and running trail users would likely be required to detour onto public roads or alternative trails. If any access point needs to be closed during construction, notices will be posted providing alternative access routes.

These mitigation measures will reduce the effects on recreation; however, impacts would still be significant because of the duration of construction and the inability to provide similar quality recreation during construction. Any recreation facilities affected by the project would be replaced in-kind within the existing area and no long-term impacts are anticipated.

g. Determination of Cumulative Effects on the Aquatic Ecosystem

Effects of the proposed action include reductions in nearshore aquatic and riparian habitats that are used by aquatic and terrestrial species. Corps actions which could create a cumulative effect on waters of the U.S. in the Sacramento area include the West Sacramento Project, the Southport Early Implementation Project, the American River Common Features Project, the North Sacramento Streams Project, the Sacramento River East Levee Project, and the Sacramento River Bank Protection Project (SRBPP). The North Sacramento Streams Project and the Sacramento River East Levee Project are proposed by SAFCA to construct certain features that are also part of the ARCF GRR Alternative 2. The

North Sacramento Streams Project includes proposed measures on Arcade Creek and NEMDC, and the Sacramento River East Levee Project includes the seepage and stability measures on the Sacramento River that are also proposed by the Corps under the ARCF GRR project, but with limited erosion protection.

The purpose of the West Sacramento Project is to investigate and determine the extent of Federal interest in plans that reduce flood risk to the City of West Sacramento. The proposed alternative for this project consists of levee improvements to 50 miles of existing levees surrounding the city and extending down along the Sacramento Deep Water Ship Channel to address identified seepage, stability, and erosion concerns through the construction of slurry walls and bank protection. In addition, the project proposes to set back the Sacramento River levee in the Southport area of West Sacramento. The recommended West Sacramento Project includes the geographic area and project features that are also being considered in the Southport Early Implementation Project. The Southport Early Implementation Project is being proposed by the West Sacramento Area Flood Control Agency and the State of California to provide 200-year protection consistent with the State's goal for urbanized areas, as well as to provide opportunities for ecosystem restoration and public recreation. The Southport Early Implementation Project's proposed alternative includes the Sacramento River setback levee in the Southport area of West Sacramento. The Southport project is planned to begin construction in 2016. The West Sacramento and Southport projects propose to implement a combined 16,000 linear feet of rock protection on the west bank of the Sacramento River in the study area.

The SRBPP was authorized to protect the existing levees and flood control facilities of the SRFCP. The SRBPP is a long-range program of bank protection authorized by the Flood Control Act of 1960. The SRBPP directs the Corps to provide bank protection along the Sacramento River and its tributaries, including that portion of the lower American River bordered by Federal flood control project levees. Beginning in 1996, erosion control projects at five sites covering almost two miles of the south and north banks of the lower American River have been implemented. Additional sites at RM 149 and 56.7 on the Sacramento River totaling one-half mile have been constructed since 2001. During 2005 through 2007, 29 critical sites totaling approximately 16,000 linear feet were constructed under the Declaration of Flood Emergency by Governor Schwarzenegger. This is an ongoing project, and additional sites requiring maintenance will continue to be identified indefinitely until the remaining authority of approximately 24,000 linear feet is exhausted over the next 3 years. WRDA 2007 authorized an additional 80,000 linear feet of bank protection, however sites for implementation have not been selected at this time.

The construction periods and related effects from these projects could all occur simultaneously. For the ARCF and West Sacramento projects, to include the Sacramento River East Levee Project and the Southport Project, this means that similar construction-related effects such as rock placement or tree removal could be occurring at the same time for the stretch of the projects from the I Street Bridge to the Stone Locks. To avoid potentially significant construction-related cumulative effects, the two projects would coordinate to ensure that construction sites are offset from each other (i.e., sites directly across the Sacramento River from each other where there is bank protection being installed, specifically from the I-Street Bridge downstream to the Stone Locks, would not be constructed in the same

construction season). These are also different types of bank protection. The West Sacramento side has some berm between the levee and the channel, and therefore it is really a "bank" fix, while the ARCF side has levee toe underwater and includes rock berm. Both of these projects propose to implement planting berms and new SRA habitat, and to protect lower waterside trees in place to preserve the existing habitat to the maximum extent possible.

Additionally, levee maintenance activities by state agencies and local reclamation districts are likely to continue, although any effects on waters of the U.S. will be addressed through the Section 404 permitting process with the Corps Regulatory Division. Potential cumulative effects on the aquatic ecosystem could include: wave action in the water channel caused by boats that may degrade riparian and wetland habitat and erode banks; dumping of domestic and industrial garbage; land uses that result in increased discharges of pesticides, herbicides, oil, and other contaminants; and conversion of riparian areas for urban development.

h. Determination of Secondary Effects on the Aquatic Ecosystem

The placement of rock would not only reduce the risk of erosion, but would also anchor remaining trees in place and reduce the potential for trees falling over during a high flow event. The understory, which provides habitat for small rodents, ground nesting birds and waterfowl, and various reptiles, would be removed in order to provide a clean surface to place the rock. Because the riprap is a hard surface it would not support the growth of large amounts of vegetation. In areas with a soil trench or soil placed over rock on the lower portion of the slope vegetation would be planted or allowed to establish naturally. The riprap would also provide basking areas for some small reptiles such as snakes and lizards. Because the riparian corridor and shaded river aquatic habitat left in place would still provide value to fish and wildlife species, and compensatory mitigation would be implemented for trees that were removed, impacts are consider less than significant.

Risk exists for the unintentional placement of dredge and/or fill material to be placed outside of the proposed project area. Unintentional placement could result in additional adverse impacts to water quality, erosion and accretion patterns, aquatic and other wildlife habitat, recreation, aesthetics and air quality. In order to reduce the risk of such impacts, contract specifications would require the contractor to mark the project boundaries, and that the contractor install erosion control (i.e. silt fencing, silt curtains) where possible within any standing waters.

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

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

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

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

The only practicable alternative to the proposed bank protection sites along the American River is the launchable rock trench measure, which was described in Section I(h) above. This measure would involve digging a trench in the berm at the waterside toe of the levee and filling it with rock. The rock would be covered with soil, and as the berm slowly erodes away during a high water event, the rock would “launch” and cover the bank to form a barrier to prevent further erosion. While this measure would minimize impacts associated with the placement of fill in waters of the U.S., it would still result in the removal of 0.40-acre of wetlands on the south bank of the American River. Additionally, this measure would result in significant impacts to vegetation, wildlife, and recreation during construction due to the removal of 65 acres of riparian habitat during construction, and disruption or closure of trails within the American River Parkway during construction. It is anticipated that this measure will be used in some locations on the American and Sacramento Rivers, however, the least environmentally damaging alternative would be a combination of both this measure and bank protection, with onsite environmental and recreational conditions taken into account when selecting the appropriate measure. Implementation of the launchable rock trench would reduce the quantity of fill in the American River from what was analyzed in this 404(b)(1) analysis by reducing the quantity of in-river bank protection required, while implementation of the bank protection would reduce significant effects on riparian habitat, recreational resources, and could avoid impacts to 0.40-acre of wetlands..

Additionally, in some locations where the river flow velocity is low, it may be practicable to use a biotechnical measure rather than bank protection or launchable trenches to provide erosion protection. This measure would involve using biomaterials such as fallen trees to protect the banks from erosion. This would be the least environmentally damaging measure, however it is not practicable for the majority of the river because currents are too strong. As a result there are only minimal locations where this measure could be feasibly implemented.

Because of the significant effects associated with the launchable rock trench measure, the feasibility of the biotechnical measures, and the placement of fill associated with the bank protection measure, a combination of these measures would be the least environmentally damaging practicable alternative.

c. Compliance with Applicable State Water Quality Standards

The proposed project would implement BMPs to ensure that it does not violate State water quality standards identified in the Central Valley Basin Plan (CVRWQCB 1998).

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

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

e. Compliance with Endangered Species Act of 1973

The placement of fill materials in the project area(s) will not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973.

f. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972

Not applicable.

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

Appropriate and practicable steps to minimize potential adverse effects of discharge and fill on the aquatic ecosystem include: placing fill material only where it is needed for the proposed project and confining it to the smallest practicable area. The areas disturbed by construction would be returned as close as possible to pre-project conditions when practicable.

On the basis of the guidelines, the proposed project is specified as complying with the inclusion of appropriate and practical conditions to minimize pollution or adverse effect on the aquatic ecosystem. Alternative 2 has been identified as the Least Environmentally Damaging Practicable Alternative, as it minimizes the footprint of the levee improvements through the removal of the majority of the levee raises along the Sacramento River, results in less impacts to aquatic resources, and also proposes to create approximately 300 acres of new floodplain habitat through the widening of the Sacramento Bypass.