APPENDIX A. AIR QUALITY MODELING RESULTS

SREL C4 AQ Modeling Comment Response

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

The berms and relief wells, and vegetation and cutoff walls components each include different activity phases and work periods/phase durations, therefore, these components were originally modeled separately. The berm and relief well model runs consist of the following project components: mobilization and floodwalls and levee raises, and the vegetation and cutoff wall runs consist of: vegetation and encroachment removal, levee degradation for cutoff wall installation, cutoff wall installation including utility windows, utility relocation, levee reconstruction, site restoration and demobilization. Additionally, mitigation requirements detailed in Mitigation Measure AIR-3 include the use of 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.

To calculate emissions generated by the project and to satisfy mitigation requirements six model runs were conducted for the proposed project, three runs for the berms and relief wells components and three runs for the vegetation and cutoff wall components. The three runs consist of: 1) unmitigated emissions, 2) on-road only mitigated emissions, and 3) fully mitigated emissions (use of 2010 and newer on-road vehicles fleets consisting of all Tier 4 equipment).

Unmitigated results presented in the SEIR are simply the sum of the emissions estimates from the berms and relief wells component, and the vegetation and cutoff wall component.

The mitigated results presented in the SEIR are created through post-processing of the on-road only and fully mitigated emissions scenario results for both the berms and wells and cutoff walls Mitigation Measure AIR-3 requires the use of a fleet-wide average of 90 percent Tier 4 emissions vehicles for off-road construction equipment, 2010 and newer engines for on-road haul trucks, and prohibits use of Tier 0 engines. To account for the specifications of Mitigation Measure AIR-3, the mitigated emissions presented in Table 3-4 include a blend of 90 percent of the emissions totals summed from the mitigated model runs for berms and wells and cutoff walls, and 10 percent of the emissions totals summed from the on-road only mitigated model runs. See the revised Appendix A which includes spreadsheets presenting the interim steps between the model outputs and the data presented in the SEIR.

Berms and Wells

Fully Mitigated

Phase	Units	Start Date	End Date	ROG	CO	NOx	Total PM10	Exhaust PM10	Dust PM10	Total PM2.5	Exhaust PM2.5	Dust PM2.5
Grubbing/Land Clearing	lbs/day	11/1/2022	12/9/2022	0.54	12.76	1.17	50.10	0.10	50.00	10.46	0.06	10.40
Grading/Excavation	lbs/day	4/1/2023	5/31/2023	1.15	28.08	2.29	50.15	0.15	50.00	10.52	0.12	10.40
Drainage/Utilities/Sub-Grade	lbs/day	6/1/2023	9/30/2023	6.61	135.81	18.52	50.99	0.99	50.00	11.15	0.75	10.40
Paving	lbs/day	10/1/2023	1/30/2024	0.71	17.17	1.51	0.12	0.12	0.00	0.08	0.08	0.00
Maximum (pounds/day)	**lbs/day**			**6.61**	**135.81**	**18.52**	**50.99**	**0.99**	**50.00**	**11.15**	**0.75**	**10.40**
Total (tons/construction project)	**tons/project**			**0.35**	**7.52**	**0.95**	**4.04**	**0.05**	**3.99**	**0.87**	**0.04**	**0.83**

On-Road

Phase	Units	Start Date	End Date	ROG	CO	NOx	Total PM10	Exhaust PM10	Dust PM10	Total PM2.5	Exhaust PM2.5	Dust PM2.5
Grubbing/Land Clearing	lbs/day	11/1/2022	12/9/2022	0.89	12.24	8.67	50.51	0.51	50.00	10.84	0.44	10.40
Grading/Excavation	lbs/day	4/1/2023	5/31/2023	1.65	24.18	13.10	50.75	0.75	50.00	11.07	0.67	10.40
Drainage/Utilities/Sub-Grade	lbs/day	6/1/2023	9/30/2023	11.22	102.19	97.10	54.76	4.76	50.00	14.50	4.10	10.40
Paving	lbs/day	10/1/2023	1/30/2024	1.14	15.91	10.47	0.59	0.59	0.00	0.52	0.52	0.00
Maximum (pounds/day)	**lbs/day**			**11.22**	**102.19**	**97.10**	**54.76**	**4.76**	**50.00**	**14.50**	**4.10**	**10.40**
Total (tons/construction project)	**tons/project**			**0.59**	**5.90**	**5.14**	**4.25**	**0.26**	**3.99**	**1.05**	**0.22**	**0.83**

Unmitigated

Phase	Units	Start Date	End Date	ROG	CO	NOx	Total PM10	Exhaust PM10	Dust PM10	Total PM2.5	Exhaust PM2.5	Dust PM2.5
Grubbing/Land Clearing	lbs/day	11/1/2022	12/9/2022	0.89	12.24	8.84	50.51	0.51	50.00	10.84	0.44	10.40
Grading/Excavation	lbs/day	4/1/2023	5/31/2023	1.65	24.18	13.10	50.75	0.75	50.00	11.07	0.67	10.40
Drainage/Utilities/Sub-Grade	lbs/day	6/1/2023	9/30/2023	11.22	102.21	97.73	54.76	4.76	50.00	14.50	4.10	10.40
Paving	lbs/day	10/1/2023	1/30/2024	1.14	15.91	10.48	0.59	0.59	0.00	0.52	0.52	0.00
Maximum (pounds/day)	**lbs/day**			**11.22**	**102.21**	**97.73**	**54.76**	**4.76**	**50.00**	**14.50**	**4.10**	**10.40**
Total (tons/construction project)	**tons/project**			**0.59**	**5.90**	**5.17**	**4.25**	**0.26**	**3.99**	**1.05**	**0.22**	**0.83**

Vegetation and Cutoff Walls

Fully Mitigated

Phase	Units	Start Date	End Date	ROG	CO	NOx	Total PM10	Exhaust PM10	Dust PM10	Total PM2.5	Exhaust PM2.5	Dust PM2.5
Grubbing/Land Clearing	lbs/day	5/1/2023	5/22/2023	2.62	49.52	7.29	0.33	0.33	0.00	0.26	0.26	0.00
Grading/Excavation	lbs/day	5/15/2023	11/28/2023	15.35	293.09	33.60	22.00	2.00	20.00	5.74	1.58	4.16
Maximum (pounds/day)	**lbs/day**			**17.97**	**342.61**	**40.90**	**22.33**	**2.33**	**20.00**	**6.00**	**1.84**	**4.16**
Total (tons/construction project)	**tons/project**			**1.12**	**21.34**	**2.46**	**1.58**	**0.15**	**1.43**	**0.41**	**0.11**	**0.30**

OnRoad Mitigated

Phase	Units	Start Date	End Date	ROG	CO	NOx	Total PM10	Exhaust PM10	Dust PM10	Total PM2.5	Exhaust PM2.5	Dust PM2.5
Grubbing/Land Clearing	lbs/day	5/1/2023	5/22/2023	4.42	39.79	36.68	1.78	1.78	0.00	1.60	1.60	0.00
Grading/Excavation	lbs/day	5/15/2023	11/28/2023	24.53	218.69	202.12	29.71	9.71	20.00	12.83	8.67	4.16
Maximum (pounds/day)	**lbs/day**			**28.96**	**258.47**	**238.80**	**31.49**	**11.49**	**20.00**	**14.43**	**10.27**	**4.16**
Total (tons/construction project)	**tons/project**			**1.79**	**15.94**	**14.73**	**2.14**	**0.71**	**1.43**	**0.93**	**0.63**	**0.30**

Unmitigated

Phase	Units	Start Date	End Date	ROG	CO	NOx	Total PM10	Exhaust PM10	Dust PM10	Total PM2.5	Exhaust PM2.5	Dust PM2.5
Grubbing/Land Clearing	lbs/day	5/1/2023	5/22/2023	4.42	39.79	36.70	1.78	1.78	0.00	1.60	1.60	0.00
Grading/Excavation	lbs/day	5/15/2023	11/28/2023	24.53	218.69	202.24	29.71	9.71	20.00	12.83	8.67	4.16
Maximum (pounds/day)	**lbs/day**			**28.96**	**258.47**	**238.94**	**31.49**	**11.49**	**20.00**	**14.43**	**10.27**	**4.16**
Total (tons/construction project)	**tons/project**			**1.79**	**15.94**	**14.74**	**2.14**	**0.71**	**1.43**	**0.93**	**0.63**	**0.30**

Combined - Berms and Wells and Vegetation and Cutoff Walls

90% of Fully Mitigated

Maximum	ROG	CO	NOx	Total PM10	Exhaust PM10	Dust PM10	Total PM2.5	Exhaust PM2.5	Dust PM2.5
Maximum (pounds/day)	22.12	430.58	53.48	65.99	2.99	63.00	15.43	2.33	13.10
Total (tons/construction project)	1.33	25.98	3.07	5.05	0.18	4.88	1.15	0.14	1.01

10 % of On-Road Mitigation

Maximum	ROG	CO	NOx	Total PM10	Exhaust PM10	Dust PM10	Total PM2.5	Exhaust PM2.5	Dust PM2.5
Maximum (pounds/day)	4.02	36.07	33.59	8.62	1.62	7.00	2.89	1.44	1.46
Total (tons/construction project)	0.24	2.18	1.99	0.64	0.10	0.54	0.20	0.09	0.11

90% + 10%

Maximum	ROG	CO	NOx	Total PM10	Exhaust PM10	Dust PM10	Total PM2.5	Exhaust PM2.5	Dust PM2.5
Maximum (pounds/day)	26.13	466.64	87.07	74.61	4.61	70.00	18.33	3.77	14.56
Total (tons/construction project)	1.56	28.16	5.05	5.69	0.28	5.42	1.35	0.22	1.13

Unmitigated

Maximum	ROG	CO	NOx	Total PM10	Exhaust PM10	Dust PM10	Total PM2.5	Exhaust PM2.5	Dust PM2.5
Maximum (pounds/day)	40.18	360.68	336.66	86.25	16.25	70.00	28.93	14.37	14.56
Total (tons/construction project)	2.38	21.84	19.91	6.38	0.97	5.42	1.98	0.86	1.13

Berms

CO2e	90%	10%	90% + 10%	Unmitigated
Total (tons/construction project)	1288.134	143.126	1431.26	1,431.85

Cutoff Walls

CO2e	90%	10%	90% + 10%	Unmitigated
Total (tons/construction project)	3071.48	341.28	3412.76	3412.92

Berms & Cutoff Walls Total
4,844.77

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Sac River SRS Contract # 2023 Berms and Relief Wells				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.54	12.76	1.17	50.10	0.10	50.00	10.46	0.06	10.40	0.02	1,968.94	0.50	0.02	1,987.91
Grading/Excavation	1.15	28.08	3.29	50.15	0.15	50.00	10.52	0.12	10.40	0.04	3,777.11	1.13	0.03	3,815.72
Drainage/Utilities/Sub-Grade	6.86	137.28	23.29	51.39	1.39	50.00	11.30	0.90	10.40	0.31	30,504.58	5.28	0.48	30,780.52
Paving	0.71	17.17	1.51	0.12	0.12	0.00	0.08	0.08	0.00	0.03	2,521.82	0.66	0.03	2,546.76
Maximum (pounds/day)	6.86	137.28	23.29	51.39	1.39	50.00	11.30	0.90	10.40	0.31	30,504.58	5.28	0.48	30,780.52
Total (tons/construction project)	0.37	7.59	1.16	4.06	0.07	3.99	0.88	0.05	0.83	0.02	1,563.33	0.29	0.02	1,577.68

Notes:

Project Start Year ->	2022
Project Length (months) ->	11
Total Project Area (acres) ->	9
Maximum Area Disturbed/Day (acres) ->	5
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd³/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	400	40
Grading/Excavation	0	0	0	0	400	0
Drainage/Utilities/Sub-Grade	1,136	0	2,584	0	1,200	40
Paving	0	0	0	0	400	40

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 -> Sac River SRS Contract # 2023 Berms and Relief Wells				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.18	0.02	0.69	0.00	0.69	0.14	0.00	0.14	0.00	27.07	0.01	0.00	24.80
Grading/Excavation	0.03	0.62	0.05	1.10	0.00	1.10	0.23	0.00	0.23	0.00	83.10	0.02	0.00	76.16
Drainage/Utilities/Sub-Grade	0.30	6.04	1.02	2.26	0.06	2.20	0.50	0.04	0.46	0.01	1,342.20	0.23	0.02	1,228.65
Paving	0.03	0.76	0.07	0.01	0.01	0.00	0.00	0.00	0.00	0.00	110.96	0.03	0.00	101.66
Maximum (tons/phase)	0.30	6.04	1.02	2.26	0.06	2.20	0.50	0.04	0.46	0.01	1342.20	0.23	0.02	1,228.65
Total (tons/construction project)	0.37	7.59	1.16	4.06	0.07	3.99	0.88	0.05	0.83	0.02	1563.33	0.29	0.02	1,431.26

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 -> Sac River S/S Contract 4: 2023 Berms and Relief Wells				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.89	12.24	8.67	50.51	0.51	50.00	10.84	0.44	10.40	0.02	1,968.94	0.50	0.02	1,987.91
Grading/Excavation	1.65	24.18	13.10	50.75	0.75	50.00	11.07	0.67	10.40	0.04	3,777.11	1.13	0.03	3,815.72
Drainage/Utilities/Sub-Grade	11.22	102.19	97.10	54.76	4.76	50.00	14.50	4.10	10.40	0.31	30,504.58	5.28	0.48	30,780.52
Paving	1.14	15.91	10.47	0.59	0.59	0.00	0.52	0.52	0.00	0.03	2,521.82	0.68	0.03	2,546.76
Maximum (pounds/day)	11.22	102.19	97.10	54.76	4.76	50.00	14.50	4.10	10.40	0.31	30,504.58	5.28	0.48	30,780.52
Total (tons/construction project)	0.59	5.90	5.14	4.25	0.26	3.99	1.05	0.22	0.83	0.02	1,563.33	0.29	0.02	1,577.88

Notes:

Project Start Year ->	2022
Project Length (months) ->	11
Total Project Area (acres) ->	9
Maximum Area Disturbed/Day (acres) ->	5
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	400	40
Grading/Excavation	0	0	0	0	400	0
Drainage/Utilities/Sub-Grade	1,136	0	2,584	0	1,200	40
Paving	0	0	0	0	400	40

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 -> Sac River S/S Contract 4: 2023 Berms and Relief Wells				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.17	0.12	0.69	0.01	0.69	0.15	0.01	0.14	0.00	27.07	0.01	0.00	24.80
Grading/Excavation	0.04	0.53	0.29	1.12	0.02	1.10	0.24	0.01	0.23	0.00	83.10	0.02	0.00	76.16
Drainage/Utilities/Sub-Grade	0.49	4.50	4.27	2.41	0.21	2.20	0.64	0.18	0.46	0.01	1,342.20	0.23	0.02	1,228.65
Paving	0.05	0.70	0.46	0.03	0.03	0.00	0.02	0.02	0.00	0.00	110.96	0.03	0.00	101.66
Maximum (tons/phase)	0.49	4.50	4.27	2.41	0.21	2.20	0.64	0.18	0.46	0.01	1342.20	0.23	0.02	1,228.65
Total (tons/construction project)	0.59	5.90	5.14	4.25	0.26	3.99	1.05	0.22	0.83	0.02	1563.33	0.29	0.02	1,431.28

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 -> Sac River S/S Contract 4: 2023 Berms and Relief Wells				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.69	12.24	8.84	50.51	0.51	50.00	10.84	0.44	10.40	0.02	1,973.17	0.50	0.02	1,992.22
Grading/Excavation	1.65	24.18	13.10	50.75	0.75	50.00	11.07	0.67	10.40	0.04	3,777.11	1.13	0.03	3,815.72
Drainage/Utilities/Sub-Grade	11.22	102.21	97.73	54.76	4.76	50.00	14.50	4.10	10.40	0.31	30,514.81	5.28	0.49	30,793.65
Paving	1.14	15.91	10.48	0.69	0.69	0.00	0.52	0.52	0.00	0.03	2,521.97	0.66	0.03	2,546.95
Maximum (pounds/day)	11.22	102.21	97.73	54.76	4.76	50.00	14.50	4.10	10.40	0.31	30,514.81	5.28	0.49	30,793.65
Total (tons/construction project)	0.59	5.90	5.17	4.25	0.26	3.99	1.05	0.22	0.83	0.02	1,563.85	0.29	0.02	1,578.33

Notes:

Project Start Year ->	2022
Project Length (months) ->	11
Total Project Area (acres) ->	9
Maximum Area Disturbed/Day (acres) ->	5
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd³/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	400	40
Grading/Excavation	0	0	0	0	400	0
Drainage/Utilities/Sub-Grade	1,136	0	2,584	0	1,200	40
Paving	0	0	0	0	400	40

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 -> Sac River S/S Contract 4: 2023 Berms and Relief Wells				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.17	0.12	0.69	0.01	0.69	0.15	0.01	0.14	0.00	27.13	0.01	0.00	24.85
Grading/Excavation	0.04	0.53	0.29	1.12	0.02	1.10	0.24	0.01	0.23	0.00	83.10	0.02	0.00	76.16
Drainage/Utilities/Sub-Grade	0.49	4.50	4.30	2.41	0.21	2.20	0.64	0.18	0.46	0.01	1,342.65	0.23	0.02	1,229.16
Paving	0.05	0.70	0.46	0.03	0.03	0.00	0.02	0.02	0.00	0.00	110.97	0.03	0.00	101.67
Maximum (tons/phase)	0.49	4.50	4.30	2.41	0.21	2.20	0.64	0.18	0.46	0.01	1342.65	0.23	0.02	1,229.16
Total (tons/construction project)	0.59	5.90	5.17	4.25	0.26	3.99	1.05	0.22	0.83	0.02	1563.85	0.29	0.02	1,431.85

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
Data Entry Worksheet

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.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

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.

Input Type

Project Name	San River S/S Contract 4, 2022 Berms and Relief Wells	
Construction Start Year	2022	Enter a Year between 2014 and 2026 (inclusive)
Project Type For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data		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	11.25	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	2.14	miles
Total Project Area	9.00	acres
Maximum Area Disturbed/Day	5.00	acres
Water Trucks Used?	1	1. Yes 2. No

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

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd³) (assume 20 if unknown)	Import Volume (yd³/day)	Export Volume (yd³/day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade	15.00	568.00	568.00
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving			

Mitigation Options

On-road Fleet Emissions Mitigation		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 "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard
Will all off-road equipment be tier 4?	All Tier 4 Equipment	

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	1.25	1.13	11/1/2022	1/1/2022
Grading/Excavation	2.00	5.05	4/1/2023	2/9/2022
Drainage/Utilities/Sub-Grade	4.00	3.38	6/1/2023	4/11/2022
Paving	4.00	1.89	10/1/2023	8/11/2023
Totals (Months)	11			

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing				0	0.00
Miles/round trip: Grading/Excavation				0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade	34.00			76	2584.00
Miles/round trip: Paving				0	0.00

2010+ Model Year Mitigation Option Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71	0.00	0.05	1,563.97
Grading/Excavation (grams/mile)	0.06	0.37	1.20	0.10	0.04	0.01	1,540.13	0.00	0.05	1,555.31
Draining/Utilities/Sub-Grade (grams/mile)	0.06	0.37	1.20	0.10	0.04	0.01	1,540.13	0.00	0.05	1,555.31
Paving (grams/mile)	0.06	0.37	1.20	0.10	0.04	0.01	1,538.47	0.00	0.05	1,553.62
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.36	2.11	6.84	0.58	0.22	0.00	8,773.76	0.02	0.29	8,860.19
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.02	0.09	0.30	0.03	0.01	0.00	388.05	0.00	0.01	389.85
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.02	0.09	0.30	0.03	0.01	0.00	388.05	0.00	0.01	389.85

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing				0	0.00
Miles/round trip: Grading/Excavation				0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade				0	0.00
Miles/round trip: Paving				0	0.00

2010+ Model Year Mitigation Option Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71	0.00	0.05	1,563.97
Grading/Excavation (grams/mile)	0.06	0.37	1.20	0.10	0.04	0.01	1,540.13	0.00	0.05	1,555.31
Draining/Utilities/Sub-Grade (grams/mile)	0.06	0.37	1.20	0.10	0.04	0.01	1,540.13	0.00	0.05	1,555.31
Paving (grams/mile)	0.06	0.37	1.20	0.10	0.04	0.01	1,538.47	0.00	0.05	1,553.62
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D171 through D176.

Worker Commute Emissions User Input	User Override of Worker Commute Default Values	Default Values	Calculated Daily Trips	Calculated Daily VMT
Miles/ one-way trip	20			
One-way trips/day	2			
No. of employees: Grubbing/Land Clearing	10		20	400.00
No. of employees: Grading/Excavation	10		20	400.00
No. of employees: Drainage/Utilities/Sub-Grade	30		60	1,200.00
No. of employees: Paving	10		20	400.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.02	0.92	0.09	0.05	0.02	0.00	348.29	0.01	0.00	349.59
Grading/Excavation (grams/mile)	0.02	0.85	0.08	0.05	0.02	0.00	336.27	0.01	0.00	337.46
Drainage/Utilities/Sub-Grade (grams/mile)	0.02	0.85	0.08	0.05	0.02	0.00	336.27	0.01	0.00	337.46
Paving (grams/mile)	0.02	0.84	0.08	0.05	0.02	0.00	333.23	0.01	0.00	334.39
Grubbing/Land Clearing (grams/trip)	0.87	2.06	0.16	0.00	0.00	0.00	79.58	0.01	0.01	81.77
Grading/Excavation (grams/trip)	0.81	1.86	0.14	0.00	0.00	0.00	77.20	0.01	0.01	79.12
Drainage/Utilities/Sub-Grade (grams/trip)	0.81	1.86	0.14	0.00	0.00	0.00	77.20	0.01	0.01	79.12
Paving (grams/trip)	0.80	1.82	0.13	0.00	0.00	0.00	76.58	0.01	0.01	78.45
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.05	0.90	0.09	0.04	0.02	0.00	310.65	0.01	0.00	311.90
Tons per const. Period - Grubbing/Land Clearing	0.00	0.01	0.00	0.00	0.00	0.00	4.27	0.00	0.00	4.29
Pounds per day - Grading/Excavation	0.05	0.83	0.08	0.04	0.02	0.00	299.95	0.01	0.00	301.07
Tons per const. Period - Grading/Excavation	0.00	0.02	0.00	0.00	0.00	0.00	6.60	0.00	0.00	6.62
Pounds per day - Drainage/Utilities/Sub-Grade	0.15	2.50	0.24	0.12	0.05	0.01	899.84	0.02	0.01	903.22
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.01	0.11	0.01	0.01	0.00	0.00	39.59	0.00	0.00	39.74
Pounds per day - Paving	0.05	0.82	0.08	0.04	0.02	0.00	297.24	0.01	0.00	298.34
Tons per const. Period - Paving	0.00	0.04	0.00	0.00	0.00	0.00	13.08	0.00	0.00	13.13
Total tons per construction project	0.01	0.18	0.02	0.01	0.00	0.00	63.54	0.00	0.00	63.78

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions User Input	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Miles Traveled/Vehicle/Day	Default Values Miles Traveled/Vehicle/Day	Calculated Daily VMT
Grubbing/Land Clearing - Exhaust	1		40.00		40.00
Grading/Excavation - Exhaust					0.00
Drainage/Utilities/Subgrade	1		40.00		40.00
Paving	1		40.00		40.00

2010+ Model Year Mitigation Option Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71	0.00	0.05	1,563.97
Grading/Excavation (grams/mile)	0.06	0.37	1.20	0.10	0.04	0.01	1,540.13	0.00	0.05	1,555.31
Drainage/Utilities/Sub-Grade (grams/mile)	0.06	0.37	1.20	0.10	0.04	0.01	1,540.13	0.00	0.05	1,555.31
Paving (grams/mile)	0.06	0.37	1.20	0.10	0.04	0.01	1,539.47	0.00	0.05	1,553.62
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.01	0.03	0.12	0.01	0.00	0.00	136.57	0.00	0.00	137.92
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	1.88	0.00	0.00	1.90
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.01	0.03	0.11	0.01	0.00	0.00	135.82	0.00	0.00	137.15
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	5.98	0.00	0.00	6.03
Pounds per day - Paving	0.01	0.03	0.11	0.01	0.00	0.00	135.67	0.00	0.00	137.01
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	5.97	0.00	0.00	6.03
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	13.82	0.00	0.00	13.96

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing			50.00	0.59	10.40	0.14
Fugitive Dust - Grading/Excavation			50.00	1.10	10.40	0.23
Fugitive Dust - Drainage/Utilities/Subgrade			50.00	2.20	10.40	0.46

Values in cells D183 through D216, D234 through D267, D285 through D318, and D336 through D369 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00			Tier 4	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00			Tier 4	Tractors/Loaders/Backhoes	0.48	11.83	0.96	0.05	0.04	0.02	1,521.72	0.49	0.01	1,538.10
0.00			Tier 4	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day	0.48	11.83	0.96	0.05	0.04	0.02	1,521.72	0.49	0.01	1,538.10
Grubbing/Land Clearing	tons per phase	0.01	0.16	0.01	0.00	0.00	0.00	20.92	0.01	0.00	21.15

Grading/Excavation Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Tier 4	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.00			Tier 4	Other Material Handling Equipment	1.10	27.24	2.21	0.11	0.10	0.04	3,477.16	1.12	0.03	3,514.65
			Tier 4	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day	1.10	27.24	2.21	0.11	0.10	0.04	3,477.16	1.12	0.03	3,514.65
Grading/Excavation	tons per phase	0.02	0.60	0.05	0.00	0.00	0.00	76.50	0.02	0.00	77.32

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00			Tier 4	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Tier 4	Air Compressors	0.25	6.11	0.50	0.02	0.02	0.01	938.16	0.06	0.01	941.67
0.00			Tier 4	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Tier 4	Concrete/Industrial Saws	0.20	4.82	0.39	0.02	0.02	0.01	740.83	0.04	0.01	743.41
3.00			Tier 4	Cranes	0.65	11.27	1.30	0.07	0.06	0.02	2,050.21	0.66	0.02	2,072.32
0.00			Tier 4	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.00			Tier 4	Excavators	0.61	15.16	1.23	0.06	0.06	0.02	1,934.75	0.63	0.02	1,955.60
0.00			Tier 4	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.00			Tier 4	Off-Highway Trucks	1.58	27.44	3.17	0.16	0.15	0.05	4,955.35	1.60	0.05	5,008.88
0.00			Tier 4	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.00			Tier 4	Other Material Handling Equipment	0.66	16.35	1.33	0.07	0.06	0.02	2,086.30	0.67	0.02	2,108.79
0.00			Tier 4	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Tier 4	Plate Compactors	0.05	0.91	0.81	0.05	0.04	0.00	86.20	0.01	0.00	86.64
0.00			Tier 4	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00			Tier 4	Pumps	0.82	20.28	1.64	0.08	0.08	0.03	3,115.18	0.14	0.02	3,125.72
4.00			Tier 4	Rollers	0.41	10.04	0.81	0.04	0.04	0.01	1,286.42	0.42	0.01	1,300.28
0.00			Tier 4	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00			Tier 4	Rubber Tired Loaders	0.95	16.51	1.90	0.10	0.09	0.03	2,983.06	0.97	0.03	3,015.28
0.00			Tier 4	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Tier 4	Welders	0.17	3.74	3.03	0.02	0.02	0.01	518.69	0.06	0.00	521.40

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day	6.34	132.64	16.11	0.68	0.62	0.22	20,695.16	5.25	0.18	20,879.95
Drainage/Utilities/Sub-Grade	tons per phase	0.28	5.84	0.71	0.03	0.03	0.01	910.59	0.23	0.01	918.72

Paving Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00			Tier 4	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Tier 4	Other General Industrial Equipment	0.10	2.44	0.20	0.01	0.01	0.00	310.02	0.10	0.00	313.37
1.00			Tier 4	Other Material Handling Equipment	0.22	5.45	0.44	0.02	0.02	0.01	695.43	0.22	0.01	702.93
0.00			Tier 4	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Tier 4	Rollers	0.10	2.51	0.20	0.01	0.01	0.00	321.62	0.10	0.00	325.08
0.00			Tier 4	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Tier 4	Tractors/Loaders/Backhoes	0.24	5.92	0.48	0.02	0.02	0.01	761.84	0.25	0.01	770.03
0.00			Tier 4	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment — If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Paving	pounds per day	0.68	16.32	1.32	0.07	0.06	0.02	2,088.91	0.68	0.02	2,111.41
Paving	tons per phase	0.03	0.72	0.06	0.00	0.00	0.00	91.91	0.03	0.00	92.90
Total Emissions all Phases (tons per construction period) =>		0.34	7.32	0.83	0.04	0.03	0.01	1,099.92	0.29	0.01	1,110.09

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63	10.00	8
Air Compressors		78	10.00	8
Bore/Drill Rigs		206	10.00	8
Cement and Mortar Mixers		9	10.00	8
Concrete/Industrial Saws		81	10.00	8
Cranes		226	10.00	8
Crawler Tractors		208	10.00	8
Crushing/Proc. Equipment		85	10.00	8
Excavators		163	10.00	8
Forklifts		89	10.00	8
Generator Sets		84	10.00	8
Graders		175	10.00	8
Off-Highway Tractors		123	10.00	8
Off-Highway Trucks	210.00	400	10.00	8
Other Construction Equipment		172	10.00	8
Other General Industrial Equipment		88	10.00	8
Other Material Handling Equipment		167	10.00	8
Pavers		126	10.00	8
Paving Equipment		131	10.00	8
Plate Compactors		8	10.00	8
Pressure Washers		13	10.00	8
Pumps		84	10.00	8
Rollers		81	10.00	8
Rough Terrain Forklifts		100	10.00	8
Rubber Tired Dozers		255	10.00	8
Rubber Tired Loaders		200	10.00	8
Scrapers		362	10.00	8
Signal Boards		6	10.00	8
Skid Steer Loaders		65	10.00	8
Surfacing Equipment		254	10.00	8
Sweepers/Scrubbers		64	10.00	8
Tractors/Loaders/Backhoes		98	10.00	8
Trenchers		81	10.00	8
Welders		46	10.00	8

END OF DATA ENTRY SHEET

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Sac River S/S Contract 4: 2023 Vegetation and Cutoff Wall				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	2.62	49.52	7.29	0.33	0.33	0.00	0.26	0.26	0.00	0.09	8,586.92	2.56	0.08	8,676.33
Grading/Excavation	15.35	293.09	33.60	22.00	2.00	20.00	5.74	1.58	4.16	0.52	51,150.45	15.09	0.51	51,679.40
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)	17.97	342.61	40.90	22.33	2.33	20.00	6.00	1.84	4.16	0.61	59,737.37	17.67	0.59	60,355.73
Total (tons/construction project)	1.12	21.34	2.46	1.58	0.15	1.43	0.41	0.11	0.30	0.04	3,723.38	1.10	0.04	3,761.89

Notes:

Project Start Year ->	2023
Project Length (months) ->	7
Total Project Area (acres) ->	14
Maximum Area Disturbed/Day (acres) ->	2
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	9	0	26	0	560	40
Grading/Excavation	348	0	451	0	4,000	40
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	0	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 -> Sac River S/S Contract 4: 2023 Vegetation and Cutoff Wall				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.02	0.38	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.12	0.02	0.00	60.61
Grading/Excavation	1.10	20.96	2.40	1.57	0.14	1.43	0.41	0.11	0.30	0.04	3,657.26	1.08	0.04	3,352.15
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)	1.10	20.96	2.40	1.57	0.14	1.43	0.41	0.11	0.30	0.04	3657.26	1.08	0.04	3,352.15
Total (tons/construction project)	1.12	21.34	2.46	1.58	0.15	1.43	0.41	0.11	0.30	0.04	3723.38	1.10	0.04	3,412.76

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.

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Sac River S/S Contract 4: 2023 Vegetation and Cutoff Wall				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	4.42	38.79	36.68	1.78	1.78	0.00	1.60	1.60	0.00	0.09	8,586.92	2.56	0.08	8,676.33
Grading/Excavation	24.53	218.69	202.12	29.71	9.71	20.00	12.83	8.67	4.16	0.52	51,150.45	15.09	0.51	51,679.40
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)	28.96	258.47	238.80	31.49	11.49	20.00	14.43	10.27	4.16	0.61	59,737.37	17.67	0.59	60,355.73
Total (tons/construction project)	1.79	15.94	14.73	2.14	0.71	1.43	0.93	0.63	0.30	0.04	3,723.38	1.10	0.04	3,761.89

Notes:

Project Start Year ->	2023
Project Length (months) ->	7
Total Project Area (acres) ->	14
Maximum Area Disturbed/Day (acres) ->	2
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	9	0	26	0	560	40
Grading/Excavation	348	0	451	0	4,000	40
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	0	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 -> Sac River S/S Contract 4: 2023 Vegetation and Cutoff Wall				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.03	0.31	0.28	0.01	0.01	0.00	0.01	0.01	0.00	0.00	65.12	0.02	0.00	60.61
Grading/Excavation	1.75	15.64	14.45	2.12	0.69	1.43	0.92	0.62	0.30	0.04	3,657.26	1.08	0.04	3,352.15
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)	1.75	15.64	14.45	2.12	0.69	1.43	0.92	0.62	0.30	0.04	3657.26	1.08	0.04	3,352.15
Total (tons/construction project)	1.79	15.94	14.73	2.14	0.71	1.43	0.93	0.63	0.30	0.04	3723.38	1.10	0.04	3,412.76

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.

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Sac River S/S Contract 4: 2023 Vegetation and Cutoff Wall				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	4.42	38.79	36.70	1.78	1.78	0.00	1.60	1.60	0.00	0.09	8,587.18	2.56	0.08	8,676.66
Grading/Excavation	24.53	218.69	202.24	29.71	9.71	20.00	12.83	8.67	4.16	0.52	51,152.37	15.09	0.51	51,681.85
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)	28.96	258.47	238.94	31.49	11.49	20.00	14.43	10.27	4.16	0.61	59,739.55	17.67	0.59	60,358.52
Total (tons/construction project)	1.79	15.94	14.74	2.14	0.71	1.43	0.93	0.63	0.30	0.04	3,723.52	1.10	0.04	3,762.06

Notes:		
	Project Start Year ->	2023
	Project Length (months) ->	7
	Total Project Area (acres) ->	14
	Maximum Area Disturbed/Day (acres) ->	2
	Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	9	0	26	0	560	40
Grading/Excavation	348	0	451	0	4,000	40
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	0	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 -> Sac River S/S Contract 4: 2023 Vegetation and Cutoff Wall				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.03	0.31	0.28	0.01	0.01	0.00	0.01	0.01	0.00	0.00	65.12	0.02	0.00	60.61
Grading/Excavation	1.75	15.64	14.46	2.12	0.69	1.43	0.92	0.62	0.30	0.04	3,657.39	1.08	0.04	3,352.31
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)	1.75	15.64	14.46	2.12	0.69	1.43	0.92	0.62	0.30	0.04	3657.39	1.08	0.04	3,352.31
Total (tons/construction project)	1.79	15.94	14.74	2.14	0.71	1.43	0.93	0.63	0.30	0.04	3723.52	1.10	0.04	3,412.92

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
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.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	San River S/S Contract 4: 2023 Vegetation and Cutoff Wall	
Construction Start Year	2023	Enter a Year between 2014 and 2026 (inclusive)
Project Type For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data	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	7.20	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	0.30	miles
Total Project Area	14.00	acres
Maximum Area Disturbed/Day	2.00	acres
Water Trucks Used?	1	1. Yes 2. No

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

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd³) (assume 20 if unknown)	Import Volume (yd³/day)	Export Volume (yd³/day)
Soil	Grubbing/Land Clearing	15.00	0.00	9.00
	Grading/Excavation	15.00	174.00	174.00
	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) Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard
Will all off-road equipment be tier 4?	All Tier 4 Equipment	

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.70	0.72	5/1/2023	1/1/2023
Grading/Excavation	6.50	3.24	5/15/2023	1/29/2023
Drainage/Utilities/Sub-Grade	0.00	2.16		8/9/2023
Paving	0.00	1.08		8/9/2023
Totals (Months)	7		Note: You have entered a non-default starting date. Please provide starting date for all phases, or default values for other phases will be used.	

Note: Soil Hauling emission default values can be overridden in cells C61 through D64, and F61 through F64.

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing	26.00			1	26.00
Miles/round trip: Grading/Excavation	41.00		11	24	451.00
Miles/round trip: Drainage/Utilities/Sub-Grade				0	0.00
Miles/round trip: Paving				0	0.00

2010+ Model Year Mitigation Option Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.06	0.37	1.20	0.10	0.04	0.01	1,540.13	0.00	0.05	1,555.31
Grading/Excavation (grams/mile)	0.06	0.37	1.20	0.10	0.04	0.01	1,540.13	0.00	0.05	1,555.31
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.02	0.07	0.01	0.00	0.00	88.28	0.00	0.00	89.15
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.00	0.00	0.66
Pounds per day - Grading/Excavation	0.06	0.37	1.19	0.10	0.04	0.01	1,531.33	0.00	0.05	1,548.42
Tons per const. Period - Grading/Excavation	0.00	0.03	0.09	0.01	0.00	0.00	109.49	0.00	0.00	110.67
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.03	0.09	0.01	0.00	0.00	110.17	0.00	0.00	111.28

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing				0	0.00
Miles/round trip: Grading/Excavation				0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade				0	0.00
Miles/round trip: Paving				0	0.00

2010+ Model Year Mitigation Option Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.06	0.37	1.20	0.10	0.04	0.01	1,540.13	0.00	0.05	1,555.31
Grading/Excavation (grams/mile)	0.06	0.37	1.20	0.10	0.04	0.01	1,540.13	0.00	0.05	1,555.31
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D111 through D118.

Worker Commute Emissions User Input	User Override of Worker Commute Default Values	Default Values	Calculated Daily Trips	Calculated Daily VMT
Miles/ one-way trip	20			
One-way trips/day	2			
No. of employees: Grubbing/Land Clearing	14		28	560.00
No. of employees: Grading/Excavation	100		200	4,000.00
No. of employees: Drainage/Utilities/Sub-Grade			0	0.00
No. of employees: Paving			0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.02	0.85	0.08	0.05	0.02	0.00	336.27	0.01	0.00	337.46
Grading/Excavation (grams/mile)	0.02	0.85	0.08	0.05	0.02	0.00	336.27	0.01	0.00	337.46
Drainage/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grubbing/Land Clearing (grams/trip)	0.81	1.86	0.14	0.00	0.00	0.00	77.20	0.01	0.01	79.12
Grading/Excavation (grams/trip)	0.81	1.86	0.14	0.00	0.00	0.00	77.20	0.01	0.01	79.12
Drainage/Utilities/Sub-Grade (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.07	1.17	0.11	0.06	0.02	0.00	419.93	0.01	0.00	421.50
Tons per const. Period - Grubbing/Land Clearing	0.00	0.01	0.00	0.00	0.00	0.00	3.23	0.00	0.00	3.25
Pounds per day - Grading/Excavation	0.50	8.34	0.79	0.41	0.17	0.03	2,999.47	0.06	0.03	3,010.73
Tons per const. Period - Grading/Excavation	0.04	0.60	0.06	0.03	0.01	0.00	214.48	0.00	0.00	215.27
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.04	0.61	0.06	0.03	0.01	0.00	217.70	0.00	0.00	218.51

Note: Water Truck default values can be overridden in cells D146 through D148, and F146 through F148.

Water Truck Emissions User Input	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Miles Traveled/Vehicle/Day	Default Values Miles Traveled/Vehicle/Day	Calculated Daily VMT
Grubbing/Land Clearing - Exhaust	1		40.00		40.00
Grading/Excavation - Exhaust	1		40.00		40.00
Drainage/Utilities/Subgrade					0.00
Paving					0.00

2010+ Model Year Mitigation Option Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.06	0.37	1.20	0.10	0.04	0.01	1,540.13	0.00	0.05	1,555.31
Grading/Excavation (grams/mile)	0.06	0.37	1.20	0.10	0.04	0.01	1,540.13	0.00	0.05	1,555.31
Drainage/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.01	0.03	0.11	0.01	0.00	0.00	135.82	0.00	0.00	137.15
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	1.05	0.00	0.00	1.06
Pounds per day - Grading/Excavation	0.01	0.03	0.11	0.01	0.00	0.00	135.82	0.00	0.00	137.15
Tons per const. Period - Grading/Excavation	0.00	0.00	0.01	0.00	0.00	0.00	9.71	0.00	0.00	9.81
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	10.76	0.00	0.00	10.86

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing	0.00		0.00	0.00	0.00	0.00
Fugitive Dust - Grading/Excavation	2.00		20.00	1.43	4.16	0.30
Fugitive Dust - Drainage/Utilities/Subgrade			0.00	0.00	0.00	0.00

Values in cells D183 through D216, D234 through D267, D285 through D318, and D336 through D369 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions

Grubbing/Land Clearing

Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00			Tier 4	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Tier 4	Excavators	0.41	10.11	0.82	0.04	0.04	0.01	1,289.83	0.42	0.01	1,303.73
0.00			Tier 4	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Tier 4	Graders	0.24	4.11	0.47	0.02	0.02	0.01	756.84	0.24	0.01	764.97
0.00			Tier 4	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.00			Tier 4	Off-Highway Trucks	1.32	22.87	2.64	0.13	0.12	0.04	4,129.46	1.34	0.04	4,174.05
0.00			Tier 4	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Tier 4	Rubber Tired Dozers	0.34	5.85	0.67	0.03	0.03	0.01	1,078.19	0.35	0.01	1,089.77
0.00			Tier 4	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Tier 4	Sweepers/Scrubbers	0.12	2.40	2.16	0.01	0.01	0.00	307.72	0.10	0.00	311.03
1.00			Tier 4	Tractors/Loaders/Backhoes	0.12	2.96	0.24	0.01	0.01	0.00	380.86	0.12	0.00	384.95
0.00			Tier 4	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment

If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day	2.54	48.29	7.01	0.26	0.23	0.08	7,942.90	2.57	0.07	8,028.52
Grubbing/Land Clearing	tons per phase	0.02	0.37	0.05	0.00	0.00	0.00	61.16	0.02	0.00	61.82

Grading/Excavation Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00			Tier 4	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Tier 4	Bore/Drill Rigs	0.68	11.81	1.38	0.07	0.06	0.02	2,133.18	0.69	0.02	2,156.21
0.00			Tier 4	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Tier 4	Cranes	0.43	7.51	0.87	0.04	0.04	0.01	1,366.81	0.44	0.01	1,381.54
0.00			Tier 4	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.00			Tier 4	Excavators	1.02	25.26	2.05	0.10	0.09	0.03	3,224.58	1.04	0.03	3,259.34
5.00			Tier 4	Forklifts	0.29	7.26	0.59	0.03	0.03	0.01	925.19	0.30	0.01	935.17
0.00			Tier 4	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Tier 4	Graders	0.47	8.23	0.95	0.05	0.04	0.02	1,513.68	0.49	0.01	1,529.95
0.00			Tier 4	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29.00			Tier 4	Off-Highway Trucks	7.64	132.65	15.31	0.77	0.70	0.24	23,950.88	7.74	0.22	24,209.48
0.00			Tier 4	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.00			Tier 4	Other Material Handling Equipment	1.76	43.59	3.53	0.18	0.16	0.06	5,563.46	1.80	0.05	5,623.44
0.00			Tier 4	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.00			Tier 4	Rollers	0.30	7.53	0.61	0.03	0.03	0.01	964.82	0.31	0.01	975.21
0.00			Tier 4	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.00			Tier 4	Rubber Tired Dozers	1.68	29.23	3.37	0.17	0.16	0.06	5,390.94	1.74	0.05	5,448.85
0.00			Tier 4	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Tier 4	Sweepers/Scrubbers	0.12	2.40	2.16	0.01	0.01	0.00	307.72	0.10	0.00	311.03
3.00			Tier 4	Tractors/Loaders/Backhoes	0.36	8.87	0.73	0.04	0.03	0.01	1,142.57	0.37	0.01	1,154.88
0.00			Tier 4	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment

If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day	14.78	284.35	31.52	1.48	1.36	0.48	46,483.83	15.03	0.42	46,985.10
Grading/Excavation	tons per phase	1.06	20.33	2.25	0.11	0.10	0.03	3,323.59	1.07	0.03	3,359.43

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00			Tier 4	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade		pounds per day		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade		tons per phase		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Paving	Default Number of Vehicles	Mitigation Option: Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00			Tier 4	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Tier 4	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment — If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Paving	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Paving	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Emissions all Phases (tons per construction period) =>			1.08	20.70	2.31	0.11	0.10	0.03	3,384.75	1.09	0.03	3,421.25

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63	10.00	8
Air Compressors		78	10.00	8
Bore/Drill Rigs		206	10.00	8
Cement and Mortar Mixers		9	10.00	8
Concrete/Industrial Saws		81	10.00	8
Cranes		226	10.00	8
Crawler Tractors		208	10.00	8
Crushing/Proc. Equipment		85	10.00	8
Excavators		163	10.00	8
Forklifts		89	10.00	8
Generator Sets		84	10.00	8
Graders		175	10.00	8
Off-Highway Tractors		123	10.00	8
Off-Highway Trucks	210.00	400	10.00	8
Other Construction Equipment		172	10.00	8
Other General Industrial Equipment		88	10.00	8
Other Material Handling Equipment		167	10.00	8
Pavers		126	10.00	8
Paving Equipment		131	10.00	8
Plate Compactors		8	10.00	8
Pressure Washers		13	10.00	8
Pumps		84	10.00	8
Rollers		81	10.00	8
Rough Terrain Forklifts		100	10.00	8
Rubber Tired Dozers		255	10.00	8
Rubber Tired Loaders		200	10.00	8
Scrapers		362	10.00	8
Signal Boards		6	10.00	8
Skid Steer Loaders		65	10.00	8
Surfacing Equipment		254	10.00	8
Sweepers/Scrubbers		64	10.00	8
Tractors/Loaders/Backhoes		98	10.00	8
Trenchers		81	10.00	8
Welders		46	10.00	8

END OF DATA ENTRY SHEET

APPENDIX B. BIOLOGICAL RESOURCES DATA

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

Appendix B-2: Species Lists

Legend

- C4 95% FOOTPRINT
- LEVEE REACH LIMITS
- LEVEE CENTERLINE
- FLASHBOARD RETROFIT
- INSET STABILITY BERM - UTILITY WINDOW REMEDIATION
- JET GROUT CUTOFF WALL
- LEVEE RAISE
- SB CUTOFF WALL
- STABILITY/SEEPAGE BERM
- SHALLOW CUTOFF WALL
- CH - 1.015 Acres
- DEV - 13.918 Acres
- FCF - 4.733 Acres
- LAND - 5.968 Acres
- VOW - 1.984 Acres
- WOG - 4.798Acres
- C REACH LABEL

C
B
80
D
E
FLORIN RD
F
POCKET
5
Sacramento River
POCKET RD
G

SHEET 1 of 6

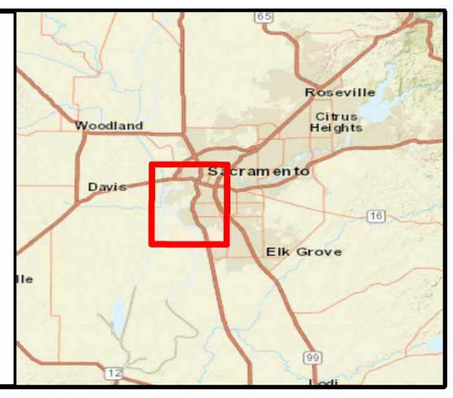
US Army Corps of Engineers
Sacramento District

SREL C4
HABITAT/ELDERBERRY

ARCF 2016

Feet
0 3,400 6,800

Date Saved: 5/27/2022 8:11:36 PM



Legend

- C4 95% FOOTPRINT
- LEVEE CENTERLINE
- SHALLOW CUTOFF WALL
- C — REACH LABEL

1015+00

Jibboom St

1020+00

Sacramento River

C

1025+00

1030+00

CONTRACT 4
STATIONS: 1027+50 - 1039+00 (1150')
REMEDIATION: LEVEE RAISE WITH SHALLOW CUTOFF WALL

1035+00

I Street Bridge

1040+00

5

1045+00

SHEET 2 of 6

US Army Corps of Engineers
Sacramento District

SPK EGIS

SREL C4
HABITAT/ELDERBERRY

1015+00 - 1045+00

ARCF 2016

N

Feet
0 175 350

Date Saved: 5/26/2022 1:27:33 PM

Legend

- C4 95% FOOTPRINT
- LEVEE CENTERLINE
- JET GROUT CUTOFF WALL
- DEV - 4.303 Acres
- FCF - 0.448 Acres
- LAND - 0.989 Acres
- VOW - 0.417 Acres
- WOG - 1.814 Acres
- C REACH LABEL

CONTRACT 4
STATIONS: 1105+00 - 1105+50 (50')
REMEDIATION: JETGROUT CUTOFF WALL

1065+00
1070+00
1075+00
1080+00
1085+00
1090+00
1095+00
1100+00
1105+00
1110+00
1115+00
1120+00
1125+00
1130+00

Sacramento River
Front St
80
5

D

SHEET 3 of 6

SREL C4
HABITAT/ELDERBERRY

1015+00 - 1045+00

ARCF 2016

US Army Corps of Engineers
Sacramento District

Feet
0 350 700

Date Saved: 5/27/2022 7:58:39 PM

Legend

- C4 95% FOOTPRINT
- LEVEE CENTERLINE
- JET GROUT CUTOFF WALL
- SB CUTOFF WALL
- CH - 0.068 Acres
- DEV - 6.909 Acres
- FCF - 4.275 Acres
- LAND - 2.104 Acres
- VOW - 0.825 Acres
- WOG - 2.042 Acres
- Elderberry
- C — REACH LABEL

1240+00
1245+00
1250+00
1255+00
1260+00
1265+00
1270+00
1275+00
1280+00
1285+00
1290+00

WESTIN HOTEL

SUMP 41

RIO LN

PIEDMONT DR

LITTLE POCKET

E

Sacramento River

CONTRACT 4
STATIONS: 1244+70 - 1251+00 (630')
REMEDIATION: JET GROUT CUTOFF WALL

CONTRACT 4
STATIONS: 1250+70 - 1251+00 (30')
REMEDIATION: SB CUTOFF WALL
(OVERLAP EXISTING COW)

CONTRACT 4
STATIONS: 1251+00 - 1261+83 (1083')
REMEDIATION: SB CUTOFF WALL

CONTRACT 4
STATIONS: 1261+83 - 1265+03 (320')
REMEDIATION: SB CUTOFF WALL
(320' LEAD-IN TRENCH)

SHEET 4 of 6

US Army Corps of Engineers
Sacramento District

SREL C4
HABITAT/ELDERBERRY
1240+00 - 1290+00
ARCF 2016

Feet
0 260 520

Date Saved: 5/27/2022 6:01:47 PM

CONTRACT 4
STATIONS: 1530+30 - 1534+30 (400')
REMEDIATION: JET GROUT CUTOFF WALL

Legend

- C4 95% FOOTPRINT
- CH - 0.948 Acres
- DEV - 2.706 Acres
- FCF - 0.015 Acres
- LAND - 2.871 Acres
- VOW - 0.628 Acres
- WOG - 0.942 Acres
- LEVEE CENTERLINE
- JET GROUT CUTOFF WALL
- Elderberry
- C — REACH LABEL

1515+00
1520+00
1525+00
1530+00
1535+00
1540+00
1545+00
1550+00
1555+00
1560+00
1565+00

PIEDMONT DR
GARCIA BEND PARK
Sacramento River
F

SHEET 5 of 6

US Army Corps of Engineers
Sacramento District

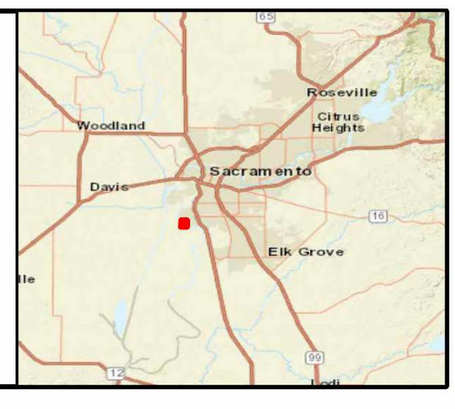
SREL C4
HABITAT/ELDERBERRY

1515+00 - 1565+00

ARCF 2016

Feet
0 260 520

Date Saved: 5/27/2022 7:34:17 PM



Legend

- C4 95% FOOTPRINT
- LEVEE REACH LIMITS
- LEVEE CENTERLINE
- FLASHBOARD RETROFIT
- INSET STABILITY BERM - UTILITY WINDOW REMEDIATION
- JET GROUT CUTOFF WALL
- LEVEE RAISE
- STABILITY/SEEPAGE BERM
- SHALLOW CUTOFF WALL
- Elderberry
- C — REACH LABEL

1670+00
1675+00
1680+00
1685+00
1690+00
1695+00
1700+00
1705+00
1710+00
1715+00
1720+00
1725+00
1730+00
1735+00
1740+00
1745+00
1750+00
1755+00
1760+00
1765+00
1770+00

BILL CONLIN SPORTS COMPLEX

COSUMNES RIVER BLVD

FREEPORT BLVD

G

Sacramento River

5

FREEPORT BRIDGE

NBLL

CONTRACT 4
STATIONS: 1675+00 - 1677+00 (200')
REMEDIATION: LEVEE RAISE

CONTRACT 4
STATIONS: 1689+00 - 1690+00 (100')
REMEDIATION: INSET STABILITY BERM - UTILITY WINDOW REMEDIATION

CONTRACT 4
STATIONS: 1677+00 - 1710+29 (3329')
REMEDIATION: SHALLOW CUTOFF WALL

CONTRACT 4
STATIONS: 1710+29 - 1719+60 (931')
REMEDIATION: SHALLOW CUTOFF WALL

CONTRACT 4
STATIONS: 1734+50 - 1736+50 (200')
REMEDIATION: UTILITY WINDOW REMEDIATION - STABILITY BERM

CONTRACT 4
STATIONS: 1725+50 - 1728+75 (325')
REMEDIATION: SHALLOW CUTOFF WALL

CONTRACT 4
STATIONS: 1730+50 - 1770+00 (3950')
REMEDIATION: SHALLOW CUTOFF WALL

CONTRACT 4
STATIONS: 1770+00 - 1772+00 (200')
REMEDIATION: FLASHBOARD RETROFIT

CONTRACT 4
STATIONS: 1770+20 - 1774+50 (430')
REMEDIATION: JETGROUT CUTOFF WALL

CONTRACT 4
STATIONS: 1773+00 - 1778+20 (520')
REMEDIATION: STABILITY/SEEPAGE BERM COMBO

SHEET 6 of 6

US Army Corps of Engineers
Sacramento District

SREL C4
HABITAT/ELDERBERRY
1670+00 - 1778+40
ARCF 2016

Feet
0 600 1,200

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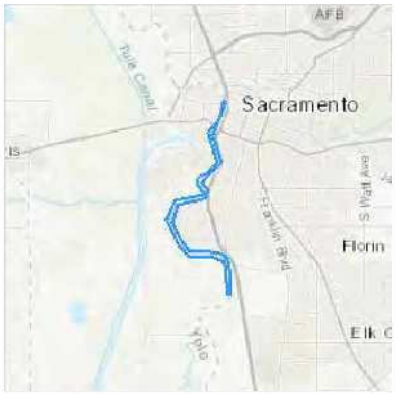
IPaC **U.S. Fish & Wildlife Service**

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

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 species[1] 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 Fisheries[2]).

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 Vireo bellii pusillus 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 Coccyzus americanus 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

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

Amphibians

NAME	STATUS
California Tiger Salamander Ambystoma californiense	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 Hypomesus transpacificus Wherever found	Threatened

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 Danaus plexippus Wherever found	Candidate

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9743

Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus — 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 Branchinecta conservatio Wherever found	Endangered

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 Branchinecta lynchi — 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 packardi — 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 Hypomesus transpacificus https://ecos.fws.gov/ecp/species/321#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

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 https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.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 of 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 THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle Haliaeetus leucocephalus — Breeds Jan 1 to Aug 31
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.
https://ecos.fws.gov/ecp/species/1626

Black Skimmer Rynchops niger — Breeds May 20 to Sep 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5234

Black Swift Cypseloides niger — Breeds Jun 15 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8878

Black Tern Chlidonias niger — Breeds May 15 to Aug 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3093

Black-chinned Sparrow Spizella atrogularis — Breeds Apr 15 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9447

California Thrasher Toxostoma redivivum — Breeds Jan 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Clark's Grebe Aechmophorus clarkii — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
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.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Marbled Godwit *Limosa fedoa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Nuttall's Woodpecker *Picoides nuttallii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse *Baeolophus inornatus* 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 *Contopus cooperi* 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 *Limnodromus griseus* 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 *Agelaius tricolor* 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 *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit *Chamaea fasciata* 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 *Pica nuttalli* 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.

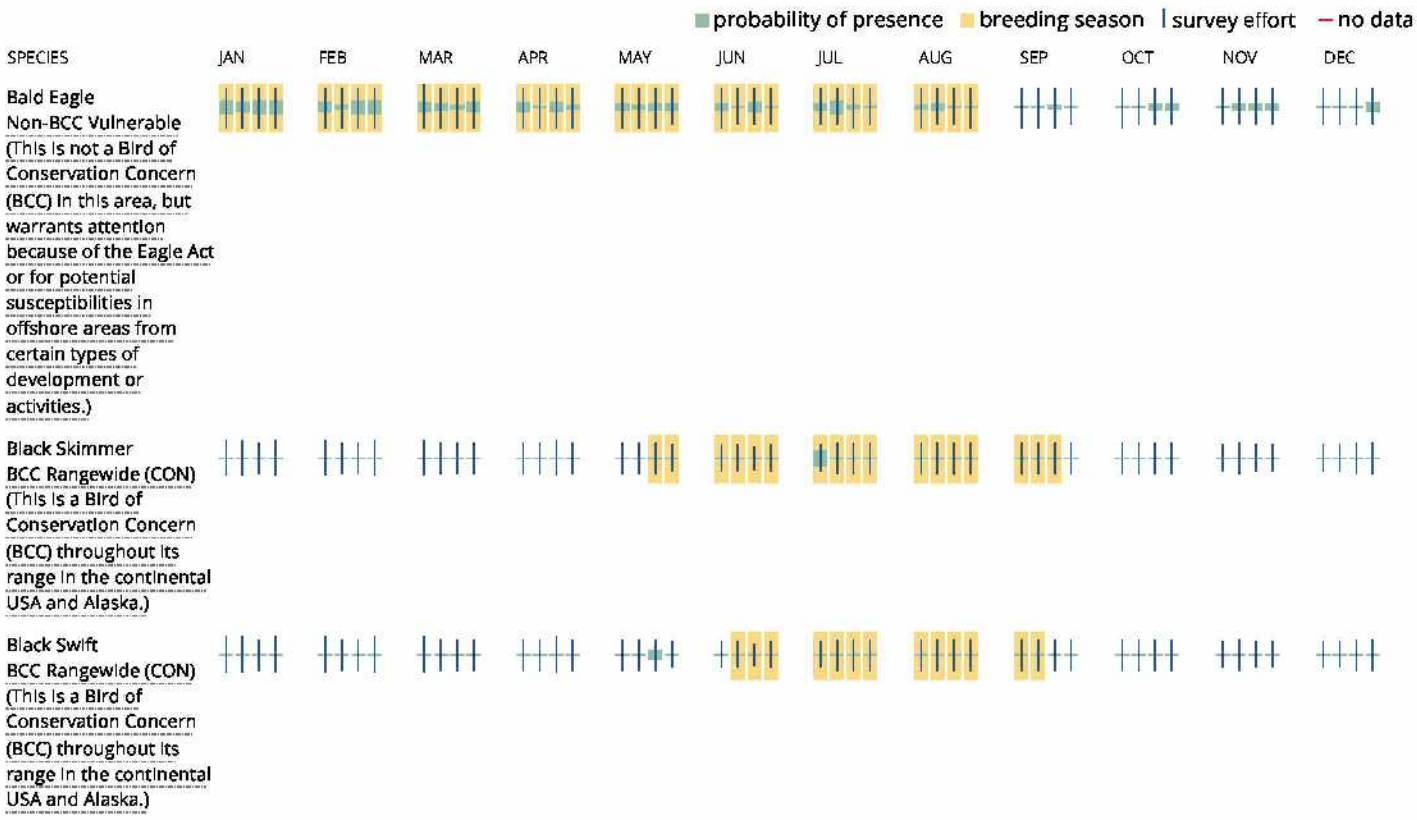
Breeding Season (▮)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

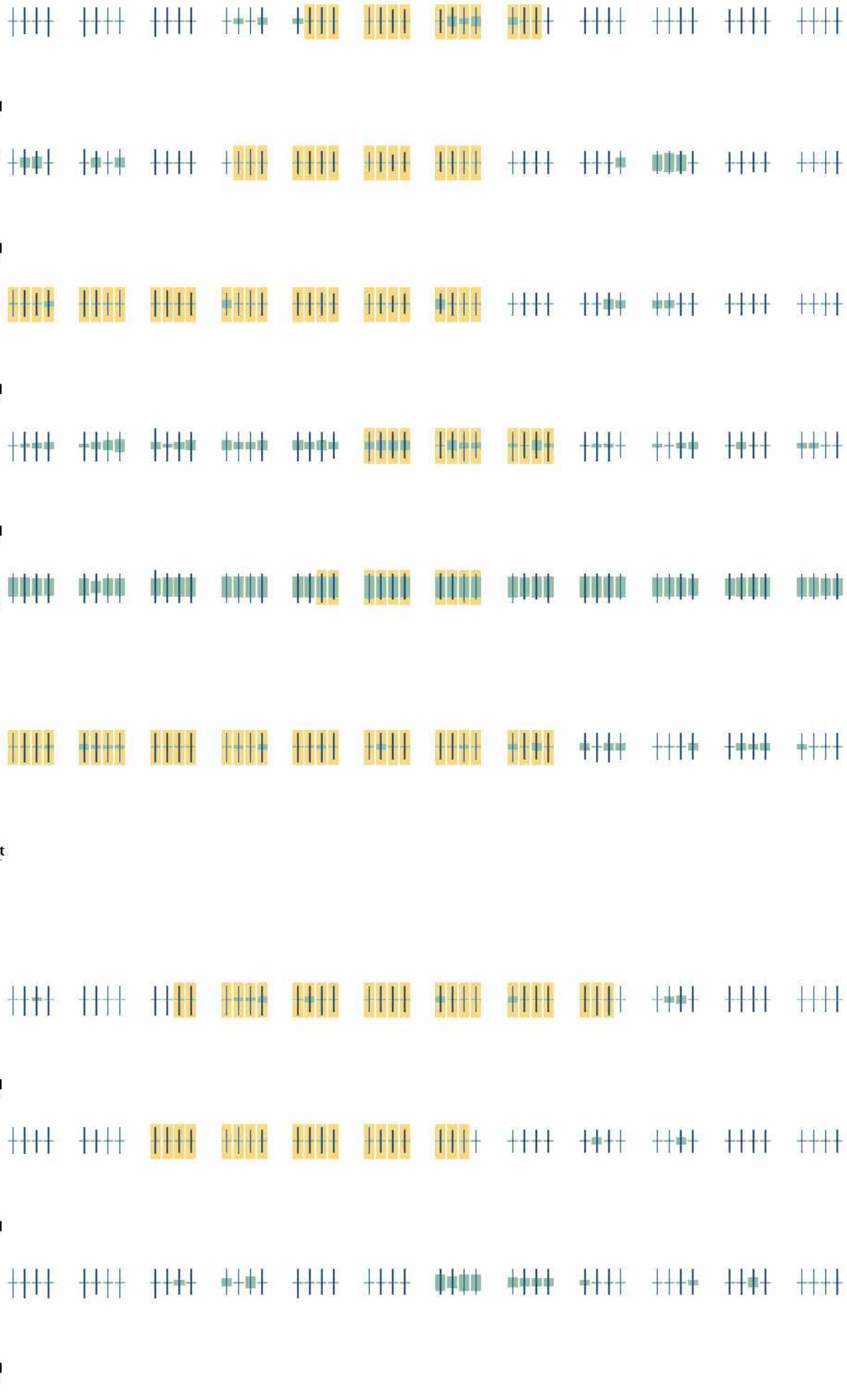
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

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.





Black Tern
BCC Rangewide (CON)
(This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Black-chinned Sparrow
BCC Rangewide (CON)
(This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

California Thrasher
BCC Rangewide (CON)
(This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Clark's Grebe
BCC Rangewide (CON)
(This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

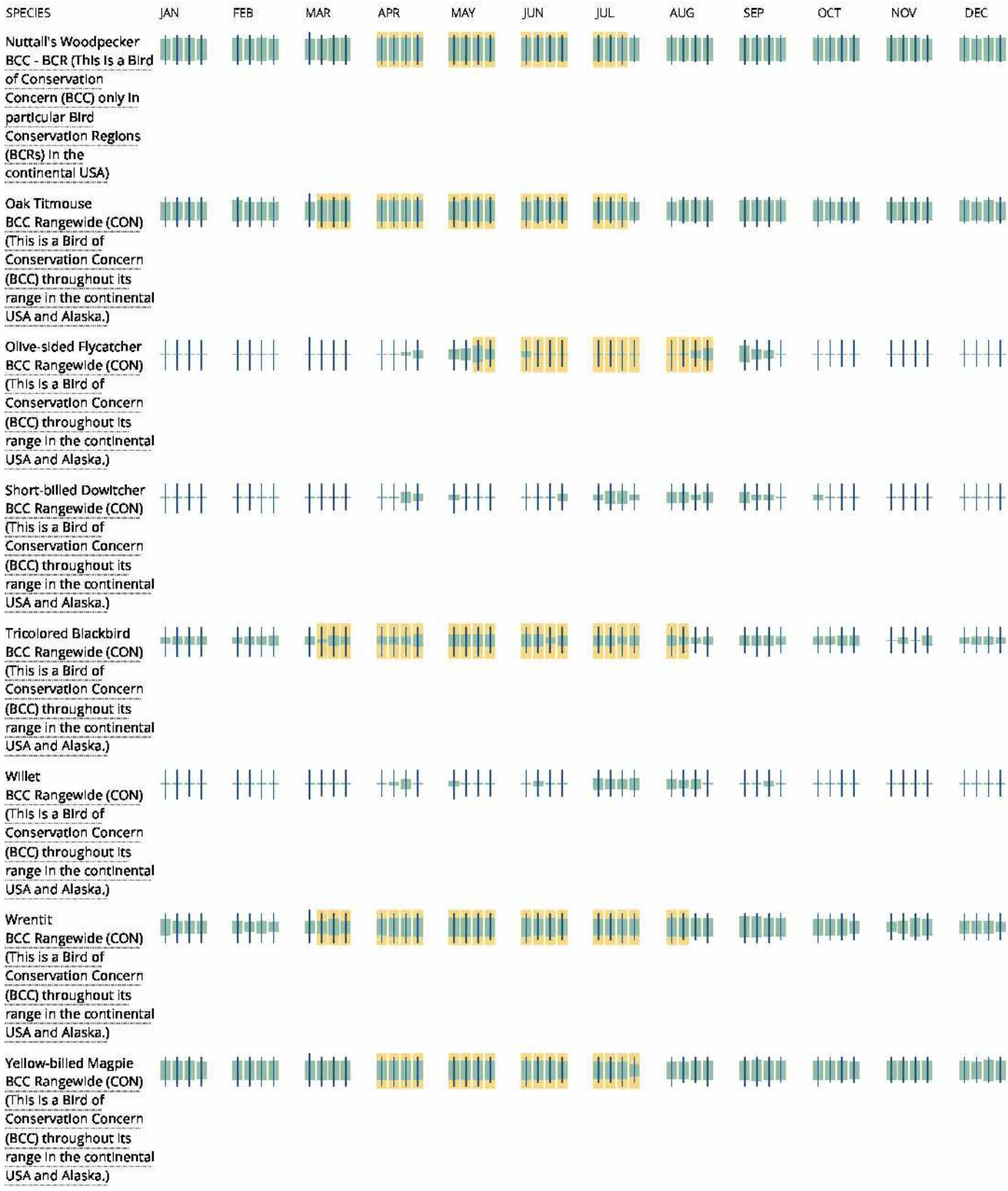
Common Yellowthroat
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

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.)

Long-eared Owl
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.)



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 USFWS 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.

Coastal Barrier Resources System

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Office or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

THERE ARE NO KNOWN COASTAL BARRIERS AT THIS LOCATION.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the official CBRS maps. The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an offcial determination by following the instructions here:
https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the ffshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact:
CBRA@fws.gov.

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.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

Palustrine

RIVERINE

Riverine

A full description for each wetland code can be found at the National Wetlands Inventory website

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 classifications established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, 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 tuberficid 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) -
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 -

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Sacramento East (3812154) OR Sacramento West (3812155) OR Taylor Monument (3812165) OR Rio Linda (3812164) OR Florin (3812144) OR Bruceville (3812134) OR Courtland (3812135) OR Liberty Island (3812136) OR Saxon (3812146) OR Davis (3812156) OR Grays Bend (3812166) OR Clarksburg (3812145))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Archoplites interruptus Sacramento perch	AFCQB07010	None	None	G1	S1	SSC
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Astragalus tener var. ferrisiae Ferris' milk-vetch	PDFAB0F8R3	None	None	G2T1	S1	1B.1
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex depressa brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G2	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	None	G2G3	S1	
Branchinecta conservatio Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Brasenia schreberi watershield	PDCAB01010	None	None	G5	S3	2B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
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	PDAPI0M051	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	G3T2T3	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
Eryngium jepsonii Jepson's coyote-thistle	PDAPI0Z130	None	None	G2	S2	1B.2
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
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
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 lasiocarpos 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	G3T1	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 packardi 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 pop. 1 song sparrow ("Modesto" population)	ABPBXA3013	None	None	G5T3?Q	S3?	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Myrmosula pacifica Antioch multilid wasp	IIHYM15010	None	None	GH	SH	
Nannopterum auritum double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Navarretia leucocephala ssp. bakeri Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
Neostapfia colusana Colusa grass	PMPOA4C010	Threatened	Endangered	G1	S1	1B.1
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
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	G5T2Q	S2	
Oncorhynchus tshawytscha pop. 7 chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	G5T1Q	S1	
Plagiobothrys hystriculus bearded popcornflower	PDBOR0V0H0	None	None	G2	S2	1B.1
Plegadis chihi white-faced ibis	ABNGE02020	None	None	G5	S3S4	WL
Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020	None	None	G3	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
Sidalcea keckii Keck's checkerbloom	PDMAL110D0	Endangered	None	G2	S2	1B.1
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Symphyotrichum 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
Tuctoria mucronata Crampton's tuctoria or Solano grass	PMPOA6N020	Endangered	Endangered	G1	S1	1B.1
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: 89

CNPS Rare Plant Inventory

CALIFORNIA NATIVE PLANT SOCIETY

Search Results

40 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [**1A:1B:2A:2B:3:4:CBR**] , Quad is one of [**3812154:3812155:3812165:3812164:3812144:3812134:3812135:3812136:3812146:3812156:3812166:3812145**]

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

Centromadia parryi ssp. *parryi*	pappose tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.2	No Photo Available
Centromadia parryi ssp. *rudis*	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	None	None	G3T3	S3	4.2	No Photo Available
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	FE	CE	G1	S1	1B.1	No Photo Available
Cicuta maculata var. *bolanderi*	Bolander's water-hemlock	Apiaceae	perennial herb	Jul-Sep	None	None	G5T4T5	S2?	2B.1	No Photo Available
Cuscuta obtusiflora var. *glandulosa*	Peruvian dodder	Convolvulaceae	annual vine (parasitic)	Jul-Oct	None	None	G5T4?	SH	2B.2	No Photo Available
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2	No Photo Available
Eryngium jepsonii	Jepson's coyote-thistle	Apiaceae	perennial herb	Apr-Aug	None	None	G2	S2	1B.2	No Photo Available
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	No Photo Available
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	G3	S3	4.2	 © 2016 Aaron Schusteff
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	None	CE	G2	S2	1B.2	 ©2004 Carol W. Witham
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	 © 2017 John Doyen
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	 © 2020 Steven Perry
Lasthenia chrysantha	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1	 © 2009 California State University,

										Stanislaus
Lasthenia ferrisiae	Ferris' goldfields	Asteraceae	annual herb	Feb-May	None	None	G3	S3	4.2	 © 2009 Zoya Akulova
Lathyrus jepsonii var. *jepsonii*	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	None	None	G5T2	S2	1B.2	 © 2003 Mark Fogiel
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	 ©2000 John Game
Lepidium latipes var. *heckardii*	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	None	None	G4T1	S1	1B.2	 2018 Jennifer Buck
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	CR	G2	S2	1B.1	No Photo Available
Limosella australis	Delta mudwort	Scrophulariaceae	perennial stoloniferous herb	May-Aug	None	None	G4G5	S2	2B.1	 © 2020 Richard Sage
Myosurus minimus ssp. *apus*	little mousetail	Ranunculaceae	annual herb	Mar-Jun	None	None	G5T2Q	S2	3.1	No Photo Available
Navarretia cotulifolia	cotula navarretia	Polemoniaceae	annual herb	May-Jun	None	None	G4	S4	4.2	 © 2020 Zoya Akulova
Navarretia leucocephala ssp. *bakeri*	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G4T2	S2	1B.1	 © 2018 Barry Rice
Neostapfia colusana	Colusa grass	Poaceae	annual herb	May-Aug	FT	CE	G1	S1	1B.1	No Photo Available
Plagiobothrys hystriculus	bearded popcornflower	Boraginaceae	annual herb	Apr-May	None	None	G2	S2	1B.1	No Photo Available
Puccinellia simplex	California alkali	Poaceae	annual herb	Mar-May	None	None	G2	S2	1B.2	

	grass									No Photo Available
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	 ©2013 Debra L. Cook
Scutellaria galericulata	marsh skullcap	Lamiaceae	perennial rhizomatous herb	Jun-Sep	None	None	G5	S2	2B.2	 © 2021 Scot Loring
Scutellaria lateriflora	side-flowering skullcap	Lamiaceae	perennial rhizomatous herb	Jul-Sep	None	None	G5	S2	2B.2	No Photo Available
Sidalcea keckii	Keck's checkerbloom	Malvaceae	annual herb	Apr-May(Jun)	FE	None	G2	S2	1B.1	No Photo Available
Symphyotrichum lentum	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
Tuctoria mucronata	Crampton's tuctoria or Solano grass	Poaceae	annual herb	Apr-Aug	FE	CE	G1	S1	1B.1	No Photo Available

Showing 1 to 40 of 40 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website https://www.rareplants.cnps.org [accessed 5 October 2022].

APPENDIX C. COMMENTS AND RESPONSES

RESPONSES TO COMMENTS

Introduction

This appendix provides responses to public and agency comments on the Sacramento River East Levee Contract Project draft Supplemental Environmental Impact Report/Environmental Assessment (Supplemental EIR/EA) received during the public comment period for the draft Supplemental EIR/EA.

Public Comment Summary

The draft Supplemental EIR/EA was posted with the State Clearinghouse (SCH #2005072046) on June 15, 2022. The draft Supplemental EIR/EA was circulated for at least 45 days (June 15 through August 1, 2022) for review by Federal, State, and local agencies; organizations; and members of the public. The draft Supplemental EIR/EA was made available on the Sacramento District, Corps of Engineers (USACE) and Central Valley Flood Protection Board (CVFPB) websites. Hard copies of the draft Supplemental EIR/EA were made available for review by request via mail.

A virtual public meeting was held on July 13, 2022, to provide the public with additional opportunities for comments on the draft Supplemental EIR/EA. All comments received during the public review period were considered by CVFPB and USACE and incorporated into the final Supplemental EIR/EA as appropriate.

The virtual meeting was held, instead of the typical in-person meeting, due to Covid-19 concerns. During the virtual meeting, the chat function was available for the public to send questions to the meeting moderator. Attendees were also given an opportunity to voice questions at the end of the presentation, but attendees were requested to provide comments on the contents of the environmental document in writing via mail or electronic mail.

During the draft Supplemental EIR/EA public review period, seven comment letters were received with a total of 27 comments as follows:

- (1) Sacramento County, Department of Transportation (SACDOT)
- (11) Sacramento Metropolitan Air Quality Management District (SMAQMD)
- (9) U.S. Environmental Protection Agency (EPA)
- (2) City of Sacramento, Transportation Division
- (1) Private Citizen
- (1) Central Valley Regional Water Quality Control Board (CVRWQCB)
- (2) California State Lands Commission

Letter 1

Department of Transportation
Ron E. Vicari, Director

Divisions
Administration
Maintenance & Operations
Engineering & Design

County of Sacramento

July 6, 2022

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

Via Email

SUBJECT: COMMENTS ON DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT AND ENVIRONMENTAL IMPACT REPORT (EA/EIR) FOR AMERICAN RIVER WATERSHED COMMON FEATURES (ARCF), SACRAMENTO RIVER EAST LEVEE CONTRACT 4 (PROJECT).

To Whom It May Concern:

The Sacramento County Department of Transportation (SACDOT) has reviewed the NOA of the Draft Supplemental Environmental Assessment and Environmental Impact Report (EA/EIR) for American River Watershed Common Features (ARCF), Sacramento River East Levee Contract 4 (Project), dated June 2022. We appreciate the opportunity to review this document. We have following comment(s) to offer:

1. **General.** Work in Sacramento County regarding Reach G as seen in Figure 2-5, fronts State Route 160 and is maintained by Caltrans. SACDOT requests the project coordinate with Caltrans for all parts of the project fronting State Route 160. 1-1

If you have any questions please email me at gasperig@saccounty.net.

Sincerely,

_____
Gary Gasperi, P.E., T.E.
Senior Civil Engineer
Department of Transportation

Gg/gg

cc: Matthew Darrow, DOT
Cameron Shew, DOT
Kamal Atwal, DOT

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Letter 2

July 19, 2022

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

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

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

To Whom It May Concern:

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

Air Quality Analyses

Table 3-1 in the DSEIR (page 34) incorrectly lists the Sacramento Valley Air Basin as "non-attainment" for the Annual PM2.5 State Attainment Status[1]. Sacramento County is currently designated attainment. 2-1

Table 3-2 in the DSEIR (page 35) should include the Sac Metro Air District's annual thresholds for PM10 (14.6 tons) and PM2.5 (15 tons) in addition to the daily thresholds listed. Additionally, a footnote to the table should describe that the thresholds for PM10 and PM2.5 are zero unless BACT/BMPs are implemented as part of the project. 2-2

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

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

Sac Metro Air District appreciates that mitigation measure AIR-3 (DSEIR page 39) incorporates the requirement to use construction equipment with Tier 4 off-road engines and haul trucks with 2010 or newer engines from the American River Common Features General Conformity Determination[2]. Sac Metro Air District recommends AIR-3 include the following revisions: 2-4

1. Add the prohibition of the use of tier 0 and uncontrolled engines (General Conformity Determination mitigation commitment, page 8).
2. Modify the hours of equipment usage reporting requirement, from 40 hours or more on the project, to 8 hours or more on the project, so that it is consistent with Sac Metro Air District's current mitigation language[3].

Mitigation measure AIR-4 (DSEIR page 40) indicates the Army Corps anticipates purchasing offsets for NOx emissions in 2022 for the American River Common Features project for general conformity compliance. This statement should be updated to also include the purchase of offsets in 2023, which would mitigate the emissions from this project and the other American River Common Features projects anticipated to occur in 2023 (included in Table 3-5) for general conformity compliance. 2-5

Also related to mitigation measure AIR-4, Table ES-1 should include the purchase of offsets for years when NOx emissions exceed the general conformity de minimis level as part of AIR-4 (DSEIR page xii). 2-6

Sac Metro Air District recommends the DSEA (pages 33-34) reference the air quality analysis conducted for the project that is presented in the air quality section of the DSEIR (pages 33-40) since emissions for the project are not reported in the DSEA. 2-7

Currently the DSEA references the mitigation measures in both the American River Common Features General Reevaluation Report EIS/EIR and the Sacramento River East Levee Contracts 1-3 Supplemental EA/EIRs. For full public disclosure and to avoid confusion, the mitigation measures applicable to this project should be included in the DSEA so the public will not have to search for the mitigation measures in four other environmental documents. At a minimum, the mitigation measures included in the DSEIR (pages 37-40) could be referenced. 2-8

Appendix A includes Road Construction Emission Model emissions summaries for six model runs (three for berm and relief wells, and three for vegetation and cutoff walls) and two complete data input pages (one for berm and relief wells, and one for vegetation and cutoff walls). Currently, it is not clear how the emissions in Table 3-4 in the DSEIR (page 36) are derived from the emissions summaries and data input pages in Appendix A. Please describe what activities are covered with each model run and how the model runs are used to calculate the emissions estimates. Additional explanation and summary tables identifying mitigated and unmitigated scenarios and how model runs are combined to calculate the project emissions would be helpful. 2-9

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[2] 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

[3] Sac Metro Air District On-Site Enhanced Exhaust Control Mitigation: https://www.airquality.org/LandUseTransportation/Documents/Ch3On-SiteEnhancedExhaustMitigationFinal4-2019.pdf

Bicycle and Pedestrian Considerations 2-10

As part of recreation mitigation measure REC-1 and transportation measure TR-1, Sac Metro Air District encourages the Army Corps to consult with Civic Thread (formerly WalkSacramento)[4], Sacramento Area Bicycle Advocates[5], and neighborhood associations[6] in the impacted areas, in addition to the City of Sacramento Bicycle and Pedestrian Coordinator, to ensure safe and convenient bicycle and pedestrian detour routes are established during construction and the community is well informed of the changes in advance of construction starting (DSEIR pages 91 and 96).

Implementing Mitigation and Environmental Commitments 2-11

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

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

Sincerely,

Karen Huss

Karen Huss
Associate Air Quality Planner/Analyst

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

[4] Civic Thread: https://civicthread.org/
[5] Sacramento Area Bicycle Advocates: https://sacbike.org/
[6] City of Sacramento Neighborhood Directory: https://www.cityofsacramento.org/economic-development/community-engagement/neighborhood-directory

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

August 1, 2022

Nicole May
Project Manager
U.S. Army Corps of Engineers
1325 J Street Room 1513
Sacramento, California 95814

Subject: American River Watershed Common Features Water Resources Development Act of 2016 Projects, Sacramento River East Levee Contract 4 Supplemental Environmental Assessment, Sacramento County, California

Dear Nicole May:

The U.S. Environmental Protection Agency has reviewed the above-referenced document pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

The Corps' Supplemental Environmental Assessment and the Central Valley Flood Protection Board's Supplemental Environmental Impact Report were published together[1] for clarity, completeness and to facilitate state and federal decision-making.

Sacramento River East Levee (SREL) Contract 4 details the design and construction footprint described in the 2016 American River Common Features (ARCF) EIS/EIR. This Supplemental EA includes components of SREL Contract 2 that were delayed, plus construction of 2.2 miles of levee cut off walls, a seepage berm, and flood wall and flashboard modifications that may include work below the ordinary high-water mark, the temporary closure of Garcia Bend Park, and additional haul routes and staging areas (SEA p. 2). At its public meeting of July 13, 2022, the Corps noted that the major effects of the proposed action include noise and vibration. These matters, as well as impacts to riparian habitats and the unhoused, are addressed further below.

The EPA appreciates the opportunity to review the Supplemental EA and is providing recommendations to improve the assessment and avoid or minimize impacts to resources as the Corps prepares the Final Supplemental EA and considers a Finding of No Significant Impact.

Noise and Vibration

The ARCF EIS stated that the proposed project would have a significant impact from noise or vibrations if construction would result in any of the following: a substantial temporary or permanent increase in ambient noise levels in the study area above the existing levels; exposure of sensitive receptors, including residences, to excessive noise levels (those levels that exceed noise ordinances); or exposure

[1] Pages referenced in this letter are to the Supplemental Environmental Assessment (SEA) or the Supplemental Environmental Impact Report (SEIR).

of sensitive receptors or structures to ground-borne vibration (2016 ARCF EIR/EIS p. 275). The EPA is concerned that the proposed project could result in all three if not properly mitigated.

The EPA appreciates that the Corps modified Mitigation Measure NOI-1 *Implement Measures to Reduce Construction Noise and Vibration Effects* based on lessons learned from SREL Contract 1 (completed in 2020) in response to complaints of excessive noise, vibration, and structural damage (SEA pgs. 41, 86). Although it is not clear whether the Noise and Vibration Control Plan is the same as Mitigation Measure NOI-1, the latter applies to residences and other sensitive receptors within 500 feet of Contract 4 construction activities.

Recommendations for the Final Supplemental EA:

- When providing written notice of the construction schedule to residents located within 1,000 feet of the construction zone, include the current Mitigation Measure NOI-1 and a link to the USACE Construction Inquiry Form[2] to advise residents of the process for handling their concerns related to impacts from levee construction. 3-1
- Commit to an immediate response by including a name, phone number or email address in the notice materials. The EPA recommends that this information be provided at least a month (not a week) prior to the onset of construction activities at that location. 3-2
- As communication is the key to any successful project, the EPA recommends that an on-going outreach strategy with residents and contractors be employed before and during construction to discuss whether there are any feasible or practical alternatives to staging area locations or haul routes and to address real-time concerns. 3-3
- Establish a warning level at less than the maximum vibration levels of 0.2 to 0.5-inch per second identified in the Vibration Monitoring and Control Plan and determine key personnel to be notified once this level is reached. At the action level, specify in the plan the level at which work would cease, who is responsible for stopping work, and what changes could be made to equipment or methods to reduce vibrations. 3-4
- Clarify whether any construction, hauling or staging activities, not just the loudest and most intrusive activities, would occur beyond 7:00 a.m. to 7:00 p.m. Note that the City and County of Sacramento's noise ordinance limits noise between the hours of 10:00 p.m. and 7:00 a.m. Finally, please clarify this discrepancy: construction exemption hours are listed in the 2016 ARCF EIS as falling between 7:00 a.m.- 6:00 p.m. (2016 ARCF EIS p. 270), whereas the Noise and Vibration Plans list them as between 7 a.m. – 7 p.m. (SEA pgs. 41 and 86). 3-5

NEPA requires that the cumulative effects of past, present, and reasonably foreseeable activities be analyzed in conjunction with the incremental effect of the proposed actions. The original EIS/EIR acknowledged that project activities would increase ambient noise in the urban study areas as Interstate Highway I-5, arterial traffic and railyards are adjacent to the Old Town and Pocket neighborhoods (2016 ARCF EIR/EIS pgs. 272-273). This SEIR shows that the ambient noise levels near existing noise sensitive areas, including traffic noise, ranged from 42 – 78 dBA.[3] It also confirms that the existing vibration environment in the levee improvement area is dominated by transportation-related vibration (SEIR p. 84).The SEIR concludes that project activities would substantially, if temporarily, increase

[2] https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/WRDA16/web/USACE-Construction-Inquiry-Form.pdf

[3] A-weighted decibels, (abbreviated dBA) are an expression of the relative loudness of sounds in air as perceived by the human ear. In the A-weighted system, the decibel values of sounds at low frequencies are reduced. Vibration velocity levels can be expressed in terms of decibels (VdB) relative to one micro-inch (μin) per second (1 x 10 -6 inch per second).

ambient noise levels in the study area above the existing levels (SEIR p. 86). Similarly, the SEIR notes that vibration levels (ranging from disturbance to property damage) would increase markedly due to construction activities (approximately 77 VdB) and the movement of loaded haul trucks (approximately 86 VdB) (SEIR pgs. 84-85; see also Tables 40 – 50 to the 2016 ARCF EIR/EIS). However, it is not clear from the cumulative effects analyses what the expected noise and vibration impacts will be above baseline levels. Without determining the threshold beyond which cumulative noise and vibration levels significantly degrade residential receptors, the conclusion that project noise and vibration levels would not significantly increase or have an adverse cumulative effect is unsupported (SEA Section 4.2.10 p. 60).

Recommendations for the Final Supplemental EA: While acknowledging that there are variables related to distance and timing,

- Ascertain cumulative noise and vibration levels in residential areas adjacent to the levees, at staging areas, and along haul routes. Detail the methodology, assumptions and figures used to estimate these levels.
- Summarize the findings in narrative or tabular form to capture the sources of expected vibrations and excessive noise and the human responses thereto. 3-6
- Analyze whether the mitigation proposed is adequate to protect human health and the environment, the use and enjoyment of property, or property from damage.

Riparian Habitat

The SEA notes that project activities and other related levee improvement and development projects could contribute to the degradation and fragmentation of sensitive habitats and that the loss of habitat could be permanent (p. 56). For example, limited space on the landside of the levee necessitates the temporary storage of side-cast material below the ordinary high-water mark (OHWM) in Reach E and the existing riverbank bench below the OHWM is needed for earth-working equipment access and the staging area in Reach G (SEA p. 23). The SEA and the ARCF Final EIS/EIR note that riparian habitat would be significantly and unavoidably affected in the short term, even with mitigation, because it would take many years for replacement trees and shrubs to establish to the value of those removed (SEA p. 35; Section 3.6 of the ARCF EIS/EIR).

Recommendations for the Final Supplemental EA: Continue to consult with the United States Fish and Wildlife Service to discuss the ability of the compensatory mitigation and replacement mitigation ratios to provide the same functions and values as the habitat removed to assess the potential for permanent loss.

- Detail the temporal nature of the significant impact to vegetation and define short-term as used in this context. 3-7
- Calculate the number of acres of planting benches or riparian areas impacted and outline any updated protective measures that may be found in the SREL Contracts 1-3, e.g., the amount and locations of *on-site* revegetation needed to determine the sufficiency of mitigation to protect special status species and their habitat. 3-8

Socioeconomic Resources

The EPA appreciates that impacts to unhoused communities were raised in this SEA (p. 47). The SEA notes that a small homeless population resides along the SREL and that the proposed action may cause temporary displacement of people and their property. 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 people living in construction areas"

and concludes that this "action would not be disproportionate and would only be enacted in areas of active construction" (p. 48). Without describing what would happen to the unhoused community after removal from the project area, it is unclear how this finding is supported.

The SEA does not include any estimates for the number of people who may be directly displaced under this contract or the cumulative effects of displacement from all 18 erosion-control and levee protection activities along the American and Sacramento Rivers (p. 3). The SEA depicts displacement or closures as temporary but does not describe outcomes that have historically been experienced after a such a removal occurs. Nor is it clear whether the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*,[4] which states that mitigation/compensation for relocation of people and their homes, has any applicability to the unhoused population.

Recommendations for the Final Supplemental EA: As detailed in its comments on the SREL Contract 2, dated May 31, 2022, the EPA recommends that this project and future ARCF contracts provide additional analysis and support for the Corps' no disproportional impact determination. In Section 3.13 *Socioeconomics, Population and Environmental Justice*:

- Include an assessment of the scope of the unhoused community in the project area, as well as all SREL and American River Common Features projects, including seasonality of occupancy if available, and describing what post-removal support would be provided.
- Estimate the numbers of individuals who would be impacted, and the length of time unhoused communities have been utilizing the area.[5]
- 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. 3-9
- Discuss whether exclusionary fencing, large boulder placement, gating, detours, or other proposed actions 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.

Thank you for the opportunity to review this Supplemental EA. Please email a copy of the Final SEA to Robin Truitt, the lead reviewer for this and other ARCF 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
Manager, Environmental Review Branch

cc: Kalia Schuster, California Department of Water Resources
Jennifer Norris, U.S. Fish and Wildlife Service

[4] (As cited in Section 3.13.3 to this SEA and Section 3.18 of the ARCF EIS/EIR)
[5] 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

City of SACRAMENTO
Department of Public Works

Transportation Division

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

August 1, 2022

Public Affairs Office
U.S. Army Corps of Engineers
1325 J Street, Room 1513
Sacramento, CA 95814
Email: ARCF_SRELC4@usace.army.mil; publiccommentARCF16@WATER.CA.GOV

SUBJECT: **Draft Supplemental Environmental Impact Statement/Environmental Impact Report (EA/EIR) for American River Watershed Common Features Project, Sacramento River East Levee Contract 4 (Project)**

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

The proposed project includes cutoff wall installation, seepage berm installation, and remediation at five isolated utility locations ("windows") along the Sacramento River, upstream of the I Street Bridge, near the Pioneer Bridge, along the levee at the north end of the Little Pocket neighborhood, a segment at the confluence of the Pocket Canal and the Sacramento River, a segment adjacent to Freeport Boulevard near its intersection with Stonecrest Avenue, a segment wall extending from the Bill Conlin Sports Complex and segments near and south of Cliff's Marina.

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

1. The proposed mitigation includes the requirement that safe pedestrian and bicyclist access be maintained around construction areas. As part of Mitigation Measure TR-1, the proposed project would provide detours to maintain safe pedestrian and bicyclist access around the construction areas at all times. Bicycle and pedestrian paths affected by the proposed project would be primarily west of I-5, in the vicinity of the construction activities and along potential haul routes. The mitigation should ensure access for pedestrians and bicycle trails is maintained and include: 4-1
    a. Provision of driveway access control between levees and City roadways so that pedestrian, and bicycle movements are maintained.
    b. Clear rerouting of pedestrian and bicycle trails and installation of signage for traffic and alternative transportation routes.
    c. Early notification to affected neighborhoods.

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

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

   The plan shall ensure that acceptable operating conditions on local roadways and freeway facilities are maintained. At a minimum, the plan shall include:
   - The number of truck trips, time, and day of street closures.
   - Time of day of arrival and departure of trucks.
   - Limitations on the size and type of trucks, provision of a staging area with a limitation on the number of trucks that can be waiting.
   - Provision of a truck circulation pattern.
   - Maintain safe and efficient access routes for emergency vehicles.
   - Manual traffic control when necessary.
   - Proper advance warning and posted signage concerning street closures.
   - Provisions for pedestrian safety.

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

4-2

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

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

Sincerely,

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

April 25, 2022

Paragon Partners, Et al

Attn: Bill Tanner

Subject: Sacramento River East Levee Improvements

Dear Mr. Tanner,

I'm writing this letter to formally address the concerns that we have discussed verbally with regards to the subject project. As we discussed, parcel #119-0020-050 is licensed as a Bed and Breakfast and also permitted for 50 events a year. In addition, we usually have a seasonal pumpkin patch, as well as, a farm stand. This is our only source of income.

Our concerns are many as to how this project will affect our business. 5-1

What is the ultimate scope of the improvements?
How many years will the improvements require?
Will we be notified in advance of entry?
Where will the project be staged?
What hours and days of the week will work commence?
I'm sure there will be more as the project progresses, but this should give you an idea of what we are confronted.

Our biggest concern is our wedding events. We generally host approximately 20 weddings a year from the months of April thru October. We are booked every weekend now thru October of 2022. Rehearsals are Fridays around 2:00pm. The wedding and reception are on Saturday from 2:00pm to 10:00pm. The weddings are of particular concern do to the sensitive nature and long term planning of the event. Generally **these events are planned a year in advance.** The event has been in the customers mind for years and is one of the biggest days of their lives. There are many moving parts, eg: equipment delivery, florist, catering, music, officiant, photography, etc. This is not the type of event that can be interrupted or cancelled.

As I mentioned, if the situation is questionable, it might be prudent for us to not book weddings that could potentially be affected by this project and we would be compensated for our loses. We now have, under contract, 3 weddings for April 2023. The average revenue per wedding for 2023 is $ 8,000.00 to rent our facility, so the math is 20 x 8 = $ 160,000.00 just for weddings. As you can surmise this is a complicated situation.

All that being said, this all hinges on how the project is executed. As I mentioned, I'm open to our parcel #119-0020-060 being used for certain types of staging. Parcel #119-0020-032 is of major concern since we share a property line and it's less than 100ft. from the reception area. Also of major concern is the easement that parallels the west side of the levee. It's also very close to our eastern property line. I can envision a line of trucks, dust and noise. Not just during events, but all day every day. Ideally, everything would happen on the east side of the levee. Work would commence Mondays thru Friday and finish by 5:00pm. All equipment would be stored on east side of levee. I have attached a PSOMAS generated map to further indicate our areas of concern.

I understand that this project is going to happen and want to cooperate where we can, however, our business is directly in the middle of the operation. As I stated, this is our only source of income. We are, luckily, in a situation where we could possibly suspend operations and restart the business. We would need to know a year in advance to stop operations, and a year in advance to restart sales.

In any case, we know that any partners that have their "special day" cancelled, or disrupted will cause all involved unbelievable duress. We are available for all parties to tour our facility and better understand the circumstances that we face.

Thank you and all involved for your attention to this matter. We look forward to a speedy resolution of the issues that have been raised.

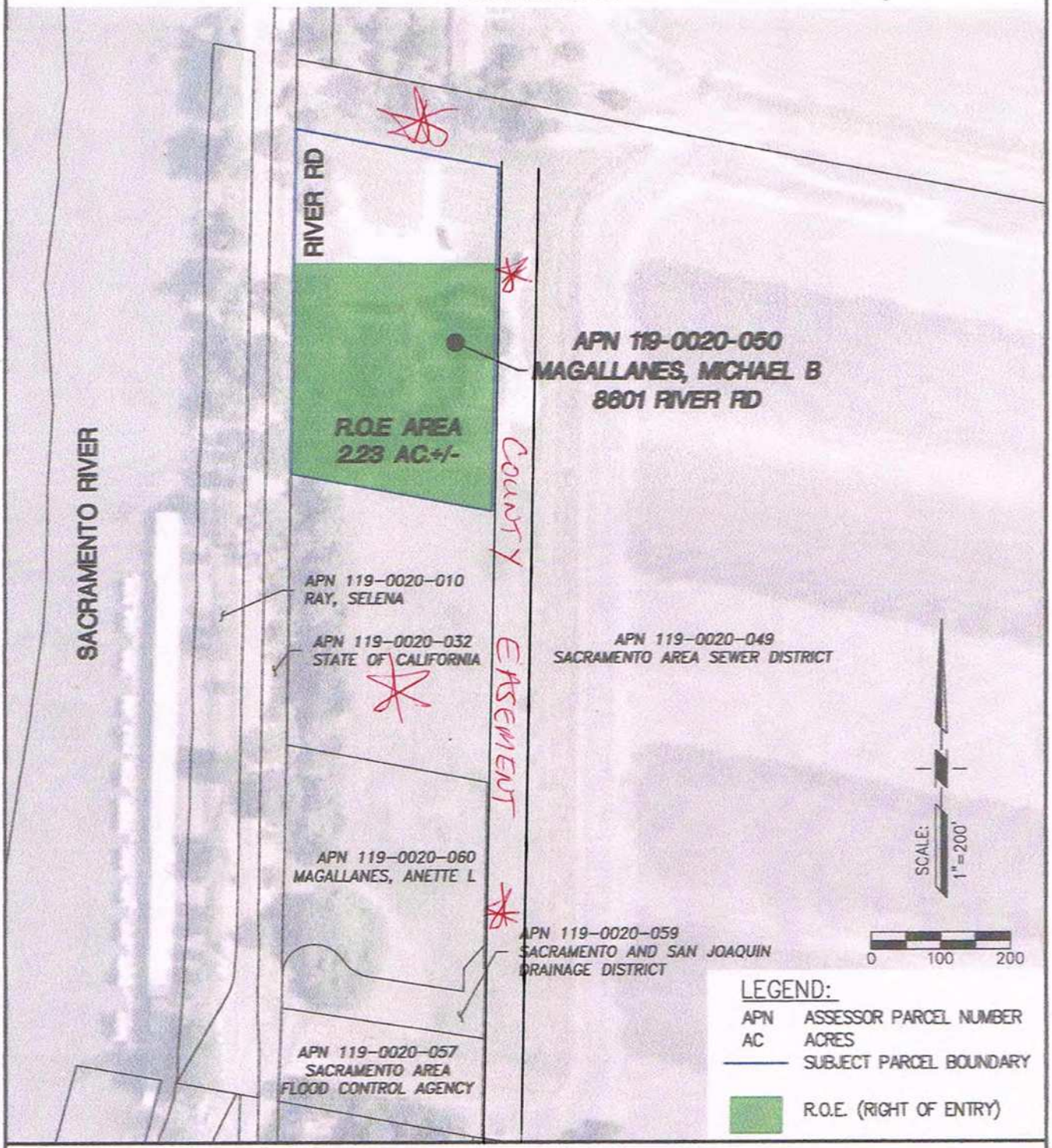
Best Regards,

Mike and Annette Magallanes

Second Wind
8601 River Road
Sacramento CA 95832
530-409-1750

✳ = AREAS OF CONCERN

EXHIBIT A



MICHAEL B MAGALLANES
APN 119-0020-050

CITY OF SACRAMENTO | COUNTY OF SACRAMENTO | STATE OF CALIFORNIA

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PSOMAS
1075 Creekside Ridge Drive, Suite 200
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CALIFORNIA Water Boards

GAVIN NEWSOM GOVERNOR

JARED BLUMENFELD SECRETARY FOR ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

2 August 2022

Kalia Schuster
Central Valley Flood Protection Board
3310 El Camino Avenue, Suite 170
Sacramento, CA 95821
kalia.schuster@water.ca.gov

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

Pursuant to the State Clearinghouse's 15 June 2022 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Supplemental Draft Environmental Impact Report* for the American River Watershed Common Features Water Resources Development Act of 2016 California Sacramento River East Levee Contract 4 Project, located in Sacramento County.

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

I. Regulatory Setting

Basin Plan

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

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

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

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.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) Permits[1]

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

[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 is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

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

Waste Discharge Requirements – Discharges to Waters of the State

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

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

Dewatering Permit

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

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

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

Limited Threat General NPDES Permit

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

NPDES Permit

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

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

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

JENNIFER LUCCHESI, *Executive Officer*
(916) 574-1800
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from Voice Phone **800.735.2929**
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Contact Phone: **(916) 574-1890**

August 1, 2022

File Ref: SCH #2005072046

Kalia Schuster
Department of Water Resources
3464 El Camino Avenue Room 200
Annex Suite 200
Sacramento, CA, 95821

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

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

Dear Kalia Schuster:

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

Commission Jurisdiction and Public Trust Lands

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

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

The Sacramento River, at the location of the proposed Project, is tidal State sovereign land under the jurisdiction of the Commission. In addition, the Commission has jurisdiction over the following upland parcels within the Project area: APN 002-0010-023, APN 024-0010-010, APN 024-0010-012, APN 024-0010-019, and APN 024-0081-019.

Based upon the information provided and a preliminary review of Commission records, Commission staff has determined that the Project will require submission of a lease application for issuance of a lease. The application can be found at our website at www.slc.ca.gov. As the Project proceeds, please submit additional information, including but not limited to ordinary high-water mark (OHWM) and boundary surveys, for a determination of the extent of the Commission's jurisdiction. Please contact Sandra Avila, Public Land Management Specialist, for jurisdiction and leasing requirements for the Project (see contact information at end of letter). Additionally, please ensure that 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 along the Sacramento River East Levee to meet embankment and foundation stability requirements. 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 areas within Commission jurisdiction below the OHWM would be disturbed during construction; however, no work would be performed within the wetted channel of the Sacramento River. Work below the OHWM would not include removing any vegetation serving as shaded riverine aquatic habitat but would include removal of up to 1.5 acres of riparian vegetation

(including willow scrub) below the OHWM that may provide juvenile foraging, refugia, spawning, and/or shallow water habitat for various life stages of special-status fish species. Work areas below the OHWM would be cleared and grubbed to implement stormwater best management practices (BMPs), and approximately 100 cubic yards of fill would be placed on approximately 0.1 acre to replace unsuitable materials from the levee at this location. Portions of a waterside staging area at Chicory Bend in the Little Pocket area below the OWHM would be used for equipment storage and material laydown. This would not require clearing, grubbing, or stripping, and no trees or shrubs would be removed. Therefore, no ground surface below the OHWM would be disturbed at this staging area. Additional work may be conducted on the upland parcels noted above, which will be clarified during the application process.

Environmental Review

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

General Comments

1. Commission staff request that the SREL C4 Improvements Overview figures (Figures 2-1 through 2-5) include a line indicating the OHWM to be consistent with the text and so staff can better assess impacts to areas within Commission jurisdiction. Per page 17 of the SEA/EIR, “An updated OHWM determination for the Sacramento River within the 13-mile Sacramento River study area of the GRR was signed on January 4, 2022.”

Cultural Resources

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

Thank you for the opportunity to comment on the Draft SEA/EIR for the Project. As a responsible and trustee agency, the Commission will need to rely on the 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 SEA/EIR, an accessible version of the final Mitigation Monitoring and Reporting Program, Notice of Determination, Findings, Statement of Overriding

Considerations (if applicable), and approving resolution when they become available. Please refer questions concerning environmental review to Cynthia Herzog, Senior Environmental Scientist, at (916) 574-1310 or cynthia.herzog@slc.ca.gov. For questions concerning archaeological or historic resources under Commission jurisdiction, please contact Staff Attorney Jamie Garrett, at (916) 574-0398 or jamie.garrett@slc.ca.gov. For questions concerning Commission leasing jurisdiction, please contact Sandra Avila, Public Land Management Specialist, at (916) 574-0282 or sandra.avila@slc.ca.gov.

Sincerely,

Nicole Dobroski, Chief
Division of Environmental Planning
and Management

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

Comments and Responses

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

Comment Letter 1: Sacramento County, Department of Transportation

1-1 Comment acknowledged. USACE will coordinate with California Department of Transportation (Caltrans) for portions of the Project fronting State Route 160 and other roadways with Caltrans jurisdiction.

Comment Letter 2: Sacramento Metropolitan Air Quality Management District

2-1 As shown below, text in Table 3-1 has been edited as proposed by the commenter:

Table 3-1 Sacramento Valley Air Basin Attainment Status

Pollutant	Federal Attainment Status	State Attainment Status
1-hour Ozone	~~Severe Non-attainment~~ Not Applicable	~~Serious~~ Non-attainment
8-hour Ozone 75 ppb	Severe Non-attainment	~~Serious Non-attainment~~ Not Applicable
8-hour Ozone 70 ppb	Moderate Non-Attainment	Non-Attainment
24-hour PM_{10}	Attainment	Non-Attainment
Annual PM_{10}	Not Applicable	Non-Attainment
24-hour $PM_{2.5}$	Moderate Non-attainment	Not Applicable
Annual $PM_{2.5}$	Attainment	Attainment
1-hour Carbon Monoxide	Attainment	Attainment
8-hour Carbon Monoxide	Attainment	Attainment
1-hour Nitrogen Dioxide	~~Not Applicable~~ Unclassifiable/Attainment	Attainment
Annual Nitrogen Dioxide	Attainment	Attainment
~~3~~ 1-hour Sulfur Dioxide	Attainment/Unclassifiable	~~Not Applicable~~ Attainment
24-hour Sulfur Dioxide	~~Attainment~~ Not Applicable	Attainment
~~Annual Sulfur Dioxide~~	~~Attainment~~	~~Not Applicable~~
30-day Lead	Not Applicable	Attainment
Quarter Lead	Attainment	Not Applicable

Notes: PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less
Source: Sacramento Metropolitan Air Quality Management District 2020

2-2 As shown below, Table 3-2 has been edited as proposed by the commenter:

Table 3-2 Sacramento Metropolitan Air Quality Management District Thresholds of Significance for Construction

Pollutant	Threshold
Oxides of Nitrogen (NOx)	85 pounds per day
Respirable Particulate Matter (PM_{10})	Fugitive dust BACT/BMPs and 80 pounds per day, 14.6 tons per year
Fine Particulate Matter ($PM_{2.5}$)	Fugitive dust BACT/BMPs and 82 pounds per day, 15 tons per year

Notes: BACT = Best Available Control Technology; BMPs = Best Management Practices. Thresholds for PM_{10} and $PM_{2.5}$ are zero unless BACT/BMPs are implemented as part of the project.
Source: Sacramento Metropolitan Air Quality Management District 2015

2-3 As shown below, the sentence on page 36 cited by the commenter has been removed from the SEIR. The paragraph that follows further describes the emissions of the ARCF projects during 2023 and concludes that Mitigation Measures AIR-1 through AIR -4 will be required for all ARCF projects to reduce the impact to a less-than-significant level, as stated by the commenter.

Table 3-5 presents combined emissions for the SREL Contract 4 project and the other components of the ARCF 2016 Project that are anticipated to be constructed during calendar year 2023, for comparison to General Conformity *de minimis* standards. For purposes of General Conformity (USACE has published a General Conformity Determination for the entire ARCF 2016 Project which can be accessed at: http://sacleveeupgrades.com/), the entire ARCF 2016 Project is considered a single action. As shown in **Table 3-5**, this impact would be significant. ~~Implementing avoidance and minimization measures described in Mitigation Measures AIR-1, AIR-2, and AIR-3 will reduce emissions below the *de minimis standards* during the 2023 construction season, resulting in a less-than-significant impact after mitigation.~~

Avoidance and minimization measures will be implemented to reduce criteria pollutant emissions, and mitigation measures (including payment of fees) will be implemented to reduce air quality impacts to a less-than-significant level. The measures described below will reduce criteria pollutant emissions, diesel particulate emissions, and fugitive dust associated with construction activities. As a result, there will be no significant impacts to air quality in the region due to construction of the SREL Contract 4 project and all construction-related impacts will be less than significant. This action individually will not exceed Federal General Conformity *de minimis* thresholds after mitigation, but when considered with other ARCF 2016 Project features being constructed in 2023, the ARCF 2016 Project will exceed General Conformity thresholds after implementing avoidance and minimization measures described in Mitigation Measures AIR-1, AIR-2, and AIR-3. Therefore, Mitigation Measure AIR-4 will be implemented by USACE to offset all NOx emissions of the ARCF 2016 Project, reducing the impact related to General Conformity *de minimis* standards to less than significant.

2-4 The first two paragraphs of Mitigation Measure AIR-3 are edited as proposed by the commenter, as shown below:

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

- The construction contractor shall submit to USACE and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of ~~40~~ 8 or more hours during any portion of the construction project.

2-5 Text in Mitigation Measure AIR-4 is edited as proposed by the commenter, as shown below:

- Pursuant to air district thresholds of significance, if the projected construction-related emissions exceed the NOx threshold of significance, based on the equipment inventory and use, USACE shall contribute to SMAQMD's off-site mitigation fee program sufficiently to offset the amount by which the project's NOx emissions exceed the threshold. If emissions for the ARCF 2016 Project in any given year would exceed the *de minimis* threshold of 25 tons per year, USACE would enter into an agreement with SMAQMD to purchase offsets for all NOx emissions in any year that projected emissions would exceed the threshold. The determination of the estimated mitigation fees shall be conducted in coordination with SMAQMD before any ground disturbance occurs for any phase of project construction. (USACE anticipates purchasing offsets for NOx emissions in ~~2022~~ 2023 because the ARCF 2016 Project is forecast to exceed the *de minimis* threshold.) All mitigation fees shall be paid prior to the start of construction activity to allow SMAQMD to obtain emissions reductions for the proposed project. If there are changes to construction activities (e.g., equipment lists, increased equipment usage or schedules), USACE shall work with SMAQMD to ensure emission calculations and fees are adjusted appropriately.

2-6 No change is proposed in response to this comment. The Executive Summary table cited by the commenter includes only mitigation measure titles, rather than the detailed mitigation measure. The text of the actual mitigation measure referred to by the commenter does include the requirement for purchase of offsets in years when NOx emissions exceed generally conformity *de minimis* levels, as requested by the commenter.

2-7 In response to this comment, the following text is added to the "Proposed Action" paragraph in Section 3.3.2:

> Section 3.3.2 of the SREL Contract 4 SEIR contains detailed emissions estimates for SREL Contract 4, which includes the No Action and Proposed Action alternatives in this SEA.

2-8 In response to this comment, the following text is added to the "Proposed Action" paragraph in Section 3.3.2:

> Section 3.3.3 details the air quality mitigation measures that have been previously adopted by USACE.

2-9 As requested by the commenter, Appendix A has been adjusted to include a brief discussion of the modeling methodology, including which activities are associated with each model run and how the model output is used to generate the emissions estimates provided in the SEIR document, including the combination of mitigated and on-road mitigated scenarios, and comparison to unmitigated data.

2-10 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 in Section 3.12.3 "Mitigation Measures" in the SREL Contract 4 SEIR. We anticipate that the City will consult with neighborhood associations and advocacy groups.

2-11 USACE will continue to incorporate all environmental commitments, including mitigation measures and commitments from the General Conformity Determination in construction specifications and contracts.

Comment Letter 3: U.S. Environmental Protection Agency

3-1 Comment acknowledged. All written notices to the public contain the http://sacleveeupgrades.com/ web address which contains direct links to the following available information:

- "Subscribe for Construction and Traffic email updates"
- "Project Information Tri-fold"
- "Construction Work Inquiry & Concern Submission Form"

3-2 Comment acknowledged. Contact information for the USACE Sacramento District Public Affairs Office (PAO) is provided during public outreach meetings, through monthly emails, construction signs on the Project site, trifolds and written notices. It is important that a group be identified as the point of contact to support more efficient response times. PAO can be reached via phone at (916) 557-5100, or by emailing spk.pao@usace.army.mil. Residents have been informed of the general construction schedule. Exact start dates and locations will be provided as soon as feasible as described in the SEA.

3-3 USACE and Project Partners have carefully formulated Mitigation Measure NOI-1 based upon the Lessons Learned from SREL Contract 1, Contract 2, and Contract 3, completed in 2020, 2021, and under active construction, respectively. This includes improving communication strategies to address resident concerns in real time. Mitigation also includes substantial improvements to vibration monitoring through voluntary pre- and post-construction structure surveys within 100-feet of construction activities, as well as

placement of vibration monitoring equipment and establishment of thresholds and appropriate protocol.

3-4 California Department of Transportation (Caltrans) is the leading State expert on establishing vibration standards for construction, operation and maintenance projects. The Caltrans 2020 Transportation and Construction Vibration Guidance Manual contains screening tools for assessing the potential for adverse effects related to human perception and structural damage USACE used the recommended vibration screening levels in the Contract specifications and the Contractor will use these research-driven quantifications in preparing the Vibration Monitoring and Control Plan.

During construction, vibration monitoring will be continuous where any construction activities, including activities within staging areas, are taking place within two hundred (200) feet of structures. The vibration monitoring system will produce a live feed and automatically report to the Contractor and USACE personnel. Ground vibrations are measured in peak particle velocity in inches per second (PPV in/s). Tier 1 is defined as 0.20 PPV in/s. If the vibration monitor reaches 0.20 PPV in/s, the Contractor will notify USACE, the cause of the exceedance will be noted, and remediation measures will be proposed. Tier 1 has been established as the warning level where continuous source vibration at 0.2 PPV in/s may begin to cause human annoyance and a risk of architectural damage to residential dwellings.

Tier 2 has been established at 0.40 PPV in/s. If a vibration monitor reaches Tier 2 limits, or has two or more Tier 1 exceedances within ten minutes, the Contractor must suspend work immediately at that location. USACE will be notified, and remediation measures will be immediately enacted. Structures will be assessed for damaged within 200 feet. Construction work will remain suspended until vibration monitoring shows no exceedances. Human response to continuous vibration levels at 0.4-0.6 PPV in/sec advance from annoying to unpleasant. Additionally, at 0.4-0.6 PPV in/sec, effects on buildings advance to architectural damage and possible minor structural damage.

The established vibration tiering system will proactively prevent human disturbance and structural damage to nearby residences. Tier 1 and Tier 2 vibration thresholds are the most conservative of the continuous vibration criteria and are protective of structures along the SREL.

3-5 Comment acknowledged. Updated noise ordinances led to the change from construction work hours from 7:00 a.m. to 6:00 p.m. as noted in the 2016 ARCF EIS, from 7:00 a.m. to 7:00 p.m. in the SEA. The following text has been added to Section 3.8.3 following Bullet No. 3:

> <u>Construction preparation activities that do not exceed the City and County Noise Ordinance limits may occur before 7:00 a.m. These activities may include the daily safety briefing and fueling of equipment.</u>

3-6 Comment acknowledged and considered. The following text has been added to Section 4.2.10, “Noise and Vibration”:

SREL Contract 4 Project will spatially and temporally overlap with some construction contracts associated with the ARCF 2016 Erosion Protection Project on the Sacramento River. The placement of erosion rock protection on the Sacramento River bank is expected to occur from 2022-2025. The use of barges to place rock will not exceed noise thresholds established by City or County ordinances and is not expected to cumulatively exceed noise thresholds when SREL Contract 4 Project construction is cooccurring. The levee itself acts as an effective noise barrier between the barge activities on the waterside and the residences on the landside. Additionally, vibration monitoring equipment located on the levees will cumulatively capture vibration levels from both Projects, preventing threshold exceedances.

There is no known available commercial data for vibrational effects of erosion rock placement. However, USACE will continue to collect vibration data at SREL Contract 4 and will closely analyze any changes within the overlapping footprint to determine potential impacts associated with simultaneous construction. Based upon that data collected, if vibrational impacts at SREL Contract 4 have the potential to become cumulatively significant, construction schedules and hours may be altered to reduce human disruption and prevent or minimize structural damages. Close monitoring would occur, and remedial measures and alternatives would be recommended by the Contractor. If vibration exceeds Tier 1 or Tier 2 thresholds, work stoppage within 200 feet may be required to minimize impacts.

3-7 Coordination with the U.S. Fish and Wildlife Service is frequent and ongoing. The following text has been added to Section 3.4.2 "Environmental Effects" Paragraph 3:

The loss of habitat is considered a relatively short-term impact due to the 20-year growth requirements of the mitigation site plantings in reaching similar maturity of the wildlife habitat lost due to the Project. Additionally, wildlife disturbed by initial mobilization and construction may utilize suitable habitat north and south of the Project footprint. This temporary impact may last only several days to weeks as wildlife migrate to new areas along the Sacramento River.

The following text has been added to Section 3.4.3 "Avoidance, Minimization, and Mitigation Measures" in Paragraph 1:

The temporal loss of riparian habitat has been considered by USACE and USFWS when determining mitigation requirements and ratios. The CAR estimates that riparian habitat may require up to 20 years to develop and mature to fully replace the wildlife habitat lost.

3-8 Comment noted. Section 3.4.3 "Environmental Effects" describes that 1.5 acres below the Ordinary High-Water Mark (OHWM) would be temporarily impacted and that approximately 20 trees would be trimmed and up to 10 trees would require full removal. Riparian habitat loss would be mitigated at a 2:1 ratio by planting new riparian habitat at Beach Stone Lakes Mitigation Site. No new protective measures are needed beyond what

has been outlined in previous contracts.

The following text has been added to 3.4.2 "Environmental Effects" to Paragraph 2 in the Proposed Action section:

Any areas grubbed, stripped and leveled during construction will be regraded, contoured and hydroseeded with native plant mixes to stabilize bare earth to prevent future erosion.

3-9 Comment acknowledged and considered. Section 3.13 "Socioeconomics, Population and Environmental Justice" has been updated to comply with the recommendations to the greatest extent practicable. Section 3.13.3 "Avoidance, Minimization and Mitigation Measures" has been updated as follows:

> Construction and staging would be planned in a way to reduce impact to businesses and the community to the greatest extent feasible. Mitigation measures for air quality, recreation, noise and vibration, and transportation and circulation are applicable here. ~~In the Section 3.18 'Socioeconomic, Population, and Environmental Justice' of the ARCF GRR EIS/EIR states that mitigation for relocation of people and their homes would be compensated under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.~~ This would be sufficient to ensure adverse impacts from the Proposed Action are less than significant, as stated in the ARCF GRR EIS/EIR.

In response to the commenters' concerns about unhoused populations: Local ordinance (Sacramento City Code Chapter 8.140) and USACE, CVFPB, and local levee 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 SREL Contract 4 Project footprint to prevent threats to public health, safety, and welfare from damage to critical infrastructure. Additionally, active construction would result in unsafe conditions to unhoused campers in the project footprint, who do not possess the personal protective equipment required to remain safe on the jobsite. Encampments on the project site would therefore be subject to removal regardless of USACE action to implement the SREL Contract 4 Project.

Services for those displaced from the Sacramento River levee 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 SREL Contract 4 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.

Comment Letter 4: City of Sacramento, Transportation Division

4-1 Pedestrian and bicycle detours are included in Mitigation Measure REC-1. This mitigation measure requires clear signage, notification at least 14 days in advance of detours, and coordination with the City's and/or County's Bicycle and Pedestrian Coordinator at least 60 days before the start of construction activities requiring detours in order for the Contractor to prepare the Pedestrian and Bicycle Traffic Control Plan. The Plan will include posted signs at major entry points for bicycle trails clearly indicating route closures, detour routes, roadway markings to designate temporary bike lanes, information signs to notify motorists to share the road with bicyclists, and a contact number to call for questions or concerns.

4-2 The Contractor will prepare a Traffic Control Plan as described in Mitigation Measure TR-1 in accordance with City Code 12.20.030 and to the satisfaction of the City Traffic Engineer. A Haul Route Plan will be developed with access routes from project sites to major highways, as well as alternate routes for emergencies. Heavy truck traffic, unloading and hauling will be scheduled during non-peak periods. The Traffic Control Plan will generally include construction hours and vehicle types need for construction and hauling of levee import and degrade materials.

Emergency vehicle access routes will be coordinated and maintained throughout the construction season. Manual traffic control will be required during mobilization, de-mobilization and hauling activities, leading from the primary access road(s) and extending beyond the ingress and egress locations to the construction area. Signage and advanced warning of street closures will be posted no less than 14 days in advance of the anticipated closure. Signs will be sized to be legible at a distance of 25-feet.

The Contractor will provide safe and secure access for pedestrian and bicycle traffic for the duration of construction. Details will be outline in the Pedestrian and Bicycle Traffic Control Plan. Pedestrian safety measures may include temporary barricades, flashing lights, crossing guards, flag persons, and/or safety fencing.

USACE will submit a copy of the Traffic Control Plan to local emergency response agencies at least 14 days before the commencement of construction.

Comment Letter 5: Mike and Annette Magallanes

5-1 The commenter poses several questions about the project including the ultimate scope of improvements, as well as construction duration, resident notification and logistics. The scope or purpose of the Proposed Project near the identified property is to reduce the flood risk associated with levee failure or overtopping along the Sacramento River East Levee (SREL) by constructing two miles of shallow cutoff walls and a seepage/stability berm. The commenter owns property within Reach G of the Project; details of the proposed levee remediation and staging areas adjacent to the commenter's property can be seen on Figure 2-7. Figure 2-7 shows a five-foot buried shallow cutoff wall (indicated

by a brown line) that will be installed on the SREL, adjacent to this property during an approximate 5-month period of construction, anticipated to begin in April 2023 and end by December 2023. Further details of cutoff wall construction adjacent to the property can be found at Section 2.3 “Shallow Cutoff Walls” of the SEA. Figure 2-7 also shows a planned staging area to support the above identified work (orange polygon) that is located directly south of the Magallanes’ property. Section 2.3 “Proposed Action” of the SEA includes information on the schedule for project construction, staging, and work hours. Written notification detailing the type, duration, and frequency of construction activities will be sent to residents living within 1,000 feet of construction. Notices will be sent one week to one month in advance of activities.

The commenter raises concerns about construction related impacts, such as noise and dust, to their wedding venue business, The Barn at Second Wind. The business is located just east of the federal levee on the Sacramento River, where a temporary increase in noise and vibration caused by levee excavation and trenching, cutoff wall improvements, and staging area operations is unavoidable. Construction work hours are bound by the City and County of Sacramento’s noise ordinance which limits noise between the hours of 10:00 p.m. and 7:00 a.m. every day of the week. Construction will occur Monday through Saturday in order to accelerate and complete levee improvements within one-year, to ensure levees are flood-worthy prior to the 2023 flood season, which begins in November. However, as described in Mitigation Measure NOI-1 in Section 3.8.3 of the SEA, the loudest construction activities will not be scheduled on Saturday but rather from 7:00 a.m. to 7:00 p.m. Monday through Friday, and stationary noise-generating equipment will be located as far as practicable from sensitive receptors. If the construction zone is within 500-feet of a sensitive receptor, temporary barriers between stationary noise equipment and noise sensitive receptors will be installed to block noise transmission when feasible. Additionally, the use of backup alarms will be prohibited within 500-feet of a sensitive receptor and an alternative warning system will be used that is compliant with State and Federal worker safety regulations. Vibration monitoring equipment will be installed every 200 feet along the construction limits, including actively used staging areas. Details about continuous vibration monitoring are provided above in Comment Response 3-4 to the U.S. Environmental Protection Agency.

USACE will implement Sacramento Metropolitan Air Quality Management District (SMAQMD), Enhanced Fugitive PM Dust Control Practices throughout the construction footprint. These protocols require any exposed soils to be watered to ensure ground surfaces remain moist during working hours and enforce a suspension of excavation and grading work if wind speeds exceed 20 miles per hour. Additionally, all dirt access roads and staging areas must be treated to a distance of 100 feet from the nearest paved road with a 6 to 12-inch layer of wood chips or gravel to reduce dust generation and carryout to public roads. Publicly visible signage with the USACE Sacramento District Public Affairs Office contact information will be displayed indicating points of contact for dust complaints.

The landowner mentioned a potential for an alternate construction staging area within the same general vicinity. The Project’s non-federal sponsors are required to provide and acquire real estate, and perform project relocations, necessary for construction of the

Project consistent with applicable law. USACE understands the non-federal sponsors are aware of the landowner's recent offer to make available an alternate staging area property located on the landowners' property further south from The Barn which could help to mitigate noise levels. Noise attenuating buffers to reduce noise levels and mitigate temporary visual impacts will also be explored with the landowner.

Levee reconstruction work to reduce flood risk requires use of heavy equipment that unavoidably causes noise, dust and vibration. USACE and the project's non-federal sponsors are committed to maintaining positive relationships with adjacent property owners by understanding their concerns and addressing them within our authority, whilst providing flood risk reduction for high-risk communities in the greater Sacramento area.

Comment Letter 6: Central Valley Regional Water Quality Control Board

6-1 The comment provides general information on permit processes and does not identify specific comments or concerns related to the SREL Contract 4 project. The Project will receive all permits as required by the Clean Water Act prior to the start of construction and in direct coordination and approval by the Central Valley Regional Water Quality Control Board.

Comment Letter 7: State Lands Commission

7-1 As requested by the commenter, the project overview figures presented in Figures 2-1 through 2-5 have been updated with the 2022 Ordinary High-Water Mark (OHWM) determination for the Sacramento River.

7-2 The comment requests additional text be added to the description of the archaeological discovery plan in Mitigation Measure CR-2. Because the suggested text clarifies State law requirements which would apply to historic or cultural resources discovered on State lands rather than imposing a project-specific mitigation requirement, USACE and CVFPB do not propose to modify the text of Mitigation Measure CR-2. No change to the SEA is necessary.

APPENDIX D. REVISIONS TO THE DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

REVISIONS TO THE DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

Introduction

This appendix presents corrections and revisions made to the proposed project's Draft Supplemental Environmental Assessment (SEA). This appendix does not identify administrative changes to the SEA text which do not affect the analysis contained in the SEA (for example, updates to the public review process). New text is indicated with an underline and text to be deleted is indicated by a strike through. Text changes are presented in the page order in which they appear in the Draft SEA.

The changes identified below are clarifications or amplification of the information and analysis contained in the SEA. None of the changes identified below results in a significant impact that was not already identified in the SEA. Furthermore, none of the impacts identified in the SEA were found to be substantially more severe as the result of the following changes. For these reasons, recirculation of the SEA is not warranted.

Section 1.2 Project Location

The first paragraph on page 5 is revised as follows:

The Project Area is in the City of Sacramento (City), California along the east bank of the Sacramento River. Figure 1-3 and Figure 2-3 to Figure 2-7 illustrates the project vicinity. ~~The Project Area includes the SREL from the Freeport Water Tower to 800 feet downstream of the NBLL tie-in with the SREL; two utility window remediation locations between Consumnes River Boulevard and Freeport, CA; Garcia Bend Park;~~ Additional haul routes include ~~two additional haul routes on~~ Jibboom Street and Cosumnes River Boulevard; and six additional staging areas located at:

Section 1.6 Project Need

The first paragraph on page 8 is revised as follows:

As it specifically relates to the Proposed Action, staging areas near the Contract 4 worksite are needed for storing equipment, materials, and to provide a place for the contractor's temporary offices. Sump pipe removals are needed to be able to excavate and install the slurry cutoff walls. Sump pipes would be replaced during construction with new pipes. Some important regional roads, such as State Route 160 and Freeport Boulevard, would need temporarily lane closures with traffic control to construct levee improvements.

Section 1.7 Purpose of the Supplemental Environmental Assessment

The first paragraph on page 9 is revised as follows:

A 45-day public review ~~will take place~~ occurred from June 15, 2022, until August 1, 2022 alongside the State of California, California Environmental Quality Act (CEQA) DEIR prepared by the Central Valley Flood Protection Board (CVFPB) and Sacramento Area Flood Control Agency (SAFCA). A virtual public meeting was held jointly with the project partners, CVFPB and SAFCA during the comment period on the evening of July 13, 2022. Seven comment letters were received with a total of 27 comments as follows:

- (1) Sacramento County, Department of Transportation (SACDOT)
- (11) Sacramento Metropolitan Air Quality Management District (SMAQMD)
- (9) U.S. Environmental Protection Agency (EPA)
- (2) City of Sacramento, Transportation Division
- (1) Private Citizen
- (1) Central Valley Regional Water Quality Control Board (CVRWQCB)
- (2) California State Lands Commission

Public comments and responses to all comments received ~~will be~~ are incorporated as part of the Final SEA in ~~the a~~Appendix C, entitled 'Public Comments and Responses'. ~~A virtual public meeting held jointly with the project partners, CVFPB and SAFCA, will be held during the comment period on the evening of July 13, 2022. The meeting details will be announced on USACE's website at www.sacleveeupgrades.com.~~

~~Written comments regarding the Draft SEA must be directed to the name and address below via postal mail or email by no later than 5:00 p.m. on August 1, 2022:~~

~~Public Affairs Officer~~
~~USACE Sacramento District~~
~~1325 J Street – Room 1513~~
~~Sacramento, CA 95814~~
~~ARCF_SRELC4@usace.army.mil~~

Section 2.2 No Action Alternative

Table 2-1 on pages 13 to 14 has been updated to include the following:

Table 2-1 Levee Improvements Summary. The No Action is in regular text and the additional elements of the Proposed Action are in bold text.

Type of Improvement	ARCF Reach ID	Begin Station	End Station	Length (feet)
Embankment Levee Raise ~~with Shallow Cutoff Wall~~	**D**	**1028~~7~~+50**	**~~1050~~1038+~~5~~00**	**~~1150~~1000**
Jet Grout Cutoff Wall	D	~~1150+00~~1105+00	~~1150+50~~1105+55	55~~0~~
Jet Grout Cutoff Wall	E	1244+~~00~~73	~~1250~~1249+00	~~630~~427
Soil-bentonite Cutoff Wall	E	1250+70	~~1265~~1261+~~10~~83	~~1100~~1113

Soil-bentonite Cutoff Wall	E	1261+53	1265+03	350
Jet Grout Cutoff Wall	F	1530+30	1534+15	400
Embankment Levee Raise	G	1675+~~00~~70	1678~~7~~+~~00~~35	~~200~~265
~~**Shallow Cutoff Wall**~~	~~**G**~~	~~**1677+00**~~	~~**1720+00**~~	~~**4260**~~
Utility Window Remediation – Inset Stability Berm	**G**	**1689+07~~0~~**	**1690+00**	**~~100~~93**
Shallow Cutoff Wall	**G**	~~**1730+50**~~**1678+35**	~~**1770+00**~~**1719+49**	~~**39504**~~**4114**
Shallow Cutoff Wall	**G**	**1722+48**	**1726+51**	**403**
Shallow Cutoff Wall	**G**	**1731+50**	**1735+01**	**351**
Shallow Cutoff Wall	**G**	**1735+99**	**1765+92**	**2993**
Floodwall Raise	**G**	**1765+92**	**1770+46**	**454**
Flashboard Retrofit	**G**	**1770+~~20~~46**	**1772+9~~0~~0**	~~**200**~~**244**
Jet Grout Cutoff Wall	N/A	1770+~~20~~35	1774+~~00~~50	~~380~~415
Seepage/Stability Berm	**N/A**[1]	**1771~~3~~+~~00~~85**	~~**1779**~~**1778+~~00~~58**	~~**520**~~**673**

Section 2.3 Proposed Action

Figures 2-3, 2-4, 2-5, 2-6 and 2-7 on pages 15 to 19 have been updated to include the ordinary high water mark:

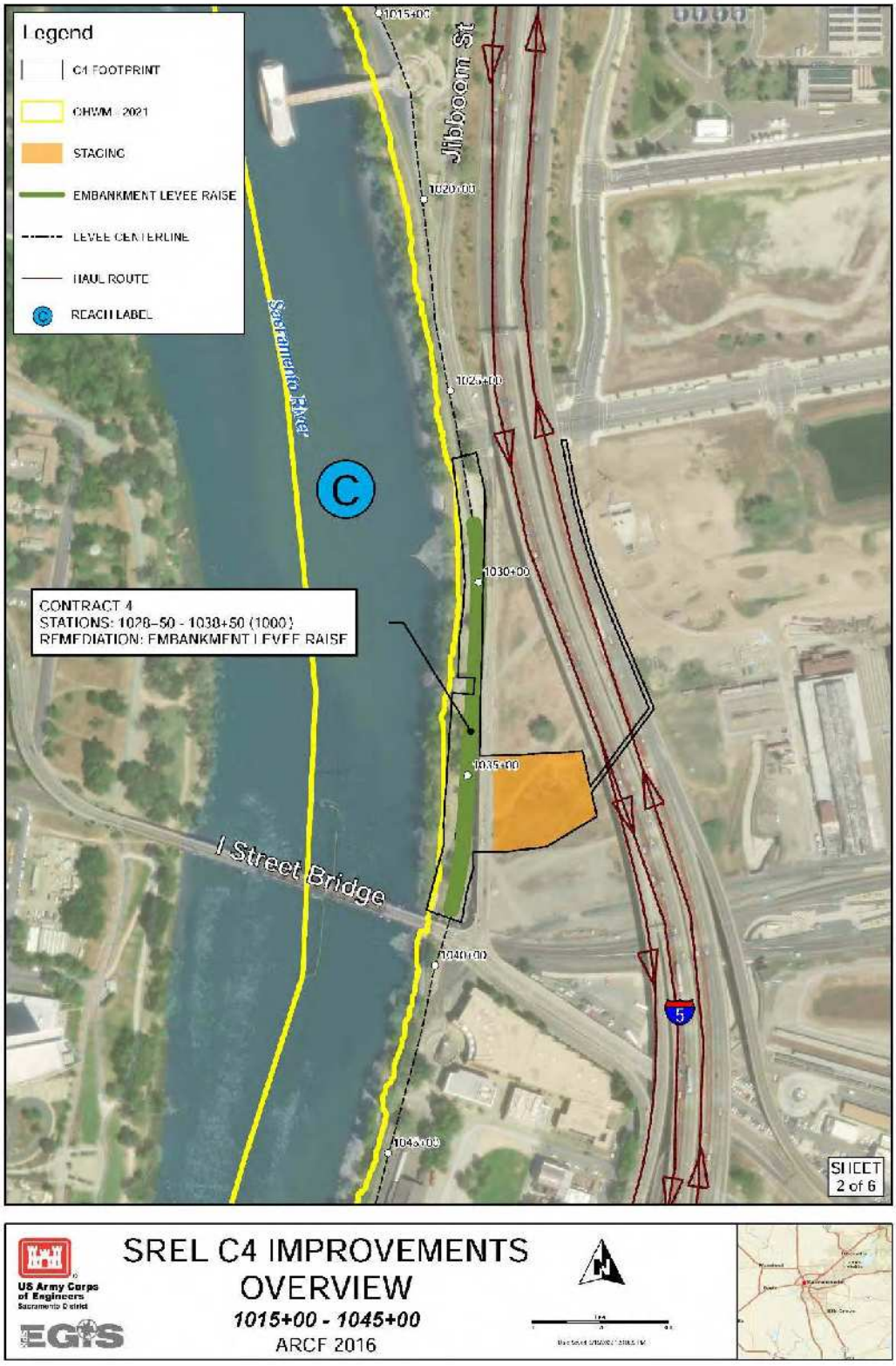

Figure 2-3 Proposed Improvements (Map 1 of 5)

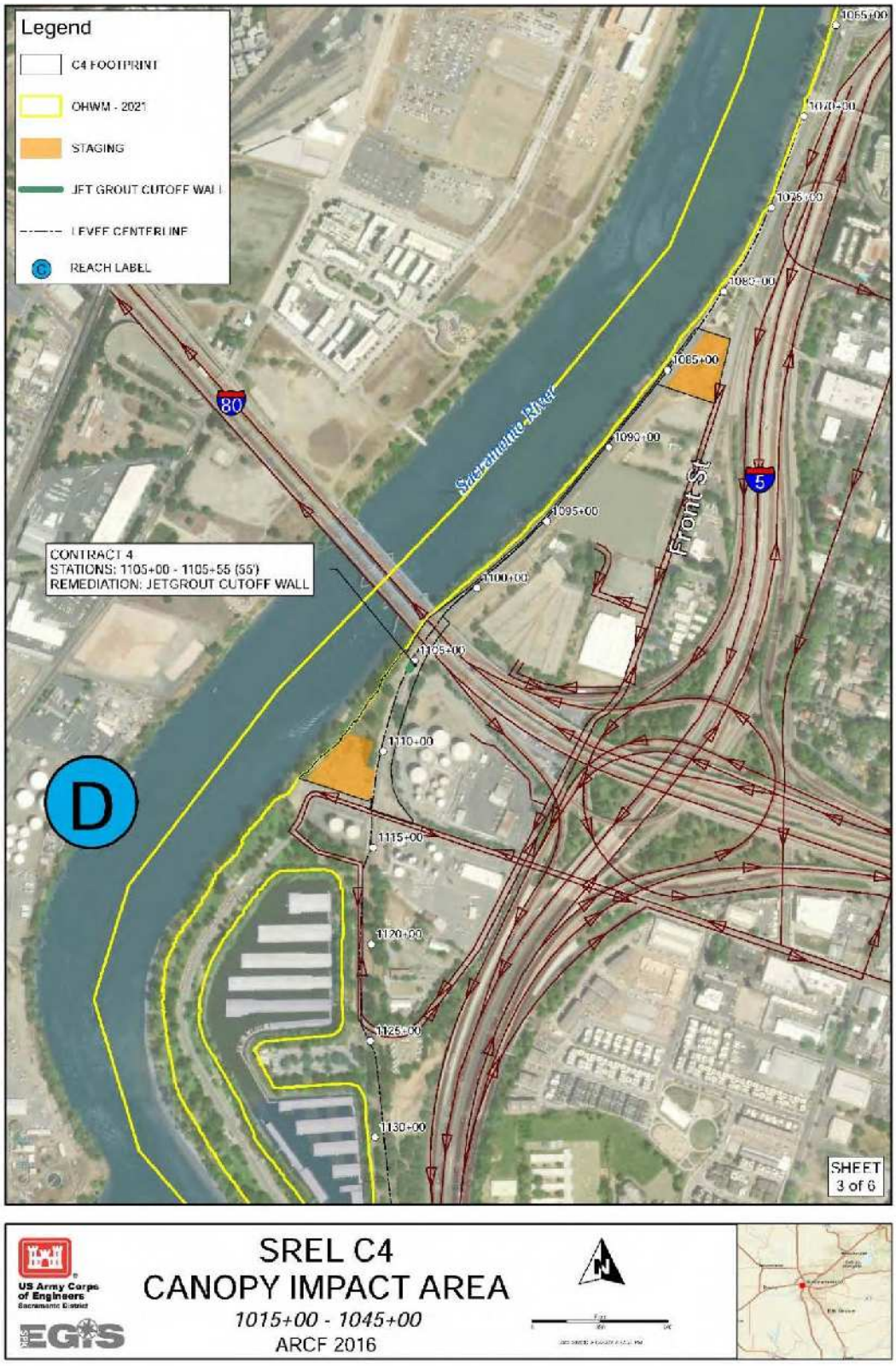

Figure 2-4 Proposed Improvements (Map 2 of 5)

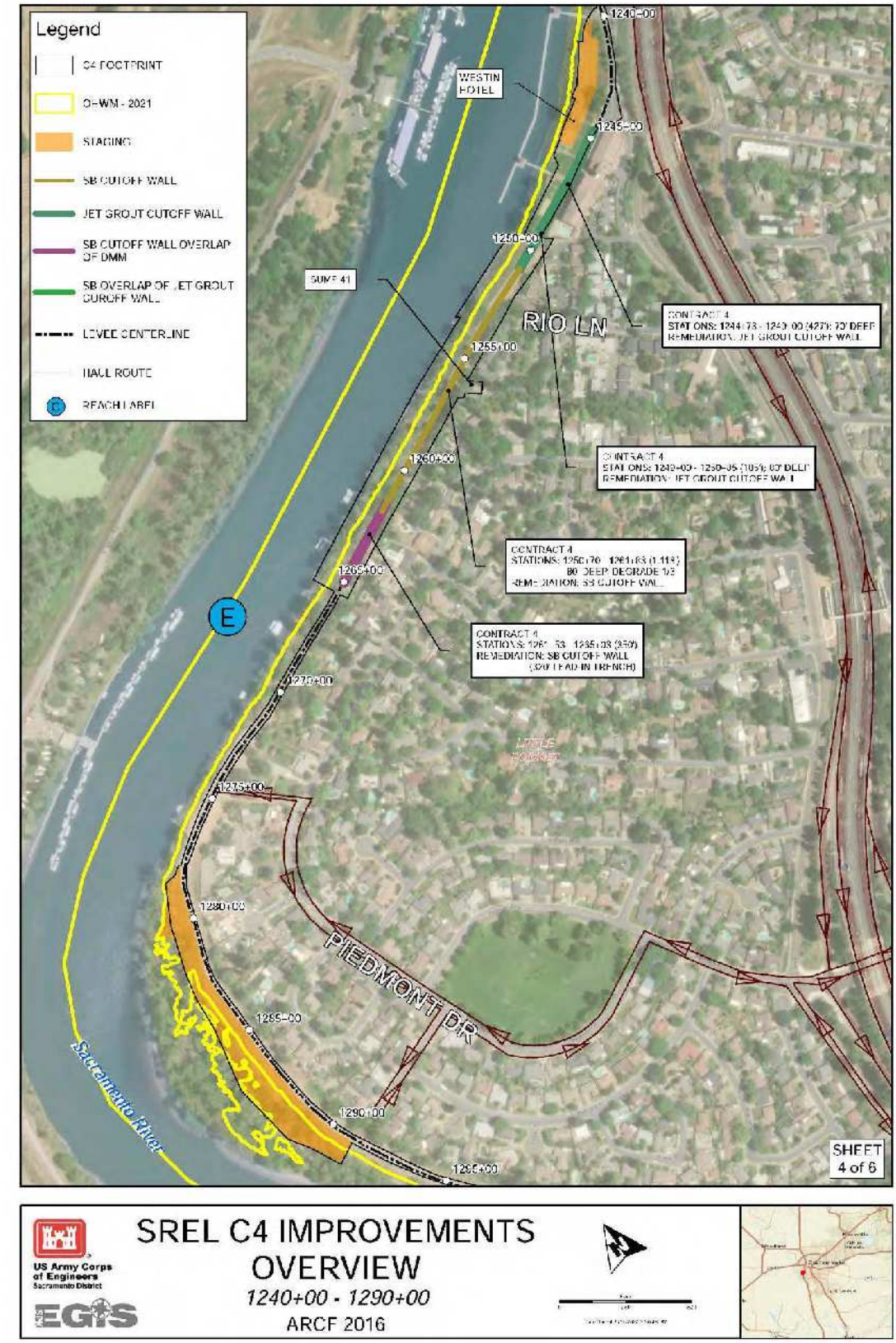

Figure 2-5 Proposed Improvements (Map 3 of 5)

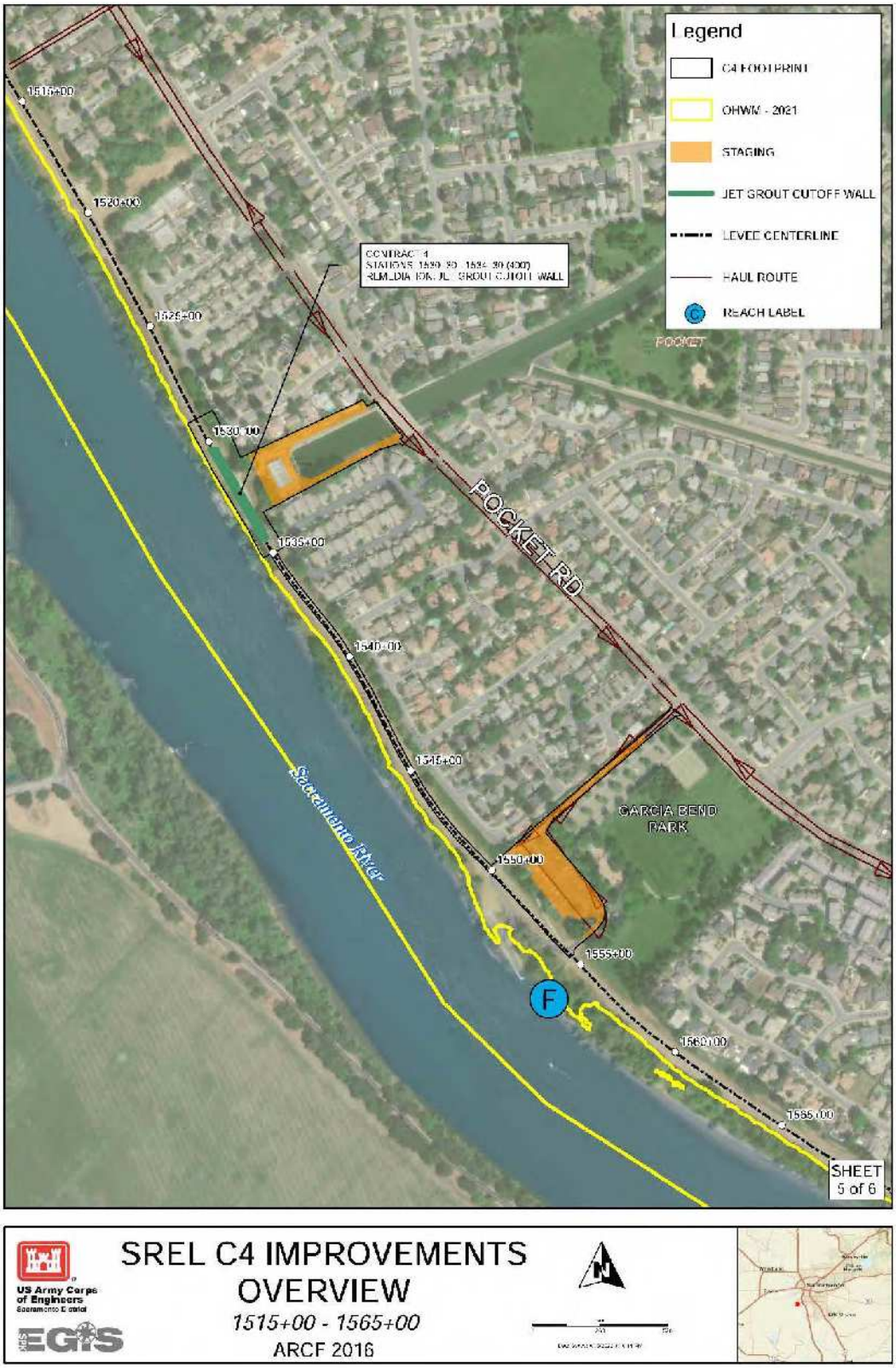

Figure 2-6 Proposed Improvements (Map 4 of 5)

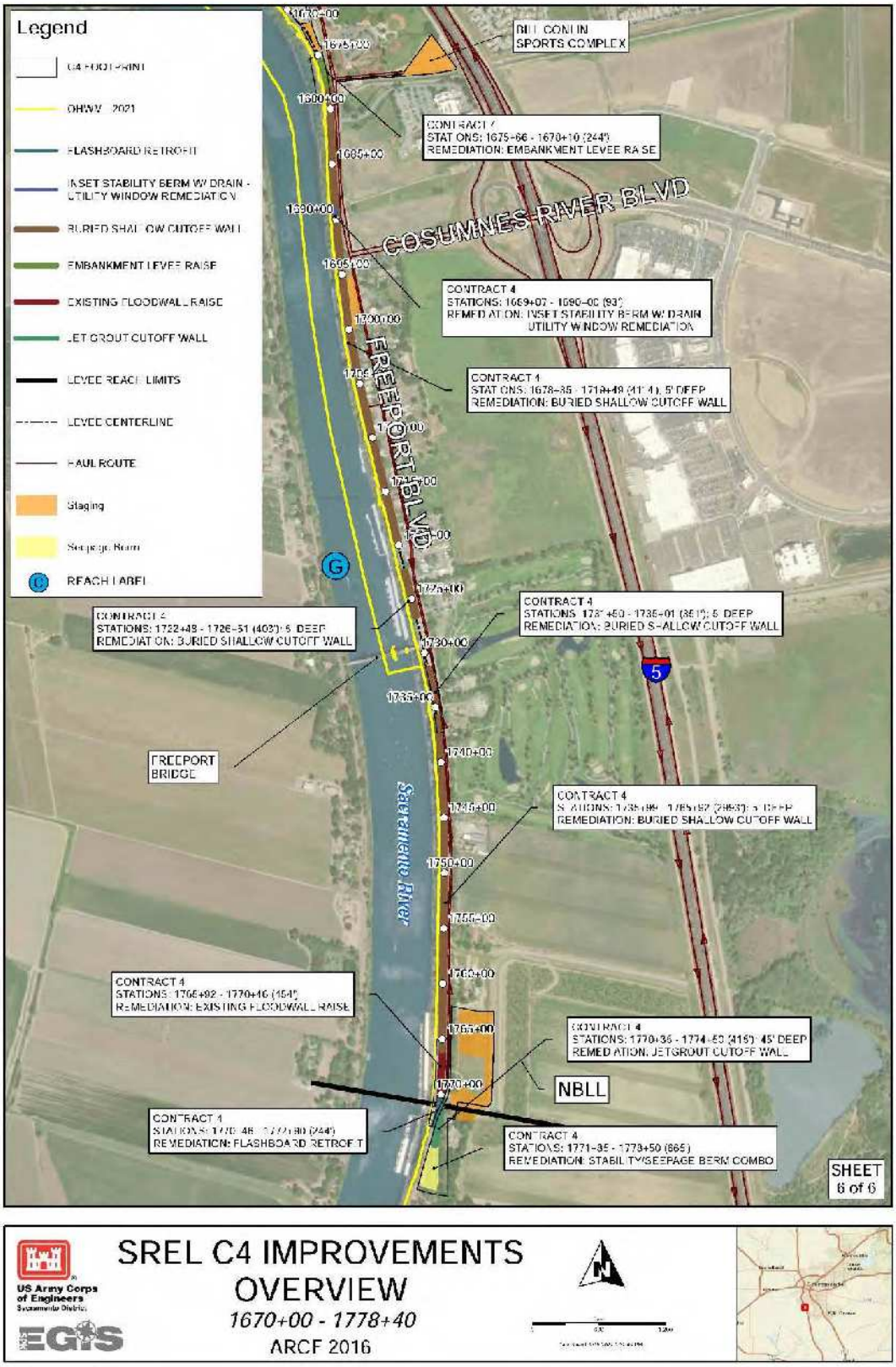

Figure 2-7 Proposed Improvements (Map 5 of 5).

Section 2.3 Proposed Action

The first paragraph on page 21 is revised as follows:

A ~~600~~673-foot-long seepage/stability berm would be constructed in front of and downstream of Cliff's Marina, overlapping with the new jet grout cutoff wall and the southern terminus of the NBLL. This work extends the footprint of the GRR EIS/EIR by ~~800~~ 850 feet downstream of the NBLL along the SREL.

The first paragraph on page 23 is revised as follows:

Previous levee improvement work in the Project Area left windows or gaps in the cutoff wall to allow for utilities to pass through. SREL Contract 4 would remedy one 100-foot long utility window near Station 1690+00 by insetting seepage/stability berms within the 'window'. The drained berm would capture any seepage which may flow along the edges of the utility pipes and safely discharge it on the landside of the levee.

The fourth paragraph on page 23 is revised as follows:

Due to limited space for staging areas in the vicinity of the SREL contracts some city parks and boat ramps may be needed for storing and moving contractor's construction equipment and supplies and would be closed or subject to limited access for multiple years and left in an unrestored condition between contracts. SREL Contract 4 includes the temporary use of Garcia Bend Park's boat ramp and boat ramp parking lot during the construction period. This includes exclusive use by the Contractor of the driveway between Pocket Road and the boat ramp parking lot for vehicle and equipment access to staging areas, use of all or a portion of the boat ramp parking lot as a staging area, and use of the levee access ramps for Contractor access to the work area. The boat ramp would be closed for the construction season. USACE would coordinate with the City of Sacramento Parks and Recreation Department to ensure that construction is staged in a way that minimizes adverse effects to communities to the greatest extent practicable. Notification to the City would be provided at least 2 weeks in advance. The soccer field and tennis courts would not be impacted CVFPB and USACE would return all City parks to pre-project conditions upon completion of project construction.

Section 3.1 Introduction

The last row on page 26 in subsection 3.1.3 'Summary of Affected Environment and Environmental Consequences' is revised as follows:

Vegetation and Wildlife	Significant Short-term / Less than Significant with Mitigation Long-Term	Less than Significant with Mitigation	~~2.75~~3.2 acres of riparian woodland and five elderberry shrubs.	A Coordination Act Report (CAR) was included in the 2016 ARCF GRR Final EIS/EIR as Appendix A and recommends USACE compensate for the loss of oak woodland, riparian forest, riparian scrub-shrub and emergent wetland from project construction at a ratio of 2:1. This loss will be mitigating at the Beach Stone Lakes Mitigation Site	Conservation measures in the USFWS BO will be followed. Surveys for migratory birds will be done if vegetation is removed during nesting season. Environmental awareness training will occur if vegetation is removed during nesting season. Additional mitigation measures listed in Section 3.6.6 of the ARCF GRR EIS/EIR and in the SREL Contract 1 & 2 SEA/EIRs.

The last row on page 27 in subsection 3.1.3 ‘Summary of Affected Environment and Environmental Consequences’ is revised as follows:

Special Status Species	Less than Significant with Mitigation	Less than Significant with Mitigation	VELB: Up to 5 shrubs Cuckoo: 3.2~~2.75~~ acres of riparian habitat	Mitigation per the terms of the Biological Opinions. Replacement habitat for species ~~either on-site or in close proximity to lost habitat~~will be provided at the Beach Stone Lakes Mitigation Site. Implement BMPs discussed in Section 3.5.6 and conservation measures in the BOs during construction to prevent mortality.	Compensatory mitigation at the Beach Stone Lakes Mitigation Site. Follow recommendations in the 2017 USFWS Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle. Additional mitigation measures listed in Section 3.8.6 of the ARCF GRR EIS/EIR and in the SREL Contract 1-3 SEA/EIRs.

The last row on page 29 in subsection 3.1.3 ‘Summary of Affected Environment and Environmental Consequences’ is revised as follows:

Climate Change	Less than Significant with Mitigation	Less than Significant with Mitigation	-	Implementation of SMAQMD’s Basic Construction Emission Control Practices and other BMPs, as listed in Section 3.12.6.	Purchase GHG offset for program-wide GHG emissions exceeding SMAQMD significance thresholds applicable at the time of construction. ~~Mitigation~~ Additional measures listed in Section 3.12.6 of the ARCF GRR EIS/EIR and in the SREL Contract 1 & 2 SEA/EIRs.

The last row on page 33 in subsection 3.1.3 ‘Summary of Affected Environment and Environmental Consequences’ is revised as follows:

Water Quality and Groundwater Resources	Less than Significant with Mitigation	Less than Significant with Mitigation	-	A CWA Section 404(b)(1) analysis (Appendix E of the GRR EIS/EIR), was conducted to ensure that the ARCF Project would cause no net loss of functions or values to State and Federally protected waters. Mitigation measures set forth in the ARCF GRR EIS/EIR (referred to as GEO-1 and as WATERS-1 in the SREL Contract 1 and 2 SEAs/SEIRs) would reduce sedimentation discharge concerns to a negligible level.	All work below the OHWM requires a water quality certification pursuant to Section 401 and 404 of the Clean Water Act (CWA).

The last row on page 34 in subsection 3.1.3 ‘Summary of Affected Environment and Environmental Consequences’ is revised as follows:

Socioeconomics, Population, and Environmental Justice	Less than Significant	Less than Significant	-	Federal Relocation Act compliance.	Construction and staging would be planned in a way to reduce impact to businesses and the community to the greatest extent feasible. Services for those displaced from along the Sacramento River are offered by both the City of Sacramento and Sacramento County.

Section 3.3 Air Quality

The first paragraph on page 38 in subsection 3.3.2 'Environmental Effects' is revised as follows:

The shallow cutoff walls, seepage/stability berm, existing flood wall and flashboard modification, and utility window remediation proposed for SREL Contract 4 are not described in the ARCF GRR EIS/EIR. These methods are new ways of achieving the same seepage, stability, and overtopping solutions stated in the GRR/EIS/EIR. The GRR EIS/EIR Record of Decision specified that total SREL seepage, stability, and overtopping (SSO) improvements would include "nine miles of slurry cutoff walls" and "raise one mile of levee." SREL Contract 4 is the final SSO contract, resulting in a total of 8.9 miles of seepage improvements and 0.4 miles of levee raise constructed for all SREL SSO contracts. Thus, the total length of improvements would be 0.1 miles less than those stated in the GRR EIS/EIR, resulting in air quality impacts marginally less than those stated in the ARCF GRR EIS/EIR. Section 3.3.2 of the SREL Contract 4 SEIR contains detailed emissions estimates for SREL Contract 4, which includes the No Action and Proposed Action alternatives in this SEA. Section 3.3.3 details the air quality mitigation measures that have been previously adopted by USACE

Section 3.4 Vegetation and Wildlife

The first paragraph on page 39 in subsection 3.4.2 'Environmental Effects' is revised as follows:

SREL Contract 4, including the proposed action, would remove a total of approximately 160 trees. The seepage/stability berm would permanently fill in low areas between State Route 160, NBLL, and a historic railroad right-of-way. This would require the removal of approximately 20 trees. The ground surface area below the OHWM that may be temporarily impacted is approximately ~~1.5~~1.6 acres.

There is no anticipated need to remove any city park trees as a part of the Proposed Action. The other staging areas would require the trimming of approximately 20 trees and the removal of up to ten trees. These staging areas may also need to be grubbed, stripped, and leveled to be used as functional staging areas. The removal of riparian habitat would be mitigated at a 2:1 ratio by planting new riparian habitat at the BSLMS. Any areas grubbed, stripped and leveled during construction will be regraded, contoured and hydroseeded with native plant mixes to stabilize bare earth preventing future erosion. ~~Any areas grubbed, stripped and leveled during construction will be rehabilitated by returning to existing conditions to the greatest extent practicable.~~

~~Grading, contouring and hydroseeding with native plant mixes will stabilize bare earth preventing future erosion.~~

Shrub and tree removal are considered a short-term significant impact in Section 3.6 of the ARCF GRR EIS/EIR, because it would take many years for the replacement trees and shrubs to establish to the value of those removed. The loss of habitat is considered a relatively short-term impact due to the 20-year growth requirements of the mitigation site plantings in reaching similar maturity of the wildlife habitat lost due to the Project. Additionally, wildlife disturbed by initial mobilization and construction may utilize suitable habitat north and south of the Project footprint. This temporary impact may last only several days to weeks as wildlife migrate to new areas along the Sacramento River. ~~The loss of habitat is considered a short-term impact as there is suitable habitat for wildlife to utilize north and south of the Project footprint. However, o~~Once the replacement trees are established, the long-term impact would be less than significant. There would be no impact to shady riverine aquatic (SRA) habitat nor work in the Sacramento River that would affect fish species. Overall, the Proposed Action would not bring cumulative SREL tree removal to more than the 750 trees states in the GRR EIS/EIR. The Proposed Action's effect on vegetation and wildlife would be less than significant with mitigation.

The fourth paragraph on page 39 in subsection 3.4.3 'Avoidance, Minimization, and Mitigation Measures' is revised as follows:

The Fish and Wildlife Coordination Act of March 1934, as amended, allows the United States Fish and Wildlife Service (USFWS) to assess impacts of proposed projects and make recommendations to reduce those impacts. A Coordination Act Report (CAR) was included in the 2016 ARCF GRR Final EIS/EIR as Appendix A and recommends USACE compensate for the loss of oak woodland, riparian forest, riparian scrub-shrub and emergent wetland from project construction at a ratio of 2:1. The temporal loss of riparian habitat has been considered by USACE and USFWS when determining mitigation requirements and ratios. The CAR estimates that riparian habitat may require up to 20 years to develop and mature to fully replace the wildlife habitat lost. Riparian habitat is being mitigated at a 2:1 ratio, in accordance with the 2021 ARCF BO, which aligns with the USFWS Coordination Act Report's recommendation.

Section 3.5 Federal Special-Status Species

The second paragraph on page 42 in subsection 3.5.3 'Avoidance, Minimization, and Mitigation Measures' is revised as follows:

In-water construction activities (i.e., work below the OHWM) would be limited to the work window of ~~July~~ August 1 through October 31, as stated in the USFWS and National Marine Fisheries Service (NMFS) Biological Opinions. The in-water work window could be extended with NMFS approval.

Section 3.8 Noise and Vibration

The first bullet on page 46 in subsection 3.8.3 'Avoidance, Minimization, and Mitigation Measures' is revised as follows:

Schedule the loudest and most intrusive construction activities during daytime hours (7:00 a.m. to 7:00 p.m.) Monday through Friday, when feasible. Construction preparation activities that do not exceed the City and County Noise Ordinance limits may occur before 7:00 a.m. These activities may include the daily safety briefing and fueling of equipment.

Section 3.10 Transportation and Circulation

The third paragraph on page 49 in subsection 3.10.2 'Environmental Effects' is revised as follows:

Proposed Action

One lane of SR 160 would need to be temporarily closed to construct the NBLL seepage/stability berm. Furthermore, new haul routes on Jibboom Street and Cosumnes River Boulevard would be used in addition to previously-identified access points and haul routes analyzed in the SREL Contract 1-3 SEA/EIRs. Following the completion of SREL Contract 4, temporary levee access ramps would be removed and restored to pre-construction condition. As noted in the ARCF GRR EIS/EIR, traffic controls would cause or contribute to substantial temporary increases in traffic levels on roadways (such as SR 160 and Freeport Boulevard) as traffic is detoured, slowed, or disrupted by lane closures. Traffic controls could cause delays during the morning and evening peak commute hours, which could disrupt emergency response times in the vicinity of the construction site.

Section 3.12 Public Utilities and Service Systems

The third paragraph on page 51 in subsection 3.13.1 'Existing Conditions' is revised as follows:

Utility window remediation (construction of small, drained seepage/stability berms to close these windows remaining in the levee) would occur at ~~two locations~~ one location on the SREL in Reach G, south of the Freeport Water Tower adjacent to Freeport Boulevard and north of Consumes River Boulevard.

Sump 41, located at the northern end of the Pocket, and Sump 132, located in the South Pocket at the end of the Pocket Canal, consist of a landside pumping station and outfall pipes extending into the Sacramento River. Sump 41 outfall pipes and vault will be replaced. Both Sumps will be protected by installation of a cutoff wall.

Section 3.13 Socioeconomic, Population, and Environmental Justice

The last paragraph on page 51 in subsection 3.13.1 ' Existing Conditions' is revised as follows:

The environmental and regulatory framework described in Section 3.18 of the ARCF GRR EIS/EIR is generally applicable to the analysis in this Supplemental EA and therefore is not repeated here; however, there has been significant additional direction from the White House regarding equity and environmental justice (EJ) since the GRR EIS/EIR was published in 2016. Analysis of EJ~~environmental justice (EJ)~~ is required by NEPA and the 2016 GRR EIS/EIR addressed Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 11, 1994. However, three additional

Executive Orders addressing EJ were signed in 2021:

- Executive Order 13985, Advancing Racial Equity and Support for Underserved Communities Through the Federal Government, January 20, 2021
- Executive Order 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, January 20, 2021
- Executive Order 14008, Tackling the Climate Crisis at Home and Abroad, January 27, 2021

The Environmental Protection Agency's 'EJScreen' environmental justice screening and mapping tool uses nationally consistent data and an approach that combines environmental and demographic indicators to produce maps and reports. We used the tool to examine socioeconomic indicators near the project area (Table 3-3).

Table 3-3. Socioeconomic Indicators Near the Project Area.

Taken from a 60-square mile area of benefit in Sacramento County to the east of the SREL. Source: EJ Screen.

	Value	State Avg.	Percentile in State	EPA Region Avg.	Percentile in EPA Region	USA Avg.	Percentile in USA
Socioeconomic Indicators							
Demographic Index	54%	47%	61	46%	64	36%	77
People of Color	67%	63%	50	60%	54	40%	76
Low Income	41%	31%	69	31%	69	31%	70
Unemployment Rate	8%	6%	69	6%	70	5%	75
Linguistically Isolated	9%	9%	59	8%	64	5%	81
Less Than High School Education	16%	17%	57	16%	60	12%	71
Under Age 5	7%	6%	59	6%	59	6%	62
Over Age 64	14%	14%	60	15%	59	16%	50

In regard to economic impacts, ~~T~~the Proposed Action will impact the Westin Sacramento Hotel, located on the Sacramento River atop the SREL in a dense residential neighborhood in ARCF Reach E, and Cliff's Marina, located just south of the town of Freeport in ARCF Reach G in a rural, agricultural area.

3.13.2 Environmental Effect

No Action Alternative

Temporary disruption to the community would occur during construction. Section 3.18 of the ARCF GRR EIS/EIR states: "The construction of the project does not change or prevent access to large business complexes or communities." The construction of SREL Contract 4 would cause a temporary disturbance to the Westin Sacramento Hotel and Cliff's Marina. One of the parking lots at the Westin Hotel would be used as staging areas and construction of a cutoff wall along the levee crown would be a disturbance to hotel and restaurant guests. However, access to the Westin Hotel, Cliff's marina, and their docks would remain open throughout construction.

The important flood protection benefits of SREL Contract 4 and the ARCF project overall, as stated in the GRR EIS/EIR, would extend to the entire Sacramento Metropolitan area; therefore it would not provide disproportionate benefits or effects to any minority or low-income populations. A small ~~homeless population~~ unhoused community resides along the SREL and the Proposed Action may cause temporary displacement of people and their property. To ensure the safety of all those involved, USACE, CVFPB, and the construction contractor would work with the City and County of Sacramento and the City of Sacramento's Police Department to notify and ~~remove people~~ relocate those living in the construction area. This action would not be disproportionate and would only be enacted in areas of active construction.

Proposed Action

The Proposed Action would cause the temporary closure of one parking lot at the Westin Hotel for use as a staging area. For Cliff's Marina, modifications to the existing flood wall and flashboard may temporarily change access and reduce available parking. Access to these businesses would not be restricted, however, noise, vibration, traffic, and dust from levee construction and staging would disturb customers.

The Proposed Action would not result in permanent, direct impacts to EJ communities, though there will be temporary disruption to the community during construction primarily related to traffic congestion, air quality, noise, recreation, and leisure activities. Positive long-term impacts include a major decrease in risk of flood damage for minority and/or low-income populations in the study area.

~~SREL Contract 4, and the ARCF project overall, will result in benefits towards disadvantaged communities it will count towards an investment in environmental justice~~

3.13.3 Avoidance, Minimization, and Mitigation Measures

Construction and staging would be planned in a way to reduce impact to businesses and the community to the greatest extent feasible. Mitigation measures for air quality, recreation, noise and vibration, and transportation and circulation are applicable here. ~~in the Section 3.18 'Socioeconomic, Population, and Environmental Justice' of the ARCF GRR EIS/EIR states that mitigation for relocation of people and their homes would be compensated under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.~~ This would be sufficient to ensure adverse impacts from the Proposed Action are less than significant,

as stated in the ARCF GRR EIS/EIR.

Section 4.1 Past, Present, and Reasonably Foreseeable Future Projects

The last paragraph on page 54 is revised as follows:

The greater ARCF 2016 Project is scheduled for construction from 2019 through 2024. The project was originally planned to be completed in 10 years, but Congress authorized it with a 5-year construction timeline. Thus, temporary construction impacts will occur closer together, but over a shorter length of time. The project involves constructing levee improvements along the American and Sacramento River levees as well as proposed improvements to the Natomas East Main Drainage Canal (NEMDC) east levee and Magpie Creek (SAFCA previously completed improvements as an early implementation action in 2018). The levee improvements scheduled for implementation include constructing cutoff walls, erosion protection, seepage and stability berms, relief wells, levee raises, and a small stretch of new levee.

Section 4.2 Cumulative Effects

The first paragraph on page 65 is revised as follows:

4.2.10 Noise and Vibration

The Delta Shores Development project is located in the immediate vicinity of the proposed project, and thus was considered for purposes of this cumulative noise and vibration analysis. A cumulative effect might occur if construction activities associated with any of the related project(s) were to occur within 500 feet of the proposed project's construction activities, and also, if the construction activities of other projects were to occur at the same time or overlap at some point during the construction activities of the proposed project. Construction of a portion of the shopping center at Delta Shores, east of I-5, began in 2016 and is ongoing. However, at its closest point, this portion of the Delta Shores project area is more than 1,500 feet east of the project site. There is currently no scheduled date for construction of homes and parks on the west side of I-5 at Delta Shores. Therefore, the Delta Shores project is located too far away to combine with the proposed project's construction noise or vibration effects.

SREL Contract 4 Project will spatially and temporally overlap with some construction contracts associated with the ARCF 2016 Erosion Protection Project on the Sacramento River. The placement of erosion rock protection on the Sacramento River bank is expected to occur from 2022-2025. The use of barges to place rock does not exceed noise thresholds established by City or County ordinances and is not expected to cumulatively exceed noise thresholds when SREL Contract 4 Project construction is cooccurring. The levee itself acts as an effective noise barrier between the barge activities on the waterside and the residences on the landside. Additionally, vibration monitoring equipment located on the levees will cumulatively capture vibration levels from both Projects, preventing threshold exceedances.

There is no known available commercial data for vibrational effects of erosion rock placement. However, USACE will continue to collect vibration data at SREL Contract 4 and will closely analyze any changes within the overlapping footprint to determine potential impacts associated with simultaneous construction. Based upon that data collected, if vibrational impacts at SREL

Contract 4 have the potential to become cumulatively significant, construction schedules and hours may be altered to reduce human disruption and structural damages. Close monitoring would occur, and remedial measures and alternatives would be recommended by the Contractor. If vibration exceeded Tier 1 or Tier 2 thresholds, work stoppage within 200 feet may be required to minimize impacts.

Furthermore, although any of the related projects could require construction that exceeds the respective local City or County noise ordinances, the proposed project would limit noise-generating activities to the hours when the City of Sacramento exempts construction noise. Therefore, the proposed project would not result in a considerable incremental contribution to a significant cumulative effect related to construction equipment or traffic noise levels in excess of standards established in the local general plan or noise ordinance or in other applicable local, State, or Federal standards.

APPENDIX E: 404(B)(1) CONSISTENCY DETERMINATION

Clean Water Act Section 404(b)(1) Consistency Determination

Introduction

Background

The Sacramento Metropolitan area is one of the most at-risk areas for flooding in the United States. The purpose of the American River Watershed Common Features project (ARCF) is to improve the existing infrastructure to reduce flood risk along the American and Sacramento Rivers. The ARCF General Reevaluation Report (GRR) Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) previously analyzed several alternatives, including a No Action/No Project Alternative and two action alternatives. Sacramento River East Levee (SREL) Contract 4, a component of the preferred alternative, includes three locations of work below the ordinary high-water mark (OHWM) of the Sacramento River: 1) temporary side cast of levee material to facilitate levee degrade; 2) Chicory Bend staging area; and 3) use of the existing bench at the top of the riverbank to facilitate equipment access for earthwork activities (Proposed Action). This work was not specifically addressed in the ARC EIS/EIR but is necessary to allow for the installation of seepage cutoff walls as they are now designed.

This analysis is an evaluation of the consistency of the Proposed Action, and alternatives to the Proposed Action (as described below and in the SREL Contract 4 Supplemental Environmental Assessment (SEA)), with the determinations of the 2015 ARCF GRR's 404(b)(1) evaluation and the applicability of the findings of the 2015 404(b)(1) evaluation to the Proposed Action. The source materials are:

- USACE. 2015. *Section 404(b)(1) Water Quality Evaluation American River Common Features General Reevaluation Report*. Sacramento, California.
- USACE. 2016. *American River Watershed General Reevaluation Report, Final Environmental Impact Statement / Environmental Impact Report.* May. Sacramento, California. State Clearing House Number 2005072046.
- USACE. 2022. *American River Watershed Common Features Sacramento River East Levee Contract 4 Supplemental Environmental Assessment.* Sacramento, California.

Scope of Analysis

Staging areas and levee improvement work below the OHWM addressing seepage, stability, and overtopping, were not covered in the ARCF GRR 404(b)(1).

Water Dependency

Due to the urban and residential nature of the project area there are limited sites that can be used as construction staging areas, thus the use of a waterside staging area below the OHWM was unavoidable. Furthermore, the installation of seepage cutoff walls requires temporary ground disturbance below the OHWM, therefore this action is water dependent, and we can limit the number of alternatives to onsite measures.

Alternatives

Alternative 1 – No Action/No Fill

Under the No Action Alternative, the staging area would not be used, and the seepage cutoff walls would be constructed only as described in the 2016 ARCF GRR EIS/EIR. As a result, this area and the levee would remain susceptible to through-seepage and instability and would continue to be a weak spot in the system. The Sacramento metropolitan area would continue to be subject to an unacceptably high risk of levee failure and subsequent catastrophic flooding.

Alternative 2 (Proposed Action) – Seepage Cutoff Walls, Levee Raise, Utility Remediation

The Proposed Action includes levee improvements consisting of the installation of approximately 11,500 cumulative feet of cutoff wall, 500 feet of levee raise, a seepage/stability berm, and utility window remediation along the existing Sacramento River's east levee in Sacramento, California from the confluence with the American River to 1.5 miles south of Freeport, CA (Figure 1). The project footprint includes the levee prism and several parking areas, local parks, and vacant lots used for staging purposes.

Work Below the OHWM Locations

An updated OHWM determination for the Sacramento River within the 13-mile Sacramento River study area of the GRR was signed on January 4, 2022. This new determination requires that staging areas and project components that were previously considered to be above the OHWM be reconsidered. Due to this, the staging area on the waterside of the SREL at Chicory Bend in the Little Pocket (Figure 2) is now determined to be partially below the OHWM. This staging area will be used for a batch plant, cutoff wall slurry tanks, equipment storage, and material laydown. Native and exotic tree and vegetation removal is required. No shaded riverine aquatic habitat will be impacted.

In Reach E (See Figure 1 for reach locations) in the Little Pocket the construction of a seepage cutoff wall requires the levee to be degraded to half its height by side casting the material down the levee slopes (Figure 3). All side cast temporary fill material will be removed at the end of construction and the existing ground surface will be restored.

In Reach G near Freeport, California, limited excavation will occur below the OHWM (Stations 1675+00 to 1678+75) to remove unsuitable materials from the footprint of the proposed embankment fill placement area. A small amount of permanent embankment fill will be placed at the toe of the existing levee below the OHWM as part of the shallow cutoff wall installation. The total area of permanent fill placed below the OHWM is on the order of 0.2 acre, with up to 130-cy of permanent fill placed. The finished grade of placed fill will be restored by seeding with a native grass seed mix at the end of construction. The existing bench at the top of the riverbank will be used to facilitate equipment access for these earthwork activities.

The site would be prepared by clearing and stripping the site prior to construction. Vegetation and loose materials would be removed. No tree removal below the OHWM is required. Temporary access ramps would be constructed, if needed, using onsite material. For all SREL Contract 4 no work would be performed within, or fill placed in the wetted channel of the Sacramento River. Total ground disturbance below the OHWM is approximately 1.6 acres.

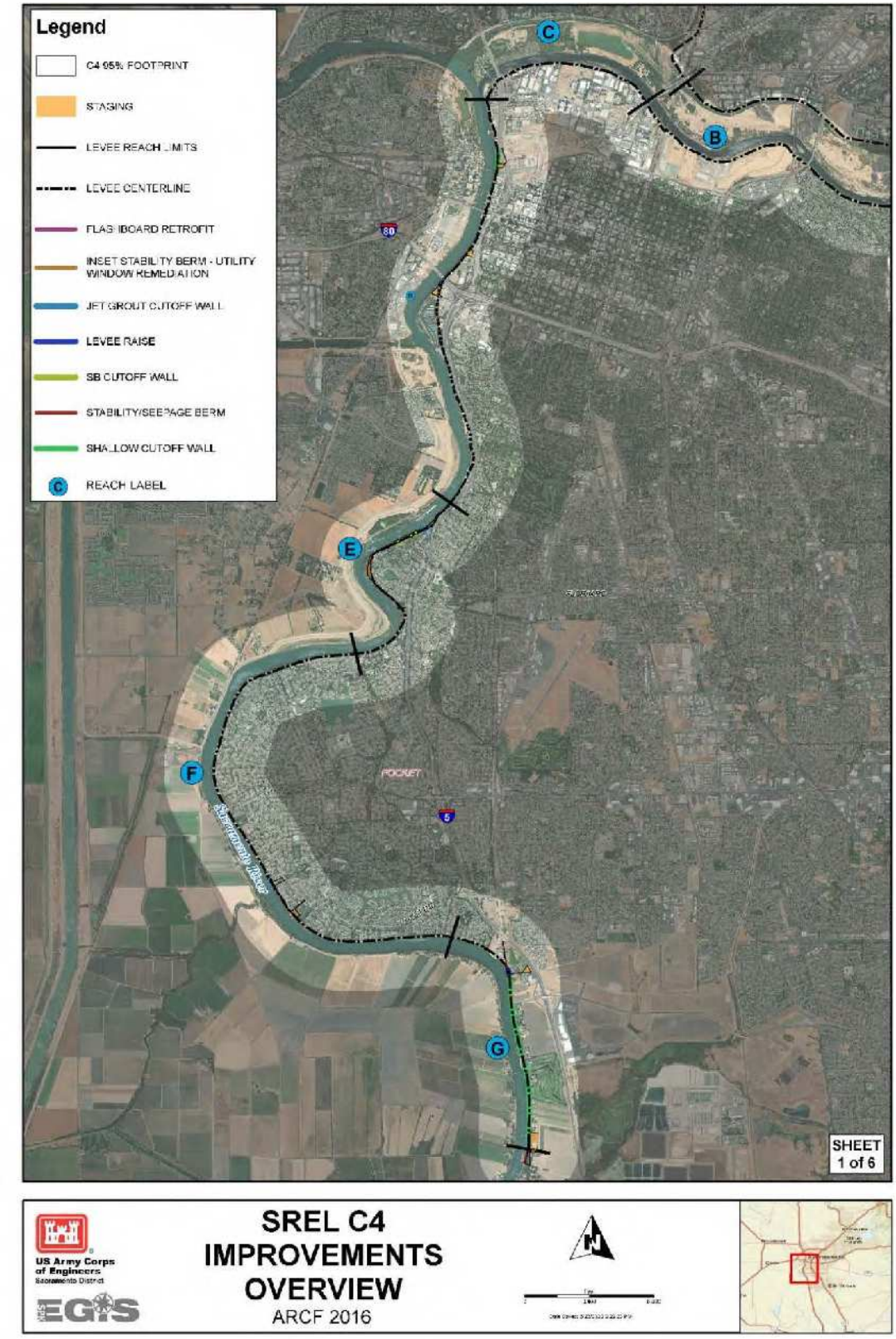

Figure 1. Overview of SREL Contract 4 improvements and work locations.

Figure 2. Overview of the staging area in the Little Pocket that is partially below the ordinary high-water mark. The staging area is the orange polygon and the ordinary high-water mark is shown by the light blue area.

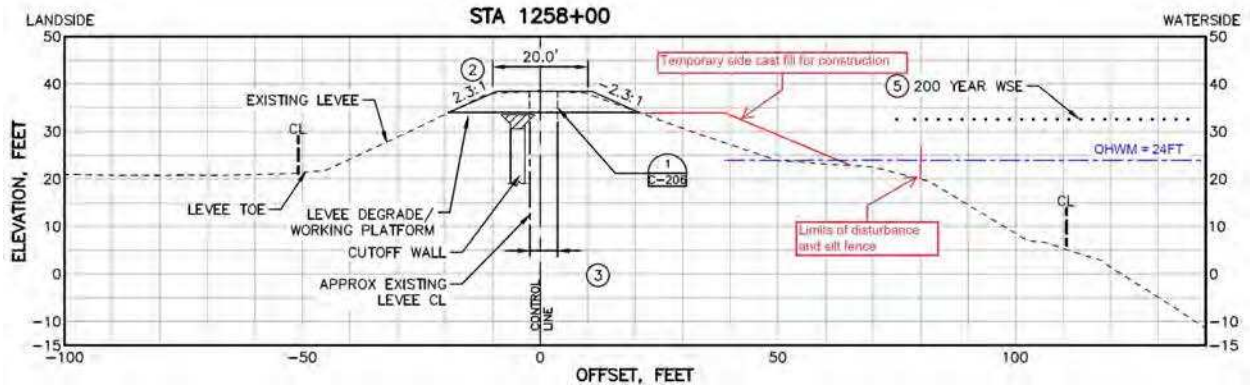

Figure 3. A representative section of the soil bentonite wall in Reach E is shown above to provide the anticipated contractor approach for construction and how the disturbed areas compare to the OHWM. Given limited space on the landside of the levee at this location, side cast material to the water side is probable. It is anticipated that the contractor will use the existing bench at the top of the riverbank during construction and the limits of disturbance were set accordingly.

Review of Findings

Seepage improvements and staging areas below the OHWM were not specifically covered in the 2015 ARCF 404(b)(1) evaluation. However, this work is within the footprint considered, uses comparable techniques, and has considerably less impact than the erosion protection work described for the Sacramento River. Nevertheless, the Proposed Action includes a refined design and new work below the OHWM and therefore warrants an abbreviated review of the GRR's 404(b)(1) findings.

Physical Substrate

The construction of SREL Contract 4, including Alternative 1 described above, will cause a temporary impact (less than two years) to approximately 1.6 acres below the OHWM, but outside the wetted channel of the Sacramento River. No riprap or concrete will be placed. There will be minimal to no change to site topography, and therefore no change waterbody elevation, water patterns, or water circulation.

Changes to Environmental Quality and Value

Potential impacts to environmental quality and value include a potential temporary increase in turbidity during construction; runoff of exposed soils; and fuel, batch material, and slurry spills during construction. Emissions from construction equipment and haul trucks also pose a potential impact to environmental quality and value during the duration of construction activities. Best management practices (BMPs) and measures incorporated from the GRR EIS/EIR, with clarifying modifications, would be implemented during construction.

Construction contractors would be required to prepare and implement a SWPPP and comply with the conditions of the National Pollutant Discharge Elimination System (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. For any batch plant or slurry tank located on the waterside of the levee or levee crown, a secondary containment structure must be provided around the batch plant to contain any potential spill materials. These avoidance and minimization measures would reduce effects on water chemistry and ensure that the Proposed Action would not violate State water quality standards identified in the Basin Plan or the Toxic Effluent Standards of Section 307 of the Clean Water Act.

There are no special aquatic sites within the project area.

Physical Substrate

Existing Substrate and Fill: The Proposed Action would not create a permanent change of substrate on the riverbanks. Temporary disturbance of the substrate is required to remove unsuitable materials from the footprint of the proposed shallow cutoff wall in Reach G, suitable levee material will be replaced, and the site will be restored to pre-project conditions.

Changes to Disposal Area Elevation: The Proposed Action would not cause a change to the disposal area elevation.

Duration and Extent of Substrate Change: The Proposed Action would not cause a permanent change of substrate on the riverbank.

Migration of Fill: The Proposed Action is designed to avoid significant migration of fill and no greater than existing conditions.

Changes to Environmental Quality and Value: Potential impacts to environmental quality and value include a potential temporary increase in turbidity during construction, runoff of exposed soils, and fuel spills during construction. Emissions from construction equipment and haul trucks also pose a potential impact to environmental quality and value during the duration of construction activities. Best management practices (BMPs) and measures incorporated from the GRR EIS/EIR, with clarifying modifications, would be implemented during construction.

Water Circulation, Fluctuation, and Salinity

Water Circulation: Because the Project Area would be returned to pre-project conditions its implementation would have no effect on current patterns and water circulation.

Fluctuation: Because the Proposed Action would cause no change to site topography, the Proposed Action would not change water level fluctuation patterns.

Salinity: Because the project site is located in a freshwater riverine system, the Proposed Project would not alter salinity gradients.

Water Quality

pH: The proposed construction materials (on-site or imported sand and silt soil) would have little potential to affect the pH of the Sacramento River.

Water Chemistry: Construction of the Proposed Action would include ground disturbance activities that could expose soils to increased rates of erosion during storm events that could increase the rate of sedimentation in receiving waters. Also use and storage of equipment could result in the accidental spills of fuel, oil, slurry, concrete and other construction equipment related materials that could also be carried in stormwater runoff to receiving waters. As a result, there is the potential for construction activities to adversely affect receiving water chemistry.

Construction contractors would be required to prepare and implement a SWPPP and comply with the conditions of the National Pollutant Discharge Elimination System (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. For any batch plant or slurry storage located on the waterside of the levee, a secondary containment structure must be provided around the batch plant to contain any potential spill materials. These avoidance and minimization measures would reduce effects on water chemistry and ensure that the Proposed

Action would not violate State water quality standards identified in the Basin Plan or the Toxic Effluent Standards of Section 307 of the Clean Water Act.

Clarity: The Proposed Action would not place material in the wetted channel. Thus, impacts to clarity would only be from minor erosion from precipitation events prior to the reestablishment of vegetation on site. Clarity is not expected to be substantially affected outside the immediate Project Area. Any reduction of clarity caused by construction activities would be short in duration and would return to pre-construction levels upon project completion.

Color: The Proposed Action would not place material in the wetted channel. Thus, impacts to color would only be from minor erosion from precipitation events prior to the reestablishment of vegetation on site. Color is not expected to be substantially affected outside the immediate Project Area. Any reduction of clarity caused by construction activities would be short in duration and would return to pre-construction levels upon project completion.

Odor: The Proposed Action would not result in any major sources of odor and would not involve operation of any of the common types of facilities that are known to produce odors in water (e.g., wastewater treatment facility). Air-borne 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, would dissipate rapidly from the source with an increase in distance, and are unlikely to affect water odor. Furthermore, as required by California Air Resources Board (CARB) regulation 13 CCR 2449(d)(3), no in-use off-road diesel vehicles may idle for more than 5 consecutive minutes. In addition, implementation of mitigation measures, which are required to reduce other air quality effects, would further reduce exhaust emissions, and provide advanced notification of construction activity.

Taste, dissolved gases, temperature, nutrients, and eutrophication**:** The proposed materials and construction activities are not expected to affect taste, dissolved gases, temperature, nutrients, or eutrophication.

Suspended Particulates/Turbidity: The Proposed Action will not place material in the wetted channel, and thus will only alter suspended particulate type and concentration or turbidity during Stormwater runoff from landside construction areas. To reduce these to a less-than-significant level, the construction contractor would prepare and implement a SWPPP, and would install, prior to in-water work, a turbidity curtain or other comparable minimization measure. Following construction of the levee repairs BMPs would continue to be monitored and implemented while vegetation matures enough to stabilize surface soil in the Project Area.

Contaminants

The Proposed Action's 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. Also, although the five hazardous waste/materials sites identified in the study area of the GRR are not in the Project Area, contaminants could already be present at the construction site. To minimize the impacts associated with contaminants, the Proposed Action would incorporate the following measures described in the GRR EIS/EIR.

- 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.
- The risk of significant hazards associated with the transport, use, and disposal of these materials is low, and compliance with applicable regulations would reduce the potential for accidental release of hazardous materials during transport and construction activities.
- Project areas would be tested contaminants prior to construction, and any materials found would be disposed of in accordance with all Federal, State, and local regulations at an approved disposal site.
- The contractor would be required to prepare a SWPPP and a Spill Prevention Control and Countermeasures Plan (SPCCP), which detail the contractor's plans, including BMPs, to prevent discharges from the construction site into drainage systems, lakes, or rivers.

Aquatic Ecosystems and Organisms

The Proposed Activity will have no direct impact to aquatic organisms or the aquatic food web and will not impact the benthic substrate of the Project Area. Temporary impacts to aquatic organisms from turbidity due to stormwater runoff from landside construction areas would be less than significant. Within the Project Area, there are no sanctuaries and refuges, mud flats, vegetated shallows, coral reefs, or riffle and pool complexes.

Threatened and Endangered Species

Areas below the OHWM are designated critical habitat for Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*), Central Valley (CV) spring-run Chinook salmon (*O. tshawytscha*), and southern distinct population segment (sDPS) green sturgeon (*Acipenser medirostris*) by the National Marine Fisheries Service. Additionally, this habitat is designated as Essential Fish Habitat under the Magnuson Stevens Fishery Conservation Act for Pacific Salmon (Chinook). Areas below the mean high water (MHW) are considered suitable habitat for delta smelt (*Hypomesus transpacificus*)).

The installation of seepage cutoff walls would disturb approximately 1.6 acres of ground surface area below the OHWM. The area from (MHW) to 3 meters below the Mean Low Low Water (MLLW) is considered habitat for the Federally listed delta smelt. No impact below the MHW is anticipated.

Federally listed terrestrial species include the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus)*, which is known to occur in the area, and the western yellow-billed cuckoo (*Coccyzus americanus*), which may utilize riparian habitat along the Sacramento River as stopover habitat. No trees or elderberry shrubs would be removed below the OHWM.

Human Use Characteristics

Drinking Water: The Proposed Action's 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). Also, the Proposed Action's design, compliance with State water quality thresholds and standard construction and erosion practices would preclude the introduction of substances into surrounding waters, and materials removed for disposal off-site would be disposed of in an appropriate landfill or other upland area.

Recreation Facilities: The Proposed Action would cause temporary closure of recreation facilities (Sacramento River Bike Trail and Garcia Bend Park) during construction.

Commercial Fisheries: The Proposed Action would not cause an impact to commercial fish species.

Parks: The Project Area does not include any National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, or Similar Preserves.

Aesthetics

The Proposed Action would result in tree removal and vegetation loss and construction activities would disrupt the existing visual conditions. Disturbed areas would be reseeded with native grasses.

Determination

The Proposed Action, although not specifically identified in the ARCF GRR EIS/EIR, is consistent with the GRR 404(b)(1) analysis as it falls within the same footprint and is will not result in additions to the net volume of material placed below the OHWM of the Sacramento River over the GRR-disclosed thresholds.