

APPENDIX A - PRIME FARMLAND IMPACT EVALUATION

**FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS**

PART I (To be completed by Federal Agency)		3. Date of Land Evaluation Request 10/13/20	4. Sheet 1 of 1
1. Name of Project Tule River Spillway Enlargement		5. Federal Agency Involved U.S. Army Corps of Engineers	
2. Type of Project Flood risk management & irrigation		6. County and State Tulare County, CA	
PART II (To be completed by NRCS)		1. Date Request Received by NRCS 10/13/20	2. Person Completing Form Luis Alvarez
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		4. Acres Irrigated 568,184	Average Farm Size 299
5. Major Crop(s) Almond, Cotton, Alfalfa-Hay	6. Farmable Land in Government Jurisdiction Acres: 851,527 % 27.4	7. Amount of Farmland As Defined in FPPA Acres: 971,730 % 31.3	
8. Name Of Land Evaluation System Used CA Revised Storie Index	9. Name of Local Site Assessment System None	10. Date Land Evaluation Returned by NRCS 10/20/20	

	Alternative Corridor For Segment			
	Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	0.59			
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0			
C. Total Acres In Corridor	605			

PART IV (To be completed by NRCS) Land Evaluation Information	
A. Total Acres Prime And Unique Farmland	0.59
B. Total Acres Statewide And Local Important Farmland	0
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.0001
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	44.19

PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)	
	45

PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))	Maximum Points				
1. Area in Nonurban Use	15	15			
2. Perimeter in Nonurban Use	10	7			
3. Percent Of Corridor Being Farmed	20	4			
4. Protection Provided By State And Local Government	20	0			
5. Size of Present Farm Unit Compared To Average	10	0			
6. Creation Of Nonfarmable Farmland	25	0			
7. Availability Of Farm Support Services	5	4			
8. On-Farm Investments	20	20			
9. Effects Of Conversion On Farm Support Services	25	0			
10. Compatibility With Existing Agricultural Use	10	0			
TOTAL CORRIDOR ASSESSMENT POINTS	160	50	0	0	0

PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)	100	45	0	0	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	50	0	0	0
TOTAL POINTS (Total of above 2 lines)	260	95	0	0	0

1. Corridor Selected: Corridor A	2. Total Acres of Farmlands to be Converted by Project: 0.59	3. Date Of Selection: 6/24/20	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
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5. Reason For Selection:
Corridor A is the only alternative being considered for flood risk reduction, as all other alternatives were screened out as infeasible due to the low cost benefit ratios or substantial environmental impacts.

Signature of Person Completing this Part: **JOHNSON.YARI.BEN.15592981** Digitally signed by **JOHNSON.YARI.BEN.1559298189** DATE **10/13/20**
89 Date: 2020.10.20 13:17:53 -07'00'

NOTE: Complete a form for each segment with more than one Alternate Corridor

CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor - type site or design alternative for protection as farmland along with the land evaluation information.

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?

More than 90 percent - 15 points
90 to 20 percent - 14 to 1 point(s)
Less than 20 percent - 0 points

(2) How much of the perimeter of the site borders on land in nonurban use?

More than 90 percent - 10 points
90 to 20 percent - 9 to 1 point(s)
Less than 20 percent - 0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?

More than 90 percent - 20 points
90 to 20 percent - 19 to 1 point(s)
Less than 20 percent - 0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

Site is protected - 20 points
Site is not protected - 0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County ?

(Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage or Farm Units in Operation with \$1,000 or more in sales.)
As large or larger - 10 points
Below average - deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average - 9 to 0 points

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

Acreage equal to more than 25 percent of acres directly converted by the project - 25 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project - 1 to 24 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project - 0 points

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

All required services are available - 5 points
Some required services are available - 4 to 1 point(s)
No required services are available - 0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?

High amount of on-farm investment - 20 points
Moderate amount of on-farm investment - 19 to 1 point(s)
No on-farm investment - 0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

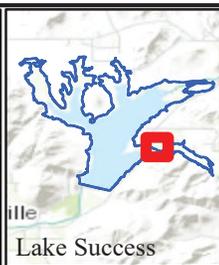
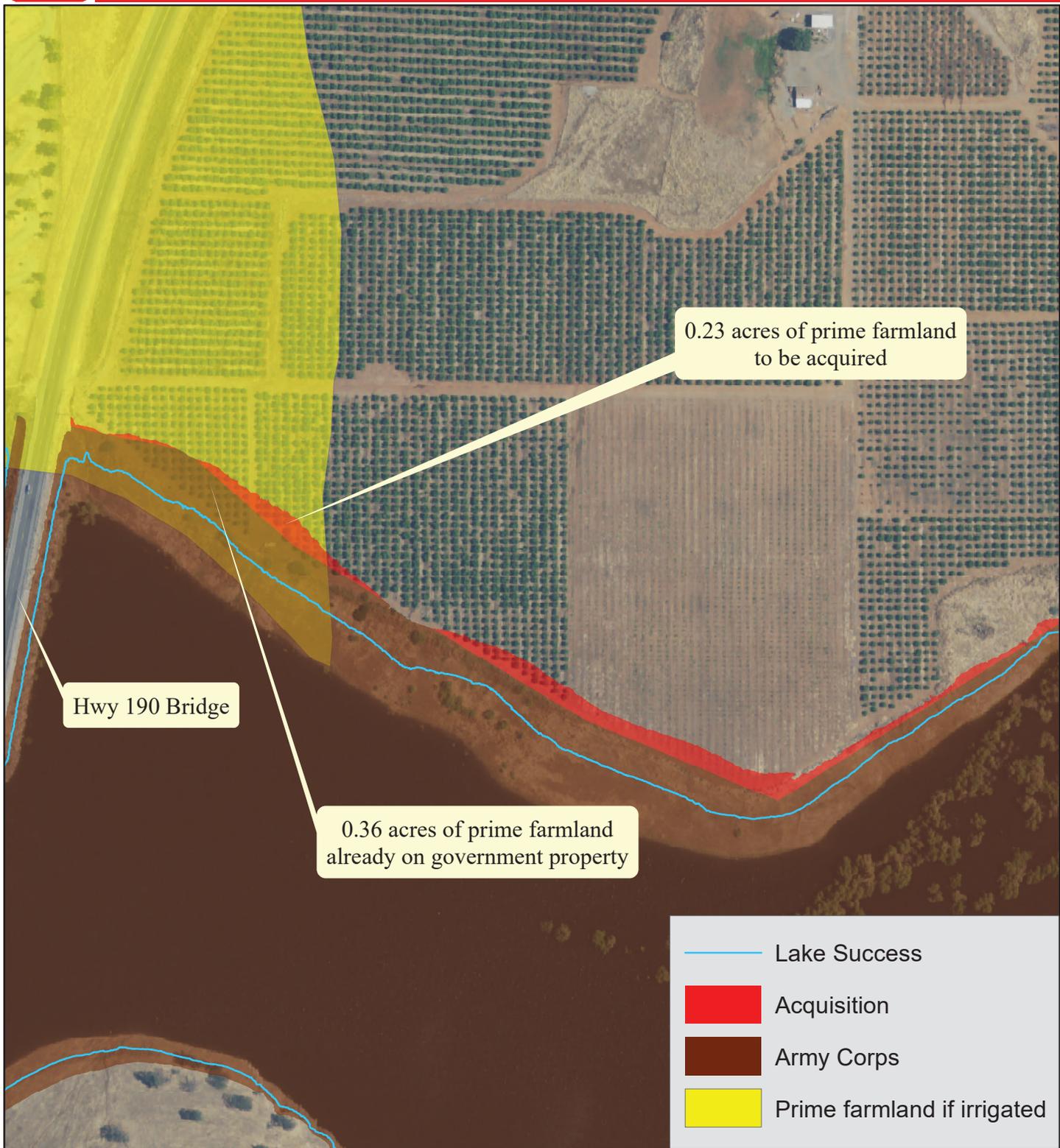
Substantial reduction in demand for support services if the site is converted - 25 points
Some reduction in demand for support services if the site is converted - 1 to 24 point(s)
No significant reduction in demand for support services if the site is converted - 0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?

Proposed project is incompatible to existing agricultural use of surrounding farmland - 10 points
Proposed project is tolerable to existing agricultural use of surrounding farmland - 9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland - 0 points



Tule River Spillway Enlargement Project, Spillway Raise



2020 USACE Yari Johnson
 Projectwise: CESPK/Documents/Civil Works/
 Tule River-Lake Success Enlargement/4.0 - Environmental / Cultural

DISCLAIMER - While the United States Army Corps of Engineers, (hereinafter referred to as USACE) has made a reasonable effort to insure the accuracy of the maps and associated data, it should be explicitly noted that USACE makes no warranty, representation or guaranty, either express or implied, as to the content, sequence, accuracy, timeliness or completeness of any of the data provided herein. The USACE, its officers, agents, employees, or servants shall assume no liability of any nature for any errors, omissions, or inaccuracies in the information provided regardless of how caused. The USACE, its officers, agents, employees or servants shall assume no liability for any decisions made or actions taken or not taken by the user of the maps and associated data in reliance upon any information or data furnished here. By using these maps and associated data the user does so entirely at their own risk and explicitly acknowledges that he/she is aware of and agrees to be bound by this disclaimer and agrees not to present any claim or demand of any nature against the USACE, its officers, agents, employees or servants in any forum whatsoever for any damages of any nature whatsoever that may result from or may be caused in any way by the use of the maps and associated data.

APPENDIX B - AIR QUALITY MODELING

Welcome to the Road Construction Emissions Model, Version 9.0.0

User Instructions

This spreadsheet system contains the following individual worksheets:

- 1 This worksheet of User Instructions
- 2 Updates
- 3 Emission Estimates
- 4 Data Entry
- 5 Non-default Off-road Equipment
- 6 EMFAC2017
- 7 On-road Mitigation EF
- 8 OFFROAD Convert
- 9 Off-road Tier 4 EF
- 10 OFFROAD HP & LF
- 11 OFFROAD EF
- 12 x-ref



The Emission Estimates worksheet calculates a project's emissions in pounds per day (and tons) by project phase and tons over the entire construction period.

The worksheet can be used to estimate emissions for both vehicle exhaust and fugitive dust. The methodology used to estimate fugitive dust emissions is a simplified methodology involving estimates of the maximum area (acreage) of land disturbed daily. Detailed fugitive dust emission estimates associated with individual materials handling operations and/or activity/vehicle types cannot be conducted with this version of the model.

The Emission Estimates worksheet cannot be modified directly, it is a protected worksheet. It can only be modified indirectly by entering information for the project in selected areas of the Data Entry worksheet.

The last seven of these worksheets - EMFAC2017, On-road Mitigation EF, OFFROAD Convert, Off-road Tier 4 EF, OFFROAD HP & LP, OFFROAD EF and x-ref - cannot be modified by the user. They are protected worksheets.

Even though all or portions of several worksheets are protected, the individual formulas used in the calculations can be seen by the user.

The Data Entry worksheet includes several areas that can be modified by the user.

User instructions in the Data Entry worksheet are highlighted in red.

On the Data Entry worksheet, the user has two options for entering project data: required data and optional data. Required data is entered in the data input section (yellow cells). That required data is then used by the worksheet to calculate default values for the project.

The user can override the default values (blue cells) calculated for a project and is encouraged to do so if project specific information is available. Due to the difficulty in developing reliable default values for road construction projects,

the user is encouraged to enter as much site specific information as is available for the project being analyzed.

The Data Entry Worksheet also includes a button that allows the user to clear previously entered data. This button is found just at the top of and to the right of the data entry portion of the worksheet.

When projects are discontinuous, the user must make adjustments to the spreadsheet manually, since the program cannot be setup to anticipate unexpected project delays.

#VALUE! <- This error message may occur during use of the spreadsheets. This occurs whenever the user enters a non numeric value, including a space character, into a cell that is used to calculate a numeric value.

Consequently, to erase values entered into the spreadsheets, use the delete key instead of the space bar!

Note: Information in this worksheet is based on conversations with knowledgeable individuals at the Sacramento Metropolitan Air Quality Management District, the California Department of Transportation, the California Air Resources Board, the U.S. EPA, and private industry involved in road construction. Also, the 26th edition of Walker's Building Estimator's Reference Book (1999) was used in the development of this spreadsheet. This spreadsheet was prepared by Jones & Stokes, TIAX LLC and Ramboll Environ with the financial support and direction of the Sacramento Metropolitan Air Quality Management District.



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Road Construction Emissions Model, Version 9.0.0

Updates Log

Changes from previous version of Road Construction Emissions Model

(Version 8.1.0 to 9.0.0) (updated by SMAQMD 04/22/18 with assistance from Ramboll)

- 1) Project length changed to include calendar years 2014 through 2040.
- 2) On-road vehicle emission factors have been updated to EMFAC2017 version 1.0.2.
- 3) Off-road emission rates updated to include calendar years 2014 through 2040.
- 4) Average Offroad HP by Equipment Type updated to be consistent with CalEEMod (version 2016.3.2)
- 5) Modified 'Data Entry' tab to calculate NOx start emissions from heavy duty trucks in "soil hauling", "asphalt hauling" and "water truck" section

(Version 7.1.5 to 8.1.0) (updated by SMAQMD 05/09/16 with assistance from Ramboll ENVIRON US Corporation)

- 1) Project length changed to include calendar years 2014 through 2025.
- 2) Added a new project type: Type 4: Other Linear Project Type. Note that there are no default vehicle or equipment activities available for the Project Type 4.
- 3) Emissions estimates were extended to include SOx, CH4, N2O and CO2e.
- 4) Updated off-road equipment emission factors and default average horsepower by equipment type to be consistent with CalEEMod (version 2013.2.2).
- 5) On-road vehicle emission factors have been updated to EMFAC2014.
- 6) Revised pollutant order for consistency throughout the calculator.
- 7) Added flexibility for users to specify a non-default number of working days per month.
- 8) Modified soil hauling import and export quantity and haul truck capacity data requests to allow users to specify soil hauling activity by phase.
- 9) Soil hauling emissions are now estimated separately for each construction phase.
- 10) Added a new feature to allow users to provide asphalt hauling quantities by phase in the "Data Entry" tab.
- 11) New component added where the user can specify construction start date and duration by phase.
- 12) The maximum daily emissions calculation was modified to sum emissions from overlapping construction phases.
- 13) Water truck activity can be specified and emissions estimated for the paving phase.
- 14) Mitigation options were added for on-road vehicles and off-road equipment. Emissions calculations include the effects of mitigations if a mitigation option is selected by the user.
- 15) Model allows user to estimate emissions from non-default off-road equipment for all phases and for all project types. Non-default off-road equipment specification must be included by equipment type for horsepower, number of equipment, load factor, hours of operation and emission factors in the "Non-default Off-road Equipment" tab.
- 16) New table of total project emissions with units of tons/phase was added in the "Emission Estimates" tab.
- 17) Removed table of daily emissions in metric units from the "Emission Estimates" tab.
- 18) Removed unnecessary data from all tabs.

(Version 7.1.4 to 7.1.5) (updated by SMAQMD 12/11/13 with assistance from ENVIRON Corporation)

- 1) Grubbing and Land Clearing Phase calculation of active months in 2007, 2017, 2019 fixed.
- 2) Soil Hauling Emissions calculation to select override if it exists for round trips/day.
- 3) Worker Commute Emissions calculation of starting and hot soak emissions; drainage phase PM₁₀ emission rate.
- 4) Water Truck Emissions calculation to select number of months for Grubbing and Land Clearing Phase; maximum acreage/day after 2025.

(Version 6.3.2 to Version 7.1.0, 7.1.1, 7.1.2, 7.1.3 & 7.1.4) (updated by SMAQMD 8/2/13)

- 1) EMFAC2011 emission factors added (previous EMFAC versions dropped).
- 2) OFFROAD2011 emission factors added (and fixed error).
- 3) OFFROAD2007 for categories not in OFFROAD2011 (and fixed error)
- 4) Project length changed to include calendar years 2009 through 2025.
- 5) Average Offroad HP by Equipment Type calculation updated and corrected
- 6) Load Factor Adjustment deactivated (default load factors already incorporated in ARB's calculation of emission factors)
- 7) Crawler Tractor equipment added to model
- 8) Air Compressors ROG & Default Excavators calculation on Data Entry sheet corrected.
- 9) Default equipment list updated
- 10) Corrections to Worker Commute Emissions calculations

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Tule River, Phase 2 Spillway Raise based on 65% designs														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	2.99	21.44	32.10	41.33	1.33	40.00	9.50	1.18	8.32	0.05	5,191.14	1.28	0.14	5,264.22
Grading/Excavation	12.59	90.97	142.08	45.83	5.83	40.00	13.53	5.21	8.32	0.23	22,197.73	5.84	0.64	22,534.06
Drainage/Utilities/Sub-Grade	9.56	82.42	96.95	14.21	4.21	10.00	6.02	3.94	2.08	0.17	16,357.75	3.57	0.22	16,511.48
Paving	3.40	38.74	37.41	1.78	1.78	0.00	1.54	1.54	0.00	0.09	8,589.23	1.68	0.52	8,785.04
Maximum (pounds/day)	12.59	90.97	142.08	45.83	5.83	40.00	13.53	5.21	8.32	0.23	22,197.73	5.84	0.64	22,534.06
Total (tons/construction project)	2.03	16.27	21.65	5.10	0.92	4.18	1.71	0.84	0.87	0.04	3,546.94	0.85	0.08	3,591.03

Notes:
 Project Start Year -> 2021
 Project Length (months) -> 18
 Total Project Area (acres) -> 50
 Maximum Area Disturbed/Day (acres) -> 6
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd ³ /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	117	0	14	0	680	120
Grading/Excavation	4,072	137	350	210	1,760	120
Drainage/Utilities/Sub-Grade	0	1	0	30	800	80
Paving	0	427	0	660	400	80

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 -> Tule River, Phase 2 Spillway Raise based on 65% designs														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.07	0.11	0.14	0.00	0.13	0.03	0.00	0.03	0.00	17.13	0.00	0.00	15.76
Grading/Excavation	0.93	6.70	10.47	3.38	0.43	2.95	1.00	0.38	0.61	0.02	1,635.97	0.43	0.05	1,506.63
Drainage/Utilities/Sub-Grade	1.05	9.07	10.66	1.56	0.46	1.10	0.66	0.43	0.23	0.02	1,799.35	0.39	0.02	1,647.70
Paving	0.04	0.43	0.41	0.02	0.02	0.00	0.02	0.02	0.00	0.00	94.48	0.02	0.01	87.67
Maximum (tons/phase)	1.05	9.07	10.66	3.38	0.46	2.95	1.00	0.43	0.61	0.02	1,799.35	0.43	0.05	1,647.70
Total (tons/construction project)	2.03	16.27	21.65	5.10	0.92	4.18	1.71	0.84	0.87	0.04	3,546.94	0.85	0.08	3,257.76

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.

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Tule River, Phase 2 Spillway Raise based on 65% designs, with mitig														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	1.51	29.94	6.84	40.41	0.41	40.00	8.64	0.32	8.32	0.05	5,167.36	1.27	0.13	5,239.19
Grading/Excavation	6.17	117.62	20.08	41.09	1.09	40.00	9.15	0.83	8.32	0.23	22,077.07	5.81	0.62	22,407.07
Drainage/Utilities/Sub-Grade	4.83	98.67	14.13	10.79	0.79	10.00	2.75	0.67	2.08	0.17	16,342.57	3.56	0.21	16,495.51
Paving	1.90	44.62	11.81	0.57	0.57	0.00	0.41	0.41	0.00	0.09	8,515.50	1.67	0.50	8,707.60
Maximum (pounds/day)	6.17	117.62	20.08	41.09	1.09	40.00	9.15	0.83	8.32	0.23	22,077.07	5.81	0.62	22,407.07
Total (tons/construction project)	1.01	20.11	3.19	4.36	0.18	4.18	1.01	0.14	0.87	0.04	3,535.48	0.84	0.08	3,578.98

Notes:
 Project Start Year -> 2021
 Project Length (months) -> 18
 Total Project Area (acres) -> 50
 Maximum Area Disturbed/Day (acres) -> 6
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd ³ /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	117	0	14	0	680	120
Grading/Excavation	4,072	137	350	210	1,760	120
Drainage/Utilities/Sub-Grade	0	1	0	30	800	80
Paving	0	427	0	660	400	80

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 -> Tule River, Phase 2 Spillway Raise based on 65% designs, with mitig														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.10	0.02	0.13	0.00	0.13	0.03	0.00	0.03	0.00	17.05	0.00	0.00	15.68
Grading/Excavation	0.45	8.67	1.48	3.03	0.08	2.95	0.67	0.06	0.61	0.02	1,627.08	0.43	0.05	1,498.14
Drainage/Utilities/Sub-Grade	0.53	10.85	1.55	1.19	0.09	1.10	0.30	0.07	0.23	0.02	1,797.68	0.39	0.02	1,646.11
Paving	0.02	0.49	0.13	0.01	0.01	0.00	0.00	0.00	0.00	0.00	93.67	0.02	0.01	86.89
Maximum (tons/phase)	0.53	10.85	1.55	3.03	0.09	2.95	0.67	0.07	0.61	0.02	1,797.68	0.43	0.05	1,646.11
Total (tons/construction project)	1.01	20.11	3.19	4.36	0.18	4.18	1.01	0.14	0.87	0.04	3,535.48	0.84	0.08	3,246.83

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

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The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model		Version 9.0.0		
Data Entry Worksheet				
<p><small>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.</small></p>				
<p>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.</p>				
				
Input Type				
Project Name	Tule River, Phase 2 Spillway Raise based on 65% designs, with mitigation			
Construction Start Year	2021	Enter a Year between 2014 and 2040 (inclusive)		
Project Type	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction		
Project Construction Time	18.00	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)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)		
Project Length	3.50	miles		
Total Project Area	50.00	acres		
Maximum Area Disturbed/Day	6.00	acres		
Water Trucks Used?	1	1. Yes 2. No		
Material Hauling Quantity Input				
Material Type	Phase	Haul Truck Capacity (yd ³) (assume 20 if unknown)	Import Volume (yd ³ /day)	Export Volume (yd ³ /day)
Soil	Grubbing/Land Clearing	83.00		117.00
	Grading/Excavation	83.00	1571.00	2501.00
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation	20.00	131.00	6.00
	Drainage/Utilities/Sub-Grade	20.00	1.00	
	Paving	20.00	427.00	
Mitigation Options				
On-road Fleet Emissions Mitigation	2010 and Newer On-road Vehicles Fleet			
Off-road Equipment Emissions Mitigation	Tier 4 Equipment			
Will all off-road equipment be tier 4?	All Tier 4 Equipment			
<p>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 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/Businesses/CEQA-Land-Use-Planning/Mitigation). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard</p>				
<p>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.</p> <p>http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries</p>				
<p>The remaining sections of this sheet contain areas that require modification when "Other Project Type" is selected.</p>				

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	0.30	1.80		1/1/2021
Grading/Excavation	6.70	7.20		1/1/2021
Drainage/Utilities/Sub-Grade	10.00	6.30		8/3/2021
Paving	1.00	2.70		6/4/2022
Totals (Months)		18		

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

Soil Hauling Emissions	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					
User Input										
Miles/round trip: Grubbing/Land Clearing	7.00			2	14.00					
Miles/round trip: Grading/Excavation	7.00			50	350.00					
Miles/round trip: Drainage/Utilities/Sub-Grade	0.00		0	0	0.00					
Miles/round trip: Paving	0.00		0	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)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Grading/Excavation (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Drainage/Utilities/Sub-Grade (grams/mile)	0.04	0.42	3.07	0.11	0.05	0.02	1,763.72	0.00	0.28	1,846.38
Paving (grams/mile)	0.04	0.42	3.08	0.11	0.05	0.02	1,748.57	0.00	0.27	1,830.52
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.99	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	0.01	0.11	0.00	0.00	0.00	54.92	0.00	0.01	57.49
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.19
Pounds per day - Grading/Excavation	0.03	0.33	2.75	0.09	0.04	0.01	1,372.94	0.00	0.22	1,437.28
Tons per const. Period - Grading/Excavation	0.00	0.02	0.20	0.01	0.00	0.00	101.19	0.00	0.02	105.93
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	0.02	0.20	0.01	0.00	0.00	101.37	0.00	0.02	106.12

Note: Asphalt Hauling emission default values can be overridden in cells D91 through D94, and F91 through F94.

Asphalt Hauling Emissions	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					
User Input										
Miles/round trip: Grubbing/Land Clearing	0.00		0	0	0.00					
Miles/round trip: Grading/Excavation	30.00			7	210.00					
Miles/round trip: Drainage/Utilities/Sub-Grade	30.00			1	30.00					
Miles/round trip: Paving	30.00			22	660.00					
2010+ Model Year Mitigation Option Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Grading/Excavation (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Drainage/Utilities/Sub-Grade (grams/mile)	0.04	0.42	3.07	0.11	0.05	0.02	1,763.72	0.00	0.28	1,846.38
Paving (grams/mile)	0.04	0.42	3.08	0.11	0.05	0.02	1,748.57	0.00	0.27	1,830.52
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.99	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	0.02	0.20	1.47	0.05	0.02	0.01	823.76	0.00	0.13	862.37
Tons per const. Period - Grading/Excavation	0.00	0.01	0.11	0.00	0.00	0.00	60.71	0.00	0.01	63.56
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.03	0.21	0.01	0.00	0.00	116.65	0.00	0.02	122.12
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.02	0.00	0.00	0.00	12.83	0.00	0.00	13.43
Pounds per day - Paving	0.06	0.62	4.67	0.16	0.07	0.02	2,544.26	0.00	0.40	2,663.51
Tons per const. Period - Paving	0.01	0.01	0.05	0.00	0.00	0.00	27.99	0.00	0.00	29.30
Total tons per construction project	0.00	0.02	0.18	0.01	0.00	0.00	101.53	0.00	0.02	106.29

Note: Worker commute default values can be overridden in cells D121 through D126.

Worker Commute Emissions		User Override of Worker Commute Default Values		Default Values		Calculated	Calculated				
User Input		User Override of Worker Commute Default Values		Default Values		Calculated	Calculated				
		User Override of Worker Commute Default Values		Default Values		Daily Trips	Daily VMT				
Miles/one-way trip		20									
One-way trips/day		2									
No. of employees: Grubbing/Land Clearing		17				34	680.00				
No. of employees: Grading/Excavation		44				88	1,760.00				
No. of employees: Drainage/Utilities/Sub-Grade		20				40	800.00				
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	1.10	0.10	0.05	0.02	0.00	339.80	0.00	0.01	342.28
Grading/Excavation (grams/mile)		0.02	1.10	0.10	0.05	0.02	0.00	339.80	0.00	0.01	342.28
Drainage/Utilities/Sub-Grade (grams/mile)		0.02	1.05	0.09	0.05	0.02	0.00	334.18	0.00	0.01	336.54
Paving (grams/mile)		0.02	1.00	0.08	0.05	0.02	0.00	328.72	0.00	0.01	330.96
Grubbing/Land Clearing (grams/trip)		1.18	2.95	0.34	0.00	0.00	0.00	72.81	0.08	0.04	85.39
Grading/Excavation (grams/trip)		1.18	2.95	0.34	0.00	0.00	0.00	72.81	0.08	0.04	85.39
Drainage/Utilities/Sub-Grade (grams/trip)		1.14	2.90	0.33	0.00	0.00	0.00	71.66	0.08	0.03	83.89
Paving (grams/trip)		1.11	2.85	0.32	0.00	0.00	0.00	70.54	0.08	0.03	82.43
Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.12	1.87	0.17	0.07	0.03	0.01	514.86	0.01	0.01	519.53
Tons per const. Period - Grubbing/Land Clearing		0.00	0.01	0.00	0.00	0.00	0.00	1.70	0.00	0.00	1.71
Pounds per day - Grading/Excavation		0.31	4.85	0.44	0.18	0.08	0.01	1,332.58	0.03	0.04	1,344.66
Tons per const. Period - Grading/Excavation		0.02	0.36	0.03	0.01	0.01	0.00	98.21	0.00	0.00	99.10
Pounds per day - Drainage/Utilities/Sub-Grade		0.13	2.11	0.19	0.08	0.03	0.01	595.72	0.02	0.02	600.96
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.01	0.23	0.02	0.01	0.00	0.00	65.53	0.00	0.00	66.11
Pounds per day - Paving		0.06	1.01	0.09	0.04	0.02	0.00	292.99	0.01	0.01	295.49
Tons per const. Period - Paving		0.00	0.01	0.00	0.00	0.00	0.00	3.22	0.00	0.00	3.25
Total tons per construction project		0.04	0.61	0.05	0.02	0.01	0.00	168.66	0.00	0.00	170.17

Note: Water Truck default values can be overridden in cells D153 through D156, I153 through I156, and F153 through F156.

Water Truck Emissions		User Override of Default # Water Trucks		Program Estimate of Number of Water Trucks		User Override of Truck Round Trips/Vehicle/Day		Default Values Round Trips/Vehicle/Day		Calculated Trips/day	User Override of Miles/Round Trip	Default Values Miles/Round Trip		Calculated Daily VMT
User Input		User Override of Default # Water Trucks		Program Estimate of Number of Water Trucks		User Override of Truck Round Trips/Vehicle/Day		Default Values Round Trips/Vehicle/Day		Calculated Trips/day	User Override of Miles/Round Trip	Default Values Miles/Round Trip		Calculated Daily VMT
Grubbing/Land Clearing - Exhaust		3				5.00					8.00			120.00
Grading/Excavation - Exhaust		3				5.00					8.00			120.00
Drainage/Utilities/Subgrade		2				5.00					8.00			80.00
Paving		2				5.00					8.00			80.00
2010+ Model Year Mitigation Option Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e			
Grubbing/Land Clearing (grams/mile)		0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69			
Grading/Excavation (grams/mile)		0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69			
Drainage/Utilities/Sub-Grade (grams/mile)		0.04	0.42	3.07	0.11	0.05	0.02	1,763.72	0.00	0.28	1,846.38			
Paving (grams/mile)		0.04	0.42	3.08	0.11	0.05	0.02	1,748.57	0.00	0.27	1,830.52			
Grubbing/Land Clearing (grams/trip)		0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Grading/Excavation (grams/trip)		0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Drainage/Utilities/Sub-Grade (grams/trip)		0.00	0.00	3.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Paving (grams/trip)		0.00	0.00	3.99	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	0.11	0.93	0.03	0.01	0.00	470.72	0.00	0.07	492.78			
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	1.55	0.00	0.00	1.63			
Pounds per day - Grading/Excavation		0.01	0.11	0.93	0.03	0.01	0.00	470.72	0.00	0.07	492.78			
Tons per const. Period - Grading/Excavation		0.00	0.01	0.07	0.00	0.00	0.00	34.69	0.00	0.01	36.32			
Pounds per day - Drainage/Utilities/Sub-Grade		0.01	0.07	0.62	0.02	0.01	0.00	311.07	0.00	0.05	325.65			
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.01	0.07	0.00	0.00	0.00	34.22	0.00	0.01	35.82			
Pounds per day - Paving		0.01	0.07	0.63	0.02	0.01	0.00	308.40	0.00	0.05	322.85			
Tons per const. Period - Paving		0.00	0.00	0.01	0.00	0.00	0.00	3.39	0.00	0.00	3.55			
Total tons per construction project		0.00	0.02	0.15	0.00	0.00	0.00	73.86	0.00	0.01	77.32			

Note: Fugitive dust default values can be overridden in cells D183 through D185.

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	4.00		40.00	0.13	8.32	0.03
Fugitive Dust - Grading/Excavation	4.00		40.00	2.95	8.32	0.61
Fugitive Dust - Drainage/Utilities/Subgrade	1.00		10.00	1.10	2.08	0.23

Grading/Excavation	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4
	Number of Vehicles	Override of	Default	Default								
	Default	Override of	Default	Default								
	Number of Vehicles	Number of Vehicles	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	0.00	Program-estimate	Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)									
	0.00		Tier 4	Aerial Lifts	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		Tier 4	Bore/Drill Rigs	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		Tier 4	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2.00		Tier 4	Cranes	0.35	6.14	0.71	0.04	0.03	0.01	1,117.48	0.36
	3.00		Tier 4	Crawler Tractors	0.72	12.54	1.45	0.07	0.07	0.02	2,281.09	0.74
	0.00		Tier 4	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5.00		Tier 4	Excavators	0.79	19.59	1.59	0.08	0.07	0.03	2,500.96	0.81
	0.00		Tier 4	Forklifts	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
	3.00		Tier 4	Graders	0.61	10.55	1.22	0.06	0.06	0.02	1,925.05	0.62
	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		Tier 4	Off-Highway Trucks	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		Tier 4	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		Tier 4	Other Material Handling Equipm	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		Tier 4	Paving Equipment	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		Tier 4	Pressure Washers	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
	4.00		Tier 4	Rollers	0.32	7.94	0.64	0.03	0.03	0.01	1,016.36	0.33
	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		Tier 4	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3.00		Tier 4	Rubber Tired Loaders	0.58	10.05	1.16	0.06	0.05	0.02	1,815.68	0.59
	4.00		Tier 4	Scrapers	1.86	32.31	3.73	0.19	0.17	0.06	5,871.65	1.90
	7.00		Tier 4	Signal Boards	0.18	3.64	3.23	0.18	0.17	0.00	345.20	0.04
	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		Tier 4	Surfacing Equipment	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
	4.00		Tier 4	Tractors/Loaders/Backhoes	0.38	9.37	0.76	0.04	0.03	0.01	1,203.60	0.39
	0.00		Tier 4	Trenchers	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
User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4
	Number of Vehicles		Equipment Tier	Type	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		N/A		0	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		N/A		0	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		N/A		0	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
	Grading/Excavation			pounds per day	5.80	112.14	14.48	0.74	0.69	0.19	18,077.07	5.77
	Grading/Excavation			tons per phase	0.43	8.26	1.07	0.05	0.05	0.01	1,332.28	0.43

Paving	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4
	Number of Vehicles	Override of	Default	Default								
	Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier								
	0.00			Tier 4	Aerial Lifts	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			Tier 4	Bore/Drill Rigs	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			Tier 4	Concrete/Industrial Saws	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			Tier 4	Crawler Tractors	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			Tier 4	Excavators	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			Tier 4	Generator Sets	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			Tier 4	Off-Highway Tractors	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			Tier 4	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00			Tier 4	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00			Tier 4	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3.00			Tier 4	Pavers	0.43	10.69	0.87	0.04	0.04	0.01	1,365.77
	3.00			Tier 4	Paving Equipment	0.38	9.30	0.75	0.04	0.03	0.01	1,183.41
	0.00			Tier 4	Plate Compactors	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			Tier 4	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5.00			Tier 4	Rollers	0.40	9.92	0.80	0.04	0.04	0.01	1,270.52
	0.00			Tier 4	Rough Terrain Forklifts	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			Tier 4	Rubber Tired Loaders	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
	7.00			Tier 4	Signal Boards	0.18	3.64	3.23	0.18	0.17	0.00	345.20
	0.00			Tier 4	Skid Steer Loaders	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			Tier 4	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4.00			Tier 4	Tractors/Loaders/Backhoes	0.38	9.37	0.76	0.04	0.03	0.01	1,204.96
	0.00			Tier 4	Trenchers	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
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
	0.00		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Paving		pounds per day	1.77	42.92	6.42	0.34	0.31	0.06	5,369.85	1.66
		Paving		tons per phase	0.02	0.47	0.07	0.00	0.00	0.00	59.07	0.02
Total Emissions all Phases (tons per construction period) =>					0.97	19.44	2.60	0.13	0.12	0.03	3,090.07	0.84

APPENDIX C - CULTURAL RESOURCE COORDINATION

**PROGRAMMATIC AGREEMENT
BETWEEN
THE U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING
THE TULE RIVER SPILLWAY ENLARGEMENT PROJECT**

WHEREAS, the U.S. Army Corps of Engineers, Sacramento District (Corps), owns and operates Success Dam, a zoned earth-filled dam that impounds the Tule River about 5 miles east and upstream of the city of Porterville in Tulare County, California, which was authorized for construction by the Flood Control Act of 1944 (Public Law [PL] 534, 22 December 1944, Seventy-eighth Congress, Second Session); and

WHEREAS, in 1999, the Tule River Basin Investigation Final Feasibility Report and Chief's Report recommended increasing storage in Success Dam Reservoir for flood risk management and irrigation water supply by raising the spillway by 10 feet; and

WHEREAS, Congress authorized construction of a project to raise the Success Dam spillway and increase reservoir storage through the Water Resources Development Act (WRDA) of 1999 Section 101(b)(4) (PL 106-53, 17 August 1999) and provided funding for the Tule River Spillway Enlargement Project (Project) as a Civil Works Flood Control and Coastal Emergencies project through Supplemental Appropriations under PL 115-123, Division B, Subdivision 1—Further Additional Supplemental Appropriations for Disaster Relief Requirements Act, 2018; and

WHEREAS, the Project authorized and funded by Congress would increase the storage capacity of Success Dam Reservoir through a phased construction project that would widen the existing spillway from 200 to 365 feet, raise its height by 10 feet through construction of an ogee weir, and raise the maximum gross reservoir pool from 652.5 feet above mean sea level (amsl) to 662.5 feet amsl; and

WHEREAS, the Corps has determined that the Project constitutes an undertaking, as defined in 36 CFR § 800.16(y), and is therefore subject to the requirements of 54 USC § 306108, commonly known as Section 106 of the National Historic Preservation Act (NHPA), as amended; and

WHEREAS, the Corps determined that Success Dam is not eligible for inclusion on the National Register of Historic Places (NRHP) under any criteria, and received California State Historic Preservation Officer (SHPO) consensus regarding this determination through correspondence dated November 5, 2019; and

WHEREAS, the Corps determined that although Success Dam is not eligible for the NRHP, the undertaking involves the type of activity that has the potential to cause effects on historic properties, assuming such properties are present, and that the phased nature of the Project requires phasing of the Section 106 process to identify and evaluate historic properties as described at 36 CFR § 800.4 – § 800.5, and to resolve adverse effects on historic properties if necessary in accordance with 36 CFR § 800.6, which requires execution of a Programmatic Agreement (PA) pursuant to 36 CFR § 800.14(b)(1)(ii); and

WHEREAS, the Corps is complying with Section 106 of the NHPA for this Project through the execution and implementation of this PA, pursuant to 36 CFR § 800.14(b)(1)(iii), because the Corps cannot fully determine the effects of the undertaking on historic properties for all phases of the Project prior to the approval of the expenditure of Federal funds on the undertaking; and

WHEREAS, the Corps has consulted with the California State Historic Preservation Officer (SHPO) on the development of this PA for phasing the Section 106 process for the undertaking; and

WHEREAS, the Corps has invited the Lower Tule River Irrigation District, the non-Federal sponsor for the Project, to be a Concurring Party to this PA; and

WHEREAS, the California Native American Heritage Commission (NAHC) has identified the Tule River Indian Tribe, Santa Rosa Rancheria Tachi Yokut Tribe, Kern Valley Indian Community, Tubatulabals of Kern Valley, and the Wuksache Indian Tribe/Eshom Valley Band as having cultural resources interests in the Project area and the Corps has invited these Indian tribes and Native American interested parties to participate as Section 106 consulting parties regarding the undertaking and as Concurring Parties to this PA; and

WHEREAS, in accordance with 36 CFR § 36 CFR § 800.6(a)(1), through correspondence dated June 18, 2019, the Corps notified the Advisory Council on Historic Preservation (ACHP) of the development of this PA and through correspondence dated July 31, 2019, the ACHP declined to participate in its development; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(4) and 36 CFR § 800.14(b)(2)(ii), the Corps has notified the public of the Project of the development of this PA and provided an opportunity for members of the public to comment on the Project and the Section 106 process for the undertaking; and

WHEREAS, the definitions set forth in 36 CFR § 800.16, the definitions for Signatory Parties set forth in 36 CFR § 800.6(c)(1), and the definitions for Concurring Parties set forth in 36 CFR § 800.6(c)(3), are incorporated herein by reference and apply throughout this PA; and

NOW, THEREFORE, the Signatories agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effects of the undertaking on historic properties.

I. TIME FRAMES AND REVIEW PROCEDURES

- A. For any document or deliverable produced in accordance with the stipulations of this PA, the Corps shall provide a draft version to the SHPO, Concurring Parties, and/or Indian tribes or other Native American interested parties for review. To the extent feasible, the Corps will provide draft documents and deliverables to reviewers by hard copy and electronically, by email or other means, if so requested by a reviewer. Any written comments provided to the Corps by hard copy or electronically or within thirty (30) calendar days after the date of receipt by the reviewing party shall be considered in the revision of the document or deliverable.
- B. The Corps shall keep a record of the written comments received for all draft documents or deliverables and how those comments were addressed. The Corps shall provide electronic and hard copies of revised final documents or deliverables to the SHPO for concurrence. The SHPO shall have thirty (30) calendar days from the date of receipt to accept or concur with the document or deliverable.
- C. Failure of the SHPO, Concurring Parties, and Indian tribes or other Native American interested parties to respond within thirty (30) calendar days of any submittal shall not preclude the Corps from moving forward with the undertaking or next steps in this PA.
- D. Should the SHPO object to a final document or deliverable submitted for concurrence, the Corps and SHPO shall consult regarding the objection as outlined in Stipulation XIV (Dispute Resolution).

II. AREA OF POTENTIAL EFFECTS

- A. Current planning, design, engineering and funding requirements necessitate multiple Project phases. The first phase of the Project will consist of the right abutment spillway cut; the realignment of a segment of Worth Drive/Avenue 146, a road currently aligned down the invert of the existing spillway; and stockpiling of materials removed through these activities. Subsequent Project phases include the left abutment spillway cut and spillway raise (i.e., ogee weir construction within the enlarged spillway); land acquisitions; utility relocations; armoring of the Highway 190 bridge and Frazier Dike, to prevent impacts from a higher gross reservoir pool; and changes in the water control diagram associated with managing increased reservoir capacity. The reservoir pool raise itself would occur intermittently after the completion of Project construction.
- B. The overall Project APE, as documented in Appendix A to this PA, consists of the following:

1. The extent of all Project construction activities required to enlarge and raise the spillway and increase the gross reservoir pool; and
 2. All construction staging areas, access routes, borrow areas, spoil areas, and stockpiling areas; and
 3. Any additional rights-of-way or easements obtained by the Corps or local partner as required for Project construction; and
 4. Other areas that may be impacted by Project-related activities, including downstream areas that may be affected by changes in reservoir operations; areas associated with habitat restoration or environmental mitigation measures; and/or other areas potentially affected by Project construction.
- C. As a Project phase approaches final design, the Corps will prepare and consult with the SHPO, Concurring Parties, and Indian tribes or other Native American interested parties on a refined APE specific to that Project phase. Consultation time frames and review procedures for consultation on a refined APE will follow those described in Stipulation I (Time Frames and Review Procedures).
- D. If changes in Project design necessitate modifying an APE previously subject to review under this PA, the Corps will submit a modified APE to the SHPO, Concurring Parties, and Indian tribes or other Native American interested parties. Time frames and review procedures for consultation on a modified APE will follow those described in Stipulation I (Time Frames and Review Procedures). Any objections or disputes related to documentation of the Project APE or modified APE will be handled as described in Stipulation XIV (Dispute Resolution).
- E. The APE for specific Project phases, or for the Project as a whole, may be refined as described herein without requiring amendment to this PA.
- F. As necessary to meet Project schedules, the Corps may address multiple steps in 36 CFR §§ 800.4 through 800.6 as provided for at 36 CFR § 800.3(g).

III. IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES

- A. To the extent feasible under Project schedule constraints, the Corps shall identify and evaluate historic properties in the APE through the process described at 36 CFR § 800.4. In the event that evaluation is not feasible, the Corps may elect to treat identified cultural resources as eligible for inclusion in the NRHP for the purposes of this undertaking. Based on Project schedule and access, the Corps may phase these identification and evaluation efforts pursuant to 36 CFR § 800.4(b)(2).

- B. The Corps shall consult on the results of identification and evaluation efforts for each Project phase in accordance with the timeframes and procedures described in Stipulation I (Time Frames and Review Procedures).
- C. As necessary to meet Project schedules, the Corps may address multiple steps in 36 CFR §§ 800.4 through 800.6 in a single consultation, as provided for at 36 CFR § 800.3(g).

IV. ASSESSMENT AND RESOLUTION OF ADVERSE EFFECTS

- A. The Corps will apply the criteria of adverse effect to historic properties identified within the APE, refined APE, or modified APE pursuant to 36 CFR § 800.5(a)(1). Based on Project schedule and access, the Corps may use a phased process in applying the criteria of adverse effect consistent with phased identification and evaluation efforts pursuant to 36 CFR § 800.5(a)(3).
 - 1. Avoidance of adverse effects to historic properties is the preferred treatment approach. If feasible, the Corps will consider redesign of Project elements in order to avoid historic properties and adverse effects; however, given Project constraints, avoidance through redesign may not be possible.
 - 2. If an adverse effect to a historic property cannot be avoided, the Corps will resolve the adverse effect(s) through implementation of measures identified in a Project Historic Properties Treatment Plan (HPTP) as described in Stipulation VI (Historic Properties Treatment Plan).

V. HISTORIC PROPERTIES TREATMENT PLAN

- A. The Corps, in consultation with the SHPO, Concurring Parties, and Indian tribes or other Native American interested parties and/or any additional consulting parties, shall develop and implement a HPTP for the Project that describes the actions the Corps will take to avoid, minimize, and/or resolve any adverse effect(s) resulting from the undertaking (or phase of the undertaking).
 - 1. Resolution of adverse effects to archaeological properties through means other than data recovery may be considered when developing the HPTP (e.g., detailed architectural recordation, oral history documentation, development of interpretive materials or publications, or other mitigation means, as agreed upon by the Corps and the SHPO). If data recovery is determined to be the most appropriate method of treatment, the Corps shall ensure that the recovery methods and documentation adhere to the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation*.

2. The Corps shall be responsible for consulting on the appropriate means of mitigation with the SHPO, Concurring Parties, and Indian tribes or other Native American interested parties and/or any additional consulting parties concerned with the effect of the Project on historic properties.
3. The Corps will submit all documentation related to HPTP implementation for review as described in Stipulation I (Timeframes and Review Procedures). Any objections or disputes related to HPTP implementation will be handled as described in Stipulation XIV (Dispute Resolution).

VI. POST-REVIEW DISCOVERIES

- A. If historic properties are discovered, or unanticipated effects on historic properties are found, during any phase of Project construction, the Corps will follow the procedures at 36 CFR § 800.13.
 1. The Project HPTP, prepared in consultation with the SHPO, Concurring Parties, Indian tribes, other Native American interested parties, and/or other consulting parties, shall include a plan for responding to such discoveries pursuant to 36 CFR § 800.13(a)(2).

VII. TREATMENT OF NATIVE AMERICAN HUMAN REMAINS

- A. It is possible that human remains may be discovered during Project construction or during archaeological excavations associated with identification, evaluation, or data recovery efforts associated with the undertaking.
- B. If Native American human remains, associated funerary objects, unassociated funerary objects, sacred objects, and/or objects of cultural patrimony are inadvertently discovered or intentionally excavated on Federal lands, the Corps will follow the procedures outlined in the Native American Graves Protection and Repatriation Act (NAGPRA), as specified in the implementing regulations at 43 CFR § 10.2(d)(1-2). The Corps will ensure that all such NAGPRA cultural items encountered on Federal lands during any activity associated with the undertaking are treated in accordance with Section 3(c-d) of NAGPRA and the implementing regulations at 43 CFR Part 10.
- C. For Native American burials, skeletal remains, and associated grave goods discovered or intentionally excavated on non-Federal land during any activity associated with the undertaking, the treatment and disposition of the remains will follow the requirements of Section 7050.5 of the California State Health and Human Safety Code and Section 5097.98 of the California Public Resources Code.

- D. Any HPTP developed under this PA also may include an Inadvertent Discovery and Burial Treatment Plan specific to the actions specified in the HPTP, as needed.

VIII. CURATION OF ARCHAEOLOGICAL COLLECTIONS

- A. The Corps will ensure that any non-NAGPRA related cultural materials and associated records that result from the identification, evaluation, and/or treatment of historic properties on Corps land pursuant to this PA shall be curated and properly maintained in accordance with the requirements of 36 CFR Part 79 (see Stipulation XIII for treatment of NAGPRA-related items).
- B. The Corps will ensure that any archaeological materials excavated or otherwise recovered from non-Federal land during implementation of the undertaking shall be handled and maintained in accordance with 36 CFR § 79 until all necessary analyses of such materials have been completed as outlined in an HPTP, as applicable.
- C. For any collections made on private lands, the Corps will encourage the landowner(s) to consent to the curation of archaeological materials recovered from their lands in a museum or repository that meets the requirements of 36 CFR § 79 upon the completion of all necessary analyses. If a private landowner does not consent to the curation of recovered archaeological materials, the Corps will return the materials to the landowner(s) and encourage them to rebury the returned items close to their original location, if possible, based on Project requirements. The Corps will document the return and submit copies of this documentation to the parties named in the specific HPTP within thirty (30) days of such return.
- D. The HPTP developed under this PA will detail the types of materials, if any, proposed for curation as a part of this project. If items are to be curated in a museum or other repository, the Corps will ensure that documentation of the curation of these materials is prepared and provided to the parties named in the HPTP, specific to the resolution of effects for that historic property, within thirty (30) days of curation of the materials.
- E. The Corps will consult with Indian tribes and other Native American interested parties regarding the curation of any Native American archaeological materials collected during the course of the Project, as described in Stipulation IX (Native American Consultation and Participation).

IX. NATIVE AMERICAN CONSULTATION AND PARTICIPATION

- A. The Corps shall make a reasonable and good-faith effort to ensure that Indian tribes and other Native American interested parties identified by the California Native American Heritage Commission as having cultural ties or interests in the APE, have the opportunity to participate in the development and implementation of the terms of this PA, including, but not limited to, the identification of historic properties within the Project APE,

National Register of Historic Places eligibility determinations, findings of effect, and the resolution of adverse effects to historic properties.

- B. The Corps shall ensure that Native American consultation regarding the Project continues throughout the Section 106 process. Section 106 Consultation may be carried out via letters of notification, public meetings, site visits, and/or other appropriate methods.
- C. Failure of any contacted group to comment within thirty (30) calendar days shall not preclude the Corps from proceeding with the Project as proposed.

X. PUBLIC AND CONSULTING PARTY PARTICIPATION

- A. Individuals, organizations, and local agencies with a demonstrated interest in the Project may be invited to participate as Concurring Parties to this PA and consulting parties for the undertaking, to provide input on the identification, evaluation, and proposed treatment of historic properties consistent with 36 CFR §§ 800.2(c)(5) and 800.2(d). Public input will be sought and received through Section 106 letters of notification, public meetings, or by other means and venues.
- B. Information regarding the undertaking that is released to the public will comply with Stipulation XIII (Confidentiality); 36 CFR § 800.2(d)(1-2) and 800.11(c)(1) and (3); Section 304 of the NHPA, as amended (54 U.S.C. § 307103); Section 9 of the Archaeological Resources Protection Act (10 U.S.C. § 470aa – 470mm); Executive Order on Sacred Sites 13007, dated May 24, 1996; the Freedom of Information Act (FOIA) (5 USC § 552); and Section 6254.10 of the California Government Code, as applicable.

XI. NOTICES TO PROCEED WITH CONSTRUCTION

- A. Notices to Proceed (NTPs) may be issued by the Corps for a Project phase under any of the following conditions:
 - 1. The Corps, in consultation with the SHPO, Concurring Parties, Indian tribes, other Native American interested parties, and/or other consulting parties, has determined that there are no historic properties present within the APE for the Project phase.
 - 2. The Corps, in consultation with the SHPO, Concurring Parties, Indian tribes, other Native American interested parties, and/or other consulting parties, has determined that there will be no adverse effect to historic properties within the APE for the Project phase.
 - 3. Mitigation measures to resolve adverse effects to historic properties have been documented in an HPTP that has been reviewed according to Stipulation I (Timeframes and Review Procedures) and Stipulation IX (Native American

Consultation And Participation), or otherwise have been agreed to in consultation with the SHPO, Concurring Parties, Indian tribes, other Native American interested parties, and/or other consulting; the fieldwork portion of treatment has been completed; and the Corps has accepted a fieldwork summary and a schedule for final reporting of that work.

XII. PROFESSIONAL QUALIFICATIONS AND STANDARDS

- A. The Corps will ensure that all actions prescribed in this PA that involve the identification, evaluation, analysis, recording, treatment, monitoring, or disposition of historic properties, or that involve reporting or documentation of such actions in the form of reports, forms, or other records, shall be carried out by or under the direct supervision of a person or persons who meet the Secretary of Interior's Professional Qualifications Standards (48 FR 44738-44739; Appendix A to 36 CFR 61) in the appropriate discipline.
- B. Historic preservation activities carried out pursuant to this PA shall meet the *Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716-44740), as well as standards and guidelines for historic preservation activities established by the SHPO.

XIII. CONFIDENTIALITY

- A. Information regarding the nature and location of Native American archaeological sites and any other Native American cultural resources identified or discussed pursuant to this PA shall be limited to appropriate Corps personnel, Corps contractors, Indian tribes and Native American consulting parties, the SHPO, and other parties involved in developing, reviewing, and implementing this PA, to the extent permitted by law.

XIV. DISPUTE RESOLUTION

- A. Should any Signatory or Concurring Party to this PA object at any time to any actions proposed or the manner in which the terms of this PA are implemented, the Corps shall notify the other parties to the PA and consult with the objecting party to resolve the objection. If the Corps determines that such objection cannot be resolved, the Corps will:
 - 1. Forward all documentation relevant to the dispute, including the Corps' proposed resolution, to the ACHP. The ACHP shall provide the Corps with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the Corps shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, Signatories and Concurring Parties, and provide them with a copy of this written response. The Corps will then proceed according to its final decision.

2. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, the Corps may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the Corps shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories and Concurring Parties to the PA, and provide them and the ACHP with a copy of such written response
3. The Corps' responsibility to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

XV. AMENDMENT

- A. Any Signatory Party to this PA may propose that the PA be amended, whereupon the Corps shall consult with the SHPO to consider such an amendment. The PA may be amended only upon written concurrence by all Signatory Parties.
- B. Any attachments to the PA, the APE, and HPTPs developed pursuant to the PA may be modified or revised, or updated through consultation consistent with Stipulation I (Timeframes and Review Procedures) without requiring amendment of this PA.

XVI. ANNUAL REPORTING

- A. The Corps shall provide the parties to this PA an annual summary report detailing work undertaken pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in the Corps' efforts to carry out the terms of this PA. The Corps will provide the initial annual summary report on or before December 31, 2020, and provide subsequent reports on or before December 31 each year following until the PA expires or is terminated. Review of the annual summary report shall follow the procedure outlined in Stipulation I. At the request of any Signatory or Concurring Party to this PA, or if otherwise deemed necessary, the Corps shall ensure that one or more meetings are held to facilitate review, address questions, or resolve comments.

XVII. TERMINATION

- A. Only the Signatory Parties may terminate this PA. Any Signatory proposing termination shall notify the other Signatories in writing, explain the reasons for proposing termination, and consult with the other Signatories to seek alternatives to termination, within thirty (30) calendar days of the notification. Should such consultation result in an agreement on an alternative to termination, the Signatory Parties shall proceed in accordance with that agreement.

- B. Should such consultation fail, the Signatory Party proposing termination may terminate this PA by notifying the other Signatory Parties and Concurring Parties in writing. Beginning with the date of termination, the Corps shall ensure that until and unless a new PA is executed for the actions covered by this PA, such actions shall be reviewed individually in accordance with 36 CFR Part 800.

XVIII. DURATION

- A. Unless terminated pursuant to Stipulation XVI or amended pursuant to Stipulation XV of this agreement, this PA will be in effect following its execution by the Signatory Parties until the Corps in consultation with the other parties to this PA, determines that all terms of this PA have been satisfactorily fulfilled, or within five (5) years of execution of this PA, whichever comes first. Upon a determination that all terms of this PA have been satisfactorily fulfilled, Corps will immediately notify the other parties to this PA in writing that all terms of this PA have been satisfactorily fulfilled and this agreement will have no further force or effect.
- B. No less than 120 days prior to expiration of the PA, the Signatories will consult whether to extend the duration of the PA. If the Signatories agree to extend the PA, it shall be amended in accordance with Stipulation XV.A.

XIX. EFFECTIVE DATE

- A. The PA shall take effect on the date that it has been fully executed by the Corps and the SHPO.

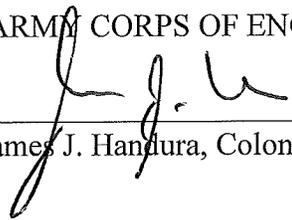
EXECUTION of this PA by the Corps and the SHPO, its transmittal to the ACHP, and subsequent implementation of its terms evidence that the Corps has afforded the ACHP an opportunity to comment on the undertaking and its effects on historic properties, that the Corps has taken into account the effects of the undertaking on historic properties, and that the Corps has satisfied its responsibilities under Section 106 of the NHPA and applicable implementing regulation for all aspects of the undertaking.

**PROGRAMMATIC AGREEMENT
BETWEEN
THE U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING
THE TULE RIVER SPILLWAY ENLARGEMENT PROJECT**

SIGNATORY:

U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT

BY: _____



DATE: 12/12/19

James J. Handura, Colonel, U.S. Army Corps of Engineers, District Commander

**PROGRAMMATIC AGREEMENT
BETWEEN
THE U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING
THE TULE RIVER SPILLWAY ENLARGEMENT PROJECT**

SIGNATORY:

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

BY: 

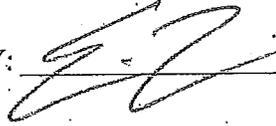
for Julianné Polanco, State Historic Preservation Officer

DATE: 12/13/19

**PROGRAMMATIC AGREEMENT
BETWEEN
THE U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING
THE TULE RIVER SPILLWAY ENLARGEMENT PROJECT**

CONCURRING PARTY:

LOWER TULE RIVER IRRIGATION DISTRICT

BY:  _____

DATE: 12/12/19

**PROGRAMMATIC AGREEMENT
BETWEEN
THE U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING
THE TULE RIVER SPILLWAY ENLARGEMENT PROJECT**

CONCURRING PARTY:

LOWER TULE RIVER IRRIGATION DISTRICT

BY: _____ DATE: _____

**PROGRAMMATIC AGREEMENT
BETWEEN
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AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING
THE TULE RIVER SPILLWAY ENLARGEMENT PROJECT**

CONCURRING PARTY:

KERN VALLEY INDIAN COMMUNITY

BY: _____ DATE: _____

**PROGRAMMATIC AGREEMENT
BETWEEN
THE U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING
THE TULE RIVER SPILLWAY ENLARGEMENT PROJECT**

CONCURRING PARTY:

TUBATAULABALS OF KERN COUNTY

BY: _____ DATE: _____

**PROGRAMMATIC AGREEMENT
BETWEEN
THE U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING
THE TULE RIVER SPILLWAY ENLARGEMENT PROJECT**

CONCURRING PARTY:

TULE RIVER INDIAN TRIBE

BY: _____ DATE: _____

**PROGRAMMATIC AGREEMENT
BETWEEN
THE U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING
THE TULE RIVER SPILLWAY ENLARGEMENT PROJECT**

CONCURRING PARTY:

WUKSACHE INDIAN TRIBE/ESHOM VALLEY BAND

BY: _____ DATE: _____

APPENDIX A

Tule River Spillway Enlargement Project

Area of Potential Effects

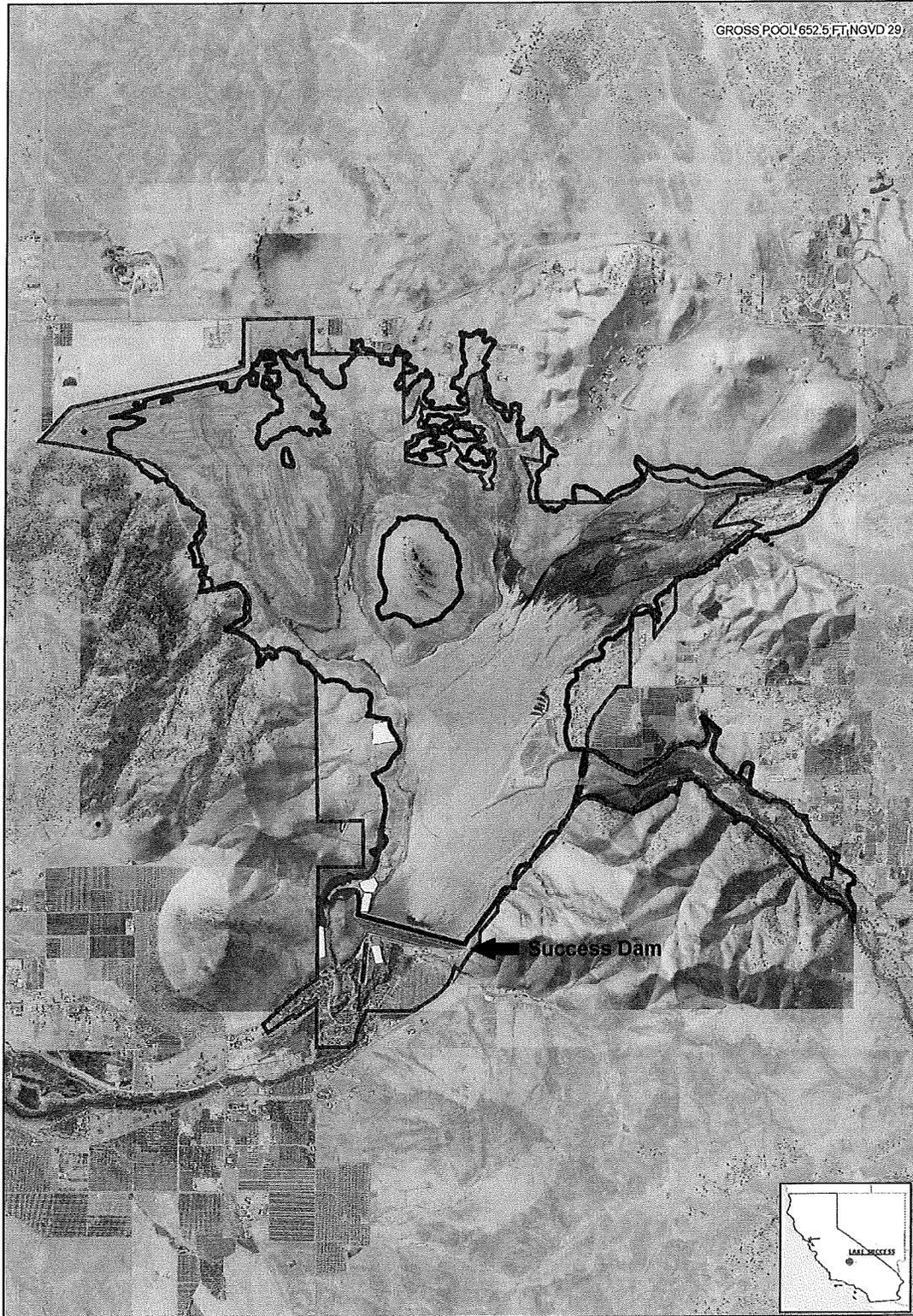


Figure 1. Project Location Map

USACE Property Boundary
 Spillway Cut APE
 Reservoir Raise APE
 Staging and Stockpiling APE

US Army Corps of Engineers
 Sacramento District

0 0.25 0.5 1 Miles
 N

Tule River Spillway Enlargement Project

14 JUNE 2019

APPENDIX B

Tule River Spillway Enlargement Project

OUTLINE – Historic Properties Treatment Plan

Tule River Spillway Enlargement Project HPTP Outline

1. INTRODUCTION
 - Purpose and Need
 - Regulatory Context
 - Programmatic Agreement
 - Area of Potential Effects
 - Identification of Historic Properties
 - Report Organization

2. NATURAL AND CULTURAL CONTEXT
 - Environmental Context
 - Native American Context
 - Ethnohistorical Context
 - Historical Context

3. RECORDS SEARCH AND INVENTORY RESULTS
 - Archaeological Resources
 - Historical Built Environment Resources

4. EVALUATION AND TREATMENT OF PRECONTACT ARCHAEOLOGICAL PROPERTIES
 - Research Topics and Themes
 - Property Types
 - Evaluative Framework
 - Treatment Options

5. EVALUATION AND TREATMENT OF HISTORICAL ARCHAEOLOGICAL PROPERTIES
 - Research Topics and Themes
 - Property Types
 - Evaluative Framework
 - Treatment Options

6. EVALUATION AND TREATMENT OF HISTORICAL BUILT ENVIRONMENT PROPERTIES
 - Research Topics and Themes
 - Property Types
 - Evaluative Framework
 - Treatment Options

7. BURIED SITE SENSITIVITY
 - Sensitivity Analysis
 - Identification Strategies

8. POST-REVIEW DISCOVERIES
 - Actions Subsequent to Discovery
 - Treatment Procedures
 - Monitoring Protocols

9. NATIVE AMERICAN COORDINATION
 - Consultation History
 - Protocols for Continuing Outreach and Consultation

10. TREATMENT OF NATIVE AMERICAN HUMAN REMAINS AND CULTURAL ITEMS
 - Native American Graves Protection and Repatriation Act
 - NAGPRA Plan of Action/Burial Treatment Plan

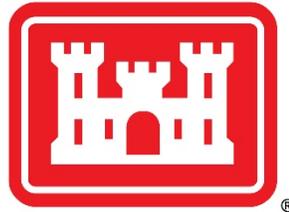
11. HPTP IMPLEMENTATION
 - Roles and responsibilities
 - Reporting requirements
 - Professional Qualifications and Standards
 - Curation Plan

12. REFERENCES

13. APPENDICES
 - Programmatic Agreement
 - Burial Treatment Plan/NAGPRA Plan of Action

APPENDIX D - BIOLOGICAL ASSESSMENT

**Tule River Spillway Enlargement Project
Supplemental Biological Assessment
for the
Road Relocation and Right Abutment Spillway Cut
Tulare County, CA**



December 2019

U. S. Army Corps of Engineers
Sacramento District
Environmental Planning Section
1325 J Street
Sacramento, CA 95814-2922

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1.0 INTRODUCTION

The U.S. Army Corps of Engineers, Sacramento District (Corps), is requesting reinitiation of consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Federal Endangered Species Act (ESA) to evaluate, on a biological assessment (BA) level, potential effects associated with design changes to the proposed Tule River Spillway Enlargement Project. A Biological Opinion (BO) for this project was issued December 1999, entitled “Formal Section 7 Consultation on the Proposed Permanent 10-foot Dam Elevation Increase at Lake Success in Tulare County, California” (1-1-99-F-0085; USFWS 1999a). This BA is prepared in accordance with the legal requirements set forth under regulations implementing Section 7 of the Endangered Species Act (ESA) (50 CFR 402; 16 U.S.C. 1536 (c)).

Re-initiation is being pursued for two reasons: (1) There are modifications to the proposed action since the original consultation in 1999. The road relocation and spillway widening to accommodate the ogee weir design were not covered in detail in the Tule River Basin Investigation Final Environmental Impact Statement/Report (FEIS/FEIR) (Corps 1999) and accompanying Biological Data Report due to insufficient information on the future location of the road and hydraulics of the spillway. (2) There are changes regarding listed species referenced in the BO (USFWS 1999a). The USFWS removed the Valley Elderberry Longhorn Beetle (VELB) (*Desmocerus californicus dimorphus*) from protected status in Tulare County since the species range ends more than 85 miles to the north (USFWS 2019). The USFWS delisted the Bald Eagle (*Haliaeetus leucocephalus*) on August 8, 2007. The Giant Garter Snake (*Thamnophis gigas*) is no longer found downstream from Lake Success along the Tule River, or anywhere else in Tulare County (USFWS 2017). Thus, these three species will not be evaluated in this document. Least Bell’s vireo (*Vireo bellii pusillus*) was not covered in the 1999 BO since the species was not known to occur at Lake Success. Corps bird surveys conducted in 2014 verified that the species now does occur at the lake (Stewart 2014). Southwestern willow flycatcher (*Empidonax traillii extimus*) was also not included in the 1999 BO. It is included in this BA due to the existence of potential habitat at Lake Success.

1.1 Threatened, Endangered, Proposed Threatened or Proposed Endangered Species

The Corps received a species list for the project area from the USFWS’s Information for Planning and Consultation (IPaC) online system on February 8, 2019 (Consultation Code 08ESMF00-2019-SLI-0972). The Corps requested and received an updated list on May 22, 2019, and October 31, 2019 (Appendix A). The latest updated list did not contain any changes. Species determined to have “No Effect” from the proposed action are detailed in Table 1 (attached at the end of this biological assessment).

The following Threatened, Endangered, Proposed Threatened or Proposed Endangered Species may be affected¹ by the proposed action:

San Joaquin Kit Fox (*Vulpes macrotis mutica*) **E**
Least Bell’s Vireo (*Vireo bellii pusillus*) **E**

¹ This document will discuss making the “may affect” and subsequent determinations in later sections.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*) **E**
San Joaquin Adobe Sunburst (*Pseudobahia peirsonii*) **T**

E = Endangered, **T** = Threatened, **CH** = Critical Habitat.

There are no candidate species or other sensitive species within the proposed action area. The California condor (*Gymnogyps californianus*) is the only species with designated critical habitat in the Lake Success area. The critical habitat includes roughly the northern one-fifth of the lake. However, there is no appropriate breeding habitat for the condor within the project area and there would be no direct effects from the project on the critical habitat. As a result, the Corps has determined the proposed project would have no effect on the condor.

2.0 CONSULTATION TO DATE

December 17, 1999. USFWS Biological Opinion received, “Formal Section 7 Consultation on the Proposed Permanent 10-foot Dam Elevation Increase at Lake Success in Tulare County, California” (1-1-99-F-0085).

December 2018. Consultation re-initiated informally with Harry Kahler, USFWS Wildlife Biologist.

April 2-4, 2019. Site visit and biological reconnaissance surveys of the road relocation and increased pool surface area were conducted. Surveys conducted by a botanist (L. Guerrero, Corps), mammalogist and entomologist (E. Tomasovic, Corps), and an ornithologist (H. Kahler, USFWS) focused on environmental awareness and species distribution. Two new and previously undocumented locations of the San Joaquin adobe sunburst (*Pseudobahia peirsonii*) were discovered and are being entered into the California Natural Diversity Database (CNDDB).

July 15, 2019. Corps submitted Road Relocation and Right Abutment Cut BA to USFWS.

July 31, 2019. USFWS asked the Corps to adhere to the original determinations from the 1999 BO. The Corps responded on August 6, 2019, agreeing to adhere to the original BO determinations.

September 5, 2019. USFWS emailed Corps asking for a meeting.

September 12, 2019. USFWS and Corps met to discuss ESA consultation and coordination under the Fish and Wildlife Coordination Act (FWCA; 16 U.S.C. §661, et seq.) for the Tule River Spillway Enlargement Project. USFWS and Corps agreed that a revised BA would be submitted that updates the effects evaluation presented in the 1999 BO, superseding the July 15, 2019 BA.

3.0 DESCRIPTION OF THE PROPOSED ACTION

3.1 Background

Lake Success Dam is located on the main branch of the Tule River about 6 miles east of Porterville, California, in Tulare County. It is in the foothills of the Sierra Nevada mountains, fifty miles north of Bakersfield and sixty miles southeast of Fresno.

The Tule River Spillway Raise project consists of constructing a 10 foot-high concrete ogee weir across the spillway and raising the gross pool elevation (maximum lake level) from 652.5 feet to 662.5 feet (Figure 1; all elevations are NGVD29).

The project will be done in two construction phases:

Phase 1: Right Abutment Spillway Cut, Road Relocation, and Temporary Stockpiles

Construction Start: July 2020

Construction Completion: March 2021

Phase 2: Spillway Raise, Left Abutment Cut (if needed), Recreation Facilities, Highway 190 & Frazier Dike Armoring, and Utility Relocations.

Construction Start: October 2021

Construction Completion: May 2023

3.2 Authority

Authorization for construction of the Tule River Spillway Enlargement Project at Lake Success is provided by the Water Resources Development Act (WRDA) of 1999, Section 101 (b)(4) (Public Law 106-53, 17 August 1999), which authorized this flood damage reduction and water supply project based on the recommendations of the final report of the Chief of Engineers.

3.3 Proposed Action

The proposed action would decrease flood flows in the downstream distributaries mainly during the spring snowmelt season (Figure 2), thereby decreasing the flooding of adjacent agricultural lands and urban areas, and decreasing the impact of high water events on downstream levees and infrastructure. Currently, flooding downstream of Success Dam can cause extensive damage to residences, agricultural farmland, and public facilities. Under the current operations of the dam, water releases greater than 3,200 cubic feet per second (cfs) from Success Dam can cause damage to downstream agricultural areas (Corps 2011). The downstream channel capacity ranges from 10,000 cfs through the city of Porterville to as little as 1,000 cfs west of the city. Agricultural areas west of the city are the first areas where property damage and danger to residents have historically occurred, given a release greater than 3,200 cfs (Corps 2011).

Components of the proposed action consist of (Figure 3):

- Widening the spillway sill at Success Dam from 200 feet to 365 feet.

- Relocating the existing road through the spillway, Worth Drive/Avenue 146, to the new road bench constructed as part of the spillway widening.
- Restoring the lower third of the spillway to its original design grade using excavated material from the spillway widening.
- Constructing a 10-foot high concrete ogee weir over the existing spillway sill.
- Flood-proofing restrooms at the Tule and Rocky Hill recreation areas.
- Extending and widening the Tule recreation area boat ramp.
- Enlarging the existing parking area at Rocky Hill recreation area to replace parking areas lost to higher gross pool levels.
- Protecting in place the Tule recreation area well and storage tank by an earthen berm.
- Relocating the Rocky Hill recreation area storage tank, well, and metal shed to higher ground.
- Placing rock revetment along the State Highway 190 bridge abutments for erosion protection.
- Placing rock revetment (3,500 linear feet) along Frazier Dike for erosion protection.
- Raising fourteen transmission towers and 11,800 feet of power lines to meet minimum clearance criteria.
- Updating the Success Lake and Dam water control manual to reflect the change in flood storage capacity for the lake.

For Phase 1, the Corps, in partnership with its nonfederal sponsor, the Lower Tule River Irrigation District (LTRID), would widen the current spillway at Lake Success from 200 to 365 feet by removing a portion of the right bank abutment and incorporating a road bench within the new slope (Figures 4-9). The existing road through the spillway, Worth Drive/Avenue 146, would be relocated to the new road bench. Road relocation is required since the new ogee weir, constructed in Phase 2, would obstruct the road in its current location.

Worth Drive/Avenue 146 enables public access to the Rocky Hill recreation area and two private residences when the reservoir is not at full capacity. This road is currently located adjacent to the right abutment slope of the spillway. The Corps is proposing to relocate the road along the right abutment cut above the new proposed gross pool, removing the road from the spillway, to avoid most future road closures due to spillway engagement during high water (Figures 5, 8, and 9). The new road would become a public-use, Corps-maintained road and would remain open up to at least the 100-year flood event. In the past 58 years since Lake Success was built, lake levels have been high enough to close the road seven times (Figure 10).

Construction sequencing of the right abutment cut and road realignment would begin with the contractor staging equipment and conducting preliminary site preparation, including installation of construction trailers, power lines or generators, security fencing, and movement of equipment. After mobilization, vegetation and soil would be grubbed and stripped from the right abutment cut/new roadway area and relocated to the staging/stockpile areas (Figure 7).

Next, drilling and explosives would be used to shape the spillway abutment and road bench. Excess blast rock would be used to repair the lower emergency spillway gradient and temporarily stockpiled for use in Phase 2 to armor Frazier Dike and the Highway 190 bridge footing and abutment. Detailed design plans for Phase 1 are included in Appendix B. The lower emergency spillway was damaged in December 1966 during a flood event (Figure 11). Blasted rock material from the right abutment cut would be used to restore the spillway to its original, pre-1966, grade and elevation (for design details see Appendix B, sheet GC-103).

Carefully designed, controlled blasts would be used to break, lift, and push broken rock anywhere from 10 to 30 feet during the right abutment cut and road bench construction. Flyrock may occur when a shot is under burdened, *i.e.* when there is only a small amount of rock in front of the blasthole. In such a case, flyrock may travel 75 to 150 feet. The contractor would be stopped from blasting if flyrock travels more than 250 feet from a bench until the reasons for flyrock have been determined and the blasting practice modified. The 750 and 2,500-ft buffers shown in figures 8 and 9 are for safety purposes only and do not represent flyrock travel distances (C. Breeds, President of Blasting, Sub Terra, Inc, e-mail message, November 6, 2019). After each blast, excavators and dump trucks would move debris to temporary stockpiles.

The spillway raise, Highway 190 bridge abutment and Frazier Dike armoring, flood-proofing of recreation facilities, and utility relocations would occur as part of Phase 2 construction (Figure 3). Implementation of these features is the same as was described in the 1999 project documentation. The Lake Success Water Control Manual would also be updated to reflect the changes in the dam's flood storage capabilities resulting from the spillway raise.

3.4 Action Area

The action area is defined as the footprint of the proposed project components, temporary work areas during construction, and the properties around Lake Success within the new proposed gross pool. In addition, the action area includes those areas of the Tule River 100-year floodplain downstream of Success Dam that would be affected by the change in frequency of flooding caused by the spillway raise (Figures 1-3).

The temporary work area for Phase 1 would cover approximately 130 acres of Corps property (Figure 4). The actual construction footprint (area of disturbed ground) would cover approximately 14 acres (Figures 7 and 9).

For Phase 2, construction of the ogee weir would occur within the newly enlarged spillway. Flood-proofing, protection, and relocation of existing infrastructure would occur within the recreation areas. Blasted rock from Phase 1, would be used to armor Frazier Dike and the abutments of the State Highway 190 bridge (Figure 3). Raising fourteen transmission towers and 11,800 feet of power lines to meet minimum clearance criteria would temporarily occur in the existing powerline right of way.

Currently, Success Dam controls downstream flows by making releases through its outlet works. When the reservoir elevation exceeds the emergency spillway crest elevation, uncontrolled flows

are released via the spillway into the Tule River. The current emergency spillway crest elevation (652.5 feet) corresponds to a flood event with a 2.2 percent annual chance of exceedance (ACE) (approximately, the “46-year flood”). See figures 12-14. The new ogee weir, installed during Phase 2 of this project, is designed to reduce flooding immediately below the dam in the Porterville area to a less than one percent annual chance of exceedance flood (“100-year flood”).

3.5 Avoidance and Minimization Measures

The following measures will be implemented by the Corps, its local partners, and/or the construction contractor to avoid or minimize project effects on the San Joaquin kit fox, least Bell’s vireo, southwestern willow flycatcher, and the San Joaquin Adobe sunburst.

- Prior to construction, an employee education program will be conducted consisting of a brief presentation of San Joaquin kit fox, Southwestern willow flycatcher, least Bell’s vireo, San Joaquin adobe sunburst, California condor, Bald and Golden eagles, and migratory birds by persons knowledgeable in biology and legislative protection. The program will include the occurrence of species in the area, its description and life history, and an explanation of the species status and protection under the ESA.
- A representative will be appointed who would be the contact for any employee/contractor who might find dead, injured, or entrapped threatened and endangered animals or new plots of threatened and endangered plants in the work area. This representative will contact the USFWS immediately.
- A Corps botanist will conduct pre-construction surveys within the construction footprint during peak-flower, based on bloom times of known populations in the area, to ensure that no San Joaquin adobe sunburst are present. If the species is present, the Corps will undertake the following mitigation measures: (a) as possible, avoid plants and erect a 25-foot buffer using exclusionary fencing; (b) if avoidance is not practical, plants will be hand dug and transplanted outside the construction footprint under the guidance of a qualified botanist or restoration ecologist; (c) transplanted plant locations will first be chosen with a preference for having existing San Joaquin adobe sunburst plants, second, former known adobe sunburst location, and third, an area with similar slope, aspect and soils; (d) in addition to transplanting, topsoil will be collected in a 6-foot buffer around the plants to help secure the seedbank; (e) collected topsoil will be placed in six to twelve-inch wide, circular, shallow pits near the transplanted plants; (f) during Phase 1 & 2 construction, transplanted plants will be monitored by a qualified biologist during each growing season via flower counts, percent cover, and stem length measurements; and (g) an annual monitoring report will be submitted to USFWS each November until one year after construction is complete. Any existing San Joaquin adobe sunburst plants located near the construction footprint will be protected with exclusionary fencing for the duration of the project.
- A certified kit fox biologist, considered qualified by the USFWS, will conduct pre-activity surveys for kit fox presence within 30 days, and to the extent practicable, within 14 days of construction initiation using methodologies acceptable to the USFWS. Surveys will cover all areas potentially affected by ground disturbing activities associated with the project, including vehicle travel and staging.

- Project-related vehicles will observe a daytime speed limit of 15-mph and a nighttime speed limit of 10-mph throughout the site in all project areas, except on county roads and State and Federal highways. This is particularly important at night when kit foxes are most active. Night-time construction will be minimized to the extent possible. Off-road traffic, outside of designated project areas, will be prohibited.
- Stormwater runoff will be controlled using standard construction BMPs and equipment (straw wattles, silt fencing, etc.).
- All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in securely closed containers, and removed at least once a week from a construction or project site. Daily removal is preferred.
- No firearms will be allowed on the project site.
- No pets, such as dogs or cats, will be permitted on the project site to prevent harassment, mortality, or destruction of dens or burrows.
- To prevent inadvertent entrapment of kit foxes, or other animals, during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2-feet deep will be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks would be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped or injured animal is discovered, the USFWS would be contacted.
- In the case of trapped animals, escape ramps or structures would be installed immediately to allow the animal(s) to escape, or the USFWS would be contacted for guidance.
- Kit foxes are attracted to den-like structures, such as pipes, and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods will be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe would not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
- Use of rodenticides and herbicides in project areas will be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and California condor, and the depletion of prey populations on which they depend. All uses of such compounds would observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.

4.0 STATUS OF THE SPECIES AND CRITICAL HABITAT IN THE ACTION AREA

For species that are described and covered in this consultation, habitat preferences and distributions are based on published data, agency documents, and review of the IPaC from the USFWS (Consultation Code: 08ESMF00-2019-SLI-0972), personal conversation with USFWS Biologist Harry Kahler, and an environmental survey conducted from 2-4 April 2019.

4.1 San Joaquin Kit Fox

Status. The San Joaquin kit fox (*Vulpes macrotis mutica*) was listed as an endangered species on March 11, 1967 (USFWS 1967; 32 FR 4001), and by the state of California as a threatened species on June 27, 1971. A Recovery Plan was approved in 1983 (USFWS 1983), and an updated Recovery Plan that covered 34 upland species in the San Joaquin Valley was approved in 1998 (USFWS 1998b). The 1998 Recovery Plan identified the San Joaquin kit fox as an umbrella species. Recovery actions for the San Joaquin kit fox are critical to the recovery of many other listed species because the kit fox occurs in the same natural communities and requires relatively large areas of natural habitat, thus providing an umbrella of protection for other species that require smaller habitat blocks (USFWS 1998b). Critical habitat has not been designated for this species.

Distribution. Range for the San Joaquin kit fox includes the San Joaquin Valley, encompassing portions of the valley floor and adjacent foothills and interior Coast Range valleys, historically from as far north as Tracy (San Joaquin County) and La Grange (Stanislaus County) and south to Kern County (Grinnell et al. 1937; USFWS 2010). By 1930, the range was believed to have decreased to only the southern and western parts of the San Joaquin Valley and adjacent foothills and interior Coast Range Valleys, but subsequent research found these foxes in many additional areas, northward to Contra Costa County, including areas where the species previously had not been detected (USFWS 2010). However, some recently documented locations likely reflect dispersing individuals rather than resident populations, and many populations are small, isolated, and/or declining or apparently extirpated (USFWS 2010).

Historically, this species occurred in several San Joaquin Valley native plant communities. In the southernmost portion of the range, these communities included valley sink scrub, valley saltbush scrub, Upper Sonoran subshrub scrub, and annual grassland (USFWS 1998b). San Joaquin kit foxes also exhibit a capacity to utilize habitats that have been altered by people. They are present in many oil fields, grazed pasturelands, and "wind farms" (Cypher 2000). They also utilize oak savanna and some types of agriculture (e.g. orchards and alfalfa), although the long-term suitability of these habitats is unknown (Jensen 1972; USFWS 1998b). Kit foxes can inhabit the margins and fallow lands near irrigated row crops, orchards, and vineyards, and may forage occasionally in these agricultural areas (USFWS 1998b; Cypher et al. 2014). The San Joaquin kit fox seems to prefer more gentle terrain and decreases in abundance as terrain ruggedness increases (Grinnell et al. 1937; Morrell 1972; Warrick and Cypher 1998).

Locally, the San Joaquin kit fox was more prevalent in the 1970s. Based on CNDDDB, eleven occurrences are within ten miles of the project area, all to the west. None have been documented in the Lake Success quadrangle, which encompasses the project area. Only two occurrences have

been documented since the 1970s; ten miles and eight miles away from the proposed action in 1992 and 1989, respectively (CDFW 2019). The closest documented occurrence is six miles from the proposed action (CDFW 2019). Downstream, there are fourteen kit fox occurrences within or adjacent to the current Tule River and Tulare Lakebed 100-year floodplain, all from the early to mid-1970s.

Life History. In September and October, adult females begin to excavate and enlarge natal dens (Morrell 1972), and adult males join the females in October or November. Typically, pups are born between February and late March following a gestation period of 49 to 55 days (Egoscue 1962; Spiegel and Tom 1996; USFWS 1998b). Mean litter sizes are between 2 and 4 pups. Reproductive rates, the proportion of females bearing young, of adult San Joaquin kit foxes vary annually with environmental conditions, particularly food availability. Although most young kit foxes disperse less than 5 miles (Scrivner et al. 1987), dispersal distances of up to 76.3 miles have been documented for the San Joaquin kit fox (USFWS 1998b). Dispersal can be through disturbed habitats, including agricultural fields, and across highways and aqueducts. Some kit foxes delay dispersal and may inherit their natal home range.

Kit foxes have been reputed to be poor diggers, and their dens are usually located in areas with loose-textured, friable soils (O'Farrell 1984). However, the depth and complexity of their dens suggest that they possess good digging abilities, and kit fox dens have been observed on a variety of soil types (Reese et al. 1992; USFWS 1998b). Kit fox dens extend from 4.3 ft to almost 10 ft below the soil surface (Egoscue 1956; Morrell 1972; O'Neal et al. 1987). Some studies have suggested that where hardpan layers predominate, kit foxes create their dens by enlarging the burrows of California ground squirrels (*Spermophilus beecheyi*) or badgers (*Taxidea taxus*) (Jensen 1972; Morrell 1972). In parts of their range, particularly in the foothills, kit foxes often use ground squirrel burrows for dens (Orloff et al. 1986). A more recent study in the Great Basin, found that kit foxes are seeking more hilly and rocky terrain for dens, potentially due to competition and predation by coyotes (Arjo et al. 2003). Kit fox dens are commonly located on flat terrain or on the lower slopes of hills, fewer are found on the crests of hills or ridges (Reese et al. 1992). Common locations for dens include washes, drainages, and roadside berms. Kit foxes also commonly den in human-made structures such as culverts and pipes (Reese et al. 1992; Spiegel et al. 1996).

Den use varies greatly among kit foxes. Dens are used by kit foxes for temperature regulation, shelter from adverse environmental conditions, and escape from predators. Natal and pupping dens may include from two to eighteen entrances and are usually larger than dens that are not used for reproduction (O'Farrell et al. 1980; O'Farrell and McCue 1981). Natal dens may be reused in subsequent years (Egoscue 1962). It has been speculated that natal dens are located in the same location as ancestral breeding sites. Active natal dens are generally 1.2 to 2 miles from the dens of other mated kit fox pairs. Natal and pupping dens usually can be identified by the presence of scat, prey remains, matted vegetation, and mounds of excavated soil outside the dens (O'Farrell 1984). Kit foxes often change dens and may use many dens throughout the year; however, evidence that a den is being used by kit foxes may be absent (Reese et al. 1992). A kit fox can use more than 100 dens throughout its home range, although on average, an animal will use approximately 12 dens a year for shelter and escape cover (Koopman et al. 1998; Cypher et al. 2001). Possible reasons for changing dens include infestation by ectoparasites, local depletion

of prey, or predator avoidance. In the southern San Joaquin Valley, kit foxes were found to use up to 39 dens within a denning range of 320 to 482 acres (Morrell 1972).

The diet of the San Joaquin kit fox varies geographically, seasonally, and annually, based on temporal and spatial variation in abundance of potential prey. Known prey species of the kit fox include white footed mice (*Peromyscus* spp.), insects, California ground squirrels, kangaroo rats (*Dipodomys* spp.), San Joaquin antelope squirrels, black-tailed hares (*Lepus californicus*), and chukar (*Alectoris chukar*) (Jensen 1972; Archon 1992; Cypher et al. 2014). Kit foxes also prey on desert cottontails (*Sylvilagus audubonii*), ground-nesting birds, and pocket mice (*Perognathus* spp.) (Cypher et al. 2014). Resource competition between coyotes and foxes may be quite high especially when prey resources are scarce. Competition is common in semi-arid, central California, especially during drought years and results in kit fox mortalities. San Joaquin kit foxes are primarily nocturnal, although individuals are occasionally observed resting or playing (mostly pups) near their dens during the day.

Kit foxes occupy home ranges that vary in size from 1.7 to 4.5 square miles (White and Ralls 1993). Average distances traveled each night range from 5.8 to 9.1 miles and are greatest during the breeding season (Cypher 2000).

Less than 20 percent of the habitat within the historical range of the kit fox remained when the subspecies was listed as federally-endangered in 1967, and there has been a substantial net loss of habitat since that time. The primary factor contributing to this restricted distribution was the conversion of native habitat to irrigated cropland, industrial uses, and urbanization (Laughrin 1970; Jensen 1972; Morrell 1972). Approximately 1.97 million acres of habitat, or about 66,000 acres per year, were converted in the San Joaquin region between 1950 and 1980 (California Department of Forestry and Fire Protection 1988). The counties specifically noted as having the highest wildland conversion rates included Kern, Tulare, Kings, and Fresno, all of which are occupied by kit foxes. Extensive habitat destruction and fragmentation have contributed to smaller, more-isolated populations of kit foxes. Small populations have a higher probability of extinction than larger populations because their low abundance renders them susceptible to stochastic (i.e., random) events such as high variability in age and sex ratios, and catastrophes such as floods, droughts, or disease epidemics (Lande 1988; Saccheri et al. 1998; Cypher et al. 2014). Owing to the probabilistic nature of extinction, many small and isolated populations will go extinct when faced with these stochastic risks.

4.2 Least Bell's Vireo

Status. The least Bell's vireo (*Vireo bellii pusillus*) was listed as a Federally endangered species on May 2, 1986 (51 FR 16474). The final critical habitat designated in 1994 encompasses approximately 36,000 acres at ten localities in portions of Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego Counties in southern California. Lake Success is outside the designated critical habitat.

Distribution. The least Bell's vireo is a small gray migratory songbird whose historical range extended from Baja California, Mexico, to the northern Sacramento Valley of California, and from the California coastal ranges east to Death Valley. Riparian habitat losses and increases in

brown-headed cowbird populations starting in the 1930s eventually caused the vireo to become essentially extinct north of the Transverse Ranges of southern California (Grinnell and Miller 1944; Gaines 1974; Goldwasser et al. 1980; Garrett and Dunn 1981; USFWS 1986). Although still absent from major portions of its historical range, the vireo has responded well to conservation management actions. In a 5-year status review, USFWS (2006) determined that the number of occupied vireo territories had increased ten-fold (291 to 2,968) since the 1986 listing.

Corps surveys in 2014 detected least Bell's vireo at Lake Success (Figure 15). At least two Bell's vireo territories/breeding pairs were observed and recorded within the Tule River riparian area (Stewart 2014). Prior dry years had allowed dense riparian and woodland vegetation to regenerate and become established in areas well below the gross pool elevation where it would normally be inundated.

Life History and Habitat Requirements. The least Bell's vireo is one of four recognized subspecies of Bell's vireo in the United States (AOU 1957). Least Bell's vireos are obligate riparian breeders, nesting along stream courses typically dominated by willows (*Salix* spp.), cottonwoods (*Populus* spp.), oaks (*Quercus* spp.), and/or mule fat (*Baccharis salicifolia*). In California, this subspecies is strongly associated with riparian stands with dense understory vegetation between about 2 and 10 feet above the ground (Brown 1993; Kus 2002). Vireos occur in disproportionately high frequencies in the wider sections (greater than 250m) of the riparian relative to site availability (RECON 1989).

Vireos spend the winter in southern Baja California, Mexico, and arrive on breeding grounds in California in March or April (USFWS 1998c; Kus 2002). Grinnell and Miller (1944) reported later arrival (early April) for historic northern California populations. The key structural components of suitable breeding habitat are a dense layer of vegetation within 3-6 ft of the ground and a canopy layer (USFWS 1994; Kus 2002). Nesting least Bell's vireos prefer early and mid-successional riparian habitats that contain low, dense, shrubby vegetation. Nests are typically built of leaves, bark, willow catkins, and spider webs in a fork of a tree or shrub within 3 feet of the ground (Franzreb 1989). A clutch of 3-4 eggs is incubated by both parents for 14 days, and nestlings leave the nest at about 12-14 days, after which time they are cared for by the parents for another 2 weeks or more. Vireos may make multiple nesting attempts after nest failure but typically produce no more than one successful clutch during a season (Franzreb 1989). Most vireos leave the breeding grounds for Mexico by late September or earlier (Franzreb 1989).

4.3 Southwestern Willow Flycatcher

Status. The southwestern willow flycatcher (*Empidonax traillii extimus*) was listed as a Federally endangered species on February 27, 1995 (68 FR 10485). Additionally this subspecies are designated as Sensitive species in California by the U.S. Forest Service (USFS) Region 5, and by the USFWS Region 1. The final critical habitat designation includes 1,227 floodplain miles in California, Arizona, Nevada, Utah, Colorado, and New Mexico encompassing a total area of approximately 208,973 acres within the 100-year floodplain or flood-prone areas. Lake Success is outside the designated critical habitat area.

Distribution. Southwestern willow flycatchers are neotropical migrants that breed in patches of riparian habitat throughout the American southwest. This southernmost subspecies of willow flycatcher is found south of the Owens Valley, the South Fork Kern River, and the Santa Ynez River. Their breeding habitat currently ranges from southern California, through southern Nevada, southern Utah, Arizona, New Mexico, southwestern Colorado, and historically included western Texas and extreme northwestern Mexico. They travel south to winter ranges in Mexico, Central America, and northern South America. Within the range of southwestern willow flycatchers northbound migrants traveling to central and northern California and points north pass through areas where resident southwestern willow flycatchers are already breeding in Late May and early June. This creates confusion during southwestern willow flycatcher surveys because migrating birds often sing at their stopover locations (Sogge et al. 1997a). While their current distribution is similar to their historic range, southwestern willow flycatcher population numbers have declined precipitously in response to the loss of suitable riparian habitat throughout the region.

The greatest historical factor in the decline of the willow flycatcher is the extensive loss, fragmentation, and modification of riparian breeding habitat. Large-scale losses of wetlands have occurred, particularly those associated with riverine systems in both valley and montane settings (Johnson and Haight 1984; Unsicker et al. 1984; Johnson et al. 1987). Changes in the hydrology and riparian plant community have reduced, degraded and eliminated nesting habitat for the willow flycatcher, contributing to its decline in distribution and numbers (Serena 1982; Taylor & Littlefield 1986; Unitt 1987; Schlorff 1990). Habitat losses and changes have occurred (and continue to occur) because of urban, recreational, and agricultural development, water diversion and impoundment, channelization, livestock grazing, and replacement of native habitats by introduced plant species (Klebenow & Oakleaf 1984; Katibah 1984; Dull 1999). Hydrological changes, natural or man-made, can greatly reduce the quality and extent of willow flycatcher habitat (Sogge et al. 1997b).

There is roughly 160 acres of willow riparian woodland where the Tule River flows into Lake Success that is adequate southwestern willow flycatcher habitat (Figure 15). It covers an extensive area at the mouth of the river, primarily in areas that are presently inundated by periodic high lake levels during most years. Black willow (*Salix gooddingii*) is the dominant tree species (Stewart 2014). Most recent Corps surveys have not detected willow flycatchers of any subspecies at Lake Success (Stewart 2014). These surveys followed USFWS standard protocols (Sogge et al. 1997b; USFWS 2000). However, in 2005, Jones and Stokes biologists under contract by the Corps observed a single bird for approximately 15 minutes that was positively identified as a willow flycatcher, although it did not vocalize and therefore cannot be considered a positive detection under the USFWS's survey protocol (Sogge et al. 1997b; USFWS 2000). The willow flycatcher was not observed again during subsequent surveys during 2005 (Stewart 2014). This bird would be classified as a probable migrant under the USFWS's protocol, meaning that it was probably a subspecies of willow flycatcher other than the federally-listed southwestern willow flycatcher and that it was only in the study area temporarily while migrating to more northern areas. The federally listed subspecies of willow flycatcher (*E. t. eximus*) is not known to occur north of the Kern River in the western Sierra Nevada, although it does occur in desert riparian habitats in Owens Valley in the eastern Sierra Nevada (69 Federal Register [FR] 60706-60786).

Life History and Habitat Requirements. The southwestern willow flycatcher is a small passerine less than 15 cm long from the tip of its bill to the tip of its tail. It has a brownish-olive to gray-green upper body, a whitish throat contrasting with a pale olive breast, a pale yellow belly, and two light wing bars. Males and females do not differ in plumage, but juveniles differ from adults by having buffy wing bars. Southwestern willow flycatchers require moist microclimatic and vegetative conditions, and breed only in dense riparian vegetation near surface water or saturated soil. While wet conditions are uniformly required, the structure and species of vegetation in which they nest vary by region and availability. The birds frequently build nests in nonnative tamarisk (*Tamarix* spp.), as well as in native willow (*Salix* spp.), typically in vegetation stands of 4–7 m in height. Nesting habitat patches can range widely in size, from as small as 0.6 ha to as much as 200 ha, although the majority of patches tend towards the smaller end of the range.

Regardless of the plant/hydrologic combination, riparian/meadow sites used by breeding willow flycatchers vary in size and shape, and may contain relatively dense, linear, stands of shrubs, or irregularly-shaped mosaics of dense vegetation with open areas in between. Willow flycatcher territories generally contain open water, boggy seeps, or saturated soil. Although these territories all tend to have some surface water early in the season, the amount that persists through the summer can vary widely from year to year depending on: the snowpack (onsite and/or upstream), the hydrology, and the ability of the soils at the site to hold water (Ratliff 1985; Weixelman et al. 1999). At some southwestern willow flycatcher sites, vegetation may be immersed in standing water during a wet year, but be hundreds of meters from surface water in dry years, this is particularly true of reservoir sites. At other breeding sites where the river channel has been recently modified or the river channel has changed naturally, there may be a total absence of water or visibly saturated soil for several years. However, it is not known how long such sites will continue to support riparian vegetation and/or remain occupied by breeding willow flycatchers (Sogge et al. 1997b).

Southwestern willow flycatchers spend only 3–4 months of the year paired with a mate for the breeding season. They defend a small (typically <1 ha) breeding territory during this time, which is often clumped with nearby territories of other flycatchers in a semi-colonial fashion. They can occur singly or near other flycatchers during migration and on the wintering grounds. Males often exhibit site fidelity by returning to the general area of the previous year's breeding grounds. Because of the dynamic nature of riparian habitat, however, (a single flood can destroy an entire patch), flycatchers are known to move among sites in their breeding grounds, either within the same year or from year to year. Southwestern willow flycatchers usually pair with a single mate during the breeding season, although polygyny (multiple female mates) has been documented at low rates. Males arrive on breeding grounds in late April to early May to establish territories, approximately 1–2 weeks before the females arrive. After pairing, the female builds an open cup nest from leaves, grass, fibers, feathers and animal hair, approximately 9.5 cm high and 8.5 cm wide (outside dimensions), exclusive of any dangling material at the bottom (Sanders & Flett 1989; Bombay 1999). Nests are typically placed in the fork of a branch with the nest cup supported by several small-diameter vertical stems. Nests are placed at an average of 4.6 m in height, but they can range from 1–12 m. Nest height also varies considerably and may be correlated with height of nest plant, overall canopy height, and/or the height of the vegetation strata that contains small twigs and live growth (Sogge et al. 1997b). In late May to early June,

the female lays 3–4 buffy eggs with brown markings in a circle at the blunt end of the egg. She incubates them for 12–15 days, and then both the female and male tend the young during the 12–15 day nestling stage. After fledging, young stay close to the nest for a few days, and do not leave the natal area for at least 14–15 days. During this time, both adults respond to the loudly begging fledglings by bringing them food. Some pairs will attempt to raise a second brood later in the season, particularly if their first nesting attempt fails. Nests with eggs have been observed as late as 30 August, with nestlings into mid-September.

Second clutches after a successful first nest are occasionally reported for the southwestern willow flycatcher. Willow flycatchers often attempt a second and even third nest after nest failures (Bombay 1999, Morrison et al. 1999). Replacement nests are built in the same territory, either in the same nest plant or at a distance of 30 m or more from the previous nest. Frequently, willow flycatchers will disassemble failed nests in order to build new nests (McCabe 1991). On a few occasions re-nesting flycatchers have been known to reuse the same nest in a single year (Yard & Brown 1999). In California, replacement nest building and egg laying can occur (uncommonly) as late as early August (Stafford & Valentine 1985, Sanders & Flett 1989) (Figure 16). Clutch size (and therefore potential productivity) usually decreases with each nest attempt (Whitfield and Strong 1995). Breeding populations may also reappear at unoccupied sites following 1-5 yr. absences (Sogge et al. 1997a). Therefore, one cannot assume that a habitat is unsuitable or unoccupied in the long-term based on flycatcher absence during only a single year, especially if there is evidence of recent occupancy.

4.4 San Joaquin Adobe Sunburst

Status. The San Joaquin adobe sunburst (*Pseudobahia peirsonii*) was federally listed as threatened on February 6, 1997 (USFWS 1997; 62 FR 5542). The San Joaquin adobe sunburst is State-listed as endangered. No formal designation for critical habitat has been designated for this species.

Distribution. San Joaquin adobe sunburst, a member of the tarweed tribe, are restricted to heavy, adobe clay soils with slight slopes on valley floors and rolling hills in scattered location in northern Kern County, Tulare, and Fresno Counties (USFWS 2007). It is endemic to the eastern San Joaquin Valley and its historic range is unknown (Stebbins 1991). The population currently is limited to about 41 extant occurrences in valleys and flats and in the foothills of the Sierra Nevada (CDFW 2019). Extant populations are concentrated in three areas: the Round Mountain-Wahtoke area in Fresno County, the Porterville-Visalia region in Tulare County, and the Pine Mountain-Woody region in Kern County (USFWS 1992, 1997).

San Joaquin adobe sunburst are usually found on Porterville clay soil series, but can be found less frequently on Academy, Centerville, Cibo and Mt. Olive clay soil series (Stebbins 1991). Growing in areas where the average annual rainfall is less than 10 inches, these soils may be favored by the San Joaquin adobe sunburst for their ability to hold moisture longer into the summer dry season than other soils (Stebbins 1991). It occurs at elevations ranging from 390 to 2,600 feet above mean sea level primarily in annual grassland plant communities, but sometimes in annual grassland-blue oak woodland ecotone communities (Stebbins 1991). San Joaquin adobe sunburst grows in grasslands dominated by non-native annual grasses, mustards, and

filarees. The intrusive and aggressive nature of these herbaceous weeds appears to be detrimental to the quality of habitat for the San Joaquin adobe sunburst. Common associates within the study area include wild oat (*Avena fatua*), red brome (*Bromus madritensis* ssp. *rubens*), common fiddleneck (*Amsinckia menziesii* var. *intermedia*), soft chess (*Bromus hordeaceus*), redstem filaree (*Erodium cicutarium*), and charlock (*Sinapis arvensis*) (USFWS 2007).

Of the 51 historically known occurrences of San Joaquin adobe sunburst, 10 have been or are now presumed to be extirpated, all in Tulare County. Of those 10, three occurrences have been or are presumed to have been extirpated since 1999 (CDFW 2019). Approximately 80 percent of the remaining plants of this species are contained in 4 populations and 18 of the 41 extant occurrences contain less than 250 plants in a given year (CDFG 2001). Populations continue to be threatened by agricultural activities, urbanization, water projects, transmission line and road maintenance, soil erosion, livestock grazing, and competition with non-native weeds (CDFG 1992; USFWS 1992).

The extant population at Lake Success is considered in fair condition and is a remnant population of a larger one that used to occupy an area that is now part of Lake Success (Figure 17). The Lake Success population of San Joaquin adobe sunburst has varied from 50 to over 300 individual plants covering an estimated 3-acre area along the west side of Lake Success (Stebbins 1991). An extensive vegetation survey conducted at Lake Success in the spring of 2006 by EDAW, Inc., reported an undocumented occurrence of San Joaquin adobe sunburst on the southwest side of Boat Island, which included 45 individuals (Unger and Beyerl 2006). This same survey documented approximately 150 individuals on the west side of Lake Success in two general locations (corresponding to CNDDDB occurrences 19 and 46).

Part of Occurrences 10, 19 and all of Occurrence 46 lie within the temporary work area for Phase 1 (Figure 18). Occurrence 19 was generally mapped in 2002 by Dr. Ellen Cypher as three polygons (Unger and Beyerl 2006; CDFW 2019). Unger and Beyerl used GPS technology to get a more accurate location in 2006 (Figure 18). Occurrence 10, west of the spillway along Avenue 146, was first reported in 1974. Occurrence 19, between Rocky Hill and Lake Success, was first reported in 1938. Occurrence 46, immediately north of the spillway, was first reported in 2006. Occurrence 19 has not been documented since 2006, while Occurrence 46 was last documented in 2014. It is important to note that this species, as with most annuals, is cyclical and population sizes fluctuate greatly from year to year due to environmental variation (Stebbins 1991). In 2019, two previously undocumented populations were located near Frazier Dike and where the Tule River enters Lake Success. The new footprint of the water level caused by increasing the gross pool of Lake Success, coupled with wind and wave runup, could impact two occurrences of the San Joaquin adobe sunburst, one approximately every 10 years and the other approximately every 100 years (these details will be confirmed with LiDAR and on-the-ground elevation surveying in early 2020). Locations affected include part of the Rocky Hill historic subpopulation and the newly discovered occurrence 800 feet south of Frazier Dike.

Life History and Habitat Requirements. This annual herb species is a member of the aster family (Asteraceae) and has woolly gray stems and foliage (USFWS 1998a; Johnson 2012). The erect stems are typically from 4 to 18 inches tall. The alternate leaves are divided twice into smaller lobes (bipinnatifid), are triangular in outline, and 1 to 3 inches long (Johnson 2012). San Joaquin

adobe sunburst (also called Tulare pseudobahia) is distinguished from other species of *Pseudobahia* by characteristics of the phyllaries and leaves (USFWS 2007). Each plant produces a single head of yellow disk and ray flowers at the ends of the branches between March and May. The San Joaquin adobe sunburst requires sufficient rainfall; therefore, during drought years population sizes decrease substantially. Additionally, the timing of grazing can impact the success of the species (Stebbins 1991; USFWS 2007).

5.0 ENVIRONMENTAL BASELINE AND CUMULATIVE EFFECTS

This section will be used along with the species and critical habitat information from the preceding section to describe the pre-action condition of the species and critical habitat that will be exposed to the stressors and subsidies of the action(s) under consultation. The purpose of this section is also to provide a summary of the relevant local information on the impacts that other factors (human and natural) in the action area have had on the viability of the species and value of critical habitat. These other factors may have occurred in the past, may continue to affect the species and habitat today, or will affect the species and habitat in the future.

The information contained in this section is based upon field reconnaissance, literature searches, and database queries. The aerial photographs, CNDDDB, and IPaC were reviewed prior to field reconnaissance visits. In addition to these references, Corps biologists reviewed species literature. All of the above were used to determine the potential for the species listed in Table 1. Field surveys (December 2018, February 2019, and April 2-4, 2019) included recording existing biological resources in and around the Action Area, assessing the Action Area for suitability to support federally listed and candidate species. Habitats were mapped and field notes were recorded.

5.1 Environmental Baseline

Lake Success is located within the foothills of the southern Sierra Nevada mountains. Northwest and southwest trending hills and broad valleys typify the area. The foothill belt is 12 miles wide and merges with increasing relief into the Sierra Nevada mountains. The Tule River is the major stream in this area, with about 390 square miles of Tule River drainage above Lake Success. The valley area downstream of the dam is relatively flat due to alluvial deposits from the river. The Tule River flows from the reservoir through Porterville, and continues thirty-eight miles through agricultural areas to Tulare Lakebed (Figure 2).

The Tulare Lakebed is part of a closed interior drainage system with no access to discharge into the sea. The lakebed is located towards the south end of the San Joaquin Valley, where it receives water from the Kern, Tule, and Kaweah Rivers, as well as from southern distributaries of the Kings River. It was separated from the rest of the San Joaquin Valley by tectonic subsidence and alluvial fans extending out from Los Gatos Creek in the Coast Ranges and the Kings River in the Sierra Nevada. Above a threshold elevation of 207 to 210 feet, it can overflow into the San Joaquin River; however, no overflows have occurred after 1878 due to increasing diversions of tributary waters for agricultural irrigation and municipal water uses. The Tulare lakebed was dry by 1899, except for residual wetlands and occasional floods. Over time, the decreasing lake size allowed agriculture to move into the productive lakebed deposits in

the valley. Due to the closed nature of this system, high water years have a potential to flood agricultural lands in the lakebed.

For Phase 1, the proposed action/temporary work area is currently recreation land (parking lots and boat ramps), roads, and pastured annual grassland (Figure 1). Pastured annual grassland covers 99 acres of the Phase 1 temporary work area, while roads and recreation land cover 39 acres. Within the actual construction footprint (~14 acres), 8.4 acres are pastured annual grassland, and 5.6 acres are existing roads. The soils are mostly clay textured and are shallow to bedrock (Figure 19; Soil Survey Staff). Soil surveys indicate that bedrock is typically encountered 9 to 35 inches below the soil surface (Soil Survey Staff).

For Phase 2, construction of the ogee weir would occur within the newly enlarged spillway. Flood-proofing, protection, and relocation of existing infrastructure would occur within the recreation areas, which are mostly mowed lawn, pavement, and ornamental trees. Blasted rock from Phase 1, would be used to armor Frazier Dike and the abutments of the State Highway 190 bridge (Figure 3). The Frazier Dike levee is mostly bare soil with spotty ruderal vegetation. Current routine maintenance involves periodic removal of herbaceous vegetation. The abutments of the State Highway 190 bridge are currently dominated by wild radish (*Raphanus sativus*), tumbleweed (*Salsola* spp.), and protective riprap. Ten feet of blast rock will be added upslope from the existing riprap to further armor the bridge abutments. Raising the fourteen transmission towers and 11,800 feet of power lines to meet minimum clearance criteria would temporarily impact the existing powerline right of way, which currently cuts through existing and future inundated areas.

The extant population of San Joaquin adobe sunburst at Lake Success is considered in fair condition. It is a remnant population of a larger one that used to occupy an area that is now part of Lake Success. The adobe sunburst successfully blooms during locally high rain years at Lake Success. The local population of the plant is not dependent on the flow regime or pool elevation in the locations it has been found. The Lake Success extant population of adobe sunburst has varied from 50 to over 300 individual plants in four different areas covering an estimated 10-acre area along the west side of Lake Success and Boat Island (Occurrences 10, 19, 46, & 45; Figure 18 and Table 2). In addition, there is a small population on the south side of the inlet where the South Fork of the Tule River enters Lake Success (USFWS 2007). Between April 2 and 4, 2019, a biological survey was conducted between the current and future maximum pool depths at Lake Success. Two new occurrences of adobe sunburst were found; one along the Tule River where it enters Lake Success and the other 800 feet south of Frazier Dike.

Occurrence 46 would be directly impacted by the proposed action since its documented location is directly under where the new road will go (Figure 7). However, this occurrence may no longer be extant since it has not been documented in three past surveys (2016, 2017, & 2019) and was last observed in 2014 (Table 2). Regular grazing by cows and horses on private land and by goats and/or sheep on Corps lands could have eliminated this occurrence. The main stockpile is located near the mapped extent of Occurrence 19. The specific location of the stockpile was moved during project design to avoid this occurrence, which has not been documented since 2006. The stockpile is currently outside a 25-foot buffer zone created around this mapped occurrence. This occurrence has also undergone extensive grazing by horses, cattle, goats, and sheep.

Furthermore, the seedbank may no longer be viable since related plants in the tarweed tribe are reported to have seed that only remain viable up to five years (Montalvo et al. 2010). No known seed viability studies have been conducted on adobe sunburst to date.

Eleven occurrences of San Joaquin kit fox have been documented within 10 miles of the proposed action; kit fox has been documented in the surrounding quads, each greater than 5 miles from the proposed action (CDFW 2019). The last occurrence was documented in 1992. Satellite populations of kit foxes, like those near Lake Success, are prone to extinction (Cypher et al. 2014). Furthermore, suitable, not preferred, habitat is present in the project area and the project area is at the edge of San Joaquin kit fox's current known range. However, it is possible that kit fox may still use the area for foraging or as a movement corridor. Based on field surveys in December 2018 and February 2019, a multitude of dens were located around the project area; most were last inhabited by ground squirrel, some were recently inhabited by rabbits, and a few had been inhabited by fox (unknown species). An active fox den was located at the base of the right abutment during surveys in February 5, 2019, although the species was not determined as the tracks were only of nail scrapes. The shallow-to-bedrock soils within the project area preclude natal dens since the soils have a maximum depth of 2.9 ft (Soil Survey Staff) and dens are typically located 4.3 ft to almost 10 ft below the soil surface (Egoscue 1956; Morrell 1972; O'Neal et al. 1987).

Orchards occur in large contiguous blocks to the northwest of Lake Success, north of Frazier Dike, and at scattered locations to the southwest (Figures 1 and 5). Orchards sometimes support prey species if the grounds are not manicured; however, denning potential is typically low and kit foxes can be more susceptible to coyote predation within orchards (Zeiner 1990; USFWS 2010; USEPA 2013).

5.2 Cumulative effects

The ESA requires USFWS to evaluate the cumulative effects of the proposed actions on listed species and designated critical habitat, and to consider cumulative effects in formulating Biological Opinions. The ESA defines cumulative effects as “those effects of future State or private actions, not involving Federal activities that are reasonably certain to occur within the action area” of the proposed action subject to consultation. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the Federal ESA. Federal actions, including hatcheries, fisheries, and land management activities are not included.

A number of other commercial and private activities, including agriculture, hatchery operations, timber harvest, recreation, and urban development could potentially affect listed species in the Tule River watershed. Levee maintenance activities by state agencies and local reclamation districts are likely to continue, although any effects on listed species would be addressed through Section 10 of the ESA. The benefit of the Tule River Spillway Enlargement Project's increased storage capacity would be to provide flood damage protection to infrastructure and environments downstream to the Tulare Lakebed by increasing the ability to control the release of high flows, reducing high river flow levee damages, therefore reducing the need for repairs.

6.0 EFFECTS OF THE ACTION

The action area addressed in this BA does not fall within designated critical habitat for any of the species listed in Section 1.1. There is No Effect on designated Critical Habitat.

The immediate effect of blasting is within 750 feet, and secondary effects would be within 2,500 feet, as indicated on Figures 5 and 6. The effects would vary due to the hilly terrain around Lake Success both focusing, reflecting, and attenuating the blast noise. Wildlife sensitive receptors in the immediate blast radius (750 feet) would be considered, although the likelihood of resident wildlife after the soil stripping would be minimal, leaving transient predators such as birds and lizards. Some wildlife in the larger 2,500 foot buffer zone around the demolition may be dissuaded from nesting/denning in the local area if nesting/denning coincides with the rigorous blasting. The nesting habitat available (trees) in the 2,500 foot blast zone is south of the Dam around the Corps Lake Success offices and an abandoned mobile home park. Also, migratory songbirds, raptors, waterbirds and shorebirds may have their migratory patterns shifted due to the disturbance. The frequency and number of detonations is not known at this time, as engineering is still compiling the geotechnical data. Most birds acclimatize quickly to disturbance if they are in a resting or nesting activities, but perching and foraging birds will more often adjust their behavior if the disturbance effects their activity. The disturbance to the animals decreases over repeated exposure if there are no negative effects noticed by the animals. There is energy budget loss due to the disturbance, but it is short term per blast decreasing with successive blasts (Pers. Obs. and Holthuijzen, et al. 1990.)

The increase in the gross pool elevation from 652.5 feet to 662.5 feet as a result of the spillway raise would expose an additional 659 acres of riparian and upland habitat around the lake to periodic inundation during years of well-above average precipitation.

Phase 2 of the project raises the emergency spillway 10 feet with a new ogee weir. This will reduce the 100-year flood flow through the spillway from approximately 4,700 cfs to 3,200 cfs (Appendix C). Since the downstream Tule River channel capacity immediately east and west of Hwy 99 ranges from 2,000 cfs to 1,000 cfs, respectively, flooding in these areas would still occur (Figures 12-14). Based on hydraulic modeling, no impacts to downstream habitat or wetlands would occur and the average change in water level during major floods across the Tulare Lakebed would be a reduction of only 0.001 inches (Appendix C). Thus the proposed action would have no effect on downstream listed species.

The spillway raise in Phase 2 would reduce flooding downstream of the lake along the Tule River floodplain, which is mostly comprised of intensive agriculture (Figure 14). It would also raise the existing potential maximum lake level ten feet, which would increase the area that has the possibility of periodically flooding with lake water (Figures 20 and 21). This could increase the portion of riparian vegetation along the Tule River and South Fork of the Tule River as they enter the lake. The existing 160-acre willow riparian woodland where the Tule River flows into Lake Success currently floods with lake water during wet years with little effect on the black willows, which are very tolerant of flooding. Black willows have an estimated 100 percent survival when inundated up to 60 days (Walters et al. 1980).

San Joaquin Kit Fox

The proposed action **May Affect, and is Likely to Adversely Affect** the San Joaquin kit fox due to indirect effects. Directly there are minimal permanent impacts from the project on biologically significant habitats since the project area only contains a minor amount of marginal habitat. Additionally, kit foxes have not been documented within 5 miles of the project area, the soils in the project area preclude the creation of natal dens, and no occurrences of kit foxes have been documented within 10 miles of the project area since 1992. If there are isolated kit foxes foraging in the area, the project actions may result in short term avoidance due to construction and blasting. Furthermore, the BMPs (both pre-construction surveys and avoidance and minimization measures) would avoid, minimize, or reduce potential interactions with kit fox.

The proposed action has the potential to temporarily block foraging habitat for the San Joaquin kit fox during periods of inundation. As a result of the spillway raise, the proposed action would increase the gross pool elevation from 652.5 feet to 662.5 feet, which would expose an estimated additional 659 acres of riparian and upland vegetation around the lake to periodic inundation during years of well-above average precipitation. This represents a permanent periodic loss of potential foraging habitat for kit foxes. The extent of this impact on the kit fox is unknown due to lack of information on species presence and the infrequent nature of such inundation.

Based on the 1999 BO, the Corps would provide compensation for the loss of 421 acres of grassland around the perimeter of the lake, by acquiring and preserving 425 acres of grassland. This grassland would be fenced and managed for wildlife. The Corps would provide compensation for the loss of 167 acres of *Atriplex* grassland habitat, which is now in the Kincade Cove Wildlife Management Area, by planting *Atriplex* community species on 150 acres of lands adjacent to the remaining wildlife management area, above the new gross pool. The area will be fenced to protect the plantings from livestock grazing. These lands would not be managed specifically for kit fox habitat, but would provide some kit fox habitat. These compensation requirements could change if the water control manual update indicates a reduced effect on the species habitats from the periodic inundation caused by the proposed spillway raise.

Cumulative effects with other actions. The downstream effects of the spillway enlargement of Lake Success would slightly decrease flooding effects for kit fox in the Tule River and Tulare Lakebed watershed (Figure 22). State and local activities are expected to continue (e.g., levee repairs, water diversions for irrigation). These cumulative effects on the San Joaquin kit fox are difficult to quantify.

Least Bell's Vireo

The proposed action **May Affect, but is Not Likely to Adversely Affect** the least Bell's vireo. All work from the proposed action would occur more than one-half mile from potential habitat for this species (Figures 3 and 15). Since this habitat is already within the existing gross pool of the lake, the periodic higher lake levels caused by the proposed action beyond the existing gross pool would not impact the habitat beyond current conditions. There is a chance that more habitat would be created (Figures 20 and 21) with higher lake levels. However, since the frequency of high water events is less than one percent each year, it is difficult to determine these beneficial

impacts. The suitable habitat for least Bell's vireo at Lake Success is more than 10,000 feet from the blasting. Blasting would occur after the nesting season for least Bell's vireo has ended in July and would cease before it begins again in April (Kus 2002). Thus the Corps expects there to be minimal impacts on least Bell's vireo from blasting.

Southwestern Willow Flycatcher

The proposed action **May Affect, but is Not Likely to Adversely Affect** the southwestern willow flycatcher. All work from the proposed action would occur more than one-half mile from potential habitat for this species (Figures 3 and 15). Since this habitat is already within the existing gross pool of the lake, the periodic higher lake levels caused by the proposed action beyond the existing gross pool will not impact the habitat beyond current conditions. There is a chance that more habitat would be created (Figures 20 and 21) with higher lake levels. However, since the frequency of high water events is less than one percent each year, it is difficult to determine these beneficial impacts. The suitable habitat for southwestern willow flycatcher at Lake Success is more than 10,000 feet from the blasting. Blasting would occur after the species typically departs in summer and would cease before the species returned in last spring (Sogge 1997b; USFWS 2013). Thus the Corps expects there to be minimal impacts on southwestern willow flycatcher from blasting.

San Joaquin Adobe Sunburst

For Phase 1, the proposed action **May Affect, and is Likely to Adversely Affect** San Joaquin adobe sunburst. Although this annual species has not been documented within the construction footprint since 2014 and mitigation measures will be taken if plants are found during final pre-construction surveys in spring 2020, the new road alignment will destroy known habitat for this species.

The project actions may directly harm one occurrence of San Joaquin adobe sunburst (number 46, Figure 18 and Table 2), which has potentially already been eliminated by grazing. This occurrence was known to occur where the new road will be located. Further occurrences, not in the California Natural Diversity Database or IPaC, were discovered on April 2-4, 2019. One occurrence is two miles from the project area along the Tule River before it enters Lake Success. This occurrence is above the new projected gross pool and would not be directly or indirectly impacted by the project. The other occurrence is 800 feet south of Frazier Dike. It is away from any proposed haul routes (>250 ft) and the power lines transmission towers (>2500 ft). Based on elevation map contours, there is the potential for part of this occurrence of adobe sunburst to be periodically inundated if wind and wave runup are high enough after the spillway raise occurs, with unknown effects. However, the final designs, wind and wave runup analysis, and elevation surveys for Phase 2 are not complete. If final designs change the affects determination, the Corps would reinitiate consultation with USFWS.

Cumulative effects with other actions. The spillway enlargement might raise the pool to an elevation that would affect San Joaquin adobe sunburst. Based on current understanding, this would occur with a less than 1 percent probability each year and the impacts to this species are unknown. The newly found Frazier Dike population might have been inundated during high lake

levels in 2017. However, more than 1,000 species were seen in 2019. Heavy wind and wave action may cause the pool to shift into the population locations, but the likelihood is low due to the seasonality of severe storms in the area not coinciding with the higher pool levels. State and local activities are expected to continue upstream, while downstream has little to no habitat for this species. State and local activities are expected to continue (e.g., levee repairs, water diversions for irrigation), but these populations are on Federal land and would not be affected by non-Federal actions.

7.0 CONCLUSION

The proposed action May Affect, but is Not Likely to Adversely Affect both the least Bell's vireo and the southwestern willow flycatcher. All work from the proposed action would occur more than one-half mile from potential habitat for these two species. This habitat currently floods during wet years and the frequency of such flooding would not be impacted by the proposed action. A minimal amount of additional riparian habitat could be created by the project.

The indirect effects of the increase in gross pool elevation would periodically deprive any potential area kit foxes of foraging habitat. As a result, this project May Affect, and is Likely to Adversely Affect the San Joaquin kit fox. The downstream effects of the spillway enlargement of Lake Success would decrease flooding effects for kit fox in the Tulare Lakebed watershed. State and local activities are expected to continue (e.g., levee repairs, water diversions for irrigation).

The spillway enlargement is not likely to raise the pool to an elevation that would affect San Joaquin adobe sunburst. Heavy wind and wave action may cause the pool to shift into the population locations, but the likelihood is low due to the seasonality of severe storms in the area not coinciding with the higher pool levels. State and local activities are expected to continue upstream (e.g., levee repairs, water diversions for irrigation), while downstream has little to no habitat for this species. These populations are on Federal land and would not be effected by non-Federal actions. As the species cannot avoid environmental changes, this project May Affect, and is Likely to Adversely Affect San Joaquin adobe sunburst populations.

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10.0 FIGURES AND TABLES

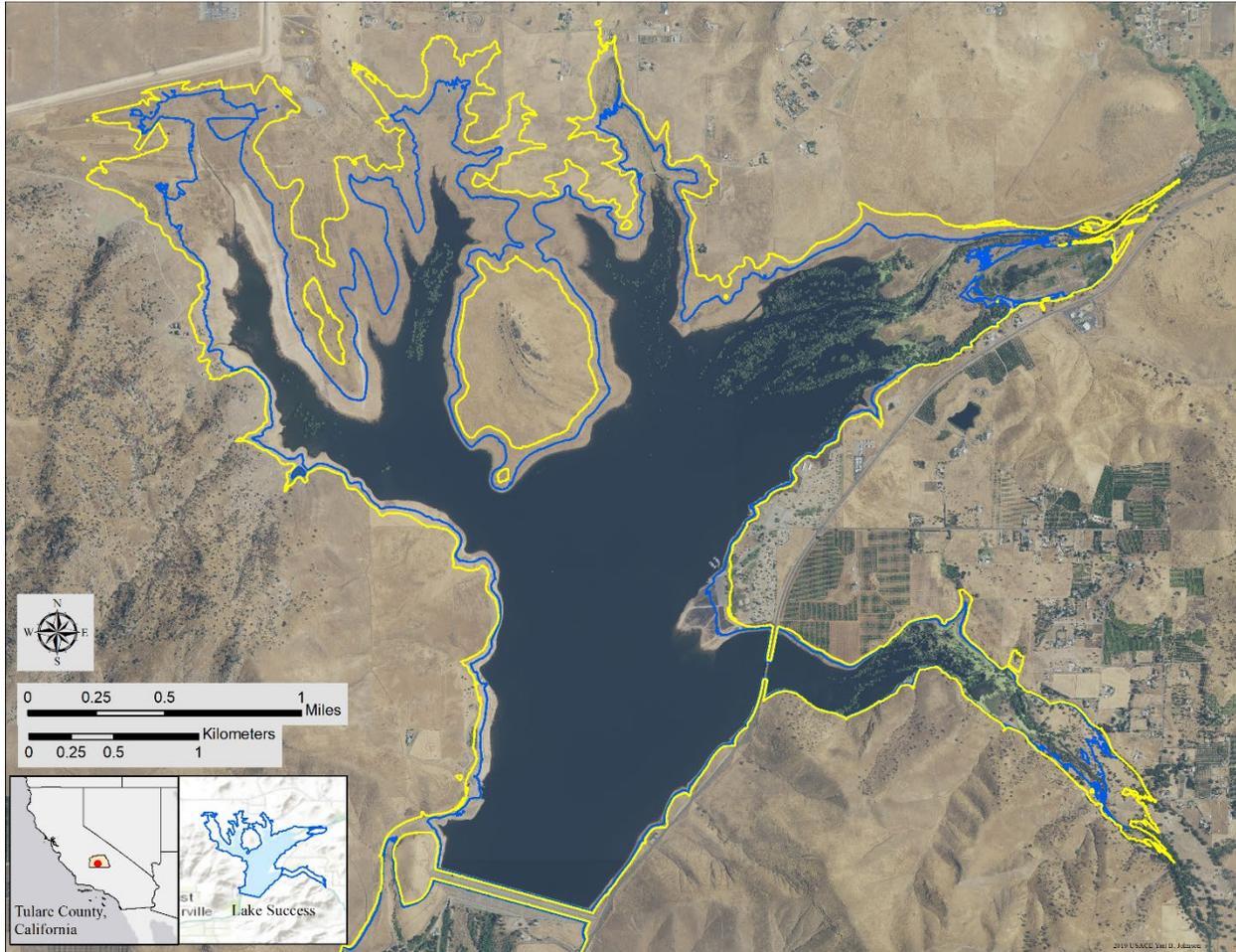


Figure 1. Lake Success with existing potential maximum lake level approximated by the blue contour line (652.5 ft). Proposed potential maximum lake level approximated by the yellow contour line (662.5 ft). The existing maximum lake level has been reached seven times since the dam was constructed in 1961. The Corps estimates that there is a one percent chance each year that the proposed potential maximum lake level will be reached. In other words, the one percent annual chance of exceedance flood (“100-year flood”). Final physical/hydraulic models coupled with LiDAR and on-the-ground surveys will be completed in early 2020 and would give a better estimate of future lake levels.

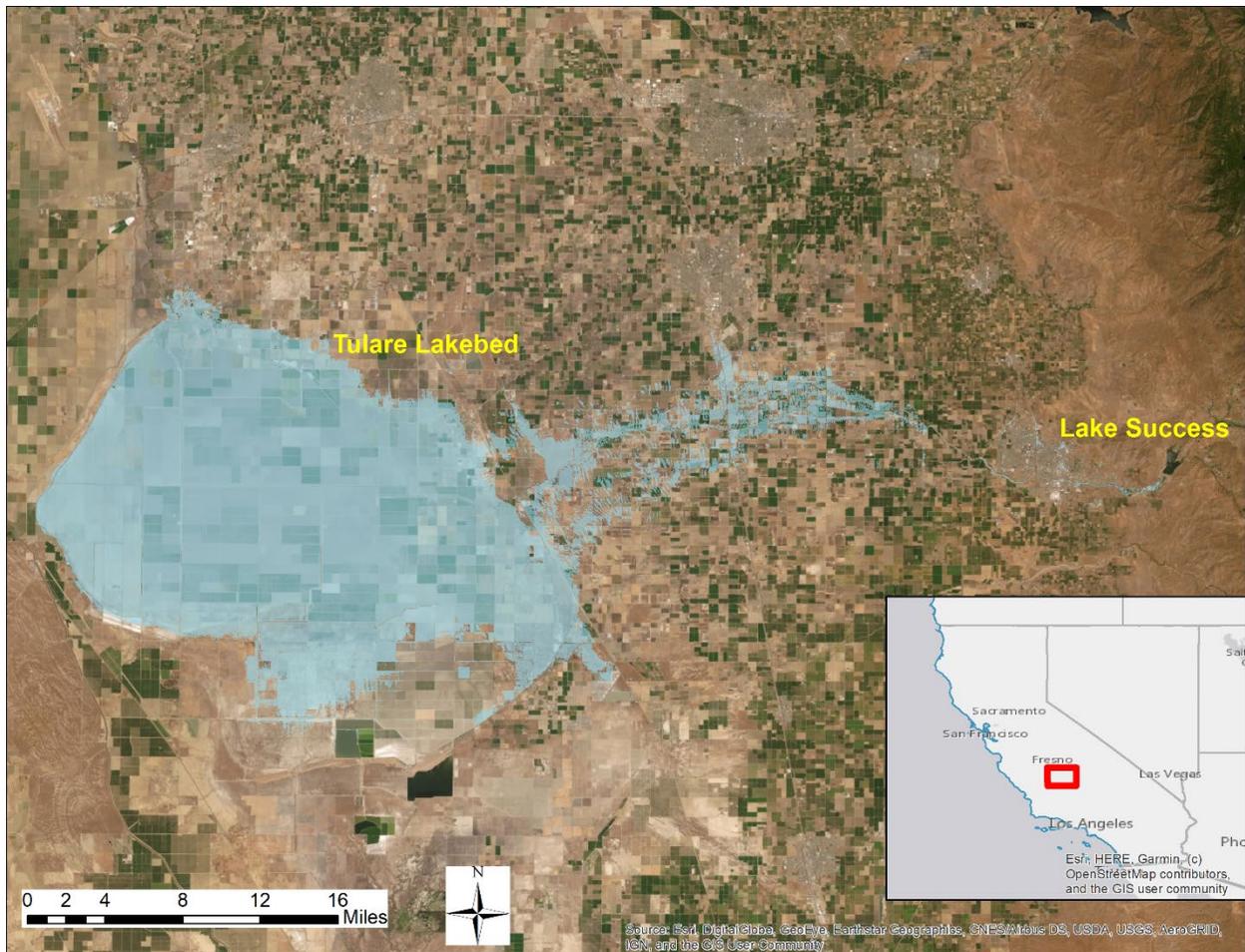


Figure 2. Lake Success with existing downstream 100-year floodplain shown in light blue. Flood area based on modeling, which is detailed in Appendix C. The area in light blue approximates the one percent annual chance of exceedance flood.

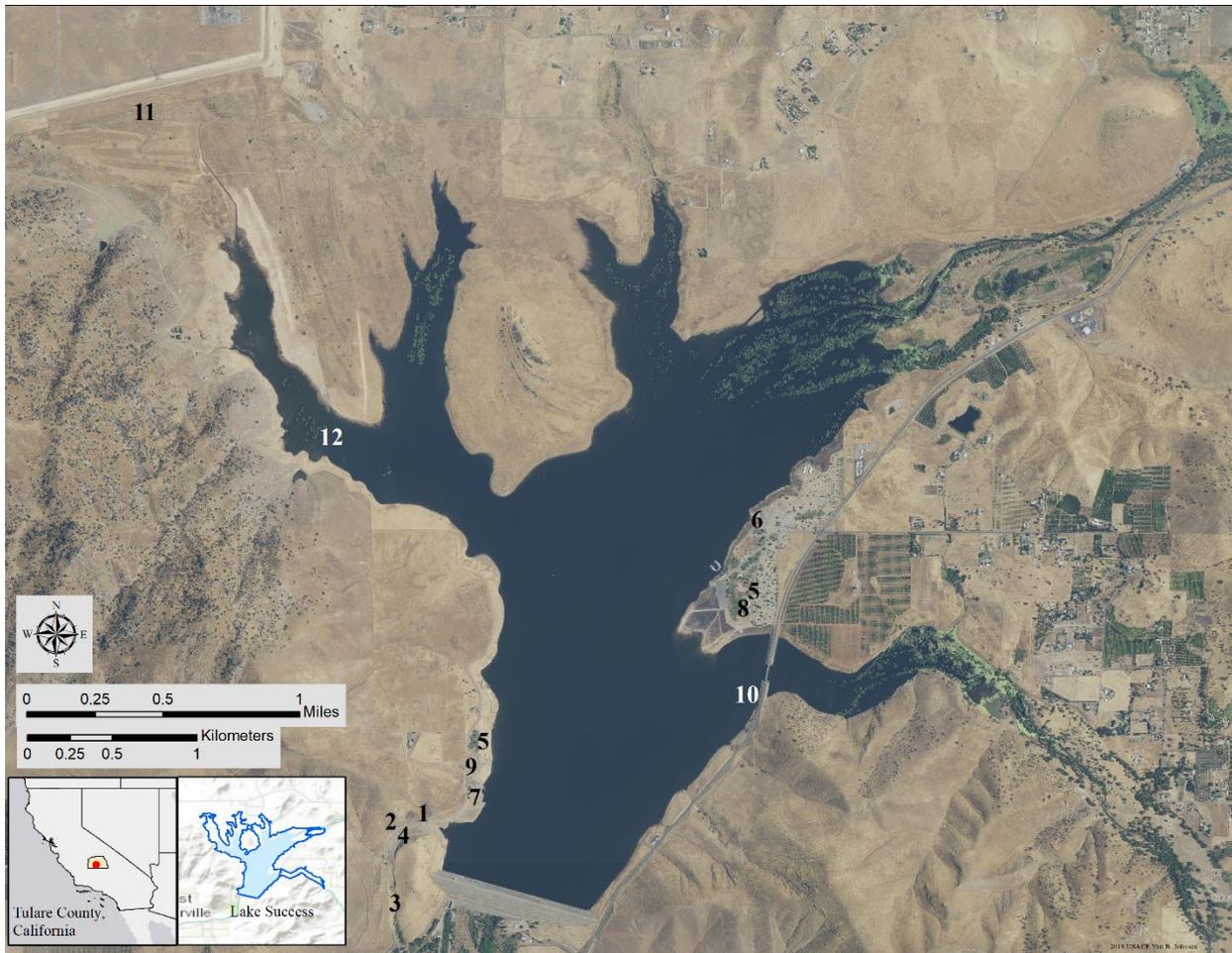
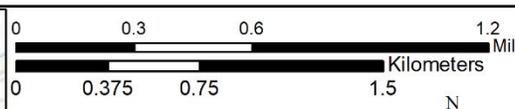


Figure 3. Overview of Lake Success with components of Proposed Action numbered. (1) Widening the spillway sill at Success Dam from 200 feet to 365 feet. (2) Relocating the existing road through the spillway, Worth Drive/Avenue 146, to the new road bench constructed as part of the spillway widening. (3) Restoring the lower third of the spillway to its original design grade using excavated material from the spillway widening. (4) Constructing a 10-foot high concrete ogee weir over the existing spillway sill. (5) Flood-proofing restrooms at the Tule and Rocky Hill recreation areas. (6) Extending and widening the Tule recreation area boat ramp. (7) Enlarging the existing parking area at Rocky Hill recreation area to replace parking areas lost to higher gross pool levels. (8) Protecting in place the Tule recreation area well and storage tank by an earthen berm. (9) Relocating the Rocky Hill recreation area storage tank, well, and metal shed to higher ground. (10) Placing rock revetment along the State Highway 190 bridge abutments for erosion protection. (11) Placing rock revetment (3,500 linear feet) along Frazier Dike for erosion protection. (12) Raising fourteen transmission towers and 11,800 feet of power lines to meet minimum clearance criteria.



Tule River Road Relocation & Right Abutment Cut



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Figure 4. Proposed action temporary work area (red outline) along the western shore of Lake Success for Phase 1.



Figure 5. Overview of the emergency spillway on the southwest corner of Lake Success. The spillway will be widened 165 feet by blasting and excavating the right abutment (top side of the spillway in this figure). Worth Drive/Avenue 146 (white line) currently goes through the spillway and will be relocated onto a bench above the new, wider spillway.

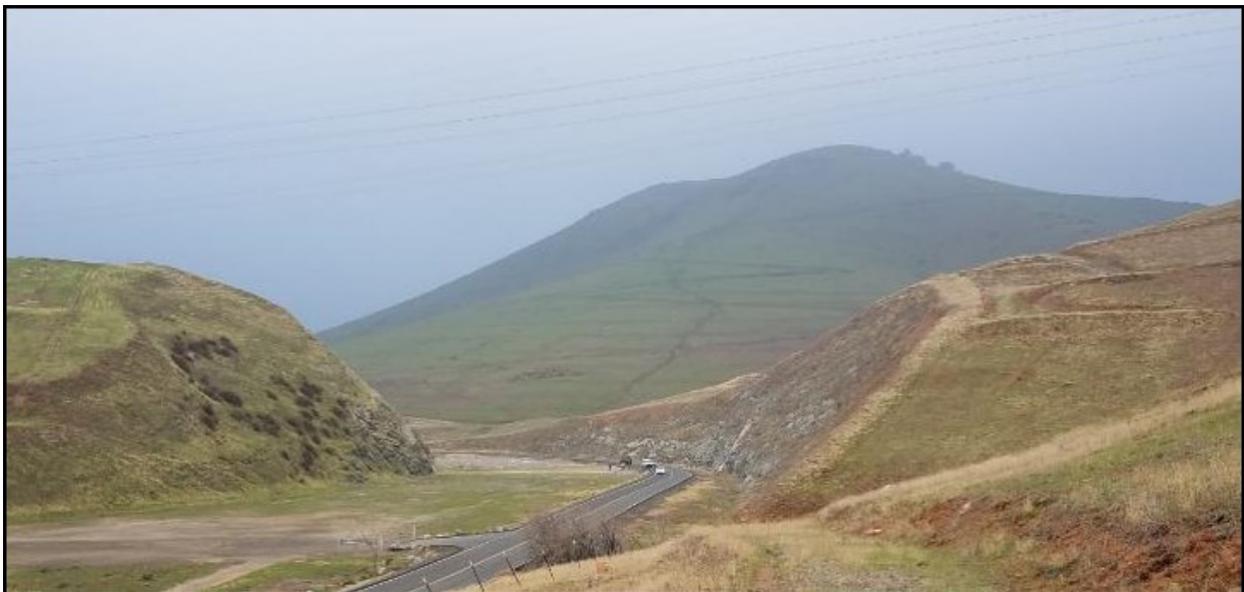


Figure 6. View of spillway from Lake Success. Phase 1 involves blasting and excavating the right abutment of the spillway. Worth Drive/Avenue 146 is adjacent to the right abutment.

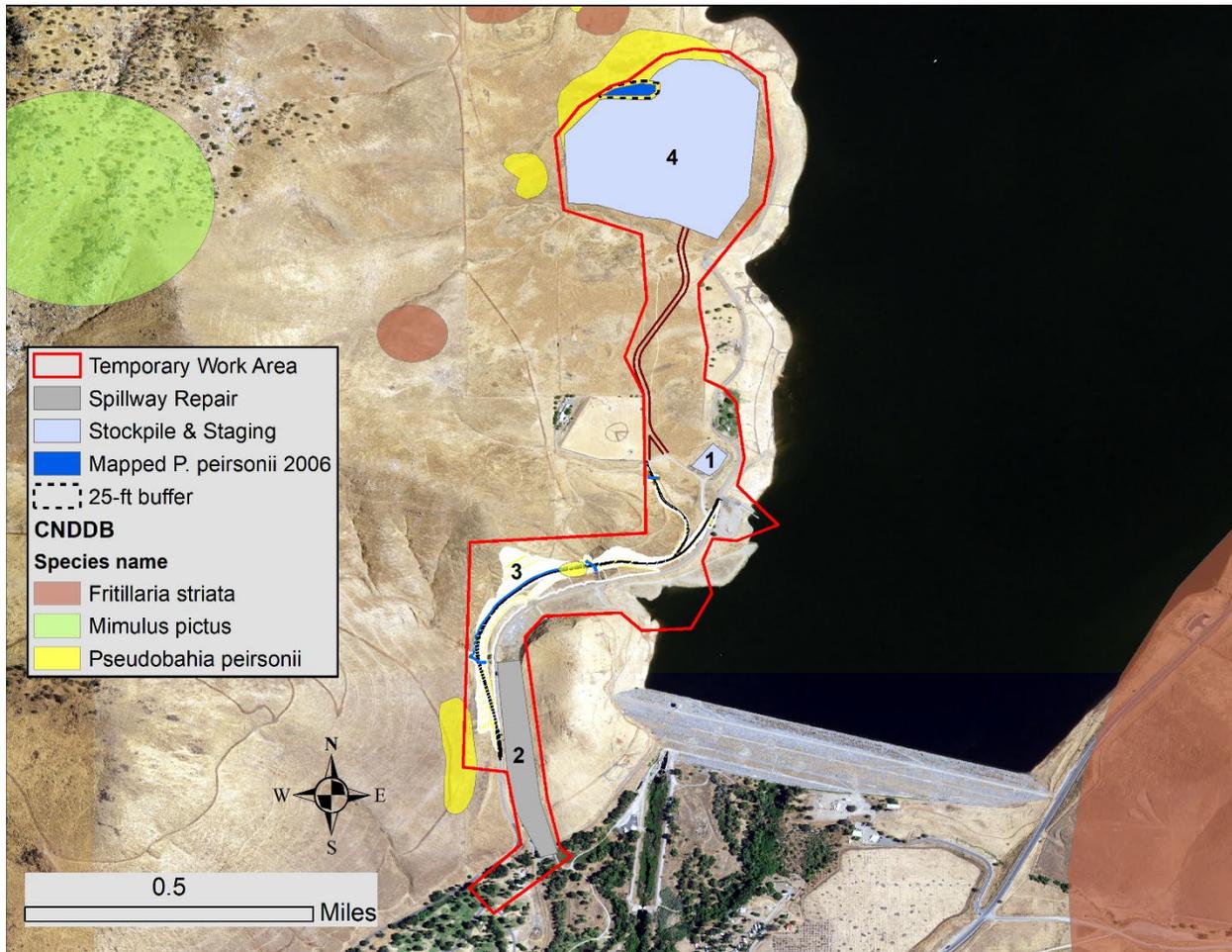
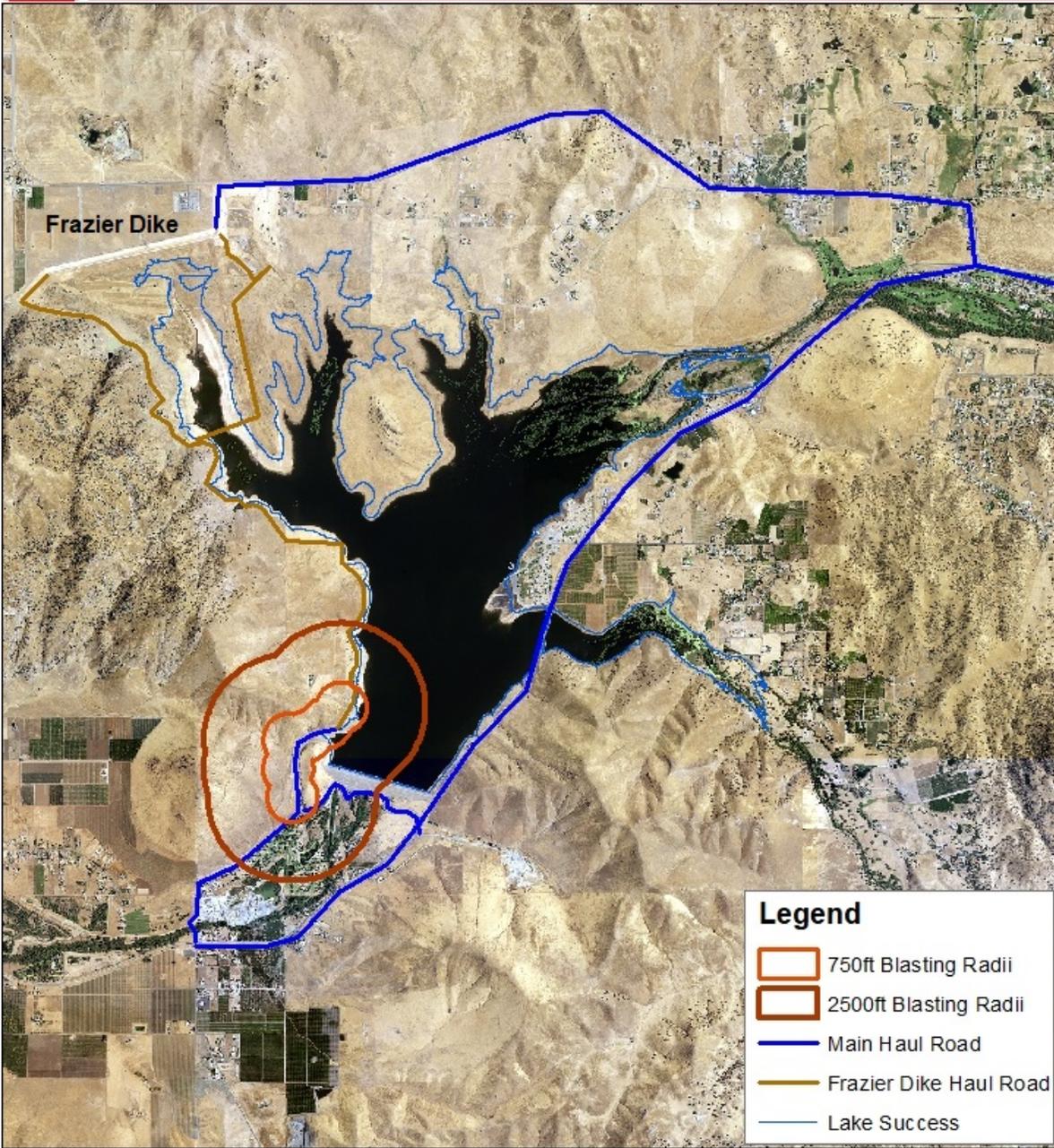


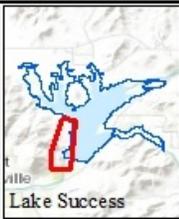
Figure 7. Overview of the proposed action project area for Phase 1 with occurrence of federally-listed species (CDFW 2019). (1) The staging area and construction offices will be located near the Rocky Hill Recreation Area on Corps property. (2) Blast rock from the right abutment cut will be used to repair the emergency spillway grade. (3) Right abutment cut and road realignment (see Figure 9 for a close up of the cut and road realignment). (4) Stockpile location. Stockpile (4) will be located at least 25 feet from the mapped San Joaquin adobe sunburst (*Pseudobahia peirsonii*) locations shown in dark blue. Brown line between 1 and 4 represents a temporary haul road. Striped adobe lily (*Fritillaria striata*) and calico monkeyflower (*Mimulus pictus*) are only shown for informational purposes. They are not impacted by the proposed action from either Phase 1 or Phase 2.

Tule River / Success Lake Road Relocation



Legend

- 750ft Blasting Radii
- 2500ft Blasting Radii
- Main Haul Road
- Frazier Dike Haul Road
- Lake Success



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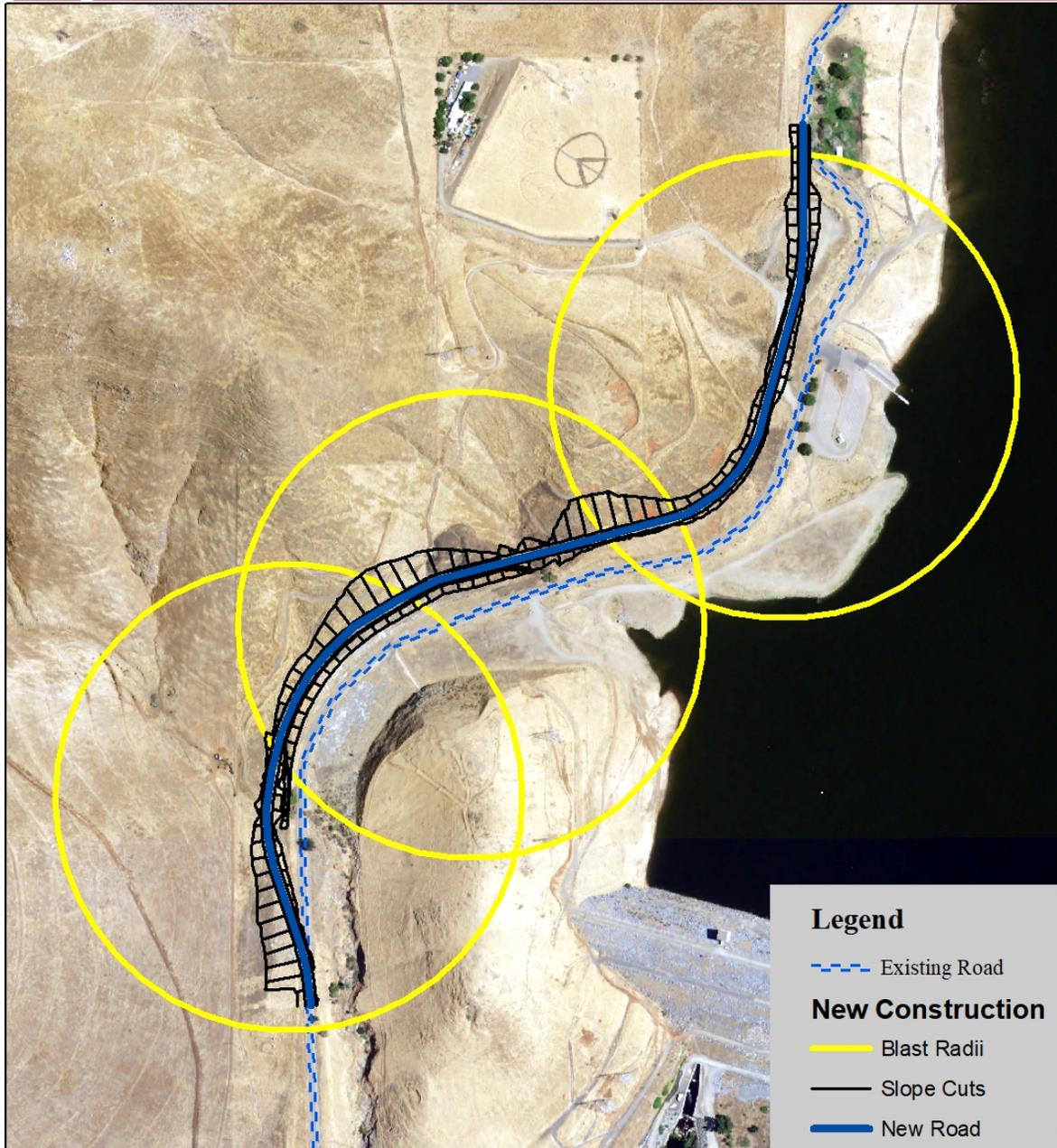


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Figure 8. Overview of Lake Success with haul routes and blast radii. The 750ft and 2500ft radii are for safety purposes and do not represent debris fly. Blast debris will typically fly 75-100 feet and will remain within the temporary work area.

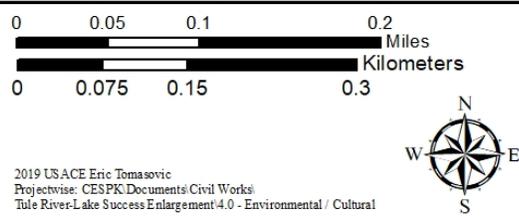
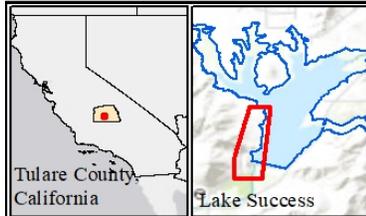


Tule River Road Relocation & Right Abutment Cut



Legend

- Existing Road
- New Construction**
- Blast Radii
- Slope Cuts
- New Road



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Figure 9. The existing road will be relocated to a new bench along the right abutment of the spillway. The yellow blast radii shown extend 750 feet from the bench and are for safety. Flyrock will not be permitted more than 250 feet from the blastholes along the bend.

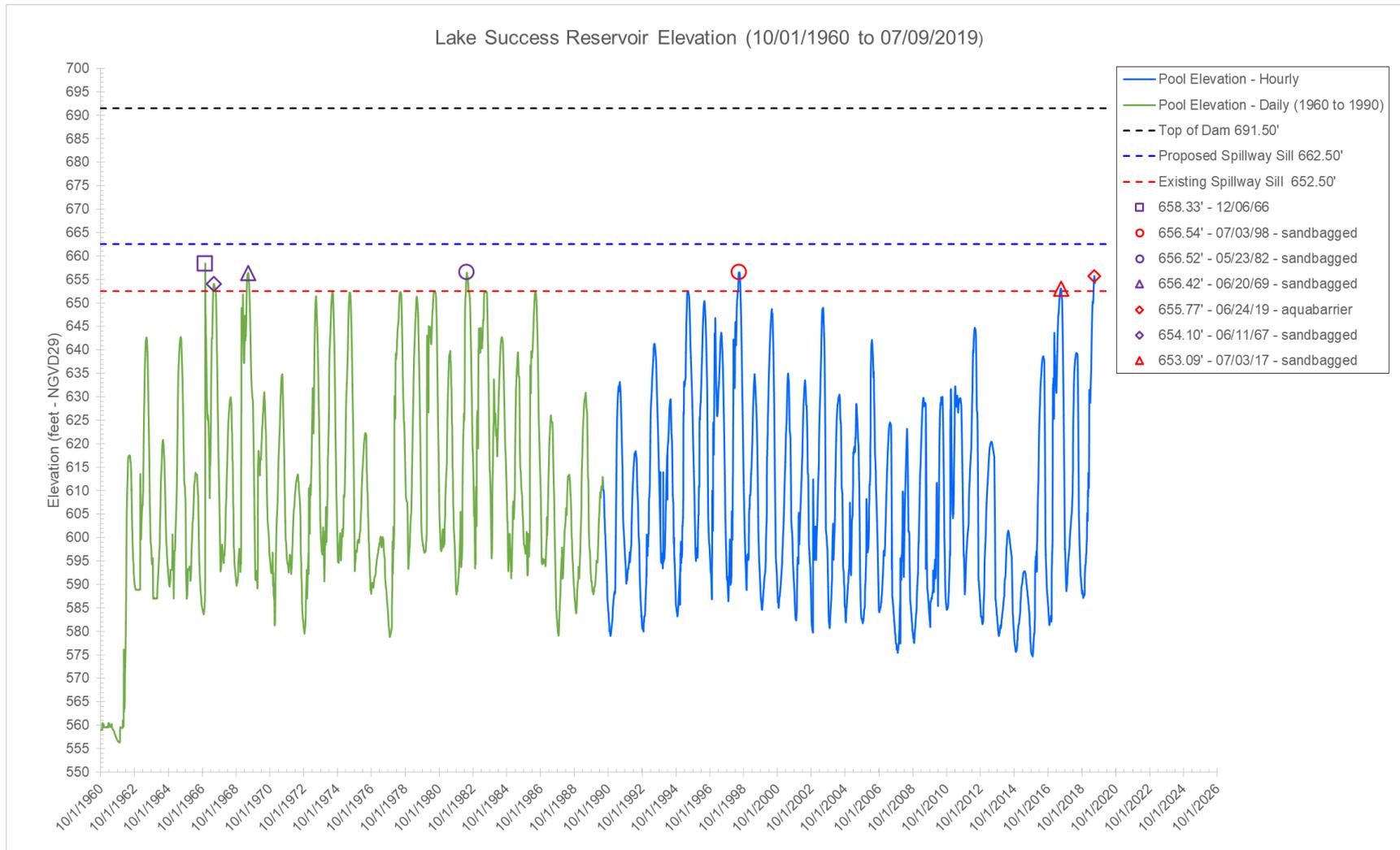


Figure 10. Lake Success reservoir elevation levels over the past 59 years. Red dashed horizontal line represents the current spillway height (652.5 ft), while the blue dashed line represents the proposed spillway height (662.5 ft). After the emergency spillway was first used in December 1966 during flooding, a barrier has been used to prevent high waters from going through the spillway.

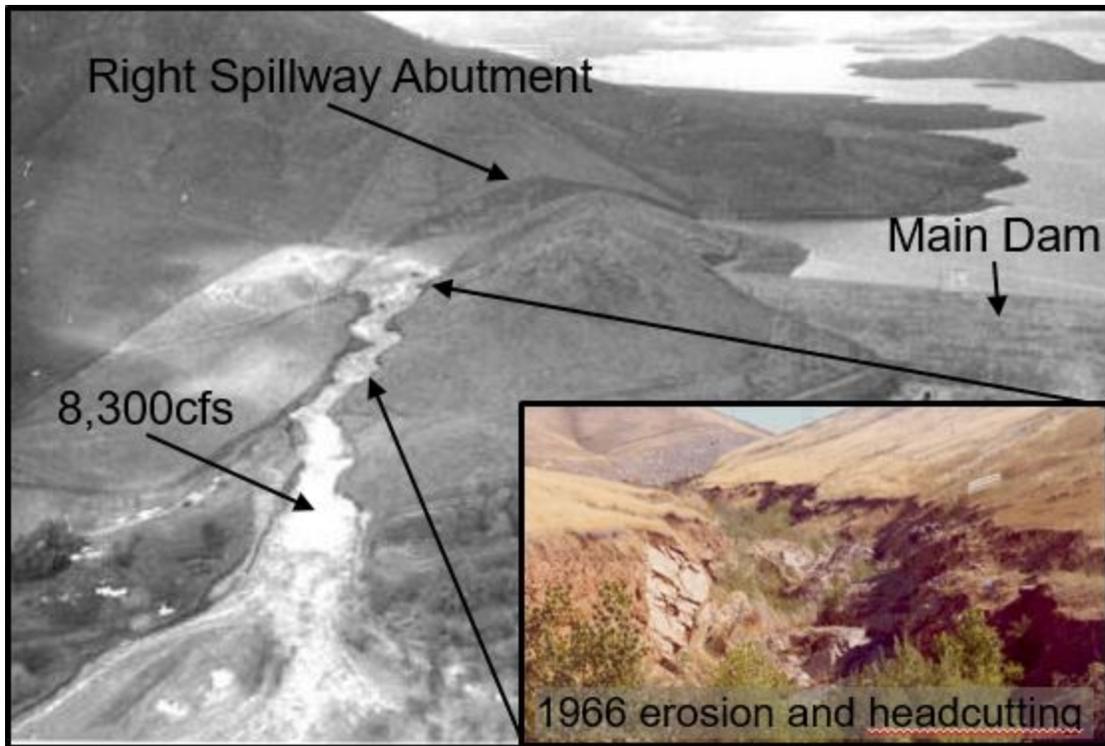


Figure 11. Photo of emergency spillway in December 1966. This was the only time that the spillway has had flowing water. The volume of flow caused erosion and headcutting (see inset) in the lower spillway. Trees started to grow in the newly eroded channel. Since then, the lower spillway has been routinely cleared of vegetation for operations and safety.

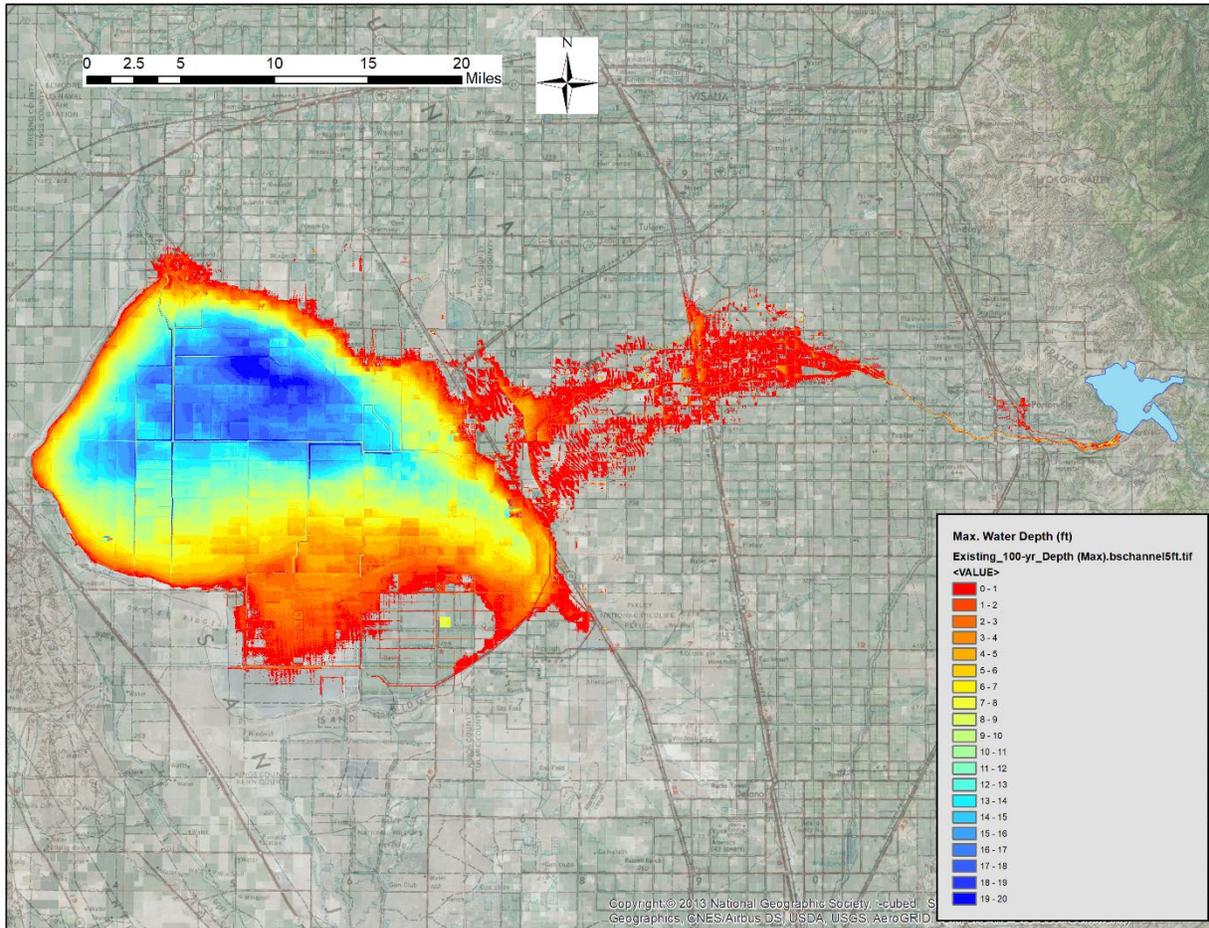


Figure 12. Modeled existing downstream flooding during a 100-year event. Depth in feet. Model based on the physics of water flow (*e.g.*, surface roughness), topography, and hydrology (see Appendix C for details).

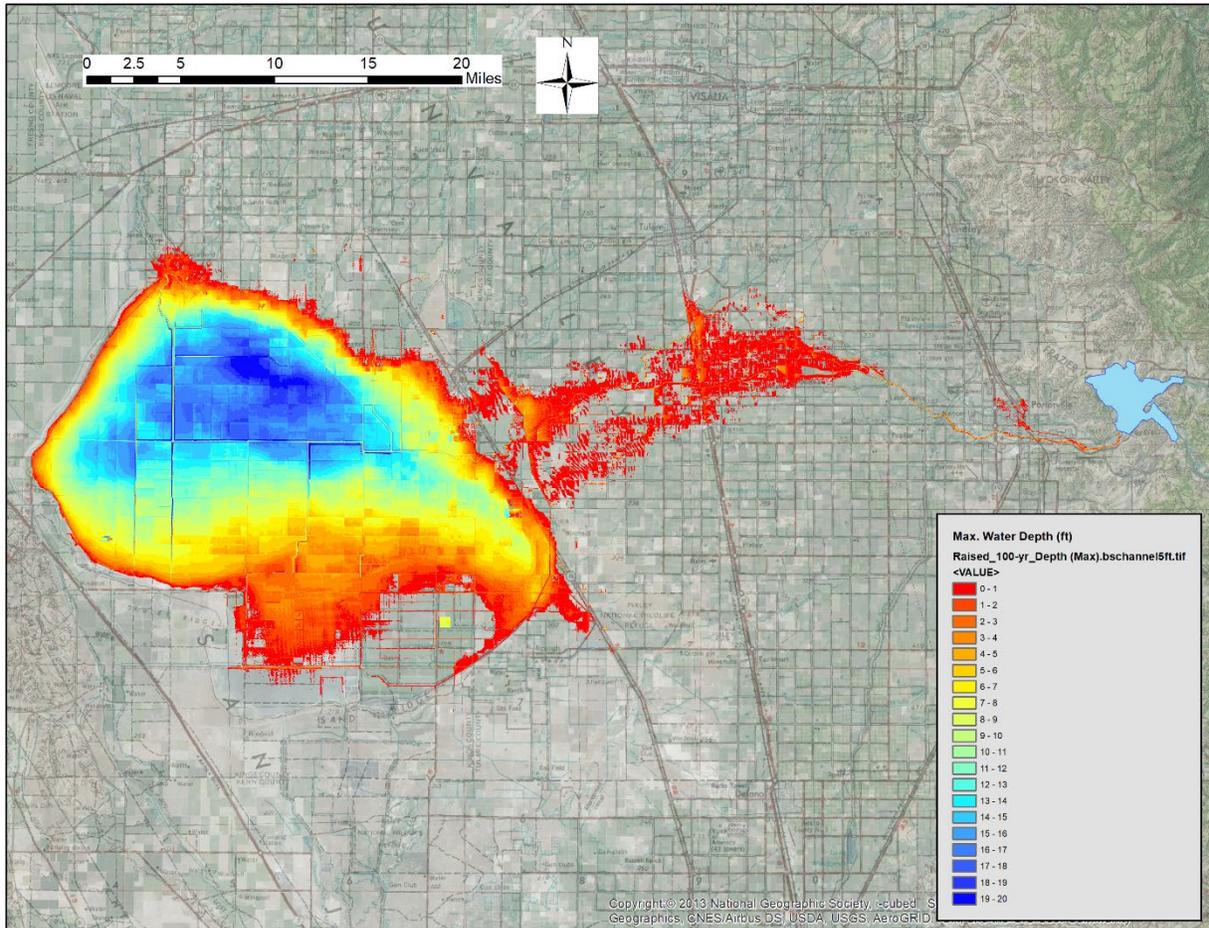


Figure 13. Modeled downstream flooding during a 100-year event after spillway raise. Depth in feet. There is no change in depth or extent of flooding in the Tulare Lakebed. Minor reductions in flooding extent occur in the lower Tule River floodplain over the existing conditions. Greater reductions in flooding extent would occur between the dam and Porterville.

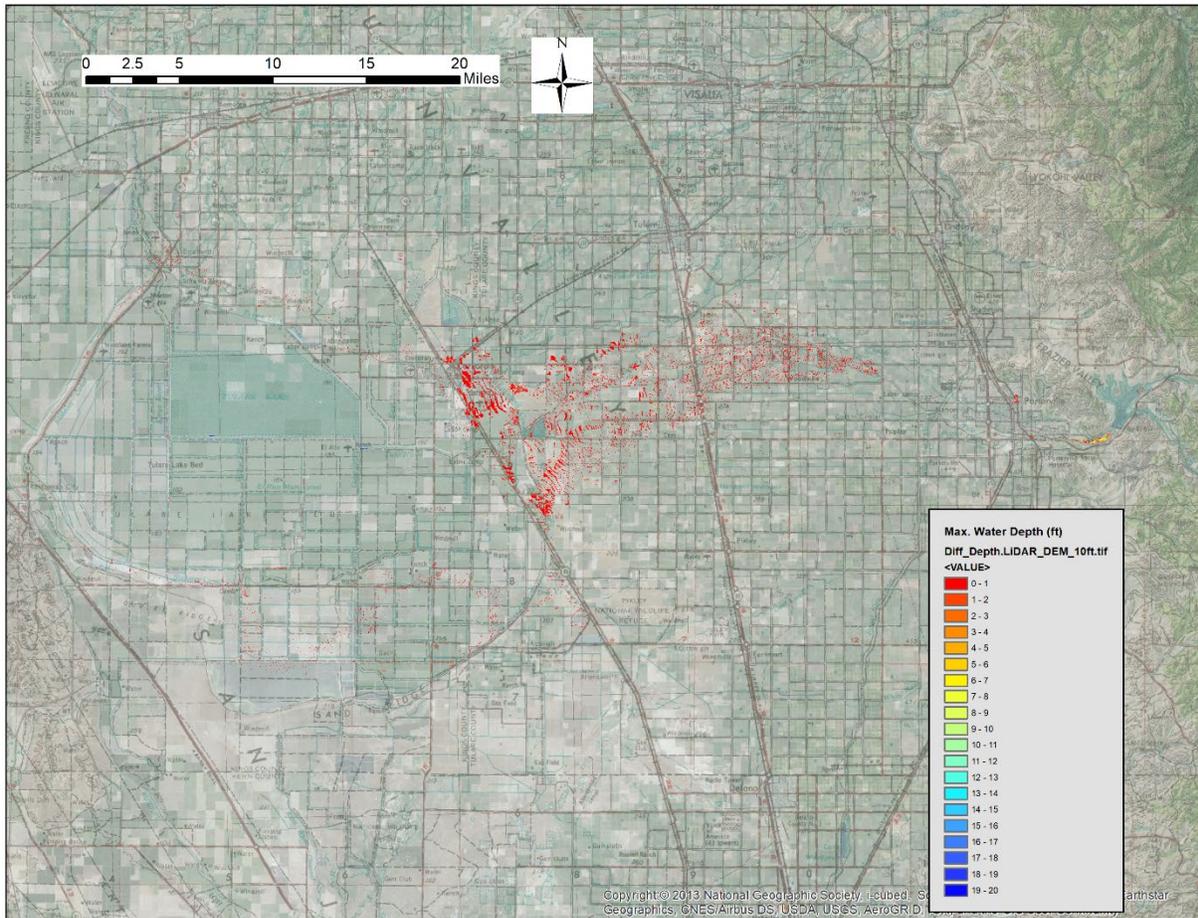


Figure 14. Difference in modeled downstream flooding during a 100-year event. Areas in red and orange are modeled to flood under existing conditions but would not flood after the spillway raise. No difference was observed when comparing existing inundation from 10-year, 20-year, or 50-year floods to inundation after the spillway raise.

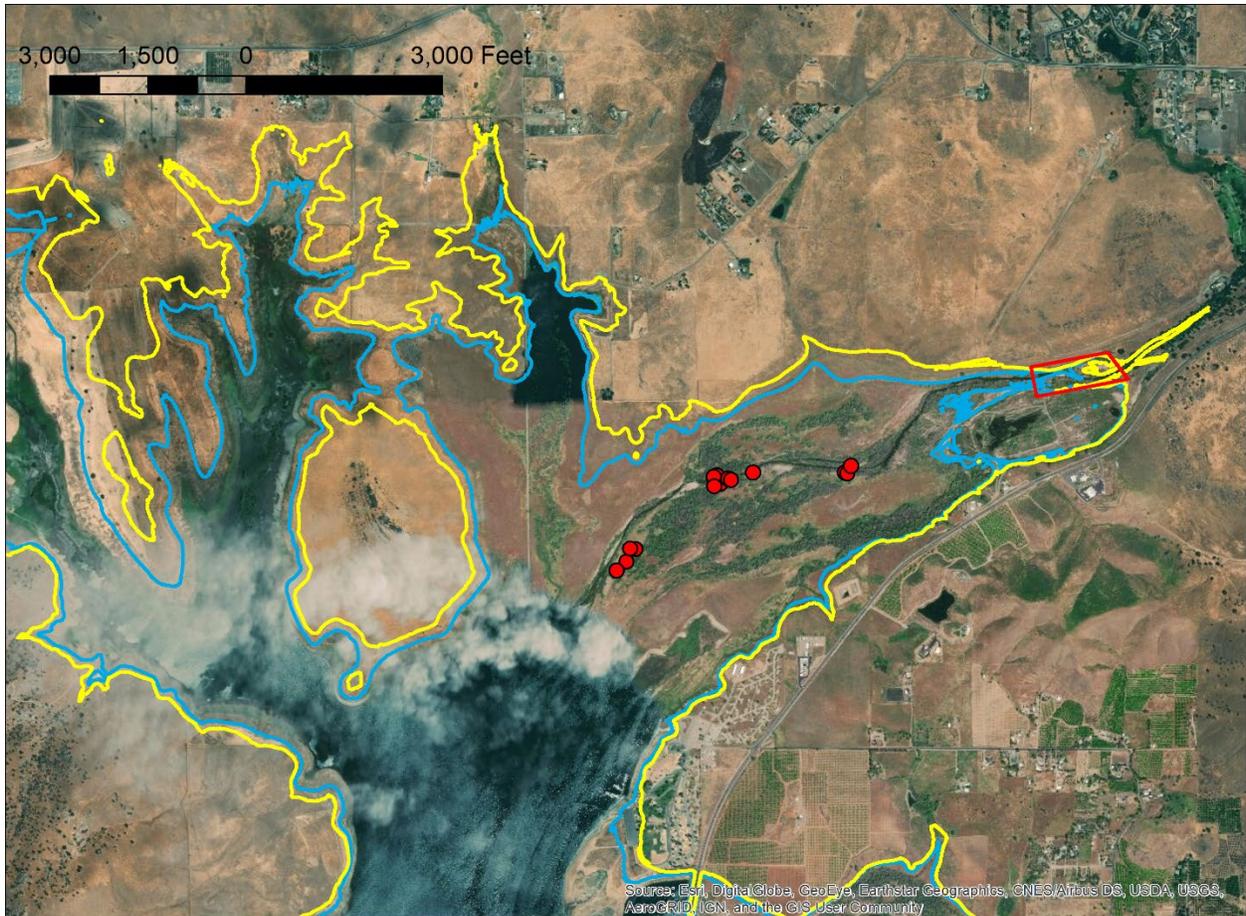


Figure 15. Least Bell's vireo detections (red dots) within the existing gross pool (approximated by the blue line). These detections are from Corps surveys in 2014 along the Tule River and occur within a large expanse of riparian vegetation dominated by willow species, which floods with lake water during most wet years. Based on aerial imagery from 2003-2019, flooding of this area has occurred every year except 2007, 2008, 2012, and 2014. The proposed action would raise the existing gross pool 10 feet (approximated by the yellow line) with potential effects on riparian areas (denoted with red polygon) about 3000 ft from the detections. A detailed map of the area denoted by the red polygon is shown in Figure 20.

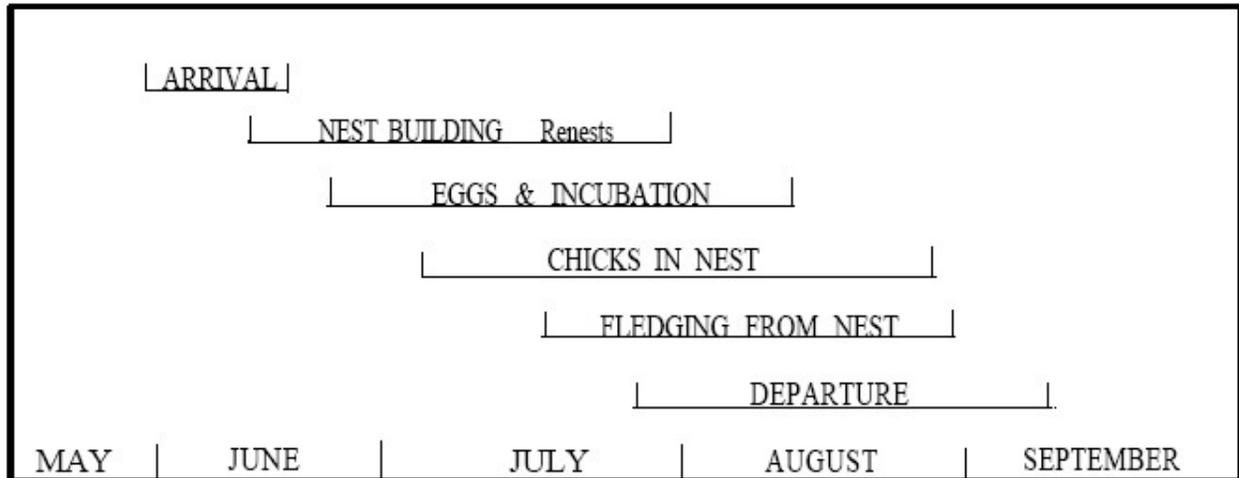


Figure 16. Generalized willow flycatcher breeding chronology for Central and Northern California (adapted from Sogge et al. 1997b).

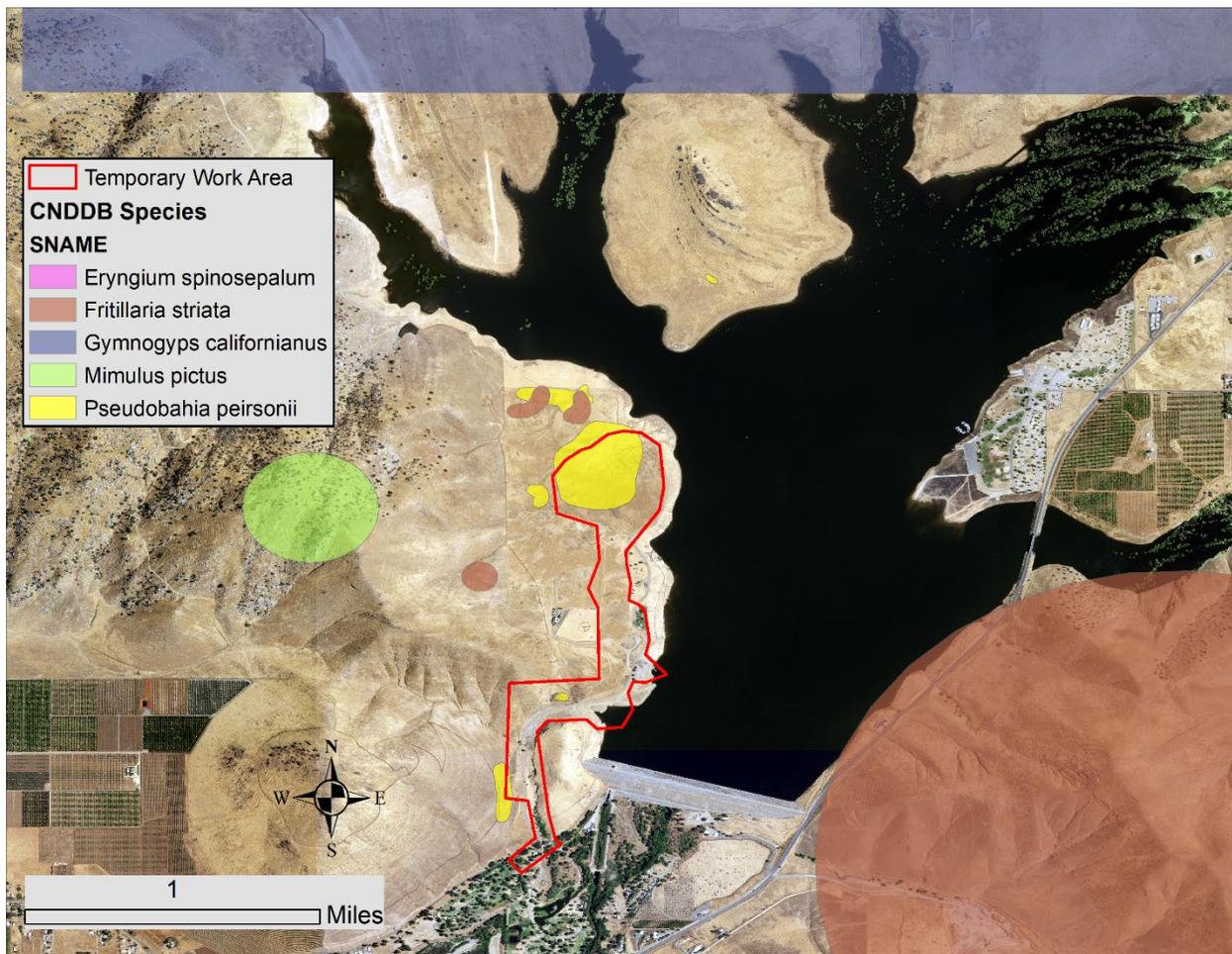


Figure 17. Occurrence of federally-protected species within and near the Phase 1 temporary work area (red outline) from CNDDDB (CDFW 2019). The blue polygon for California condor (*Gymnogyps californianus*) represents critical habitat.

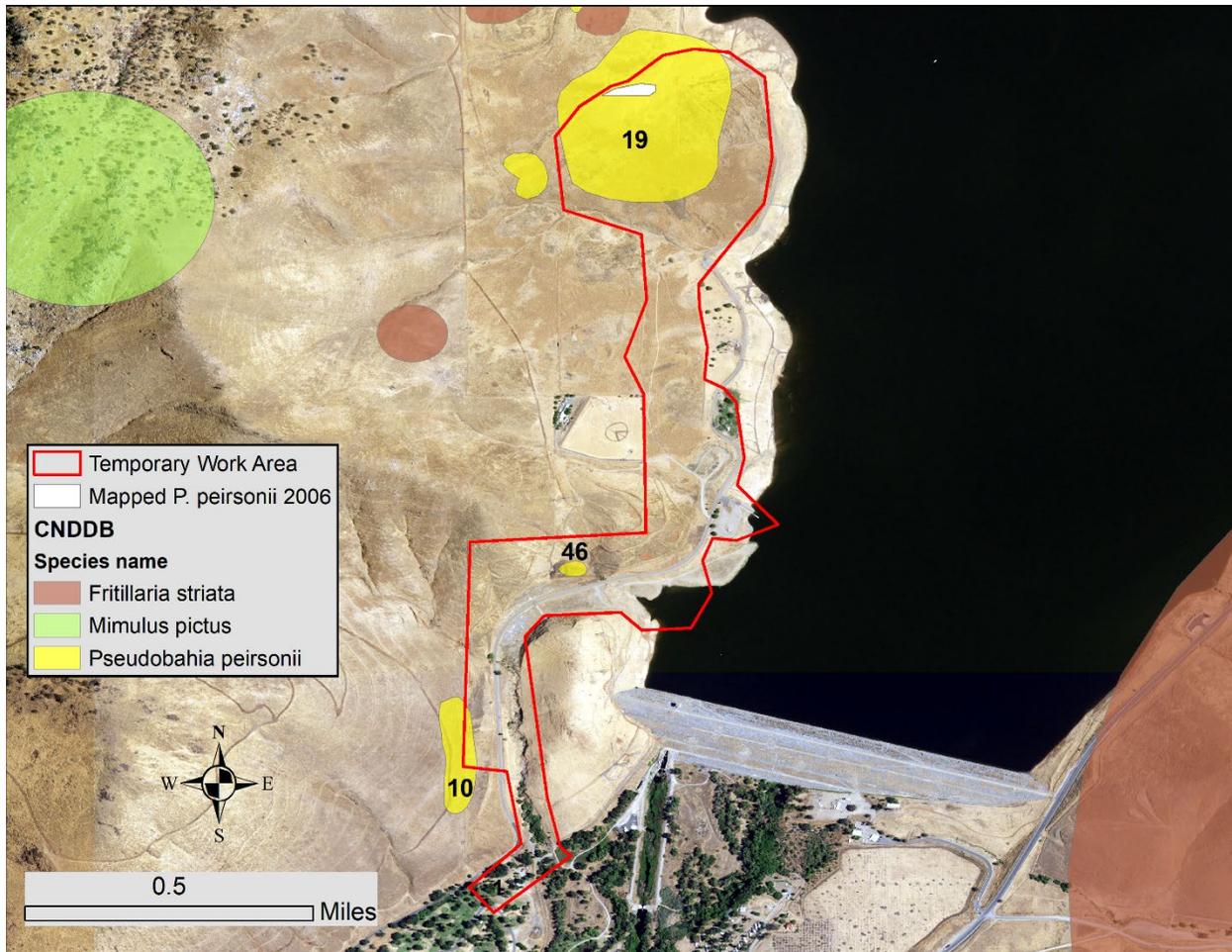


Figure 18. Occurrence numbers from CNDDDB for San Joaquin adobe sunburst (*Pseudobahia peirsonii*) (yellow). Boat Island occurrence (#45) not shown since it is outside the Phase 1 temporary work area. This occurrence is visible in Figure 17 as a tiny yellow speck northeast of the project area on Boat Island. Occurrence 19 was more accurately mapped in 2006 with GPS (white polygon).

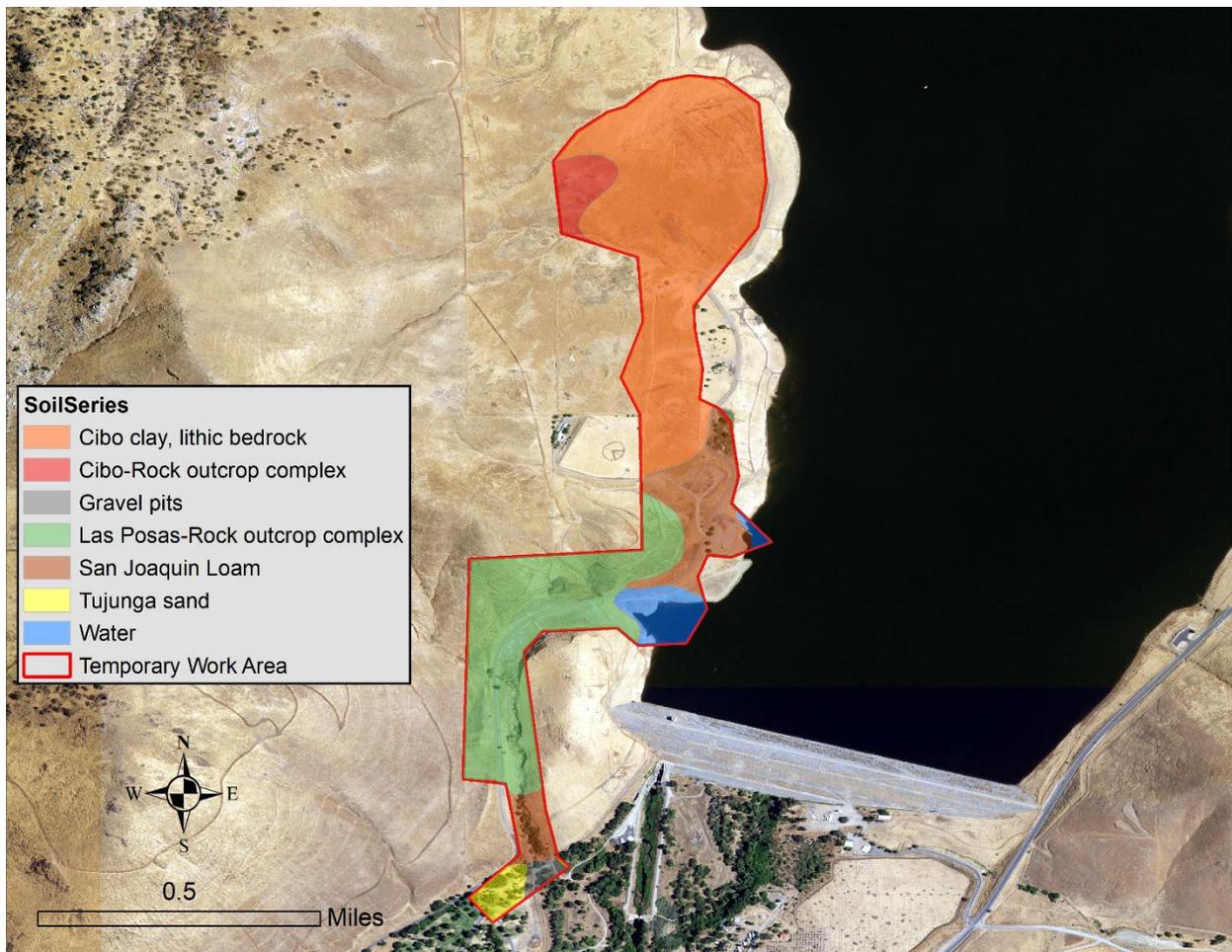


Figure 19. Mapped soil series within the project temporary work area. All soil series, except for Tujunga sand, are shallow to bedrock.

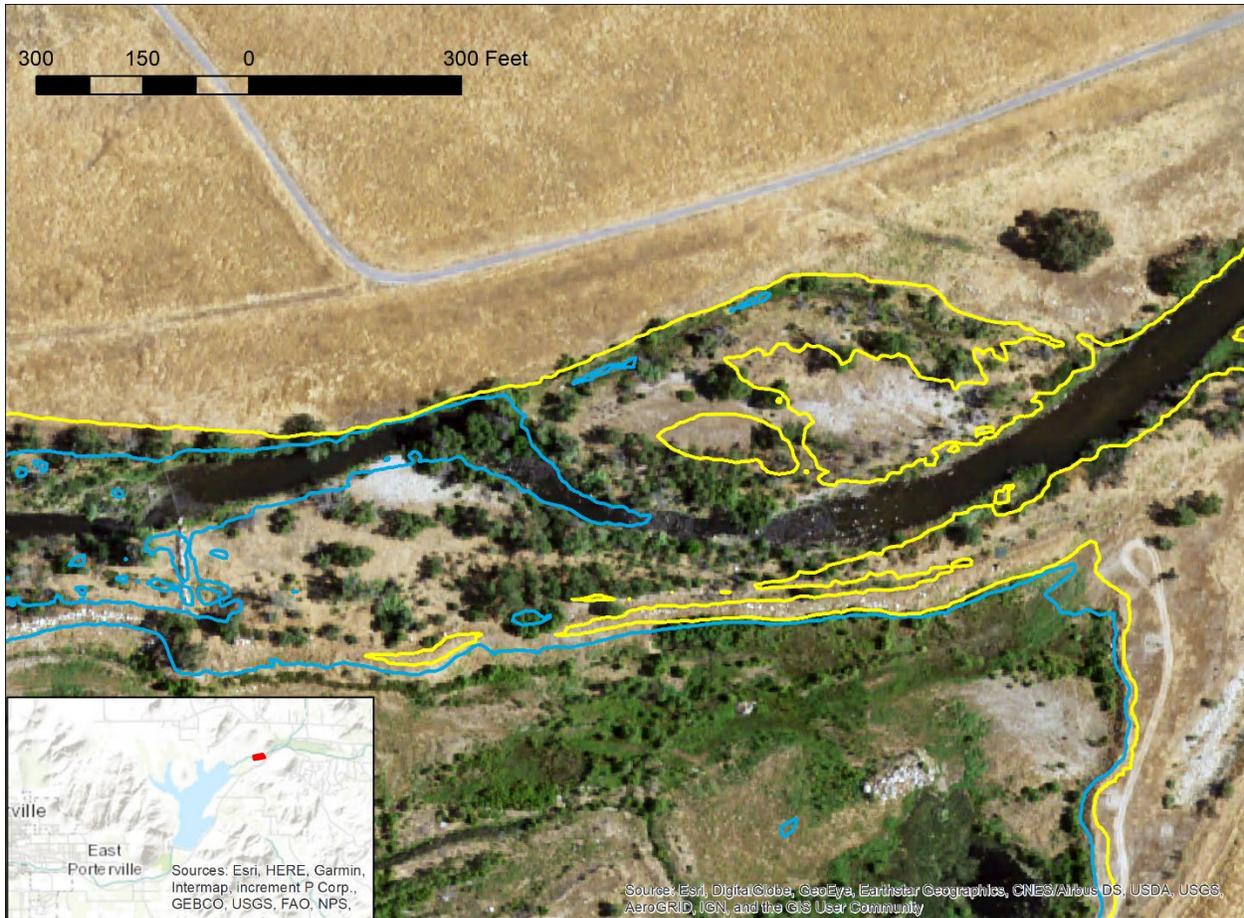


Figure 20. Proposed action would raise the existing potential maximum lake level, approximated by the blue contour line (652.5 ft), ten feet. The proposed potential maximum lake level, approximated by the yellow contour line (662.5 ft), has roughly a one percent chance each year of being flooded from the lake. The effect on existing vegetation is difficult to predict since this section of the Tule River is ungaged and current frequency and duration of flooding of the riparian area from the river is unknown.

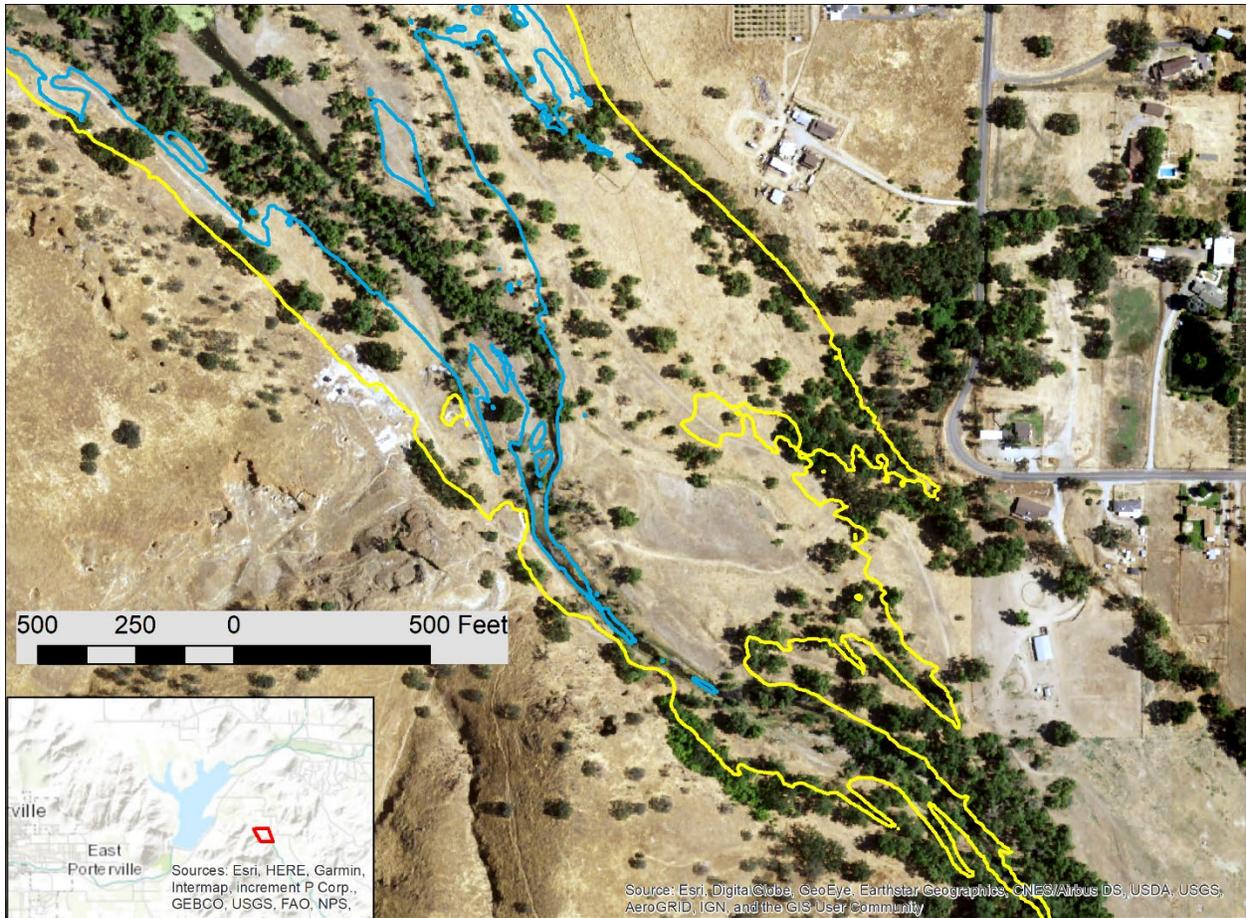


Figure 21. Proposed action would cause a section of the South Fork of the Tule River to periodically flood with lake water. This could increase the amount of riparian vegetation.

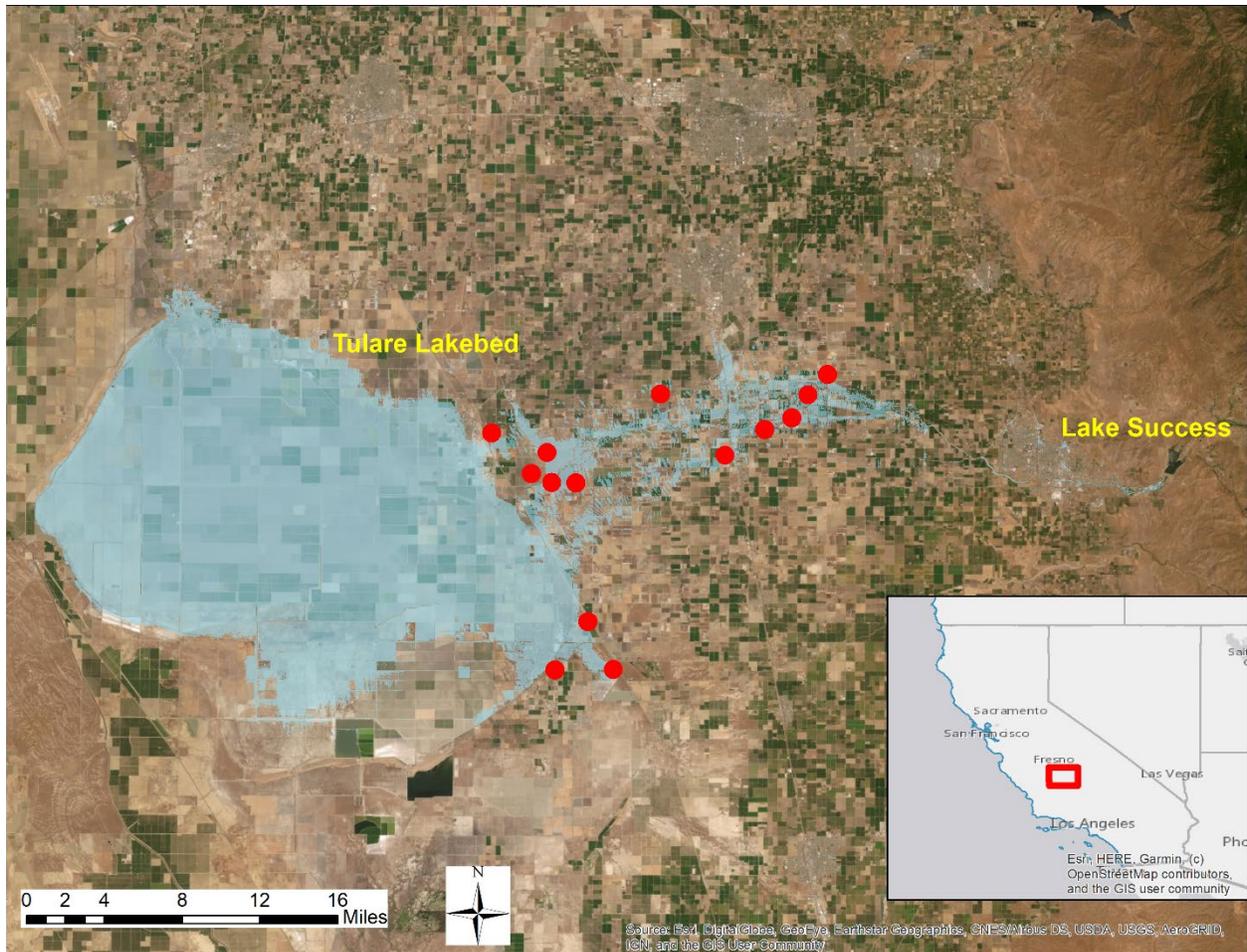


Figure 22. Occurrence of kit fox within and adjacent to the lower Tule River floodplain and Tulare Lakebed. All occurrences within the lower Tule River floodplain are from the early 1970s. One occurrence (third from the bottom of the map) is from 2002.

Table 1. Summary of effects from the proposed project (both Phase 1 and 2) to Federally endangered and threatened species.

Evolutionarily Significant Unit (ESU) / Distinct Population Segment (DPS) / Other	Listing Status	Resource Agency Jurisdiction	Critical Habitat Designation/ Action Area within Designated Critical Habitat (DHC)	Magnuson-Stevens Act Essential Fish Habitat / Effects Determination	Factors Affecting Determination	ESA Section 7 Effects Determination
Mammals						
San Joaquin Kit Fox (<i>Vulpes macrotis mutica</i>)	Endangered (March 11, 1967: 32 FR 4001)	USFWS	None Designated	N/A	The project actions may result in short term avoidance by foraging kit fox due to construction and blasting. However, the proposed action area is marginal habitat for kit fox and impacts are likely to be less than significant.	May affect, is likely to adversely affect
Birds						
California Condor (<i>Gymnogyps californianus</i>)	Endangered (March 11, 1967: 32 FR 4001)	USFWS	Outside DCH	N/A	Regional shrubland, coniferous forest, and oak savanna vegetation growth would remain consistent with baseline conditions. Therefore available habitat would not be diminished.	No Effect
Least Bell's Vireo (<i>Vireo bellii pusillus</i>)	Endangered (May 2, 1986: 51 FR 16474)	USFWS	Outside DCH	N/A	Local riparian vegetation growth would remain consistent with baseline conditions. Therefore available habitat would not be diminished.	May affect, but is not likely to adversely affect
Southwestern Willow Flycatcher (<i>Empidonax traillii extimus</i>)	Endangered (February 27, 1995: 60 FR 10694)	USFWS	Outside DCH	N/A	Local riparian vegetation growth would remain consistent with baseline conditions. Therefore available habitat would not be diminished.	May affect, but is not likely to adversely affect
Reptiles						
Blunt-nosed Leopard Lizard (<i>Gambelia silus</i>)	Endangered (March 11, 1967: 32 FR 4001)	USFWS	None Designated	N/A	Regional grassland and shrubland vegetation growth would remain consistent with baseline conditions. Therefore available habitat would not be diminished. Species is not known to currently occur east of Hwy 99 in Tulare County, which is more than 20 miles west of the proposed action.	No Effect
Giant Garter Snake (<i>Thamnophis gigas</i>)	Threatened (October 20, 1993: 58 FR 54053)	USFWS	Outside DCH	N/A	Based on the USFWS Final GGS Recovery Plan, the species is not currently found downstream from Lake Success along the Tule River, or anywhere else in Tulare County (USFWS 2017). Therefore, available habitat would not be diminished.	No Effect
Amphibians						

Evolutionarily Significant Unit (ESU) / Distinct Population Segment (DPS) / Other	Listing Status	Resource Agency Jurisdiction	Critical Habitat Designation/ Action Area within Designated Critical Habitat (DHC)	Magnuson-Stevens Act Essential Fish Habitat / Effects Determination	Factors Affecting Determination	ESA Section 7 Effects Determination
California Red-legged Frog (<i>Rana draytonii</i>)	Threatened (May 23, 1996: 61 FR 25813-25833)	USFWS	Outside DCH	N/A	Local riparian vegetation growth would remain consistent with baseline conditions. Therefore available habitat would not be diminished.	No Effect
Insects						
Valley Elderberry Longhorn Beetle (<i>Desmocerus californicus dimorphus</i>)	Threatened (August 8, 1980: 45 FR 52803-52807)	USFWS	Outside DCH	N/A	Proposed action is >85 miles away from current species range (USFWS 2019). Regional riparian vegetation growth would not differ substantially from baseline conditions. Available habitat would not be significantly diminished.	No Effect
Fishes						
Delta Smelt (<i>Hypomesus transpacificus</i>)	Threatened (March 5, 1993: 58 FR 12854-12864)	USFWS	Outside DCH	N/A	Lake Success and the Tule River are outside the habitat range for this species.	No Effect
Flowering Plants						
Keck's Checkermallow (<i>Sidalcea keckii</i>)	Endangered (February 16, 2000: 65 FR 7757-7764)	USFWS	Outside DCH	N/A	Local blue oak woodland growth would not differ substantially from baseline conditions. Available habitat would not be significantly diminished. Only known occurrence of this species within the "Success Dam" quad was extirpated in 2002 (CDFW 2019).	No Effect
San Joaquin Adobe Sunburst (<i>Pseudobahia peirsonii</i>)	Threatened (February 6, 1997: 62 FR 5542-5551)	USFWS	None Designated	N/A	Two occurrences of this species are within the project area footprint. Field surveys by a trained USACE botanist in 2019 determined that the species is not currently present. However, this action would directly, adversely affect known habitat.	May affect, is likely to adversely affect
Springville Clarkia (<i>Clarkia springvillensis</i>)	Threatened (September 14, 1998: 63 FR 49022-49035)	USFWS	None Designated	N/A	Both occurrences of this species at Success Lake listed on CNDDDB are erroneous. These occurrences came from Corps surveys in 2006. Dr. Frank Vasek, the botanist who originally described the species, verified in 2008 that the collected specimens were actually an atypical outcrossing form of Kern River clarkia (<i>Clarkia exilis</i>) (Unger and Beyerl 2008)	No Effect

Table 2. San Joaquin adobe sunburst plant counts by CNDDDB occurrence/location and survey year. See Figure 10 for general location of occurrences. 1991 = Stebbins, 2006 = Unger and Beyerl, 2010 = Vollmar Consulting (CDFW 2019), and 2014-2019 = Corps surveys (documented in written, internal reports).

CNDDB No.	Location	1991	2006	2010	2014	2016	2017	2019
10	Ave 146	45	N/S	40	0	10	0	0
19	Rocky Hill	200	30	0	0	0	0	0
45	Boat Isl.	N/S	45	0	0	N/S	N/S	0
46	Spillway	N/S	120	0	21	N/S	0	0

N/S = not surveyed that year

**APPENDIX E – BIOLOGICAL OPINION FROM US FISH AND
WILDLIFE SERVICE**



United States Department of the Interior



In Reply Refer to:
08ESMF00-
2019-F-2501-
R001

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

FEB 19 2020

Ms. Mark T. Ziminske
Chief, Environmental Resources Branch
U.S. Army Corps of Engineers, Sacramento District
1325 J Street
Sacramento, California 95814-2922

Subject: Reinitiation of Formal Consultation on the Proposed Tule River Spillway
Enlargement Project in Tulare County, California

Dear Mr. Ziminske:

This letter is in response to the U.S. Army Corps of Engineers' (Corps) December 19, 2019, request to reinitiate formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Tule River Spillway Enlargement Project (proposed project) in Tulare County, California. Your request was received by the Service on December 23, 2019. At issue are proposed project effects to the federally listed as threatened San Joaquin adobe sunburst (*Pseudobabia peirsonii*; sunburst), as well as the federally listed as endangered least Bell's vireo (*Vireo bellii pusillus*; vireo), southwestern willow flycatcher (*Empidonax traillii extimus*; flycatcher), and San Joaquin kit fox (*Vulpes macrotis mutica*; kit fox).

Pursuant to 50 CFR 402.12(j), you submitted a biological assessment for our review and requested concurrence with the findings presented therein. These findings conclude that the proposed project may affect, and is not likely to adversely affect, the vireo and the flycatcher. In addition, the Corps has concluded that the proposed project may affect, and is likely to adversely affect, the sunburst and the kit fox. This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

The Corps completed construction of Success Dam in 1961, creating Lake Success along the Tule River. The federal action upon which we are consulting includes all modifications related to the proposed 10 vertical foot raise of the Lake Success gross pool elevation. The increased pool elevation will be produced by widening the Tule River Spillway at Success Dam, which requires relocation of Avenue 146 and a right abutment spillway cut. The Service issued a biological opinion on December 17, 1999 (Service File #1-1-99-F-0085), for the proposed project. The biological opinion addressed effects to the federally-threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*; beetle), giant garter snake (*Thamnophis gigas*), and sunburst, as well as the federally-endangered kit fox.

To date, construction on the proposed Tule River Spillway widening to increase Lake Success pool elevation has not been undertaken. Additionally, the original biological opinion (#1-1-99-F-0085) did not address the currently proposed Avenue 146 relocation and right abutment spillway cut as part of the proposed project description. Furthermore, changes have occurred in the listing status of the species discussed in the original biological opinion. Therefore, the current request for reinitiation is due to the inclusion into the proposed project of the road relocation and right abutment spillway cut, adjustments in proposed project scheduling, and changes in the listed species under consideration.

Since the issuance of the original biological opinion, the population range for the beetle was reevaluated by the Service in 2014, and it is no longer considered to extend into the action area of the proposed project in Tulare County (79 FR 55874). Therefore, the beetle will not be discussed further within this updated biological opinion. The giant garter snake, discussed in the original biological opinion, has not been known to occur along the lower Tule River watershed, or in the Kern Management Unit for giant garter snake recovery. Any alterations in the water regime that may be caused by the proposed project are expected to be intermittent and temporary, and are not expected to extend further downstream or upstream throughout the greater San Joaquin River watershed. Therefore, the giant garter snake will not be discussed further within this current updated biological opinion.

In considering your request, we based our evaluation on the following: (1) the 1999 biological opinion (#1-1-99-F-0085); (2) site visits to Lake Success and Success Dam area on April 2 and April 3, 2019; (3) the reinitiation request and Supplemental Biological Assessment received by the Service on December 23, 2019; (4) e-mail and telephone correspondence between the Service and the Corps; and (5) other information available to the Service.

Least Bell's Vireo

The least Bell's vireo was once a common breeding bird in riparian habitats of California (Grinnell and Miller 1944). Key habitat components of vireo breeding habitat include a dense shrub layer between 3 and 6 feet in height, interspersed with a higher open canopy layer (RHJV 2004). Habitat loss, fragmentation, and the alteration of riparian forest composition and structure have contributed to the decline of breeding vireos (RHJV 2004). Generally, changes in surface water flow patterns throughout the California Central Valley have contributed to the alteration of riparian structure by creating more "old-growth" conditions (dense canopy and open understory) that are unfavorable to breeding vireos (RHJV 2004).

Vireos generally begin breeding in April and May stay until October (Kus 1999). Recent evidence suggests that the riparian woodland habitat in the Tule River delta area upstream of Lake Success serves as suitable breeding habitat for the vireo. Two breeding territories were documented in the area in 2014, both within the currently established gross pool of Success Lake (SSRS 2014). An abandoned nest also was located in the area in 2014. Vireos have been detected in the Tule River delta in 2005, 2010, and 2013 as well (SSRS 2014). No construction activities of the proposed project will be located within riparian cover that may serve as habitat for the vireo. However, the proposed project is designed to maintain an elevated gross pool in Lake Success throughout the early spring months of wetter than normal years, and will inundate the ground of riparian woodlands during these periods.

Vireos have been known to attempt as many as five nests during a breeding season (Service 1998). It is likely that if, for whatever reason, a breeding pair finds a nest site unsuitable, they may make nesting efforts in another area of the breeding territory. It is not likely that any changes in the gross

pool elevation of Lake Success will result in a measurable effect on vireos. Therefore, it is impossible to quantify the effects of such efforts on breeding success.

It is not likely that intermittent changes in the gross pool elevation of Lake Success resulting from the proposed project will affect breeding vireo habitat over time. The proposed project will raise gross pool elevations at times during wet years, but not to an extent that is greater than what is seen under these natural, high-flow conditions. The Corps estimates that some flooding of potentially suitable breeding strata (i.e., shrubs) may occur at roughly a one percent chance each year. Although vireos have been documented in the Tule River delta during the breeding season, higher than normal precipitation and runoff in 2017, for example, kept most of the ground below suitable riparian vireo habitat inundated with the Success Lake gross pool. Although no vireos were known to be in the area in 2017, it is impossible to know if the elevated water levels affected any breeding vireos. However, because the proposed project gross pool elevation is within the natural range of water level fluctuation, the proposed project changes are not expected to cause water inundation to reach a level that would negatively affect the presence of riparian cover that may serve as suitable habitat for the vireo.

After reviewing all of the available information and appropriate avoidance measures, the Service concurs with the Corps' determination that the proposed project may affect, but is not likely to adversely affect, the vireo. The proposed project reached the "may affect" level due to the presence of riparian habitat and the fact that the action area lies within the known historical range of the vireo. However, due to the nature and limited extent of the riparian habitat, timing of construction activities in relation to vireo breeding, and the avoidance of all riparian vegetation during project construction activities, the effects to the vireo are insignificant for the purposes of this consultation.

Southwestern Willow Flycatcher

The southwestern willow flycatcher migrates from areas in Central and South America to arrive in May at breeding grounds in southern California (68 FR 10485). Willow flycatchers tend to establish breeding territories in areas containing open water or saturated soil, interspersed with dense vegetation and open areas. The amount of water present throughout the year in flycatcher territories can vary widely from year to year (Ratcliff 1985; Weixleman et al. 1999).

As with the vireo, areas around the spillway where proposed project construction will take place do not contain woody riparian vegetation suitable for breeding flycatchers, yet some areas upstream of Lake Success may serve as breeding habitat. The breeding season typically lasts 3-4 months. Males do exhibit site fidelity, and will return to breeding territories in successive years regardless of standing water conditions at or near territories.

It is not likely that the seasonal changes in the gross pool elevation of Lake Success that may result from the proposed project will affect flycatchers. The flycatcher is known to breed in riparian habitat that is also used by breeding vireos, and therefore the proposed project reached the "may affect" level due to the presence of riparian habitat and the fact that the action area lies within the known historical range of the flycatcher. However, as with the vireo, the proposed project gross pool elevation is expected to cause fluctuations in surface water levels that remain within the natural range that would be seen without any project implementation. Flycatchers are known to breed in territories that exhibit great variability in the amount of standing water that is present during the breeding season (Ratcliff 1985; Weixleman et al. 1999). Also, the proposed project changes are not expected to cause water inundation to reach a level that would negatively impact the presence of riparian cover that may serve as suitable habitat for the flycatcher. Therefore, the Services concurs with the Corp's conclusion that the proposed project may affect, but is not likely to adversely affect,

the southwestern willow flycatcher. Any effects to the flycatcher are insignificant for the purposes of this consultation.

The remainder of this document provides our biological opinion on the effects of the proposed project on the sunburst and the kit fox. Critical habitat for the sunburst, vireo, and flycatcher each exists outside of the proposed project area and none will be affected. Critical habitat for the kit fox has not been designated.

Consultation History

- June 25, 1998: The Corps requested formal consultation with the Service for effects on the beetle, snake, sunburst, and kit fox resulting from the proposed Lake Success gross pool elevation raise of 10 feet.
- July 30, 1998: The Service requested additional information regarding the proposed project.
- February 19, 1999: The Corps responded to the Service's request for further information with further details regarding proposed project plans.
- September 1999: The Corps issued a Final Environmental Impact Statement/Final Environmental Impact Report for the Tule River Basin Investigation, which included the proposed 10-foot gross pool elevation raise of Lake Success.
- December 17, 1999: The Service issued a biological opinion on the proposed Lake Success elevation raise. Excluded from analyses in the biological opinion were potential effects due to any public road reconstruction around the west side of Lake Success and any access road reconstruction near the Tule River Spillway.
- April 2-3, 2019: Harry Kahler (Service), Eric Tomasovic (Corps), and Lorena Guerrero (Corps) visited the proposed project action area and surveyed for evidence of listed species, including the San Joaquin adobe sunburst.
- July 15, 2019: The Corps mailed a request to reinstate consultation for the proposed project, which was received by the Service on July 17, 2019. Included with the reinstatement request was a Supplemental Biological Assessment for the Road Relocation and Right Abutment Spillway Cut for proposed work adjacent to the Tule River Spillway.
- September 12, 2019: Harry Kahler and Jennifer Hobbs (Corps) met with Yari Johnson, Dan Artho, and Nancy Bui (Corps) to discuss the reinstatement, in particular the listed species under consideration and dependent project actions that weren't discussed in the July 15, 2019, reinstatement request. In conclusion, the Corps stated that an updated request for reinstatement would be forthcoming, and it would supersede the July 15, 2019 reinstatement request.
- December 23, 2019: The Service received by mail a reinstatement request from the Corps, dated December 19, 2019, due to modifications in the proposed project and changes in status of federally listed species under consideration. The December 19, 2019, reinstatement request supersedes the Corp's reinstatement request of July 15, 2019.

BIOLOGICAL OPINION

Description of the Action

The Corps has proposed to provide enhanced flood control for the lower Tule River watershed by creating additional water storage capacity at Lake Success in Tulare County, California. Lake Success is formed by Success Dam, located on the main branch of the Tule River about 6 miles upstream and east of Porterville, California. The additional water storage of Lake Success will increase the spillway crest and gross pool elevation from 652.5 feet to 662.5 feet (NAVD88 vertical elevation). The Corps has proposed to increase the gross pool capacity by widening and raising the existing spillway at the north end of Success Dam. Increasing the water storage capacity at Lake Success will allow controlled water releases that do not exceed 3,200 cubic feet per second (cfs) downstream. Releases of 3,200 cfs or more have been known to cause property damage and flooding in areas west of Porterville, where the current Tule River stream capacity is estimated at 1,000 cfs (Corps 2011). The Tule River naturally flows into the historic Tulare Lakebed of the southern San Joaquin Valley. The Tulare Lakebed is presently comprised mainly of agricultural lands.

To raise Lake Success pool capacity, the proposed project involves the construction of a 10-foot high concrete ogee weir across the spillway. Also, the spillway will be widened from a breadth of 200 feet to 365 feet. In 1999, the proposed inundation area was estimated to entail 732 acres, increasing Lake Success capacity from 81,500 acre-feet to 109,500 acre-feet. By 1999 estimates, the proposed project will inundate 659 acres of riparian and upland vegetation, including 71 acres of riparian forest, 421 acres of grassland, and 167 acres of *Atriplex* scrub. Site visits by the Service and the Corps on April 2 and April 3, 2019, indicated that the land cover surrounding Lake Success has not significantly changed since 1999.

Spillway widening will occur by extending the right, or northern abutment. However, because Avenue 146 is currently aligned through the spillway, the Corps is proposing to relocate the road along a right abutment cut above the proposed gross pool. The right abutment cut will require blasting and the staging of excess materials removed by project construction activities. Frazier Dike, which protects properties at the northwestern end of the lake from excessive flooding, will be armored with excess materials stored from earlier project actions. The left, or southern abutment adjacent to the dam will also be armored. Two construction phases have been identified with main components as follows:

Phase 1: Right Abutment Spillway Cut
Avenue 146 Relocation
Temporary Stockpiling of Materials
Start: July 2020
Completion: March 2021

Phase 2:	Spillway Raise
	Left Abutment Cut Armoring (as necessary)
	Frazier Dike Armoring
	Highway 190 Armoring (as necessary)
	Recreation Facilities and Utilities Relocations (as necessary)
	Increased Lake Success gross pool capacity
<i>Start:</i>	<i>October 2021</i>
<i>Completion:</i>	<i>May 2023</i>

Phase 1 Actions

Phase 1 primarily involves the relocation of Avenue 146 out of the existing spillway and onto a right abutment cut. Blasting and removal of earthen materials will be necessary to create the appropriate grade for the road along the abutment cut (Figure 1).

Staging and equipment areas will be established before construction activities begin. One staging area adjacent to the Rocky Hill Recreation Area will contain office trailers, electrical supply lines or generators, security fencing, and other construction related equipment. Three other staging areas will be used for temporary equipment parking and staging, as well as debris stockpiling.

Before construction activities begin, vegetation and surface rocks will be cleared. Once cleared the spillway abutment and road bench will be formed by drilling and blasting. Because low-impact explosives will be used for blasting, noise and ground effects are not expected to extend beyond about 750 feet from each blast site. Three principal sites for blasting are expected along the proposed roadway alignment to create the appropriate slope bench (Figure 2). Debris will be hauled to one of the designated areas for temporary staging, and will be used during future Phase 1 or Phase 2 actions.

The right abutment will be an unlined slope, with rock protection placed as needed. The new Avenue 146 alignment will be a contoured bench located north and west from the proposed extended spillway. Temporarily stored materials removed following blasting procedures will be used as necessary to contour the road grade, as well as the existing lower spillway. Typical road construction vehicles are expected to be used, including graders, loaders, haul trucks, pavement transfer vehicles, and rollers. When completed, the new right spillway abutment will allow a widening of the spillway.

Phase 2 Actions

Phase 2 involves the placement of rock revetments at various locations around Success Lake. Excess blast rock that will be stockpiled from Phase 1 actions will be used to armor Frazier Dike, and the Highway 190 bridge footing and abutment. The Highway 190 bridge footings and abutment are already armored with rock revetment; however, additional rock will be necessary to accommodate the gross pool elevation raise. Likewise, Frazier Dike will require about 3,500 linear feet of added revetment. Additionally, stockpiled blast materials will be used to restore the existing emergency spillway to the original grade and elevation. Work on the existing emergency spillway is necessary due to a flood event in December 1966, which altered a portion of the emergency spillway.

Figure 1. Proposed action area for Phase 1 of the Tule River Spillway Enlargement Project at Lake Success in Tulare County, California (Corps 2019).

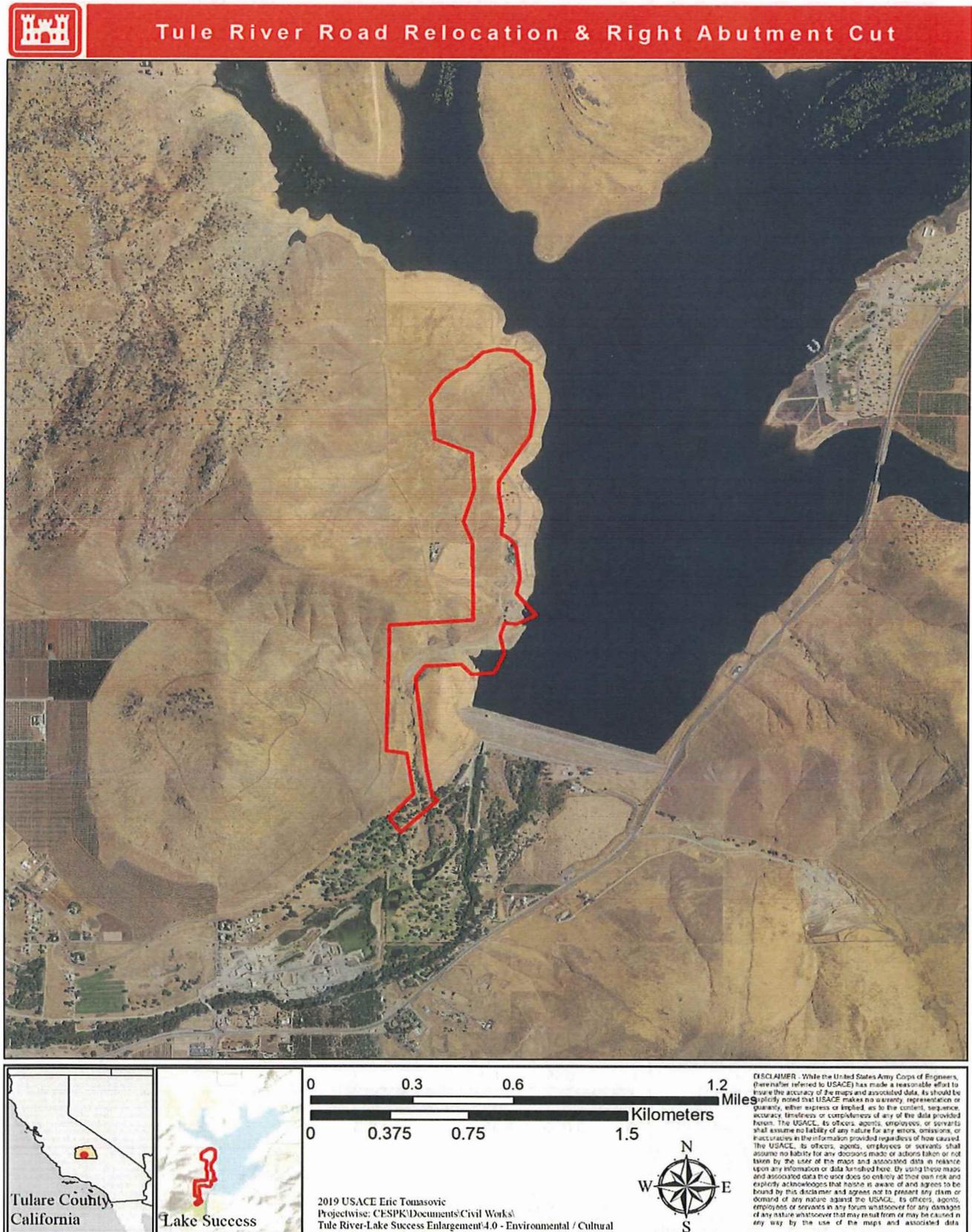
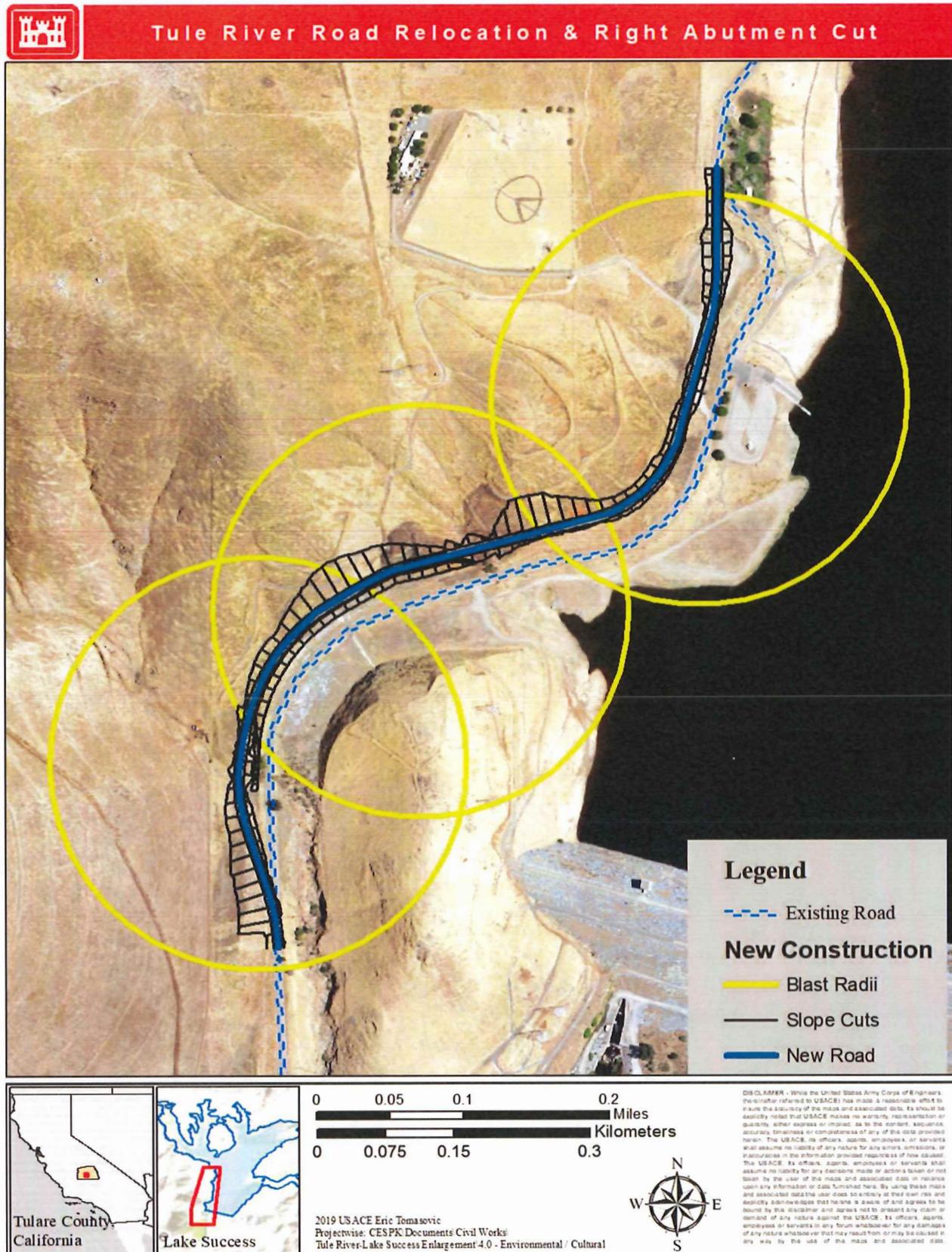


Figure 2. Proposed blasting sites and new road alignment of Avenue 146 as per Phase 1 of the Tule River Spillway Enlargement Project at Lake Success in Tulare County, California (Corps 2019).



A second major activity of Phase 2 is the creation of a 10-foot high concrete ogee weir across the spillway. After the Phase 1 construction is complete, the existing spillway will be widened from 200 feet to 365 feet in the region adjacent to the lakebed. The ogee weir will be constructed near the upstream end of the spillway. Access will be from Avenue 146. The rest of the widened spillway will be maintained much as it is now, as an area of sparse herbaceous vegetation.

The goal of the proposed project is to increase the storage capacity of Lake Success during spring high-water events. To accommodate the potential increase in pool elevation, a number of lakeside facilities and appurtenances will require relocation or flood-proofing. The facilities and appurtenances are largely associated with the Tule and Rocky Hill Recreation Areas, which are located to the east and west of the dam and spillway, respectively. Along the eastern shore of Lake Success, the Tule Recreation Area boat ramp will require lengthening and widening. An earthen protective berm will be built around the existing Tule Recreation Area water tank and well. Also, the restroom facilities at the Tule Recreation Area will require similar water-proofing to safeguard against flooding and contamination.

Restroom facilities at the Rocky Hill Recreation Area on the western shore will require similar water-proofing actions. Similarly, the parking will be extended upland to account for the losses resulting from the new gross pool elevation. Unlike the Tule storage tank and well, the Rocky Hill storage tank, well structures, and associated shed will be moved to higher ground.

Another aspect of Phase 2 work involves the relocation of 14 transmission towers. The towers will be moved, along with 11,800 feet of electric supply lines, to meet minimum clearance criteria above the new gross pool elevation.

When construction and related actions are complete, the Success Lake and Dam water control manual will be updated to reflect the change in flood storage capacity for the lake.

Conservation Measures

The Corps has proposed to implement the following measures as part of the proposed Phase 1 project:

- Prior to construction, an employee education program will be conducted consisting of a brief presentation of San Joaquin kit fox, San Joaquin adobe sunburst, and migratory birds by persons knowledgeable in biology and legislative protection. The program will include the occurrence of each federally listed species in the area, its description and life history, and an explanation of the species status and protection under the Act.
- During construction activities, if dead, injured, or entrapped animals or new plots of federally listed plants are found in the work area, the Service will be contacted immediately immediately for further guidance if such a discovery is found.
- All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site overnight will be thoroughly inspected for kit foxes before the pipe or structure is used or moved. If a kit fox is discovered, the containing equipment will not be moved until the Service is contacted for further guidance.
- Project-related vehicles will observe a daytime speed limit of 15-mph and a nighttime speed limit of 10-mph throughout the site in all project areas, except on county roads and State and Federal highways.

- Night-time construction will be minimized to the extent possible. Off-road traffic, outside of designated project areas, will be prohibited.
- Stormwater runoff will be controlled using standard construction measures and equipment (straw wattle, silt fencing, etc.).
- All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in securely closed containers, and removed daily from a construction or project site.
- No firearms will be allowed on the project site.
- No pets, such as dogs or cats, will be permitted on the project site to prevent harassment, mortality, or destruction of dens or burrows.
- To prevent inadvertent entrapment of kit foxes, or other animals, during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2-feet deep will be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks will be installed. Similarly, all culverts or similar construction structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods will be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. Before such holes or structures are filled or moved, they will be thoroughly inspected for trapped animals. If at any time a trapped or injured animal is discovered, the Service will be contacted for further instruction.
- Escape ramps or structures will be installed immediately to allow the trapped animals to escape holes or enclosed structures. If animals remain trapped, the Service will be contacted for guidance.
- Use of rodenticides and herbicides in project areas will be restricted. All uses of such compounds will observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other state and federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control must be conducted, zinc phosphide will be used to minimize risk to kit fox.
- A Corps botanist will conduct pre-construction surveys within the construction footprint during peak-flower, based on bloom times of known populations in the area, to ensure that no San Joaquin adobe sunburst are present. If the species is present, the Corps will undertake the following mitigation measures:
 - as possible, avoid plants and erect a 25-foot buffer using exclusionary fencing;
 - if avoidance is not practical, plants will be hand dug and transplanted outside the construction footprint under the guidance of a qualified botanist or restoration ecologist;
 - transplanted plant locations will first be chosen with a preference for having existing San Joaquin adobe sunburst plants, second, former known adobe sunburst location, and third, an area with similar slope, aspect and soils;

- in addition to transplanting, topsoil will be collected in a 6-foot buffer around the plants to help secure the seedbank;
 - collected topsoil will be placed in 6 to 12-inch wide, circular, shallow pits near the transplanted plants;
 - during Phase 1 & 2 construction, transplanted plants will be monitored by a qualified biologist during each growing season via flower counts, percent cover, and stem length measurements; and
 - an annual monitoring report will be submitted to the Service each November until 1 year after construction is complete. Any existing San Joaquin adobe sunburst plants located near the construction footprint will be protected with exclusionary fencing for the duration of the project.
- A Service-approved kit fox biologist will conduct pre-activity surveys for kit fox presence within 30 days, and to the extent practicable, within 14 days of construction initiation using methodologies acceptable to the Service. Surveys will cover all areas potentially affected by ground disturbing activities associated with the project, including vehicle travel and staging.

Action Area

The action area is defined in 50 CFR § 402.02, as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.” For the proposed project, the action area includes all areas surrounding the current Lake Success pool elevation that will become inundated with water due to 10-foot increase in the gross pool elevation. Downstream of Success Dam, the action area also includes all areas that will be affected by changes in water regimes resulting from increased water storage in Lake Success. Related activities are also part of the action area, such as Phase 1 construction, Frazier Weir reinforcement, left abutment cut construction, all stockpiling and staging areas, and vehicle travel routes. With blasting, Phase 1 construction will affect an area of about 193 acres. Phase 2 work will largely occur within the existing spillway, recreation areas, and existing powerline right of way. In all, proposed project work is estimated to affect about 225 acres. Downstream of the dam, proposed project work is also expected to temporarily affect an indeterminable amount of land, largely riparian and agricultural, that would otherwise be subject 100-year flood events.

Analytical Framework for the Jeopardy Determination

The following analyses rely on four components to support a jeopardy determination for the San Joaquin adobe sunburst and San Joaquin kit fox: (1) the *Status of the Species*, which evaluates the species’ range wide condition, the factors responsible for that condition, and their survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of these species in the action area, the factors responsible for that condition, and the role of the action area in the species’ survival and recovery; (3) the *Effects of the Action*, which determines the direct and indirect effects of the proposed federal action and the effects of any interrelated or interdependent activities on these species; and (4) *Cumulative Effects*, which evaluates the effects of future, non-federal activities in the action area on these species.

In accordance with the implementing regulations for section 7 and Service policy, the jeopardy determination is made in the following manner: the effects of the proposed federal action are evaluated in the context of the aggregate effects of all factors that have contributed to the current

status of the species. Additionally, for non-federal activities in the action area, we will evaluate those actions likely to affect the species in the future, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both its survival and recovery in the wild.

The following analysis places an emphasis on using the range-wide survival and recovery needs of the sunburst and the kit fox, and the role of the action area in providing for those needs as the context for evaluating the significance of the effects of the proposed federal action, taken together with cumulative effects, for purposes of making the jeopardy determination. Every component of each proposed project phase is considered in the jeopardy determination.

Status of the Species

San Joaquin Kit Fox

Please refer to the San Joaquin Kit Fox (*Vulpes macrotis mutica*) 5-Year Review: Summary and Evaluation (Service 2010) for the most recent comprehensive assessment of the range-wide status of the kit fox. The 5-year review did not recommend a change in the listing status of the species. The threats evaluated during that review and discussed in the final document have continued to act on the species since the 2010 5-year review was finalized, with degradation or outright loss of habitat being the most significant effects. While there have been continued losses of kit fox habitat throughout the various recovery units, to date no project has proposed a level of effects for which the Service has issued a biological opinion of jeopardy for the species. The Service is in the process of finalizing its most current 5-year review for the kit fox.

San Joaquin Adobe Sunburst

Please refer to the *Pseudobabia bahiifolia* (Hartweg's golden sunburst), *Pseudobabia peirsonii* (San Joaquin adobe sunburst) 5-Year Review: Summary and Evaluation (Service 2007) for the most recent comprehensive assessment of the range-wide status of the sunburst. The 5-year review did not recommend a change in the listing status of the species. Threats acting upon the sunburst include residential development, agricultural conversion, flooding, overgrazing, invasive plants, road and utility line work, and drought. The threats evaluated during the review and discussed in the final document have continued to act on the species since the 2007 5-year review was finalized. While there have been continued losses of sunburst habitat throughout the various recovery units, to date no project has proposed a level of effects for which the Service has issued a biological opinion of jeopardy for the species. The Service is in the process of finalizing its most current 5-year review for the sunburst.

Environmental Baseline

San Joaquin Kit Fox

The kit fox is predominantly an inhabitant of the San Joaquin Valley (Service 1998). However, kit foxes will occasionally use bordering foothill areas for foraging and as a movement corridor. Eleven documented occurrences of the kit fox have been reported within 10 miles of Lake Success (CNDDDB 2020). The most recent documented occurrence is from 1992, and no occurrence is within 5.0 miles of Lakes Success and the lower Tule River.

Most kit fox dens are known to occur in areas of 40% slope or less (Service 1998). The topography of the action area is suitable for denning. Although kit foxes have not been identified near Lake

Success, potential den sites have been found throughout the area. Numerous ground squirrel and rabbit holes were found by the Corps during surveys in April 2019. An active den was found near right spillway abutment during surveys by the Corps on February 5, 2019, yet it could not be determined what species was using the den. It is not always obvious that a den is in use by a kit fox, yet natal denning sites typically demonstrate more evidence of use (Service 1998). In all, most surface soils in the Lake Success region are too shallow to support suitable kit fox den sites, which are typically 4 to 10 feet below surface level (Morrell 1972; O'Neal et al. 1987).

Kit foxes are nocturnal, and remain active throughout the year (Morell 1972). Kit foxes will typically use a den for 2 to 3 days, but kit foxes of the southern and central San Joaquin Valley regions are known to travel an average of 9.6 miles in one night (Service 1998). Avoidance of coyotes or dogs, and the buildup of parasites in den sites, are the principal reasons kit foxes will change dens (Service 1998). In all, evidence suggests that kit fox could use the Lake Success area primarily for foraging and movement, but likely denning and breeding would occur rarely, if at all.

San Joaquin Adobe Sunburst

The species range of the sunburst is grasslands of the Sierra Nevada foothills of Fresno, Kern, and Tulare Counties, and reported to be restricted to four soils series: Cibo clay, Porterville clay, Centerville clay, and Mt. Olive clay (Vollmar Consulting 2010). Soils to the north and west of Lake Success are mainly Centerville clay, Porterville clay, and Cibo clay (NRCS 2020), indicating prime habitat for the sunburst in the proposed project action area.

In fact, several occurrence records of sunburst have been documented in the area around Lake Success (CNDDDB 2020). Since the recognition of the sunburst in the Lake Success area, the number of plants has been known to vary from 0 to over 300 individuals (CNDDDB 2020). Moreover, in addition to the documented occurrences, two additional undocumented sites of sunburst were found by Corps and Service staff in April, 2019, when surveying around the proposed gross pool elevation near Frazier Dike and to the north of the upstream riparian area. Documented occurrences 10, 19, and 46 lie within the temporary work area of Phase 1. Also, two of the known occurrences of sunburst could be affected by increased water levels resulting from proposed project implementation.

Effects of the Action

San Joaquin Kit Fox

Phase 1 and Phase 2 construction will remove and disturb potential denning and foraging habitat for the kit fox. Notably, blasting activities associated with Phase 1 would affect any kit foxes that may be unseen but within the blast radii. Likewise, the movement of heavy equipment for road construction and the storage of construction debris could also affect kit foxes. Similar effects could result from the relocation buildings, and power line towers, along with the placement of rock enforcements as part of Phase 2.

Foraging habitat will be temporarily lost during both construction phases. While outright foraging habitat loss is not expected, the relocation of Avenue 146, power line towers, and other recreational area buildings will prevent kit foxes from foraging in these areas until construction is complete. Additionally, potential changes in Tule River water levels as a result of the proposed project, both above and below the Success Dam, may temporarily remove foraging habitat for the kit fox. Lake Success water levels will rise about 10 feet during certain flood events. Based on the Corp's hydraulic modeling, there is a one percent chance each year that the proposed maximum lake level

will be reached (Corps 2019). No permanent effects to downstream habitat are expected, and the average change in water level during flood events across the Tulare Lakebed will be a reduction of 0.001 inches (Corps 2019).

The presence of active kit fox dens in the action area is possible, yet no known active dens have been detected. One active den was discovered by the spillway in 2019, yet the species of the animal using the den could not be verified. Although foraging is possible, it's not likely that kit fox breeding would be occurring in the proposed project action area. Natal kit fox dens generally have two entrances, and sometimes a mound associated with the burrows (Service 1998). No such structures were found during 2019 surveys. Any proposed project effects are likely to be experienced by kit foxes that are foraging and may be using construction areas for denning during project activities.

San Joaquin Adobe Sunburst

Four documented occurrences of the sunburst exist around Lake Success, while two additional occurrences were found during surveys in 2019. The sunburst is an annual species, and individual numbers within occurrences varies naturally from year to year. Downstream from Lake Success, the San Joaquin Valley is outside of the range of the sunburst.

The action area for Phase 1 intersects with outlined boundaries for three occurrences of the sunburst (CNDDDB 2020). Occurrence 19, most recently and accurately mapped in 2006, occurs at the northern end of the Phase 1 proposed project action area. The storage of bedrock materials could preclude the growth and development of some sunburst plants, more so if any materials are left after the project is complete. However, the stockpiling of materials has been moved by the Corps away from the noted occurrence.

The outlined boundary of Occurrence 46 near the spillway will be affected by road relocation activities. To accommodate a wider spillway, a new Avenue 146 alignment will need to traverse an area where the sunburst has been known to occur. However, soils of the area are predominantly a Las Posas – Rock complex (NRCS 2020), not known to support sunburst assemblages. Since 2010, several surveys have been conducted and the sunburst was found in only 2014. That year, 21 individuals were noted at Occurrence 46, adjacent to the existing Avenue 146 alignment. Related plants in the tarweed tribe, which includes all sunbursts, remain viable in the seedbank for up to 5 years (Montalvo et al. 2010). The absence of sunburst in the area during most survey years could be a result of increased grazing activity and less-than-optimal soil conditions. Although it is impossible to determine definitively, the presence of sunburst in the area could have been a result of soil movement along Avenue 146 from the nearby Cibo clay topsoil to the north.

The outlined Phase 1 action area also bisects Occurrence 10, which occurs in the same Las Posas – Rock complex as Occurrence 46. Occurrence 10 occurs along a dirt track for local ranching activities, uphill to the west of Avenue 146. Like Occurrence 46, the area may be subject to soil disturbance and movement along the track. The soil under Occurrence 10 is not likely to be altered by construction directly, although the slope cuts for the new avenue alignment will be about 200 feet downhill of the occurrence. The new sloping could affect the local hydrology within the occurrence area, which could affect the presence of sunburst. In the past 10 years, 40 individuals were discovered at occurrence 10 in 2010, while 10 were discovered in 2016.

After the proposed project construction is complete, the Corps estimates Occurrence 19 could be affected by flood events about once every 10 years, while the newly discovered occurrence by Frazier Dike could be affected once every 100 years (Corps 2019). Inundation could slow growth

during subsequent spring and summer months, which in turn could negatively affect seed production.

Cumulative Effects

Cumulative effects include the effects of future state, tribal, county, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The Tule River Tribe of California owns about 80 acres along Highway 190 in the Sierra Nevada foothills, in the area of Lake Success. The Tule River Tribe also owns 40 acres in the Porterville Airport Industrial Park, where tribal plans include the construction of a casino. The Porterville Airport Industrial Park in the San Joaquin Valley is not within the proposed project action area, and casino construction is expected to have no related effect to the proposed project. There are no known plans for tribal projects along Highway 190 in the Sierra Nevada foothills. No other state, county, local, or private actions are known that are reasonably certain to occur.

Conclusion

After reviewing the current status of the San Joaquin kit fox, the environmental baseline for the action area, the effects of the proposed project, and the cumulative effects, it is the Service's biological opinion that the Tule River Spillway Enlargement Project, as proposed, is not likely to jeopardize the continued existence of the kit fox. The Service reached this conclusion because the project-related effects to the species; when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species.

After reviewing the current status of the proposed critical habitat for the San Joaquin adobe sunburst, the environmental baseline for the action area, the effects of the proposed project, and the cumulative effects, it is the Service's biological opinion that the Tule River Spillway Enlargement Project, as proposed, is not likely to jeopardize the continued existence of the sunburst. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Harass is defined by Service regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

Sections 7(b)(4) and 7(o)(2) of the Act do not apply to listed plant species. However, protection of listed plants is provided to the extent that the Act requires a federal permit for removal or reduction to possession of endangered and threatened plants from areas under federal jurisdiction, or for any act that would remove, cut, dig up, damage, or destroy any such species on any other area in knowing violation of any regulation of any State or in the course of any violation of a state criminal trespass law.

The measures described below are non-discretionary, and must be undertaken by the Corps so that they become binding conditions of any contract for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms and conditions or (2) fails to require the local sponsor to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the operations and maintenance manual, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Take

San Joaquin Kit Fox

The Service anticipates that incidental take of kit fox will be difficult to detect due to its life history and ecology. Specifically, the kit fox is chiefly nocturnal, and can be difficult to locate due to the fact that during working, daylight hours the kit fox will likely be denning and not visible. The relatively small size and cryptic coloration will also contribute to the potential of individual kit foxes being overlooked during project activities. There is a risk of harm, harassment, injury and mortality as a result of the proposed construction around the potential den site identified during 2019 site visits. It is not likely that any kit fox in the identified den, or any other unforeseen den site in the Lake Success construction area, will be using the site for breeding or rearing. However, the Service is authorizing take incidental to the proposed action as harm, harassment, injury, and mortality of one San Joaquin kit fox as a result of project-related construction.

Effect of the Take

In the accompanying biological opinion, the Service has determined that the level of anticipated take resulting from proposed project completion (i.e., completion of Phase 1 and Phase 2 work), is not likely to result in jeopardy to the kit fox or sunburst; or destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures

All necessary and appropriate measures to avoid or minimize effects on the kit fox and sunburst resulting from implementation of this project have been incorporated into the project's proposed conservation measures. This Reasonable and Prudent Measure shall be supplemented by the Terms and Conditions below.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Corps must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

1. The Corps shall include full implementation and adherence to the conservation measures as a condition of any contract issued for the project and in the operations and maintenance manual.
2. In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, the Corps shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, the Corps must immediately reinstate formal consultation as per 50 CFR 402.16.
 - (a) For those components of the action that may result in direct encounters between listed species and project workers and their equipment whereby incidental take in the form of harassment, harm, injury, or death is anticipated, the Corps shall immediately contact the Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6600 to report the encounter. If the encounter occurs after normal working hours, the Corps shall contact the SFWO at the earliest possible opportunity the next working day.
 - (b) To better understand the relationship between the San Joaquin adobe sunburst and proposed project activities, during construction and 3 years post-construction the Corps will perform at least one annual survey during March or April for the San Joaquin adobe sunburst where the action area overlaps potential sunburst habitat. If plants are found, the Corps shall inform the SFWO immediately to determine if further beneficial conservation measures can be undertaken to protect the species. The Corps will provide annual survey reports to the Service describing survey methodology and results.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

- 1) The Corps will coordinate with the SFWO to develop an operations and maintenance plan that continues to benefit the conservation of San Joaquin adobe sunburst on public lands in the Lake Success area.
- 2) The Corps should provide funding for long-term monitoring of the San Joaquin adobe sunburst to increase the understanding of ecological conditions that are beneficial to sunburst.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINSTITUTION—CLOSING STATEMENT

This concludes formal consultation on the proposed Tule River Spillway Enlargement Project. As provided in 50 CFR §402.16, reinstatement of formal consultation is required and shall be requested by the federal agency or by the Service where discretionary federal agency involvement or control over the action has been retained or is authorized by law and:

- (a) If the amount or extent of taking specified in the incidental take statement is exceeded;
- (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
- (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or
- (d) If a new species is listed or critical habitat designated that may be affected by the identified action.

If you have any questions regarding this biological opinion, please contact Harry Kahler, Fish and Wildlife Biologist, (harry_kahler@fws.gov) at (916) 414-6577 or at the letterhead address.

Sincerely,



 Jennifer M. Norris, Ph.D.
Field Supervisor

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APPENDIX F – TRAFFIC ANALYSIS

Percent Increase from AADT

	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Phase Category				
Grubbing/Land Clearing	0.04%	0.05%	0.24%	0.04%
Grading/Excavation	1.50%	0.16%	0.63%	0.04%
Drainage/Utilities/Sub-Grade	0%	0%	0.29%	0.04%
Paving	0%	0%	0.14%	0.04%

AADT(2017) 13,900. (Highway 190)

AADT represents the total number of vehicles that passed the specific point in a year divided by 365.

Daily VMT (miles/day) taken from Road Construction Emissions Model Data Entry Worksheet. Estimated round-trips added to ADDT to acquire estimated percent increase from construction.

APPENDIX G – 401 WATER QUALITY CERTIFICATION



Central Valley Regional Water Quality Control Board

29 July 2021

James Handura
U.S. Army Corps of Engineers
1325 J Street
Sacramento, CA 95814

CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION AND ORDER FOR THE TULE RIVER SPILLWAY ENLARGEMENT PHASE II PROJECT, TULARE COUNTY (WDID 5C54CR00120)

Enclosed please find a Clean Water Act Section 401 Water Quality Certification and Order, authorized by Central Valley Regional Water Quality Control Board Executive Officer, Patrick Pulupa. This Order is issued to U.S. Army Corps of Engineers for Tule River Spillway Enlargement Phase II Project (Project). Attachments A through G of the Enclosure are also part of the Order.

This Order is issued in response to an application submitted by U.S. Army Corps of Engineers for proposed Project discharges to waters of the state, to ensure that the water quality standards for all waters of the state impacted by the Project are met. You may proceed with your Project according to the terms and conditions of the enclosed Order.

Please review your Order carefully to ensure that you understand all aspects of the Order. Note that this Order requires reporting and notification. Requirements for the content of the reporting and notification requirements are detailed in Attachment D, including specifications for photo and map documentation during the Project. Written reports and notifications must be submitted using the Reporting and Notification Cover Sheet located in Attachment D, which must be signed by the Permittee or an authorized representative.

These reports, notifications, and other submissions must be submitted in a searchable Portable Document Format (PDF). Documents less than 50 MB must be emailed to: centralvalleyfresno@waterboards.ca.gov. In the subject line of the email, include the Central Valley Water Board Contact, Project name, and WDID. Documents that are 50 MB or larger must be transferred to a disk and mailed to the Central Valley Water Board Contact.

KARL E. LONGLEY ScD, P.E., CHAIR | PATRICK PULUPA, ESQ., EXECUTIVE OFFICER

If you require further assistance, please contact Brandon Salazar by phone at (559) 445-6278 or by email at Brandon.Salazar@waterboards.ca.gov. You may also contact me by phone at (559) 445-6042 or by email at Matt.Scroggins@waterboards.ca.gov.



MATTHEW S. SCROGGINS
Senior Water Resource Control Engineer

Enclosures (2): 1. Clean Water Act Section 401 Water Quality Certification and Order
for Tule River Spillway Enlargement Phase II Project
2. Water Quality Order No. 2003-0017-DWQ

cc: [Via email only] (w/ enclosure): United States Army Corps of Engineers
Sacramento District Headquarters
Regulatory Division
SPKRegulatoryMailbox@usace.army.mil

United States Environmental Protection Agency
Region 9
R9cwa401@epa.gov

Patricia Cole
United States Fish & Wildlife Service
patricia_cole@fws.gov

California Department of Fish and Wildlife, Region 4
R4LSA@wildlife.ca.gov

CWA Section 401 WQC Program
Division of Water Quality
State Water Resources Control Board
Stateboard401@waterboards.ca.gov

Yari Johnson
U.S. Army Corps of Engineers
Yari.B.Johnson@usace.army.mil

Central Valley Regional Water Quality Control Board

CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION AND ORDER

Effective Date: 29 July 2021

Expiration Date: 29 July 2026

Program Type: Fill/Excavation

Project Type: Dams

Project: Tule River Spillway Enlargement Phase II (Project)

Applicant: U.S. Army Corps of Engineers, Sacramento District

Applicant Contact: James Handura
U.S. Army Corps of Engineers, Sacramento District
1325 J St.
Sacramento, CA 95814
Phone: (916) 557-7490
Email: James.J.Handura@usace.army.mil

Applicant's Agent: Yari Johnson
U.S. Army Corps of Engineers, Sacramento District
1325 J St.
Sacramento, CA 95814
Phone: (916) 557-6937
Email: Yari.B.Johnson@usace.army.mil

Water Board Staff: Brandon Salazar
Water Resource Control Engineer
1685 E Street
Fresno, CA 93706
Phone: (559) 445-6274
Email: Brandon.Salazar@waterboards.ca.gov

Water Board Contact Person: If you have any questions, please call Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) Staff listed above or (559) 445-5116 and ask to speak with the Water Quality Certification Unit Supervisor.

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Attachment A: Project Map

Attachment B: Receiving Waters, Impacts, and Mitigation Information

Attachment C: CEQA Findings of Facts

Attachment D: Report and Notification Requirements

Attachment E: Signatory Requirements

Attachment F: Certification Deviation Procedures

Attachment G: Compliance with Code of Federal Regulations, title 40, section 121.7, subdivision (d)

I. Order

This Clean Water Act (CWA) section 401 Water Quality Certification action and Order (Order) is issued at the request of U.S. Army Corps of Engineers, Sacramento District (hereinafter Permittee) for the Project. This Order is for the purpose described in application submitted by the Permittee. The application was received on 25 May 2021. The application was deemed complete on 24 June 2021.

II. Public Notice

The Central Valley Water Board provided public notice of the application pursuant to California Code of Regulations, title 23, section 3858 from 28 May 2021 to 18 June 2021. The Central Valley Water Board did not receive any comments during the comment period.

III. Project Purpose

The current emergency spillway is undersized and not capable of passing the probable maximum flood (PMF) within present freeboard requirements therefore the spillway will be raised by 10 feet in elevation.

IV. Project Description

United States Army Corps of Engineers (USACE) and the non-federal sponsor, the Lower Tule River Irrigation District (LTRID), are proposing to construct a 10 foot-high concrete ogee weir across the emergency spillway at Richard L. Shafer Dam, which would raise Lake Success' gross pool elevation from 655.1 feet to 665.1 feet. Due to the increased gross pool elevation, land or flowage easements would be acquired around the lake by LTRID. The California Highway 190 bridge that passes over the lake would be armored with additional rock revetment and rock slope protection would be added to Frazier Dike. Additionally, two boat ramps need to be relocated to accommodate the new gross pool elevation of the reservoir.

V. Project Location

County: Tulare

Nearest City: Porterville

Section 35, Township 21 South, Range 28 East, MDB&M.

Latitude: 36.063969 Degrees and Longitude: -118.926351 Degrees

Maps showing the Project location are found in Attachment A of this Order.

VI. Project Impact and Receiving Waters Information

The Project is located within the jurisdiction of the Central Valley Water Board. Receiving waters and groundwater potentially impacted by this Project are protected in accordance with the Water Quality Control Plan for the Tulare Lake Basin, revised Third Edition, May 2018 (Basin Plan) The plan for the region and other plans and policies may be accessed at the [State Water Resources Control Board's Plans and](#)

[Policies Web page](http://www.waterboards.ca.gov/plans_policies/) (http://www.waterboards.ca.gov/plans_policies/). The Basin Plan includes water quality standards, which consist of existing and potential beneficial uses of waters of the state, water quality objectives to protect those uses, and the state and federal antidegradation policies.

Project impact and receiving waters information can be found in Attachment B. Table 1 of Attachment B shows the receiving waters and beneficial uses of waters of the state impacted by the Project. Individual impact location and quantity is shown in Table 2 of Attachment B.

VII. Description of Direct Impacts to Waters of the State

Permanent impacts to aquatic resources include the construction of the ogee weir, addition of rock slope protection to Frazier Dike, and relocation of existing boat ramps. Temporary impacts include existing structures and supporting utilities at both the Rocky Hill and Tule Recreation Areas that would need to be relocated or floodproofed. Southern California Edison will independently replace fifteen (15) existing lattice steel transmission towers with fourteen (14) new higher H-frame hybrid structures and approximately 11,800 feet of transmission lines that cross over the western edge of Lake Success to comply with General Order No. 95 dated January 2020 and issued by the California Public Utilities Commission.

Total Project fill/excavation quantities for all impacts are summarized in Tables 1 through 2. Permanent impacts are categorized as those resulting in a physical loss in area and also those degrading ecological condition.

Table 1: Total Project Fill/Excavation Quantity for Temporary Impacts¹

Aquatic Resources Type	Acres	Cubic Yards	Linear Feet
Lake	14.044		
Ocean/bay/estuary			
Riparian Zone			
Stream Channel			
Vernal Pool			
Wetland			

Table 2: Total Project Fill/Excavation Quantity for Permanent Physical Loss of Area Impacts

Aquatic Resources Type	Acres	Cubic Yards	Linear Feet
Lake	0.649		
Ocean/bay/estuary			
Riparian Zone			
Stream Channel			
Vernal Pool			
Wetland			

VIII. Avoidance and Minimization

Below is a general overview of mitigation measures per the 1999 EIS/EIR and EA:

- Appropriate erosion control measures shall be incorporated into the Storm Water Pollution Prevention Plan by the construction contractor to prevent sediment from entering waterways and to minimize temporary turbidity impacts. Examples include but are not limited to straw bales/wattles, erosion blankets, silt fencing, silt curtains, mulching, revegetation, and temporary covers. Sediment and erosion control measures shall always be maintained by the contractor during construction. Control measures shall be inspected periodically by the construction contractor, particularly during and after significant rain events.

¹ Includes only temporary direct impacts to waters of the state and does not include area of temporary disturbance which could result in a discharge to waters of the state. Temporary impacts, by definition, are restored to pre-project conditions and therefore do not include a physical loss of area or degradation of ecological condition.

- The contractor shall use a water truck or other appropriate measures to control fugitive dust on haul roads, construction areas, and stockpiles.
- A fuels spill management plan shall be developed for the project by the construction contractor and shall be implemented by the contractor.
- Construction equipment and vehicles shall be fueled and maintained in specified staging areas only, which shall be designed to capture potential spills. These areas cannot be near any ditch, stream, or other body of water or feature that may convey water to a nearby body of water.
- Fuels and hazardous materials shall not be stored on site. Any spills of hazardous material shall be cleaned up immediately by the construction contractor.
- Construction vehicles and equipment shall be inspected frequently and appropriately maintained by the construction contractor to help prevent dripping of oil, lubricants, or any other fluids.
- Construction activities shall be scheduled by the contractor to avoid as much of the wet season as practicable. Construction personnel shall be trained in storm water pollution prevention practices by the construction contractor.
- In areas proposed for revegetation, initiation and completion of revegetation work shall be done by the contractor in a timely manner to control erosion.
- Silt fences, wattles, straw mulch, detention ponds and other best management practices as needed shall be used to keep sediment and storm water runoff from entering the Waters of the US.
- Rock riprap shall be washed before being placed in the river for erosion protections. Existing vegetation shall be preserved when possible.
- After construction is complete, all disturbed soils shall be seeded and stabilized.
- After completion of construction, an erosion and sediment control plan incorporating a site drainage plan consistent with the Regional Water Quality Control Board shall be developed by the contractor to minimize the adverse effects to water quality.

IX. Compensatory Mitigation

No compensatory mitigation is required for permanent impacts because the addition of the ogee weir will raise the gross pool elevation of the lake thereby creating 605 acres of lakebed habitat.

X. California Environmental Quality Act (CEQA)

On 30 June 2000, the Lower Tule River Irrigation District, as lead agency, certified a Final Environmental Impact Report (FEIR)) (State Clearinghouse (SCH) No. 1999044004) for the Project and filed a Notice of Determination (NOD) at the SCH on 30 June 2000. Pursuant to CEQA, the Central Valley Water Board has made

Findings of Facts (Findings) which support the issuance of this Order and are included in Attachment C.

XI. Petitions for Reconsideration

Any person aggrieved by this action may petition the State Water Board to reconsider this Order in accordance with California Code of Regulations, title 23, section 3867. A petition for reconsideration must be submitted in writing and received within 30 calendar days of the issuance of this Order.

XII. Fees Received

Fees are not required for Federal Agency projects.

XIII. Conditions

The Central Valley Water Board has independently reviewed the record of the Project to analyze impacts to water quality and designated beneficial uses within the watershed of the Project. In accordance with this Order, the Permittee may proceed with the Project under the following terms and conditions:

A. Authorization

Impacts to waters of the state shall not exceed quantities shown in Tables 1 through 2.

B. Reporting and Notification Requirements

The following section details the reporting and notification types and timing of submittals. Requirements for the content of these reporting and notification types are detailed in Attachment D, including specifications for photo and map documentation during the Project. Written reports and notifications must be submitted using the Reporting and Notification Cover Sheet located in Attachment D, which must be signed by the Permittee or an authorized representative.

The Permittee must submit all notifications, submissions, materials, data, correspondence, and reports in a searchable Portable Document Format (PDF). Documents less than 50 MB must be emailed to:

centralvalleyfresno@waterboards.ca.gov

In the subject line of the email, include the Central Valley Water Board Contact, Project name, and WDID No. Documents that are 50 MB or larger must be transferred to a disk and mailed to the Central Valley Water Board Contact.

1. Project Reporting

a. Monthly Reporting – Not Applicable

b. Annual Reporting: The Permittee shall submit an Annual Report each year on the 1st day of the month one year after the effective date of the

Order (e.g., if the effective date is 1 January 2020 then the annual report is due the following year on 1 February 2021). Annual reporting shall continue until the Central Valley Water Board issues a Notice of Project Complete Letter to the Permittee.

2. Project Status Notifications

- a. **Commencement of Construction:** The Permittee shall submit a Commencement of Construction Report at least seven (7) days prior to start of initial ground disturbance activities and corresponding Waste Discharge Identification Number (WDID#) issued under the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ; NPDES No. CAS000002).
- b. **Request for Notice of Completion of Discharges Letter:** The Permittee shall submit a Request for Notice of Completion of Discharges Letter following completion of active Project construction activities, including any required restoration and permittee-responsible mitigation. This request shall be submitted to the Central Valley Water Board staff within thirty (30) days following completion of all Project construction activities. Upon acceptance of the request, Central Valley Water Board staff shall issue a Notice of Completion of Discharges Letter to the Permittee which will end the active discharge period.
- c. **Request for Notice of Project Complete Letter:** The Permittee shall submit a Request for Notice of Project Complete Letter when construction and/or any post-construction monitoring is complete, and no further Project activities will occur. Completion of post-construction monitoring shall be determined by Central Valley Water Board staff and shall be contingent on successful attainment of restoration and mitigation performance criteria. This request shall be submitted to Central Valley Water Board staff within thirty (30) days following completion of all Project activities. Upon approval of the request, the Central Valley Water Board staff shall issue a Notice of Project Complete Letter to the Permittee which will end the post discharge monitoring period.

3. Conditional Notifications and Reports:

The following notifications and reports are required as appropriate.

a. Accidental Discharges of Hazardous Materials²

Following an accidental discharge of a reportable quantity of a hazardous material, sewage, or an unknown material, the following applies (Water Code, Section 13271):

- i. As soon as (A) Permittee has knowledge of the discharge or noncompliance, (B) notification is possible, and (C) notification can be provided without substantially impeding cleanup or other emergency measures then:
 - first call – 911 (to notify local response agency)
 - then call – Office of Emergency Services (OES) State Warning Center at:(800) 852-7550 or (916) 845-8911
 - Lastly, follow the required OES, procedures as set forth in the [Office of Emergency Services' Accidental Discharge Notification Web page](http://www.caloes.ca.gov/FireRescueSite/Documents/CalOES-Spill_Booklet_Feb2014_FINAL_BW_Acc.pdf) (http://www.caloes.ca.gov/FireRescueSite/Documents/CalOES-Spill_Booklet_Feb2014_FINAL_BW_Acc.pdf)
 - ii. Following notification to OES, the Permittee shall notify Central Valley Water Board, as soon as practicable (ideally within 24 hours). Notification may be delivered via written notice, email, or other verifiable means.
 - iii. Within five (5) working days of notification to the Central Valley Water Board, the Permittee must submit an Accidental Discharge of Hazardous Material Report.
- b. Violation of Compliance with Water Quality Standards:** The Permittee shall notify the Central Valley Water Board of any event causing a violation of compliance with water quality standards. Notification may be delivered via written notice, email, or other verifiable means.
- i. This notification must be followed within three (3) working days by submission of a Violation of Compliance with Water Quality Standards Report.

² "Hazardous material" means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment. (Health & Safety Code, Section 25501.)

c. In-Water Work and Diversions:

- i. The Permittee shall notify the Central Valley Water Board at least forty-eight (48) hours prior to initiating work in water or stream diversions. Notification may be delivered via written notice, email, or other verifiable means.
- ii. Within three (3) working days following completion of work in water or stream diversions, an In-Water Work/Diversions Water Quality Monitoring Report must be submitted to Central Valley Water Board staff.

d. Modifications to Project

Project modifications may require an amendment of this Order. The Permittee shall give advance notice to Central Valley Water Board staff if Project implementation as described in the application materials is altered in any way or by the imposition of subsequent permit conditions by any local, state or federal regulatory authority by submitting a Modifications to Project Report. The Permittee shall inform Central Valley Water Board staff of any Project modifications that will interfere with the Permittee's compliance with this Order. Notification may be made in accordance with conditions in the certification deviation section of this Order.

e. Transfer of Property Ownership:

This Order is not transferable in its entirety or in part to any person or organization except after notice to the Central Valley Water Board in accordance with the following terms:

- i. The Permittee must notify the Central Valley Water Board of any change in ownership or interest in ownership of the Project area by submitting a Transfer of Property Ownership Report. The Permittee and purchaser must sign and date the notification and provide such notification to the Central Valley Water Board at least 10 days prior to the transfer of ownership. The purchaser must also submit a written request to the Central Valley Water Board to be named as the permittee in a revised order.
- ii. Until such time as this Order has been modified to name the purchaser as the permittee, the Permittee shall continue to be responsible for all requirements set forth in this Order.

f. Transfer of Long-Term BMP Maintenance:

If maintenance responsibility for post-construction BMPs is legally transferred, the Permittee must submit to the Central Valley Water Board a copy of such documentation and must provide the transferee with a copy of a long-term BMP maintenance plan that complies with manufacturer or designer specifications. The Permittee must provide such notification to the Central Valley Water Board with a Transfer of Long-Term BMP

Maintenance Report at least 10 days prior to the transfer of BMP maintenance responsibility.

C. Water Quality Monitoring

1. General:

If surface water is present, continuous visual surface water monitoring shall be conducted during active construction periods to detect accidental discharge of construction related pollutants (e.g., oil and grease, turbidity plume, or uncured concrete). Sampling is not required in a wetland where the entire wetland is being permanently filled, provided there is no outflow connecting the wetland to surface waters. The Permittee shall perform surface water sampling:

- a. when performing any in-water work;
- b. during the entire duration of temporary surface water diversions;
- c. in the event that the Project activities result in any materials reaching surface waters; or
- d. when any activities result in the creation of a visible plume in surface waters.

2. Accidental Discharges/Noncompliance:

Upon occurrence of an accidental discharge of hazardous materials or a violation of compliance with a water quality standard, Central Valley Water Board staff may require water quality monitoring based on the discharge constituents and/or related water quality objectives and beneficial uses.

3. In-Water Work or Diversions:

During planned in-water work or during the entire duration of temporary water diversions, any discharge(s) to waters of the state shall conform to the following water quality standards:

- a. Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
- b. The pH of water shall not be depressed below 6.5, raised above 8.3, or changed at any time more than 0.3 units from normal ambient pH.
- c. Activities shall not cause turbidity increases in surface water to exceed:
 - i. where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU;
 - ii. where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent;

- iii. where natural turbidity is equal to or between 50 and 100 NTUs, increases shall not exceed 10 NTUs;
- iv. where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.

In determining compliance with the above limits, appropriate averaging periods may be applied provided that beneficial uses will be fully protected. Averaging periods may only be used with prior permission of the Central Valley Water Board Executive Officer.

Sampling during in-water work or during the entire duration of temporary water diversions shall be conducted in accordance with Table 3 sampling parameters. The sampling in Table 3 shall be conducted in the lake outside the influence of the Project to obtain a representative sample and within the in-water work area, discharge area, or within the visible plume to characterize the discharge to the lake.

The sampling frequency and/or monitoring locations may be modified for certain projects with written approval from Central Valley Water Board staff. An In-Water Work and Diversion Water Quality Monitoring Report, as described in Attachment D, shall be submitted within two weeks of initiation of in-water construction, and every two weeks thereafter. In reporting the data, the Permittee shall arrange the data in tabular form so that the sampling locations, date, constituents, and concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the Project complies with Order requirements. The report shall include surface water sampling results, visual observations, and identification of the turbidity increase in the receiving water applicable to the natural turbidity conditions specified in the turbidity criteria in XIII.C.3.

If no sampling is required, the Permittee shall submit a written statement stating, "No sampling was required" within two weeks on initiation of in-water construction, and every two weeks thereafter.

Table 3: Sample Type and Frequency Requirements

Parameter	Unit of Measurement	Type of Sample	Minimum Frequency
pH	Standard Units	Grab	Every 4 hours
Turbidity	NTU	Grab	Every 4 hours
Visible construction related pollutants ³	Observations	Visual Inspections	Continuous throughout the construction period

³ Visible construction-related pollutants include oil, grease, foam, fuel, petroleum products, and construction-related, excavated, organic or earthen materials.

4. Post-Construction:

Visually inspect the Project site during the rainy season for one year following completion of active Project construction activities to ensure excessive erosion, stream instability, or other water quality pollution is not occurring in or downstream of the Project site. If water quality pollution is occurring, contact the Central Valley Water Board staff member overseeing the Project within three (3) working days. The Central Valley Water Board may require the submission of a Violation of Compliance with Water Quality Standards Report. Additional permits may be required to carry out any necessary site remediation.

D. Standard

1. This Order is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code section 13330, and California Code of Regulations, Title 23, Chapter 28, article 6 commencing with sections 3867-3869, inclusive. Additionally, the Central Valley Water Board reserves the right to suspend, cancel, or modify and reissue this Order, after providing notice to the Permittee, if the Central Valley Water Board determines that: the Project fails to comply with any of the conditions of this Order; or, when necessary to implement any new or revised water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act (Water Code, section 13000 et seq.) or federal Clean Water Act section 303 (33 U.S.C. section 1313). For purposes of Clean Water Act section 401(d), the condition constitutes a limitation necessary to assure compliance with water quality standards and appropriate requirements of state law.
2. This Order is not intended and shall not be construed to apply to any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license, unless the pertinent certification application was filed pursuant to subsection 3855(b) of chapter 28, Title 23 of the California Code of Regulations, and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.
3. This Order is conditioned upon total payment of any fee required under Title 23 of the California Code of Regulations and owed by the Permittee.
4. In the event of any violation or threatened violation of the conditions of this Order, the violation or threatened violation shall be subject to any remedies, penalties, process, or sanctions as provided for under state and federal law. For purposes of Clean Water Act, section 401(d), the applicability of any state law authorizing remedies, penalties, processes, or sanctions for the violation or threatened violation constitutes a limitation necessary to assure

compliance with the water quality standards and other pertinent requirements incorporated into this Order.

E. General Compliance

1. Failure to comply with any condition of this Order shall constitute a violation of the Porter-Cologne Water Quality Control Act and the Clean Water Act. The Permittee and/or discharger may then be subject to administrative and/or civil liability pursuant to Water Code section 13385.
2. Permitted actions must not cause a violation of any applicable water quality standards, including impairment of designated beneficial uses for receiving waters as adopted in the Basin Plans by any applicable Regional Water Board or any applicable State Water Board (collectively Water Boards) water quality control plan or policy. The source of any such discharge must be eliminated as soon as practicable.
3. In response to a suspected violation of any condition of this Order, the Central Valley Water Board may require the holder of this Order to furnish, under penalty of perjury, any technical or monitoring reports the Water Boards deem appropriate, provided that the burden, including costs, of the reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. The additional monitoring requirements ensure that permitted discharges and activities comport with any applicable effluent limitations, water quality standards, and/or other appropriate requirement of state law.
4. The Permittee must, at all times, fully comply with engineering plans, specifications, and technical reports submitted to support this Order; and all subsequent submittals required as part of this Order. The conditions within this Order and Attachments supersede conflicting provisions within Permittee submittals.
5. This Order and all of its conditions contained herein continue to have full force and effect regardless of the expiration or revocation of any federal license or permit issued for the Project. For purposes of Clean Water Act, section 401(d), this condition constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements of state law.
6. The Permittee shall adhere to all requirements in the mitigation monitoring and reporting program (MMRP) which is incorporated herein by reference and any additional measures as outlined in Attachment C, CEQA Findings of Fact.
7. **Construction General Permit Requirement:** The Permittee shall obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ;

NPDES No. CAS000002), as amended, for discharges to surface waters comprised of storm water associated with construction activity, including, but not limited to, demolition, clearing, grading, excavation, and other land disturbance activities of one or more acres, 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.

F. Administrative

1. Signatory requirements for all document submittals required by this Order are presented in Attachment E of this Order.
2. This Order does not authorize any act which results in the taking of a threatened, endangered or candidate species or any act, which is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish & Wildlife Code, sections 2050-2097) or the federal Endangered Species Act (16 U.S.C. sections 1531-1544). If a “take” will result from any act authorized under this Order held by the Permittee, the Permittee must comply with the California Endangered Species Act and federal Endangers Species Act prior to any construction or operation of the portion of the Project that may result in a take. The Permittee is responsible for meeting all requirements of the applicable endangered species act for the Project authorized under this Order.
3. The Permittee shall grant Central Valley Water Board staff, or an authorized representative (including an authorized contractor acting as a Water Board representative), upon presentation of credentials and other documents as may be required by law, permission to:
 - a. Enter upon the Project or compensatory mitigation site(s) premises where a regulated facility or activity is located or conducted, or where records are kept.
 - b. Have access to and copy any records that are kept and are relevant to the Project or the requirements of this Order.
 - c. Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order.
 - d. Sample or monitor for the purposes of assuring Order compliance.
4. A copy of this Order shall be provided to any consultants, contractors, and subcontractors working on the Project. Copies of this Order shall remain at the Project site for the duration of this Order. The Permittee shall be responsible for work conducted by its consultants, contractors, and any subcontractors.

5. A copy of this Order must be available at the Project site(s) during construction for review by site personnel and agencies. All personnel performing work on the Project shall be familiar with the content of this Order and its posted location at the Project site.
6. **Lake or Streambed Alteration Agreement:** The Permittee shall submit a signed copy of the California Department of Fish and Wildlife's Lake or Streambed Alteration Agreement or other authorization letter to the Central Valley Water Board immediately upon receipt and prior to any discharge to waters of the state.

G. Construction

1. Dewatering

- a. The Permittee shall develop and maintain on-site a Surface Water Diversion and/or Dewatering Plan(s). The Plan(s) must be developed prior to initiation of any water diversions. The Plan(s) shall include the proposed method and duration of diversion activities and include water quality monitoring conducted, as described in section XIII.C.3, during the entire duration of dewatering and diversion activities. The Plan(s) must be consistent with this Order and must be made available to the Central Valley Water Board staff upon request.
- b. For any temporary dam or other artificial obstruction being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream, to maintain beneficial uses of waters of the state below the dam. Construction, dewatering, and removal of temporary cofferdams shall not violate section XIII.C.3.
- c. The temporary dam or other artificial obstruction shall only be built from clean materials such as sandbags, gravel bags, water dams, or clean/washed gravel which will cause little or no siltation. Stream flow shall be temporarily diverted using gravity flow through temporary culverts/pipes or pumped around the work site with the use of hoses.
- d. This Order does not allow permanent water diversion of flow from the receiving water. This Order is invalid if any water is permanently diverted as a part of the project.
- e. The Permittee shall work with the Central Valley Water Board to obtain coverage under an NPDES permit for dewatering activities that result in discharges into surface water.

2. Directional Drilling – Not Applicable

3. Dredging – Not Applicable

4. Fugitive Dust:

Dust abatement activities can cause discharges of sediment to streams and uplands through application of water or other fluids. Dust abatement chemicals added to water can be hazardous to wildlife and, if allowed to enter streams, detrimental to water quality. Therefore, dust abatement activities shall be conducted so that sediment or dust abatement chemicals are not discharged into waters of the state. Dust abatement products or additives that are known to be detrimental to water quality or wildlife shall not be used, unless specific management needs are documented, and product-specific application plans are approved by Central Valley Water Board staff.

5. Good Site Management “Housekeeping”

- a. The Permittee shall develop and maintain onsite a project-specific Spill Prevention, Containment and Cleanup Plan outlining the practices to prevent, minimize, and/or clean up potential spills during construction of the Project. The Plan must detail the Project elements, construction equipment types and location, access and staging and construction sequence. The Plan must be made available to the Central Valley Water Board staff upon request.
- b. Refueling of equipment within the floodplain or within 300 feet of the waterway is prohibited. If critical equipment must be refueled within 300 feet of the waterway, spill prevention and countermeasures must be implemented to avoid spills. Refueling areas shall be provided with secondary containment including drip pans and/or placement of absorbent material. No hazardous materials, pesticides, fuels, lubricants, oils, hydraulic fluids, or other construction-related potentially hazardous substances should be stored within a floodplain or within 300 feet of a waterway. The Permittee must perform frequent inspections of construction equipment prior to utilizing it near surface waters to ensure leaks from the equipment are not occurring and are not a threat to water quality.
- c. All waste materials resulting from the Project shall be removed from the site and disposed of properly.

6. Hazardous Materials

- a. The discharge of petroleum products, any construction materials, hazardous materials, pesticides, fuels, lubricants, oils, hydraulic fluids, raw cement, concrete or the washing thereof, asphalt, paint, coating material, drilling fluids, or other substances potentially hazardous to fish and wildlife resulting from or disturbed by project-related activities is prohibited and shall be prevented from contaminating the soil and/or entering waters of the state. In the event of a prohibited discharge, the Permittee shall comply with notification requirements in sections XIII.B.3.a and XIII.B.3.b.

- b. Wet concrete shall be placed into lakebed habitat after the area has been completely dewatered or when the work area is naturally dry.
- c. Concrete must be completely cured before coming into contact with waters of the United States and waters of the state. Surface water that contacts wet concrete must be pumped out and disposed of at an appropriate off-site commercial facility, which is authorized to accept concrete wastes.

7. Invasive Species and Soil Borne Pathogens

Prior to arrival at the project site and prior to leaving the project site, construction equipment that may contain invasive plants and/or seeds shall be cleaned to reduce the spread of noxious weeds.

8. Post-Construction Storm Water Management

- a. The Permittee must minimize the short and long-term impacts on receiving water quality from the Project by implementing the following post-construction storm water management practices and as required by local agency permitting the Project, as appropriate:
 - i. Minimize the amount of impervious surface;
 - ii. Reduce peak runoff flows;
 - iii. Provide treatment BMPs to reduce pollutants in runoff;
 - iv. Ensure existing waters of the state (e.g., wetlands, vernal pools, or creeks) are not used as pollutant source controls and/or treatment controls;
 - v. Preserve and where possible, create or restore areas that provide important water quality benefits, such as riparian corridors, wetlands, and buffer zones;
 - vi. Limit disturbances of natural water bodies and natural drainage systems caused by development (including development of roads, highways, and bridges);
 - vii. Use existing drainage master plans or studies to ensure incorporation of structural and non-structural BMPs to mitigate the projected pollutant load increases in surface water runoff;
 - viii. Identify and avoid development in areas that are particularly susceptible to erosion and sediment loss, or establish development guidance that protects areas from erosion/ sediment loss; and
 - ix. Control post-development peak storm water run-off discharge rates and velocities to prevent or reduce downstream erosion, and to protect stream habitat.

- b.** The Permittee shall ensure that all development within the Project provides verification of maintenance provisions for post-construction structural and treatment control BMPs as required by the local agency permitting the Project. Verification shall include one or more of the following, as applicable:
 - i. The developer's signed statement accepting responsibility for maintenance until the maintenance responsibility is legally transferred to another party; or
 - ii. Written conditions in the sales or lease agreement that require the recipient to assume responsibility for maintenance; or
 - iii. Written text in Project conditions, covenants and restrictions for residential properties assigning maintenance responsibilities to a homeowner's association, or other appropriate group, for maintenance of structural and treatment control BMPs; or
 - iv. Any other legally enforceable agreement that assigns responsibility for storm water BMPs maintenance.

9. Roads

- a.** The number of access routes, number and size of staging areas, and the total area of the activity must be limited to the minimum necessary to achieve the project goal. Routes and work area boundaries must be clearly demarcated.
- b.** Bridges, culverts, dip crossings, or other structures must be installed so that water and in-stream sediment flow is not impeded. Appropriate design criteria, practices and materials must be used in areas where access roads intersect waters of the state.
- c.** Temporary materials placed in any water of the state must be removed as soon as construction is completed at that location, and all temporary roads must be removed or re-contoured and restored according to approved re-vegetation and restoration plans.
- d.** Any structure, including but not limited to, culverts, pipes, piers, and coffer dams, placed within a stream where fish (as defined in California Fish and Game Code section 45) exist or may exist, must be designed, constructed, and maintained such that it does not constitute a barrier to upstream or downstream movement of aquatic life, or cause an avoidance reaction by fish due to impedance of their upstream or downstream movement. This includes, but is not limited to, maintaining the supply of water and maintaining flows at an appropriate depth, temperature, and velocity to facilitate upstream and downstream fish migration. If any structure results in a long-term reduction in fish movement, the discharger shall be responsible for restoration of conditions as necessary (as

determined by the Water Board) to secure passage of fish across the structure.

- e. A method of containment must be used below any temporary bridge, trestle, boardwalk, and/or other stream crossing structure to prevent any debris or spills from falling into the waters of the state. Containment must be maintained and kept clean for the life of the temporary stream crossing structure.

10. Sediment Control

- a. Except for activities permitted by the United States Army Corps of Engineers under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act, soil, silt, or other organic materials shall not be placed where such materials could pass into surface water or surface water drainage courses.
- b. Silt fencing, straw wattles, or other effective management practices must be used along the construction zone to minimize soil or sediment along the embankments from migrating into the waters of the state through the entire duration of the Project.
- c. The use of netting material (e.g., monofilament-based erosion blankets) that could trap aquatic dependent wildlife is prohibited within the Project area.

11. Special Status Species

12. Stabilization/Erosion Control

- a. All areas disturbed by Project activities shall be protected from washout and erosion.
- b. Hydroseeding shall be performed with California native seed mix.

13. Storm Water

- a. During the construction phase, the Permittee must employ strategies to minimize erosion and the introduction of pollutants into storm water runoff. These strategies must include the following:
 - i. An effective combination of erosion and sediment control Best Management Practices (BMPs) must be implemented and adequately working prior to the rainy season and during all phases of construction.

H. Site Specific – Not Applicable

I. Total Maximum Daily Load (TMDL) – Not Applicable

J. Mitigation for Temporary Impacts

1. The Permittee shall restore all areas of temporary impacts, including Project site upland areas, which could result in a discharge to waters of the state to pre-construction contours and conditions upon completion of construction activities.
2. The Central Valley Water Board may extend the monitoring period beyond requirements of the restoration plan upon a determination by Executive Officer that the performance standards have not been met or are not likely to be met within the monitoring period.
3. If restoration of temporary impacts to waters of the state is not completed within 90 days of the impacts, compensatory mitigation may be required to offset temporal loss of waters of the state.
4. Total required Project compensatory mitigation information for temporary impacts is summarized in Table 4. [Establishment (Est.), Re-establishment (Re-est.), Rehabilitation (Reh.), Enhancement (Enh.), Preservation (Pres.), Unknown].

Table 4: Required Project Mitigation Quantity for Temporary Impacts by Method

Aquatic Resource Type	Mitigation Type	Units	Est.	Re-est.	Reh.	Enh.	Pres.	Unknown
Lake	Permittee Responsible	Acres			14.044			

K. Compensatory Mitigation for Permanent Impacts: Not Applicable

L. Certification Deviation

1. Minor modifications of Project locations or predicted impacts may be necessary as a result of unforeseen field conditions, necessary engineering re-design, construction concerns, or similar reasons. Some of these prospective Project modifications may have impacts on water quality. Some modifications of Project locations or predicted impacts may qualify as Certification Deviations as set forth in Attachment F. For purposes of this Certification, a “Certification Deviation” is a Project locational or impact modification that does not require an immediate amendment of the Order, because the Central Valley Water Board has determined that any potential water quality impacts that may result from the change are sufficiently addressed by the Order conditions and the CEQA Findings. After the termination of construction, this Order will be formally amended to reflect all authorized Certification Deviations and any resulting adjustments to the

amount of water resource impacts and required compensatory mitigation amounts.

- 2. A Project modification shall not be granted a Certification Deviation if it warrants or necessitates changes that are not addressed by the Order conditions or the CEQA environmental document such that the Project impacts are not addressed in the Project's environmental document or the conditions of this Order. In this case a supplemental environmental review and different Order will be required.

XIV. Water Quality Certification

I hereby issue the Order for the Tule River Spillway Enlargement Project Phase II, WDID No. 5C54CR00120, certifying that as long as all of the conditions listed in this Order are met, any discharge from the referenced Project will comply with the applicable provisions of Clean Water Act sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards).

This discharge is also regulated pursuant to State Water Board Water Quality Order No. 2003-0017-DWQ which authorizes this Order to serve as Waste Discharge Requirements pursuant to the Porter-Cologne Water Quality Control Act (Water Code, section 13000 et seq.).

Except insofar as may be modified by any preceding conditions, all Order actions are contingent on: (a) the discharge being limited and all proposed mitigation being completed in strict compliance with the conditions of this Order and the attachments to this Order; and, (b) compliance with all applicable requirements of Statewide Water Quality Control Plans and Policies, and the Regional Water Boards' Water Quality Control Plans and Policies.

 for

Patrick Pulupa, Executive Officer
Central Valley Regional Water Quality Control Board

29 July 2021
Date

- Attachment A:** Project Map
- Attachment B:** Receiving Waters, Impacts, and Mitigation Information
- Attachment C:** CEQA Findings of Facts
- Attachment D:** Report and Notification Requirements
- Attachment E:** Signatory Requirements
- Attachment F:** Certification Deviation Procedures
- Attachment G:** Compliance with Code of Federal Regulations, title 40, section 121.7, subdivision (d)

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Figure 1. Map of Impacts to Aquatic Resources for Boat Ramps



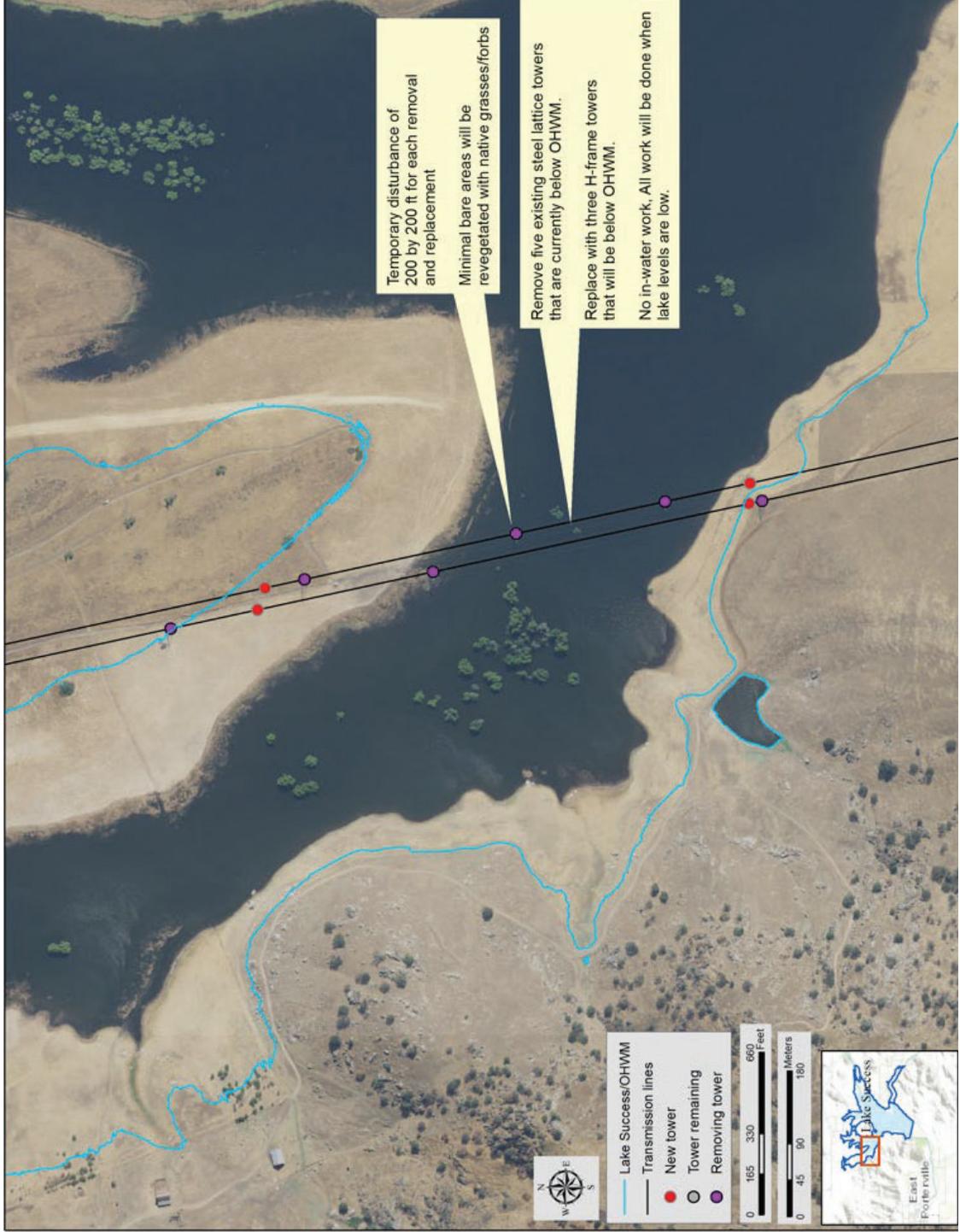
Figure 2. Map of Impacts to Aquatic Resources for Frazier Dike.



Figure 3. Map of Impacts to Aquatic Resources for Ogee Weir.



Figure 4. Map of Impacts to Aquatic Resources for Southern California Edison Power Lines.



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Receiving Waters, Impacts and Mitigation Information

The following table shows the receiving waters associated with each impact site.

Table 1: Receiving Water(s) Information

Impact Site IDs	Waterbody Name	Impacted Aquatic Resources Type	Water Board Hydrologic Units	Receiving Waters	Receiving Waters Beneficial Uses	303d Listing Pollutant	California Rapid Assessment Method (GRAM) ID
Boat Ramp	Lake Success	Lake	555.12	Tule River - Lake Success	AGR, POW, REC-1, REC-2, WARM, WILD, FRSH	N/A	N/A
Ogee Weir,	Lake Success	Lake	555.12	Tule River - Lake Success	AGR, POW, REC-1, REC-2, WARM, WILD, FRSH	N/A	N/A
Frazier Dike	Lake Success	Lake	555.12	Tule River - Lake Success	AGR, POW, REC-1, REC-2, WARM, WILD, FRSH	N/A	N/A
SCE Transmission Lines	Lake Success	Lake	555.12	Tule River - Lake Success	AGR, POW, REC-1, REC-2, WARM, WILD, FRSH	N/A	N/A

Individual Direct Impact Locations

The following tables show individual impacts.

Table 2: Individual Temporary Fill/Excavation Impact Information

Impact Site ID	Latitude	Longitude	Indirect Impact Requiring Mitigation?	Acres	Cubic Yards	Linear Feet
Boat Ramp	36.072685	-118.920894	No	0.180		
SCE Transmission Lines	36.086545	-118.931213	No	13.872		

Table 3: Individual Permanent Fill/Excavation Impact Information

Impact Site ID	Latitude	Longitude	Indirect Impact Requiring Mitigation ?	Acres	Cubic Yards	Linear Feet
Boat Ramp	36.072685	-118.920894	No	0.086		
Frazier Dike	36.103665	-118.942109	No	0.053		
Ogee Weir	36.063969	- 118.926351	No	0.510		
SCE Transmission Lines	36.086545	-118.931213	No	0.004		

Compensatory Mitigation Information – Not Applicable

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A. Environmental Review

On 30 June 2000, the Lower Tule River Irrigation District, as lead agency, certified a Final Environmental Impact Report (FEIR) (State Clearinghouse (SCH) No. 1999044004) for the Project and filed a Notice of Determination (NOD) at the SCH on 30 June 2000. The Central Valley Water Board is a responsible agency under CEQA (Public Resources Code, section 21069) and in making its determinations and findings, must presume that the Lower Tule River Irrigation District's certified environmental document comports with the requirements of CEQA and is valid. (Public Resources Code, section 21167.3.) The Central Valley Water Board has reviewed and considered the environmental document and finds that the environmental document prepared by the Lower Tule River Irrigation District addresses the Project's water resource impacts. (California Code of Regulations, Title 14, section 15096, subd. (f).) The environmental document includes the mitigation monitoring and reporting program (MMRP) developed by the Lower Tule River Irrigation District for all mitigation measures that have been adopted for the Project to reduce potential significant impacts. (Public Resources Code, section 21081.6, subd. (a)(1); California Code of Regulations, Title 14, section 15091, subd. (d).)

B. Incorporation by Reference

Pursuant to CEQA, these Findings of Facts (Findings) support the issuance of this Order based on the Project FEIR, the application for this Order, and other supplemental documentation.

All CEQA project impacts, including those discussed in subsection C below, are analyzed in detail in the Project FEIR which is incorporated herein by reference. The Project FEIR is available at: <https://www.spk.usace.army.mil/Missions/Civil-Works/Tule-River-Spillway-Enlargement/>.

Requirements under the purview of the Central Valley Water Board in the MMRP are incorporated herein by reference.

The Permittee's application for this Order, including all supplemental information provided, is incorporated herein by reference.

C. Findings

The FEIR describes the potential significant environmental effects to water resources. Having considered the whole of the record, the Central Valley Water Board makes the following findings:

Findings regarding impacts that will be avoided or mitigated to a less than significant level. (Public Resources Code, section 21081, subd. (a)(1); California Code of Regulations, Title 14, section 15091, subd. (a)(1).)

D. Determination

The Central Valley Water Board has determined that the Project, when implemented in accordance with the MMRP and the conditions in this Order, will

not result in any significant adverse water quality or supply impacts. (California Code of Regulations, Title 14, section 15096, subd. (h).) The Central Valley Water Board will file a NOD with the SCH within five (5) working days from the issuance of this Order. (California Code of Regulations, Title 14, section 15096, subd. (i).)

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REPORTS AND NOTIFICATION REQUIREMENTS

I. Copies of this form

In order to identify your project, it is necessary to include a copy of the Project specific Cover Sheet below with your report; please retain for your records. If you need to obtain a copy of the Cover Sheet, you may download a copy of this Order as follows:

- A. [Central Valley Regional Water Quality Control Board's Adopted Orders Web page](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/401_wqcerts/)
(https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/401_wqcerts/)
- B. Find your Order based on the County, Permittee, WDID No., and/or Project Name.

II. Report Submittal Instructions

- A. Check the box on the Report and Notification Cover Sheet next to the report or notification you are submitting. **(See your Order for specific reports required for your Project)**
 - **Part A (Annual Report):** This report will be submitted annually from the anniversary of Project effective date until a Notice of Project Complete Letter is issued.
 - **Part B (Project Status Notifications):** Used to notify the Central Valley Water Board of the status of the Project schedule that may affect Project billing.
 - **Part C (Conditional Notifications and Reports):** Required on a case by case basis for accidental discharges of hazardous materials, violation of compliance with water quality standards, notification of in-water work, or other reports.
- B. Sign the Report and Notification Cover Sheet and attach all information requested for the Report Type.
- C. Electronic Report Submittal Instructions:
 - Submit signed Report and Notification Cover Sheet and required information via email to: centralvalleyfresno@waterboards.ca.gov and cc: Brandon.Salazar@waterboards.ca.gov
 - Include in the subject line of the email:
ATTN: Brandon Salazar; Project Name; and WDID No. 5C54CR00120

III. Definition of Reporting Terms

- A. Active Discharge Period:** The active discharge period begins with the effective date of this Order and ends on the date that the Permittee receives a Notice of Completion of Discharges Letter or, if no post-construction monitoring is required, a Notice of Project Complete Letter. The Active Discharge Period includes all elements of the Project including site construction and restoration, and any Permittee responsible compensatory mitigation construction.
- B. Request for Notice of Completion of Discharges Letter:** This request by the Permittee to the Central Valley Water Board staff pertains to projects that have post construction monitoring requirements, e.g., if site restoration was required to be monitored for 5 years following construction. Central Valley Water Board staff will review the request and send a Completion of Discharges Letter to the Permittee upon approval.
- C. Request for Notice of Project Complete Letter:** This request by the Permittee to the Central Valley Water Board staff pertains to projects that either have completed post-construction monitoring and achieved performance standards or have no post-construction monitoring requirements, and no further Project activities are planned. Central Valley Water Board staff will review the request and send a Project Complete Letter to the Permittee upon approval. Termination of annual invoicing of fees will correspond with the date of this letter.
- D. Post-Discharge Monitoring Period:** The post-discharge monitoring period begins on the date of the Notice of Completion of Discharges Letter and ends on the date of the Notice of Project Complete Letter issued by the Central Valley Water Board staff. The Post-Discharge Monitoring Period includes continued water quality monitoring or compensatory mitigation monitoring.
- E. Effective Date:** 29 July 2021

IV. Map/Photo Documentation Information

When submitting maps or photos, please use the following formats.

A. Map Format Information:

Preferred map formats of at least 1:24000 (1" = 2000') detail (listed in order of preference):

- **GIS shapefiles:** The shapefiles must depict the boundaries of all project areas and extent of aquatic resources impacted. Each shape should be attributed with the extent/type of aquatic resources impacted. Features and boundaries should be accurate to within 33 feet (10 meters). Identify datum/projection used and if possible, provide map with a North American Datum of 1983 (NAD83) in the California Teale Albers projection in feet.

- **Google KML files** saved from Google Maps: My Maps or Google Earth Pro. Maps must show the boundaries of all project areas and extent/type of aquatic resources impacted. Include URL(s) of maps. If this format is used include a spreadsheet with the object ID and attributed with the extent/type of aquatic resources impacted.
 - **Other electronic format** (CAD or illustration format) that provides a context for location (inclusion of landmarks, known structures, geographic coordinates, or USGS DRG or DOQQ). Maps must show the boundaries of all project areas and extent/type of aquatic resources impacted. If this format is used include a spreadsheet with the object ID and attributed with the extent/type of aquatic resources impacted.
 - Aquatic resource maps marked on paper **USGS 7.5 minute topographic maps** or **Digital Orthophoto Quarter Quads (DOQQ)** printouts. Maps must show the boundaries of all project areas and extent/type of aquatic resources impacted. If this format is used include a spreadsheet with the object ID and attributed with the extent/type of aquatic resources impacted.
- B. Photo-Documentation:** Include a unique identifier, date stamp, written description of photo details, and latitude/longitude (in decimal degrees) or map indicating location of photo. Successive photos should be taken from the same vantage point to compare pre/post construction conditions.

V. Report and Notification Cover Sheet

Project: Tule River Spillway Enlargement Project Phase II
Permittee: U.S. Army Corps of Engineers, Sacramento District
WDID: 5C54CR00120
Reg. Meas. ID: 443423
Place ID: 874237
Order Effective Date: 29 July 2021
Order Expiration Date: 29 July 2026

VI. Report Type Submitted

A. Part A – Project Reporting

Report Type 1 Monthly Report – Not Applicable
Report Type 2 Annual Report

B. Part B – Project Status Notifications

Report Type 3 Commencement of Construction
Report Type 4 Request for Notice of Completion of Discharges Letter
Report Type 5 Request for Notice of Project Complete Letter

C. Part C – Conditional Notifications and Reports

Report Type 6 Accidental Discharge of Hazardous Material Report
Report Type 7 Violation of Compliance with Water Quality Standards Report
Report Type 8 In-Water Work/Diversions Water Quality Monitoring Report
Report Type 9 Modifications to Project Report
Report Type 10 Transfer of Property Ownership Report
Report Type 11 Transfer of Long-Term BMP Maintenance Report
Report Type 12 Other Report Type

“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”

Print Name¹	Affiliation and Job Title
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Signature	Date
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¹STATEMENT OF AUTHORIZATION (include if authorization has changed since application was submitted)

I hereby authorize _____ to act in my behalf as my representative in the submittal of this report, and to furnish upon request, supplemental information in support of this submittal.

Permittee's Signature	Date
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*This Report and Notification Cover Sheet must be signed by the Permittee or a duly authorized representative and included with all written submittals.
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A. Part A – Project Reporting

1. Report Type 1 - Monthly Report: Not Applicable

2. Report Type 2 - Annual Report

- a. Report Purpose** - Notify the Central Valley Water Board staff of Project status during both the active discharge and post-discharge monitoring periods.
- b. When to Submit** - The Permittee shall submit an Annual Report each year on the 1st day of the month one year after the effective date of the Order (e.g., if the effective date is 1 January 2020 then the annual report is due the following year on 1 February 2021). Annual reporting shall continue until the Central Valley Water Board issues a Notice of Project Complete Letter to the Permittee.
- c. Report Contents** - The contents of the annual report shall include the topics indicated below for each project period. Report contents are outlined in Annual Report Topics below.

During the Active Discharge Period

- **Topic 1: Construction Summary**
- **Topic 2: Mitigation for Temporary Impacts Status**
- **Topic 3: Compensatory Mitigation for Permanent Impacts Status**

During the Post-Discharge Monitoring Period

- **Topic 2: Mitigation for Temporary Impacts Status**
- **Topic 3: Compensatory Mitigation for Permanent Impacts Status**

i. Annual Report Topic 1 - Construction Summary

When to Submit - With the annual report during the Active Discharge Period.

Report Contents - Project progress and schedule including initial ground disturbance, site clearing and grubbing, road construction, site construction, and the implementation status of construction storm water best management practices (BMPs). If construction has not started, provide estimated start date and reasons for delay.

- 1) Map showing general Project progress.
- 2) If applicable:
 - a) Summary of Conditional Notification and Report Types 6 and 7 (Part C below).
 - b) Summary of Certification Deviations. See Certification Deviation Attachment for further information.

ii. Annual Report Topic 2 - Mitigation for Temporary Impacts Status

When to Submit - With the annual report during both the Active Discharge Period and Post-Discharge Monitoring Period.

Report Contents -

- 1) Planned date of initiation and map showing locations of mitigation for temporary impacts to waters of the state and all upland areas of temporary disturbance which could result in a discharge to waters of the state.
- 2) If mitigation for temporary impacts has already commenced, provide a map and information concerning attainment of performance standards contained in the restoration plan.

iii. Annual Report Topic 3 - Compensatory Mitigation for Permanent Impacts Status

When to Submit - With the annual report during both the Active Discharge Period and Post-Discharge Monitoring Period.

Report Contents - *If not applicable report N/A.

1) Part A. Permittee Responsible

- a) Planned date of initiation of compensatory mitigation site installation.
- b) If installation is in progress, a map of what has been completed to date.
- c) If the compensatory mitigation site has been installed, provide a final map and information concerning attainment of performance standards contained in the compensatory mitigation plan.

2) Part B. Mitigation Bank or In-Lieu Fee

- a) Status or proof of purchase of credit types and quantities.
- b) Include the name of bank/ILF Program and contact information.
- c) If ILF, location of project and type if known.

B. Part B – Project Status Notifications

1. Report Type 3 - Commencement of Construction

- a. **Report Purpose** - Notify Central Valley Water Board staff prior to the start of construction.
- b. **When to Submit** - Must be received at least seven (7) days prior to start of initial ground disturbance activities.
- c. **Report Contents** -
 - i. Date of commencement of construction.
 - ii. Anticipated date when discharges to waters of the state will occur.
 - iii. Project schedule milestones including a schedule for onsite compensatory mitigation, if applicable.
 - iv. Construction Storm Water General Permit WDID No.
 - v. Proof of purchase of compensatory mitigation for permanent impacts from the mitigation bank or in-lieu fee program.

2. Report Type 4 - Request for Notice of Completion of Discharges Letter

- a. **Report Purpose** - Notify Central Valley Water Board staff that post-construction monitoring is required and that active Project construction, including any mitigation and permittee responsible compensatory mitigation, is complete.
- b. **When to Submit** - Must be received by Central Valley Water Board staff within thirty (30) days following completion of all Project construction activities.
- c. **Report Contents** -
 - i. Status of storm water Notice of Termination(s), if applicable.
 - ii. Status of post-construction storm water BMP installation.
 - iii. Pre- and post-photo documentation of all Project activity sites where the discharge of dredge and/or fill/excavation was authorized.
 - iv. Summary of Certification Deviation discharge quantities compared to initial authorized impacts to waters of the state, if applicable.
 - v. An updated monitoring schedule for mitigation for temporary impacts to waters of the state and permittee responsible compensatory mitigation during the post-discharge monitoring period, if applicable.

3. Report Type 5 - Request for Notice of Project Complete Letter

- a. **Report Purpose** - Notify Central Valley Water Board staff that construction and/or any post-construction monitoring is complete, or is not required, and no further Project activity is planned.

- b. When to Submit** - Must be received by Central Valley Water Board staff within thirty (30) days following completion of all Project activities.
- c. Report Contents** -
 - i. Part A: Mitigation for Temporary Impacts
 - 1) A report establishing that the performance standards outlined in the restoration plan have been met for Project site upland areas of temporary disturbance which could result in a discharge to waters of the state.
 - 2) A report establishing that the performance standards outlined in the restoration plan have been met for restored areas of temporary impacts to waters of the state. Pre- and post-photo documentation of all restoration sites.
 - ii. Part B: Permittee Responsible Compensatory Mitigation
 - 1) A report establishing that the performance standards outlined in the compensatory mitigation plan have been met.
 - 2) Status on the implementation of the long-term maintenance and management plan and funding of endowment.
 - 3) Pre- and post-photo documentation of all compensatory mitigation sites.
 - 4) Final maps of all compensatory mitigation areas (including buffers).
 - iii. Part C: Post-Construction Storm Water BMPs and Monitoring
 - 1) Date of storm water Notice of Termination(s), if applicable.
 - 2) Report status and functionality of all post-construction BMPs.
 - 3) Dates and report of visual post-construction inspection during the rainy season as indicated in XIII.C.4.

C. Part C – Conditional Notifications and Reports

1. Report Type 6 - Accidental Discharge of Hazardous Material Report

- a. Report Purpose** - Notifies Central Valley Water Board staff that an accidental discharge of hazardous material has occurred.
- b. When to Submit** - Within five (5) working days of notification to the Central Valley Water Board of an accidental discharge. Continue reporting as required by Central Valley Water Board staff.
- c. Report Contents** -
 - i. The report shall include the OES Incident/Assessment Form, a full description and map of the accidental discharge incident (i.e., location, time and date, source, discharge constituent and quantity, aerial extent, and photo documentation). If applicable, the OES Written Follow-Up Report may be substituted.
 - ii. If applicable, any required sampling data, a full description of the sampling methods including frequency/dates and times of sampling, equipment, locations of sampling sites.
 - iii. Locations and construction specifications of any barriers, including silt curtains or diverting structures, and any associated trenching or anchoring.

2. Report Type 7 - Violation of Compliance with Water Quality Standards Report

- a. Report Purpose** - Notifies Central Valley Water Board staff that a violation of compliance with water quality standards has occurred.
- b. When to Submit** - The Permittee shall report any event that causes a violation of water quality standards within three (3) working days of the noncompliance event notification to Central Valley Water Board staff.
- c. Report Contents** - The report shall include: the cause; the location shown on a map; and the period of the noncompliance including exact dates and times. If the noncompliance has not been corrected, include: the anticipated time it is expected to continue; the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and any monitoring results if required by Central Valley Water Board staff.

3. Report Type 8 - In-Water Work and Diversions Water Quality Monitoring Report

- a. Report Purpose** - Notifies Central Valley Water Board staff of the start and completion of in-water work. Reports the sampling results during in-water work and during the entire duration of temporary surface water diversions.

- b. **When to Submit** – At least forty-eight (48) hours prior to the start of in-water work. Within three (3) working days following the completion of in-water work. Surface water monitoring reports to be submitted within two (2) weeks of initiation of in-water construction and every two weeks thereafter, and during the entire duration of temporary surface water diversions. Continue reporting in accordance with the approved water quality monitoring plan or as indicated in XIII.C.3.
- c. **Report Contents** - As required by the approved water quality monitoring plan or as indicated in XIII.C.3.

4. Report Type 9 - Modifications to Project Report

- a. **Report Purpose** - Notifies Central Valley Water Board staff if the Project, as described in the application materials, is altered in any way or by the imposition of subsequent permit conditions by any local, state or federal regulatory authority.
- b. **When to Submit** - If Project implementation as described in the application materials is altered in any way or by the imposition of subsequent permit conditions by any local, state or federal regulatory authority.
- c. **Report Contents** - A description and location of any alterations to Project implementation. Identification of any Project modifications that will interfere with the Permittee's compliance with the Order.

5. Report Type 10 - Transfer of Property Ownership Report

- a. **Report Purpose** - Notifies Central Valley Water Board staff of change in ownership of the Project or Permittee-responsible mitigation area.
- b. **When to Submit** - At least 10 days prior to the transfer of ownership.
- c. **Report Contents** -
 - i. A statement that the Permittee has provided the purchaser with a copy of this Order and that the purchaser understands and accepts:
 - 1) the Order's requirements and the obligation to implement them or be subject to administrative and/or civil liability for failure to do so; and
 - 2) responsibility for compliance with any long-term BMP maintenance plan requirements in this Order. Best Management Practices (BMPs) is a term used to describe a type of water pollution or environmental control
 - ii. A statement that the Permittee has informed the purchaser to submit a written request to the Central Valley Water Board to be named as the permittee in a revised order.

6. Report Type 11 - Transfer of Long-Term BMP Maintenance Report

- a. Report Purpose** - Notifies Central Valley Water Board staff of transfer of long-term BMP maintenance responsibility.
- b. When to Submit** - At least 10 days prior to the transfer of BMP maintenance responsibility.
- c. Report Contents** - A copy of the legal document transferring maintenance responsibility of post-construction BMPs.

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SIGNATORY REQUIREMENTS

All Documents submitted in compliance with this Order shall meet the following signatory requirements:

- A.** All applications, reports, or information submitted to the Central Valley Water Quality Control Board (Central Valley Water Board) must be signed and certified as follows:
 - 1.** For a corporation, by a responsible corporate officer of at least the level of vice-president.
 - 2.** For a partnership or sole proprietorship, by a general partner or proprietor, respectively.
 - 3.** For a municipality, or a state, federal, or other public agency, by either a principal executive officer or ranking elected official.

- B.** A duly authorized representative of a person designated in items A.1 through A.3 above may sign documents if:
 - 1.** The authorization is made in writing by a person described in items A.1 through A.3 above.
 - 2.** The authorization specifies either an individual or position having responsibility for the overall operation of the regulated activity.
 - 3.** The written authorization is submitted to the Central Valley Water Board Staff Contact prior to submitting any documents listed in item A above.

- C.** Any person signing a document under this section shall make the following certification:

“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”

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CERTIFICATION DEVIATION PROCEDURES

I. Introduction

These procedures are put into place to preclude the need for Order amendments for minor changes in the Project routing or location. Minor changes or modifications in project activities are often required by the Permittee following start of construction. These deviations may potentially increase or decrease impacts to waters of the state. In such cases, a Certification Deviation, as defined in Section XIII.L of the Order, may be requested by the Permittee as set forth below:

II. Process Steps

- A. Who may apply:** The Permittee or the Permittee's duly authorized representative or agent (hereinafter, "Permittee") for this Order.
- B. How to apply:** By letter or email to the 401 staff designated as the contact for this Order.
- C. Certification Deviation Request:** The Permittee will request verification from the Central Valley Water Board staff that the project change qualifies as a Certification Deviation, as opposed to requiring an amendment to the Order. The request should:
1. Describe the Project change or modification:
 - a. Proposed activity description and purpose;
 - b. Why the proposed activity is considered minor in terms of impacts to waters of the state;
 - c. How the Project activity is currently addressed in the Order; and
 - d. Why a Certification Deviation is necessary for the Project.
 2. Describe location (latitude/longitude coordinates), the date(s) it will occur, as well as associated impact information (i.e., temporary or permanent, federal or non-federal jurisdiction, water body name/type, estimated impact area, etc.) and minimization measures to be implemented.
 3. Provide all updated environmental survey information for the new impact area.
 4. Provide a map that includes the activity boundaries with photos of the site.
 5. Provide verification of any mitigation needed according to the Order conditions.
 6. Provide verification from the CEQA Lead Agency that the proposed changes or modifications do not trigger the need for a subsequent environmental document, an addendum to the environmental document, or a supplemental EIR. (Cal. Code Regs., tit. 14, §§ 15162-15164.)

D. Post-Discharge Certification Deviation Reporting:

1. Within 30 calendar days of completing the approved Certification Deviation activity, the Permittee will provide a post-discharge activity report that includes the following information:
 - a. Activity description and purpose;
 - b. Activity location, start date, and completion date;
 - c. Erosion control and pollution prevention measures applied;
 - d. The net change in impact area by water body type(s) in acres, linear feet and cubic yards;
 - e. Mitigation plan, if applicable; and
 - f. Map of activity location and boundaries; post-construction photos.

E. Annual Summary Deviation Report:

1. Until a Notice of Completion of Discharges Letter or Notice of Project Complete Letter is issued, include in the Annual Project Report (see Construction Notification and Reporting attachment) a compilation of all Certification Deviation activities through the reporting period with the following information:
 - a. Site name(s);
 - b. Date(s) of Certification Deviation approval;
 - c. Location(s) of authorized activities;
 - d. Impact area(s) by water body type prior to activity in acres, linear feet and cubic yards, as originally authorized in the Order;
 - e. Actual impact area(s) by water body type in, acres, linear feet and cubic yards, due to Certification Deviation activity(ies);
 - f. The net change in impact area by water body type(s) in acres, linear feet and cubic yards; and
 - g. Mitigation to be provided (approved mitigation ratio and amount).

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Attachment G - Compliance with Code of Federal Regulations, title 40, section 121.7, subdivision (d)

The purpose of this Attachment is to comply with Code of Federal Regulations, title 40, section 121.7, subdivision (d), which requires all certification conditions to provide an explanation of why the condition is necessary to assure that any discharge authorized under the certification will comply with water quality requirements and a citation to federal, state, or tribal law that authorizes the condition. This Attachment uses the same organizational structure as Section XIII of the Order, and the statements below correspond with the conditions set forth in Section XIII. The other Order Sections are not “conditions” as used in Code of Federal Regulations, title 40, section 121.7.

I. General Justification for Section XIV Conditions

Pursuant to Clean Water Act section 401 and California Code of Regulations, title 23, section 3859, subdivision (a), the Central Valley Water Board, when issuing water quality certifications, may set forth conditions to ensure compliance with applicable water quality standards and other appropriate requirements of state law. Under California Water Code section 13160, the State Water Resources Control Board is authorized to issue water quality certifications under the Clean Water Act and has delegated this authority to the executive officers of the regional water quality controls boards for projects within the executive officer’s region of jurisdiction. (California Code of Regulations, title 23, section 3838.)

The conditions within the Order are generally required pursuant to the Central Valley Water Board’s Water Quality Control Plan for the Tulare Lake Basin, Third Edition, May 2018 (Basin Plan), which was adopted and is periodically revised pursuant to Water Code section 13240. The Basin Plan includes water quality standards, which consist of existing and potential beneficial uses of waters of the state, water quality objectives to protect those uses, and the state and federal antidegradation policies. For instance, the Basin Plan includes water quality objectives for chemical constituents, oil and grease, pH, sediment, suspended material, toxicity and turbidity, which ensure protection of beneficial uses.

The State Water Board’s Antidegradation Policy, “Statement of Policy with Respect to Maintaining High Quality Waters in California,” Resolution No. 68-16, requires that the quality of existing high-quality water be maintained unless any change will be consistent with the maximum benefit to the people of the state, will not unreasonably affect present or anticipated future beneficial uses of such water, and will not result in water quality less than that prescribed in water quality control plans or policies. The Antidegradation Policy further requires best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the state will be maintained. The Basin Plan incorporates this Policy. The state Antidegradation Policy incorporates the federal Antidegradation Policy (40 C.F.R. section 131.12

(a)(1)), which requires "[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected."

The State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Dredge or Fill Procedures), adopted pursuant to Water Code sections 13140 and 13170, authorize approval of dredge or fill projects only if the demonstrations set forth in Section IV.B.1 of the Dredge or Fill Procedures have been satisfied.

California Code of Regulations, title 23, sections 3830 et seq. set forth state regulations pertaining to water quality certifications. In particular, section 3856 sets forth information that must be included in water quality certification requests, and section 3860 sets forth standard conditions that shall be included in all water quality certification actions.

Finally, Water Code sections 13267 and 13383 authorize the regional and state boards to establish monitoring and reporting requirements for persons discharging or proposing to discharge waste.

II. Specific Justification for Section XIII Conditions

A. Authorization

Authorization under the Order is granted based on the application submitted. The Permittee is required to detail the scope of project impacts in a complete application pursuant to California Code of Regulations, title 23, section 3856, subdivision (h). Pursuant to Water Code section 13260, subdivision (c), each person discharging waste, or proposing to discharge waste shall file a report of waste discharge relative to any material change or proposed change in the character, location, or volume of the discharge. Pursuant to Water Code section 13264, subdivision (a), the Permittee is prohibited from initiating the discharge of new wastes, or making material changes to the character, volume, and timing of waste discharges authorized herein without filing a report required by Water Code section 13260 or its equivalent for certification actions under California Code of Regulations, title 23, section 3856.

B. Reporting and Notification Requirements

1. Project Reporting

2. Project Status Notifications

The reporting and notification conditions under Sections B.1 and B.2 are required to provide the Central Valley Water Board necessary project information and oversight to ensure project discharges are complying with applicable Basin Plan requirements. These monitoring and reporting requirements are consistent with the Central Valley Water Board's authority to investigate the quality of any waters of the state and require necessary monitoring and reporting pursuant to Water Code sections 13267 and 13383.

Water Code section 13267 authorizes the regional boards to require any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste to provide technical or monitoring program reports required by the regional board. Water Code section 13383 authorizes the regional boards to establish monitoring, inspection, entry, reporting, and other recordkeeping requirements, as authorized by Water Code section 13160, for any person who discharges, or proposes to discharge, to navigable waters.

3. Conditional Notifications and Reports

a. Accidental Discharges of Hazardous Materials

Conditions under Section B.3.a related to notification and reporting requirements in the event of an accidental discharge of hazardous materials are required pursuant to section 13271 of the Water Code, which requires immediate notification of the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the state toxic disaster contingency plan adopted pursuant to Article 3.7 (commencing with Section 8574.16) of Chapter 7 of Division 1 of Title 2 of the Government Code. "Hazardous materials" is defined under Health and Safety Code section 25501. These reports related to accidental discharges ensure that corrective actions, if any, that are necessary to minimize the impact or clean up such discharges can be taken as soon as possible.

b. Violation of Compliance with Water Quality Standards

c. In-Water work and Diversions

Conditions under Section B.3.b and B.3.c related to monitoring and reporting on water quality standard compliance and in-water work and diversions are required to provide the Central Valley Water Board necessary project information and oversight to ensure project discharges are complying with applicable water quality objectives under the Basin Plan. These monitoring and reporting requirements are consistent with the Central Valley Water Board's authority to investigate the quality of any waters of the state and require necessary monitoring and reporting pursuant to Water Code sections 13267 and 13383. Water Code section 13267 authorizes the regional boards to require any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste to provide technical or monitoring program reports required by the regional board. Water Code section 13383 authorizes the regional boards to establish monitoring, inspection, entry, reporting, and other recordkeeping requirements, as

authorized by Water Code section 13160, for any person who discharges, or proposes to discharge, to navigable waters.

d. Modifications to Project

Authorization under this Order is granted based on the application and supporting information submitted. Conditions under Section B.3.d are necessary to ensure that if there are modifications to the project, that the Order requirements remain applicable. The Permittee is required to detail the scope of project impacts in a complete application pursuant to California Code of Regulations, title 23, section 3856, subdivision (h). Pursuant to Water Code section 13260, subdivision (c), each person discharging waste, or proposing to discharge waste shall file a report of waste discharge relative to any material change or proposed change in the character, location, or volume of the discharge. Pursuant to Water Code section 13264, subdivision (a), the Permittee is prohibited from initiating the discharge of new wastes, or making material changes to the character, volume, and timing of waste discharges authorized herein without filing a report required by Water Code section 13260 or its equivalent for certification actions under California Code of Regulations, title 23, section 3856.

e. Transfer of Property Ownership

f. Transfer of Long-Term BMP Maintenance

Authorization under this Order is granted based on the application information submitted, including identification of the legally responsible party. Conditions under Sections B.3.e and B.3.f are necessary to confirm whether the new owner wishes to assume legal responsibility for compliance with this Order. If not, the original discharger remains responsible for compliance with this Order. Pursuant to Water Code section 13260, subdivision (c), each person discharging waste, or proposing to discharge waste shall file a report of waste discharge relative to any material change or proposed change in the character, location, or volume of the discharge. Pursuant to Water Code section 13264, subdivision (a), the Permittee is prohibited from initiating the discharge of new wastes, or making material changes to the character, volume, and timing of waste discharges authorized herein without filing a report required by Water Code section 13260 or its equivalent for certification actions under California Code of Regulations, title 23, section 3856.

C. Water Quality Monitoring

Conditions under Section C related to water quality monitoring are required to confirm that best management practices required under this Order are sufficient

to protect beneficial uses and to comply with water quality objectives to protect those uses under the Basin Plan. Applicable water quality objectives and beneficial uses are identified in the Order. These monitoring requirements are consistent with the Central Valley Water Board's authority to investigate the quality of any waters of the state and require necessary monitoring and reporting pursuant to Water Code sections 13267 and 13383. Water Code section 13267 authorizes the regional boards to require any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste to provide technical or monitoring program reports required by the regional board. Water Code section 13383 authorizes the regional boards to establish monitoring, inspection, entry, reporting, and other recordkeeping requirements, as authorized by Water Code section 13160, for any person who discharges, or proposes to discharge, to navigable waters.

D. Standard

1. This Order is subject to modification or revocation

This is a standard condition that "shall be included as conditions of all water quality certification actions" pursuant to California Code of Regulations, title 23, section 3860(a). This condition places the permittee on notice that the certification action may be modified or revoked following administrative or judicial review.

2. This Order is not intended and shall not be construed to apply to any activity involving a hydroelectric facility

This is a standard condition that "shall be included as conditions of all water quality certification actions" pursuant to California Code of Regulations, title 23, section 3860(b). This condition clarifies the scope of the certification's application.

3. This Order is conditioned upon total payment of any fee

This is a standard condition that "shall be included as conditions of all water quality certification actions" pursuant to California Code of Regulations, title 23, section 3860(c). This fee requirement condition is also required pursuant to California Code of Regulations, section 3833(b).

E. General Compliance

1. Failure to comply with any condition of this Order

The condition under Section E.1 places the Permittee on notice of any violations of Order requirements. Pursuant to Water Code section 13385, subdivision (a)(2), a person who violates any water quality certification issued pursuant to Water Code section 13160 shall be liable civilly.

2. Permitted actions must not cause a violation of any applicable water

quality standards

Conditions under Section E.2 related to compliance with water quality objectives and designated beneficial uses are required pursuant to the Central Valley Water Board's Basin Plan. The Basin Plan's water quality standards consist of existing and potential beneficial uses of waters of the state, water quality objectives to protect those uses, and the state and federal antidegradation policies. The Antidegradation Policy requires that the quality of existing high-quality water be maintained unless any change will be consistent with the maximum benefit to the people of the state, will not unreasonably affect present or anticipated future beneficial uses of such water, and will not result in water quality less than that prescribed in water quality control plans or policies. The Antidegradation Policy further requires best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the state will be maintained. Applicable beneficial uses and water quality objectives to protect those uses include the Chemical Constituents (Basin Plan, Section 3.1.4, Oil and Grease (Basin Plan, Section 3.1.8), pH (Basin Plan, Section 3.1.9), Sediment (Basin Plan, 3.1.13), Suspended Material (3.1.15), Toxicity (Basin Plan, 3.1.18), and Turbidity (Basin Plan, Section 3.1.19) water quality objectives.

3. In response to a suspected violation of any condition of this Order, the Central Valley Water Board may require

Conditions under Section E.3 related to monitoring and reporting are required to provide the Central Valley Water Board necessary project information and oversight to ensure project discharges are complying with applicable Basin Plan requirements. These monitoring and reporting requirements are consistent with the Central Valley Water Board's authority to investigate the quality of any waters of the state and require necessary monitoring and reporting pursuant to Water Code sections 13267 and 13383. Water Code section 13267 authorizes the regional boards to require any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste to provide technical or monitoring program reports required by the regional board. Technical supports submitted pursuant to Water Code section 13267 are required to be submitted under penalty of perjury. Water Code section 13383 authorizes the regional boards to establish monitoring, inspection, entry, reporting, and other recordkeeping requirements, as authorized by Water Code section 13160, for any person who discharges, or proposes to discharge, to navigable waters.

4. The Permittee must, at all times, fully comply with engineering plans, specifications, and technical reports

Authorization under the Order is granted based on the application and supporting information submitted. The Permittee is required to detail the

project description in a complete application pursuant to California Code of Regulations, title 23, section 3856, subdivision (h). Pursuant to Water Code section 13260, subdivision (c), each person discharging waste, or proposing to discharge waste shall file a report of waste discharge relative to any material change or proposed change in the character, location, or volume of the discharge. Pursuant to Water Code section 13264, subdivision (a), the Permittee is prohibited from initiating the discharge of new wastes, or making material changes to the character, volume, and timing of waste discharges authorized herein without filing a report required by Water Code section 13260 or its equivalent for certification actions under California Code of Regulations, title 23, section 3856. Finally, compliance with conditions of the Order ensures that the Project will comply with all water quality standards and other appropriate requirements as detailed herein. (California Code of Regulations, title 23, section 3859, subdivision (a).)

5. This Order and all of its conditions herein continue to have full force and effect

This condition ensures continued compliance with applicable water quality standards and other appropriate requirements of state law. Notwithstanding any determinations by the U.S. Army Corps or other federal agency pursuant to 40 C.F.R. section 121.9, the Permittee must comply with the entirety of this certification because, pursuant to State Water Board Water Quality Order No. 2003-0017-DWQ, this Order also serves as Waste Discharge Requirements pursuant to the Porter-Cologne Water Quality Control Act.

6. The Permittee shall adhere to all requirements in the mitigation monitoring and reporting program

This condition ensures mitigation measures required to lessen the significance of impacts to water quality identified pursuant to California Environmental Quality Act review are implemented and enforceable. Pursuant to California Code of Regulations, title 14, section 15097, subdivision (a), a public agency shall adopt a program for monitoring and reporting on mitigation measures imposed to mitigate or avoid significant environmental effects to ensure implementation.

7. Construction General Permit Requirement

Permittees are required to obtain coverage under National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ; NPDES No. CAS000002), as amended, for discharges to surface waters comprised of storm water associated with construction activity, including, but not limited to, demolition, clearing, grading, excavation, and other land disturbance activities of one or more acres, 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. This is required pursuant to Clean Water Act sections 301 and 402 which prohibit certain discharges of storm water containing pollutants except in compliance with an NPDES permit. (33 U.S.C. section 1311, and 1342(p); 40 C.F.R. parts 122, 123, and 124.)

F. Administrative

1. Signatory requirements for all document submittals

The condition for signatory requirements is required pursuant to Water Code section 13267, which requires any person discharging waste that could affect the quality of waters to provide to the Central Valley Water Board, under penalty of perjury, any technical or monitoring program reports as required by the Central Valley Water Board. The signatory requirements are consistent with 40 C.F.R. section 122.22.

2. This Order does not authorize any act which results in the taking of a threatened, endangered, or candidate species

Pursuant to the California Endangered Species Act (Fish & Wildlife Code, sections 2050 et seq.) and federal Endangered Species Act (16 U.S.C. sections 1531 et set.), the Order does not authorize any act which results in the taking of a threatened, endangered, or candidate species. In the event a Permittee requires authorization from the state or federal authorities, California Code of Regulations, title 23, section 3856(e), requires that copies be provided to the Central Valley Water Board of “any final and signed federal, state, and local licenses, permits, and agreements (or copies of the draft documents, if not finalized) that will be required for any construction, operation, maintenance, or other actions associated with the activity. If no final or draft document is available, a list of all remaining agency regulatory approvals being sought shall be included.”

3. The Permittee shall grant Central Valley Water Board staff

The condition related to site access requirements is authorized pursuant to the Central Valley Water Board’s authority to investigate the quality of any waters of the state within its region under Water Code section 13267 and 13383. Water Code section 13267, subdivision (c) provides that “the regional board may inspect the facilities of any person to ascertain whether the purposes of this division are being met and waste discharge requirements are being complied with.” Water Code section 13383 authorizes the regional boards to establish monitoring, inspection, entry, reporting, and other recordkeeping requirements, as authorized by Water Code section 13160, for any person who discharges, or proposes to discharge, to navigable waters.

4. A copy of this Order shall be provided to any consultants, contractors, and subcontractors

This Condition ensures any agent of the Permittee is aware of Order requirements. Such conditions within the Order are necessary to ensure that all activities will comply with applicable water quality standards and other appropriate requirements (33 U.S.C. section 1341; California Code of Regulations, title 23, section 3859, subdivision (a)) and cannot be adhered to if the Permittees' agents are unaware of applicable requirements. These conditions are necessary to ensure compliance with applicable water quality objectives and protection of beneficial uses found in the Basin Plan, adopted pursuant to Water Code section 13240, and detailed in the Order.

5. A copy of this Order must be available at the Project site(s) during construction . . .

This Condition ensures any agent of the Permittee is aware of Order requirements. Such conditions within the Order are necessary to ensure that all activities will comply with applicable water quality standards and other appropriate requirements (33 U.S.C. section 1341; California Code of Regulations, title 23, section 3859, subdivision (a)) and cannot be adhered to if the Permittees' agents are unaware of applicable requirements. These conditions are necessary to ensure compliance with applicable water quality objectives and protection of beneficial uses found in the Basin Plan, adopted pursuant to Water Code section 13240, and detailed in the Order.

6. Lake or Streambed Alteration Agreement

This condition is required pursuant to California Code of Regulations, title 23, section 3856, subdivision (e), which requires that copies be provided to the Central Valley Water Board of "any final and signed federal, state, and local licenses, permits, and agreements (or copies of the draft documents, if not finalized) that will be required for any construction, operation, maintenance, or other actions associated with the activity. If no final or draft document is available, a list of all remaining agency regulatory approvals being sought shall be included."

G. Construction

1. Dewatering

Conditions related to dewatering and diversions ensure protection of beneficial uses during construction activities. Work in waters of the state and temporary diversions must not cause exceedances of water quality objectives; accordingly, these conditions require implementation of best practicable treatments and controls to prevent pollution and nuisance, and to maintain water quality consistent with the Basin Plan and Antidegradation Policy. Further and consistent with the Dredge or Fill Procedures, section IV.A.2.c, water quality monitoring plans are required for any in-water work. Finally, dewatering activities may require a Clean Water Act section 402

permit or separate Waste Discharge Requirements under Water Code section 13263 for dewatering activities that result in discharges to land.

Conditions related to water rights permits are required pursuant to California Code of Regs, title 23, section 3856(e), which requires complete copies of any final and signed federal, state, or local licenses, permits, and agreements (or copies of drafts if not finalized) that will be required for any construction, operation, maintenance, or other actions associated with the activity.

Conditions related to monitoring and reporting are required to provide the Central Valley Water Board necessary project information and oversight to ensure project discharges are complying with applicable Basin Plan requirements. These monitoring and reporting requirements are consistent with the Central Valley Water Board's authority to investigate the quality of any waters of the state and require necessary monitoring and reporting pursuant to Water Code sections 13267 and 13383. Water Code section 13267 authorizes the regional boards to require any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste to provide technical or monitoring program reports required by the regional board. Water Code section 13383 authorizes the regional boards to establish monitoring, inspection, entry, reporting, and other recordkeeping requirements, as authorized by Water Code section 13160, for any person who discharges, or proposes to discharge, to navigable waters.

2. Directional Drilling

The conditions related to directional drilling are necessary given the risks posed by an inadvertent return of drilling fluids to waters. Given the likely toxicity of the discharge and the proximity to the impacted water, significant adverse impacts to waters shall be expected and remediation shall be difficult. This condition is required to assure that the discharge from the Project will comply with water quality objectives established for surface waters, including for chemical constituents and toxicity. (Basin Plan, Sections 3.1.4 & 3.1.18.) Horizontal directional drilling, and similar drilling operations, may result in the unintentional discharge of drilling fluids to waters of the state. These conditions are necessary to ensure that 1) the discharge shall not adversely affect the beneficial uses of the receiving water or cause a condition of nuisance; 2) the discharge shall comply with all applicable water quality objectives; and 3) treatment and control of the discharge shall be implemented to assure that pollution and nuisance will not occur and the highest water quality is maintained. (Dredge or Fill Procedures, Section IV.B.1.)

3. Dredging

Conditions relating to dredging activities are necessary ensure protection of beneficial uses and water quality during dredging operations and placement of dredged materials. Authorized placement of materials ensures that no adverse impacts to ground or surface water will occur. This condition is required to assure that dredging operations will comply with water quality objectives established for surface waters, including turbidity and the reintroduction and resuspension of harmful metal or organic materials. (Basin Plan, Sections 3.1.19, 3.1.15.) These conditions are necessary to ensure that 1) the discharge shall not adversely affect the beneficial uses of the receiving water or cause a condition of nuisance; 2) the discharge shall comply with all applicable water quality objectives; and 3) treatment and control of the discharge shall be implemented to assure that pollution and nuisance will not occur and the highest water quality is maintained. (Dredge or Fill Procedures, Section IV.B.1.)

4. Fugitive Dust

This condition is required to assure that the discharge from the Project will comply with water quality objectives established for surface waters, including for chemical constituents and toxicity. (Basin Plan, Sections 3.1.4 & 3.1.18.) Chemicals used in dust abatement activities can result in a discharge of chemical additives and treated waters to surface waters of the state. Therefore, dust abatement activities shall be conducted so that sediment or dust abatement chemicals are not discharged into waters of the state and do not adversely affect beneficial uses. (Basin Plan, Section 2.1; Dredge or Fill Procedures, Section IV.B.1.)

5. Good Site Management “Housekeeping”

Conditions related to site management require best practices to prevent, minimize, and/or clean up potential construction spills, including from construction equipment. For instance, fuels and lubricants associated with the use of mechanized equipment have the potential to result in toxic discharges to waters of the state in violation of water quality standards, including the toxicity, oil and grease, and floating material water quality objectives. (Basin Plan, Sections 3.1.18, 3.1.8, 3.1.7.) This condition is also required pursuant to Water Code section 13264, which prohibits any discharge that is not specifically authorized in this Order. Among other requirements, Section IV.B.1 of the Dredge or Fill Procedures requires that Project impacts will not cause or contribute to a degradation of waters; or violate water quality standards.

6. Hazardous Materials

Conditions related to toxic and hazardous materials are necessary to assure that discharges comply with applicable water quality objectives under the Basin Plan, adopted under section 13240 of the Water Code, including the

narrative toxicity and chemical constituents water quality objectives. (Basin Plan, Sections 3.1.18, 3.1.4.) Further, conditions related to concrete/cement are required pursuant to the Basin Plan's pH water quality objective. (Basin Plan, Sections 3.1.9)

7. Invasive Species and Soil Borne Pathogens

Conditions related to invasive species and soil borne pathogens are required to ensure that discharges will not violate any water quality objectives under the Basin Plan, adopted under Water Code section 13240 of the Water Code. Invasive species and soil borne pathogens adversely affect beneficial uses designated in the Basin Plan, such as rare, threatened, or endangered species; wildlife habitat; and preservation of biological habitats of special significance. (See Basin Plan, Section 2) Among other requirements, Section IV.B.1 of the Dredge or Fill Procedures requires that Project impacts will not contribute to a net loss of the overall abundance, diversity, and condition of aquatic resources; cause or contribute to a degradation of waters; or violate water quality standards.

8. Post-Construction Storm Water Management

Conditions related to post-construction stormwater management are required to comply with the Basin Plan and to assure that the discharge complies with applicable water quality objectives. Post-rain erosion and sedimentation problems can contribute to significant degradation of the waters of the state; therefore, it is necessary to take corrective action to eliminate such discharges in order to avoid or minimize such degradation. Implementation of control measures and best management practices described in the conditions will assure compliance with water quality objectives including for floating material, sediment, turbidity, temperature, suspended material, and settleable material. (Basin Plan, Sections 3.1.7, 3.1.13, 3.1.19, 3.1.17, 3.1.15, 3.1.14.) Among other requirements, Section IV.B.1 of the Dredge or Fill Procedures requires that Project impacts will not contribute to a net loss of the overall abundance, diversity, and condition of aquatic resources; cause or contribute to a degradation of waters; or violate water quality standards.

9. Roads

These conditions are required to assure that discharges will comply with water quality standards within the Basin Plan. Specifically, activities associated with road maintenance have the potential to exceed water quality objectives for oil and grease, pH, sediment, settleable materials, temperature, and turbidity. (Basin Plan, Sections 3.1.8, 3.1.9, 3.1.13, 3.1.14, 3.1.17, 3.1.19.) Further, these conditions are required to assure that they do not result in adverse impacts related to hydromodification or create barriers to fish passage and spawning activities. Among other requirements, Section IV.B.1 of the Dredge or Fill Procedures requires that Project impacts will not

contribute to a net loss of the overall abundance, diversity, and condition of aquatic resources; cause or contribute to a degradation of waters; or violate water quality standards.

10. Sediment Control

Conditions related to erosion and sediment control design requirements are required to sustain fluvial geomorphic equilibrium. Improperly designed and installed BMPs result in excess sediment, which impairs surface waters, adversely affect beneficial uses, and results in exceedance of water quality objectives in the Basin Plan, including for sediment and turbidity. (Basin Plan, Sections 3.1.13 & 3.1.19.) Among other requirements, Section IV.B.1 of the Dredge or Fill Procedures requires that Project impacts will not contribute to a net loss of the overall abundance, diversity, and condition of aquatic resources; cause or contribute to a degradation of waters; or violate water quality standards.

11. Special Status Species

See F.2 above.

12. Stabilization/Erosion Control

Conditions related to erosion and sediment control design requirements are required to sustain fluvial geomorphic equilibrium. Improperly designed and installed BMPs result in excess sediment, which impairs surface waters, adversely affect beneficial uses, and results in exceedance of water quality objectives in the Basin Plan, including for sediment. (Basin Plan, Section 3.1.13.) Among other requirements, Section IV.B.1 of the Dredge or Fill Procedures requires that Project impacts will not contribute to a net loss of the overall abundance, diversity, and condition of aquatic resources; cause or contribute to a degradation of waters; or violate water quality standards.

13. Storm Water

Post-rain erosion and sedimentation problems can contribute to significant degradation of the waters of the state; therefore, it is necessary to take corrective action to eliminate such discharges in order to avoid or minimize such degradation. Implementation of control measures and best management practices described in the condition will assure compliance with water quality objectives including chemical constituents, floating material, sediment, turbidity, temperature, suspended material, and settleable material within the Basin Plan. (Basin Plan, Sections 3.1.4, 3.1.7, 3.1.13, 3.1.19, 3.1.17, 3.1.15, 3.1.14.) Among other requirements, Section IV.B.1 of the Dredge or Fill Procedures requires that Project impacts will not cause or contribute to a degradation of waters or violate water quality standards.

H. Site Specific – Not Applicable

I. Total Maximum Daily Load (TMDL) – Not Applicable

J. Mitigation for Temporary Impacts

The conditions under Section J require restoration of temporary impacts to waters of the state. Conditions in this section related to restoration and/or mitigation of temporary impacts are consistent with the Dredge or Fill Procedures, which requires “in all cases where temporary impacts are proposed, a draft restoration plan that outlines design, implementation, assessment, and maintenance for restoring areas of temporary impacts to pre-project conditions.” (Dredge or Fill Procedures section IV. A.2(d) & B.4.) Technical reporting and monitoring requirements under this condition are consistent with the Central Valley Water Board’s authority to investigate the quality of any waters of the state and require necessary reporting and monitoring pursuant to Water Code sections 13267 and 13383.

K. Compensatory Mitigation for Permanent Impacts – Not Applicable

L. Certification Deviation

- 1. Minor modifications of Project locations or predicted impacts**
- 2. A Project modification shall not be granted a Certification Deviation if it warrants or necessitates**

Authorization under the Order is granted based on the application and supporting information submitted. Among other requirements, the Permittee is required to detail the project description in a complete application pursuant to California Code of Regulations, title 23, section 3856, subdivision (h). Pursuant to Water Code section 13260, subdivision (c), each person discharging waste, or proposing to discharge waste shall file a report of waste discharge relative to any material change or proposed change in the character, location, or volume of the discharge. Pursuant to Water Code section 13264, subdivision (a), the Permittee is prohibited from initiating the discharge of new wastes, or making material changes to the character, volume, and timing of waste discharges authorized herein without filing a report required by Water Code section 13260 or its equivalent for certification actions under California Code of Regulations, title 23, section 3856. Project deviations may require additional or different Order conditions as authorized by law to ensure compliance with applicable water quality standards and other appropriate requirements (33 U.S.C. section 1341; California Code of Regulations, title 23, section 3859, subdivision (a)) and may result in impacts to water quality that require additional environmental review (California Code of Regulations, title 14, sections 15062-15063).

APPENDIX H - 404(b)(1) EVALUATION

404(b)(1) EVALUATION OF THE EFFECTS OF THE DISCHARGE OF DREDGED OR FILL MATERIALS INTO THE WATERS OF THE UNITED STATES
RICHARD L. SCHAFER DAM, TULE RIVER BASIN, CALIFORNIA;
TULE RIVER SPILLWAY ENLARGEMENT PROJECT
SPILLWAY RAISE

I. INTRODUCTION

The following is provided in accordance with Section 404(b)(1) of the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500) as amended by the Clean Water Act of 1977 (CWA) (Public Law 95-217, 33 U.S.C. § 1251 et seq.). Its intent is to succinctly state and evaluate information regarding the effects of discharge of dredge or fill material into the waters of the United States. As such, it is not meant to stand-alone and relies heavily upon information provided in the environmental document to which it is attached (Richard L. Schafer Dam, Tule River Basin, California; Tule River Spillway Enlargement Project, Environmental Assessment for the Spillway Raise [Phase 2]).

Section 230.10(a) of the 404(b)(1) guidelines state “an alternative is practicable if it is available and capable of being done after taking into consideration costs, existing technology, and logistics in light of overall project purposes.” Pursuant to the Section 404(b)(1) Guidelines (40 CFR 230), the least environmentally damaging practicable alternative (LEDPA) must be practicable in terms of technology, cost, and logistics in light of the overall project purpose, and produce the least environmental damage. Per 33 CFR 320-330, the proposed action must also not be contrary to the public interest. The Proposed Action is the LEDPA, and it is not contrary to the public interest. Impacts to aquatic and terrestrial habitat would be avoided where possible, minimized where avoidance is not possible, and compensated for when they occur.

Authority

Congress authorized an investigation on June 22, 1936, which recommended constructing Lake Success. Richard L. Schafer Dam (known as Success Dam until 2019) was authorized for construction by the Flood Control Act of 1944 (16 U.S.C. § 460d et seq.; 33 U.S.C. § 701 et seq.).

Authorization for the Tule River Basin Investigation, Richard L. Schafer Dam, Tule River Basin, California; Tule River Spillway Enlargement Project, Spillway Raise is provided by the Water Resources Development Act of 1999, Section 101(b)(4) (Public Law 106-53, 17 August 1999), which authorized the flood damage reduction and water supply project based on the recommendations of the final report of the Chief of Engineers. This activity is regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (33 U.S.C. § 1344).

Project Purpose

Flooding downstream of the Richard L. Shafer Dam can currently cause extensive damage to residences, agricultural land, and public facilities. Under operations of the existing dam, releases greater than 3,200 cubic feet per second (cfs) have caused damage to downstream agricultural areas. The downstream channel capacity ranges from 10,000 cfs through the city of Porterville to as little as 3,200 cfs west of the city. Agricultural lands west of the city are where property damage and danger to residents have historically occurred, given a release greater than 3,200 cfs (USACE 2011). The existing dam controls downstream flows by making releases through its outlet works. When the reservoir elevation exceeds the emergency spillway crest elevation (currently 655.1 feet, NAVD88), uncontrolled flows are released into the downstream channel. The existing spillway crest elevation corresponds to a flood event with a 2.2% annual chance exceedance (ACE) probability (approximately, the “46-year flood”). Thus, the current emergency spillway is undersized and not capable of passing the probable maximum flood (PMF) within present freeboard requirements (freeboard is the difference in elevation between the crest of the dam and the normal reservoir water level as fixed by design requirements). To correct for this, the existing emergency spillway would be widened and raised 10 feet as recommended by USACE Dam Safety Assurance Program (USACE 2011). This would enable the lake to safely store water from a flood event with a 1% ACE probability (the “100-year flood”). This would reduce the 100-year flood flow through the spillway from approximately 4,700 to 0 cfs, which would eliminate downstream channel capacity issues during such an event.

II. SELECTION OF A PREFERRED ALTERNATIVE

Chapter 4 of the Feasibility Report and Chapter 2 of the Final Environmental Impact Statement/Environmental Impact Report (FEIS/FEIR) both describe the alternative formulation that USACE used to determine the alternatives (USACE 1999a; USACE1999b). Planning objectives and formulation criteria were identified and used to develop project alternatives. The alternatives that USACE considered were grouped into the following categories: (1) nonstructural, (2) groundwater recharge/spreading, and (3) construction. Additional refinements to the proposed alternative were addressed in the Environmental Assessment for the Road Realignment and Right Spillway Abutment Cut (Phase 1) and the accompanying Phase 2 Environmental Assessment.

Nonstructural

A brief summary of nonstructural alternatives is summarized below. Some alternatives that were not considered in detail in the FEIS/FEIR were eliminated since they were not viable options and did not reduce flood risk to downstream communities.

Relocation of Structures. The relocation of existing structures from the 100-year flood plain would be extremely costly due to the large number and types of structures involved. This plan would require relocation of over 1,470 structures including commercial, industrial, and residential units valued at over \$520 million (about \$824 million in 2020 dollars). It is likely that this alternative would not be acceptable to the affected public because of the severe social and

economic disruption. The 100-year flood plain includes a considerable portion of downtown Porterville. Relocation was not considered an effective alternative and was not studied further.

Flood Proofing. In some cases, individual existing structures could be flood proofed by installing moveable flood barriers to cover building openings or by raising the structure foundation. Flood proofing would reduce flood damages to structures and contents; however, flood proofing would not eliminate flooding of walkways and roads and damages to outside facilities. Since it was only economically feasible to flood proof a limited number of structures, this alternative was not considered an effective plan for the study area to alleviate widespread flood damages. Furthermore, the economic inventory for this study indicated that a high percentage of structures in the study area are constructed on slab foundations. Due to this information, a plan to raise most of the existing structures in the area was not considered economically feasible.

Groundwater Recharge/Spreading

Extensive groundwater recharge sites are already in existence in the study area. Potential new spreading areas downstream are limited in the area since most of the land is developed or farmed, including many acres with high initial investments, such as citrus orchards and nut groves. Numerous large spreading basins and new and improved channels to convey flood waters to the spreading basins would be required to significantly improve the level of flood protection to the city of Porterville. Therefore, this alternative was not seen as a viable option.

Construction

Several construction alternatives were considered but were shortly dropped from consideration due to the environmental effects or low benefit-to-cost ratios. These alternatives included levee construction and channel modifications downstream of Lake Success, building levees along the lower Tule River at Springville or Porterville, building diversion canals, pumping water into the Friant-Kern Canal, building a new reservoir upstream of Lake Success, and removing sediment by dredging Lake Success.

The final main alternatives included enlarging Lake Success by raising the spillway 4 feet, 10 feet, or 20 feet. Raising the spillway by 4 feet or 20 feet had benefit-to-cost ratios of less than one. The benefit cost ratio was 0.909 for the 4-foot raise and 0.611 for the 20-foot raise. Accordingly, these alternatives were dropped from further consideration based upon the national economic development analysis. Under this concept, the Federal government recommends water resource plans which maximize economic benefits to the government. In addition, the 4-foot raise did not provide 100-year flood protection to Porterville. Raising the spillway 10 feet had the highest benefit-to-cost ratio of 1.2 and was selected as the preferred alternative. This alternative avoided the environmental effects of raising the spillway 20 feet, while still providing an adequate level of flood protection.

High-water Boat Ramp

Alternative locations for a high-water boat ramp in the Rocky Hill Recreation Area were assessed. The existing boat ramp could not be extended since it was not practicable due to upgrade slope steepness. Boat ramps require a 12 to 15 percent slope. Two locations were identified with approximate appropriate slope. One alternative location was near the existing boat ramp, while the other alternative was further north. The southern location was not selected since it required sixteen times more cut and fill within existing aquatic lake habitat/jurisdictional Waters of the United States (WOTUS) to achieve the necessary slope requirements than the northern location.

Transmission Tower Relocation

The Vincent 220 kV Transmission Line crosses over the western edge of Lake Success. This historic transmission line is part of the Big Creek Hydroelectric Project, which provides electricity to Los Angeles. The line runs almost 200 miles from Big Creek in Fresno County to the Vincent substation in Los Angeles County. Southern California Edison (SCE) has been updating segments of the transmission line for the past 15 years as part of a series of transmission system improvements. The timing of the work is being influenced by the proposed 10-foot increase in gross pool elevation from the spillway raise. Therefore, the effects of the SCE transmission line project are analyzed in this 404(b)(1) evaluation and the accompanying Environmental Assessment.

Several transmission route alternatives were considered during development of SCE's proposed project. SCE selected the proposed transmission project (described below) because it met their objectives while resulting in the fewest potential environmental impacts. SCE fully analyzed an alternative project (Berm Alternative). The Berm Alternative would follow the same route as the proposed transmission project. However, the Berm Alternative would include construction of a berm along the proposed transmission structures within SCE's right-of-way. The Berm Alternative would meet the project objectives by placing the transmission line structures completely out of the water, allowing access year-round, and preventing direct contact with the structures; however, the Berm Alternative would have greater environmental impacts and financial cost. Specifically, the Berm Alternative would have estimated emissions exceeding local air quality thresholds and 2.18 acres of permanent impacts to aquatic lake habitat/WOTUS. In comparison, the proposed transmission project would not result in a net permanent loss of aquatic lake habitat/WOTUS. Therefore, SCE did not select the Berm Alternative.

III. PROJECT DESCRIPTION

USACE and the non-federal sponsor, the Lower Tule River Irrigation District (LTRID), are proposing to construct a 10 foot-high concrete ogee weir across the emergency spillway at Richard L. Shafer Dam, which would raise Lake Success' gross pool elevation from 655.1 feet to 665.1 feet NAVD88 (652.5 feet and 662.5 feet NGVD29, respectively). The gross pool elevation

is reached when the water level in the reservoir is at the crest of the spillway and generally represents the elevation where all flood storage in the reservoir is filled (USACE 2016). Due to the increased gross pool elevation, land or flowage easements would be acquired around the lake by LTRID. The California Highway 190 bridge that passes over the lake would be armored with additional rock revetment and rock slope protection would be added to Frazier Dike. Several existing structures and supporting utilities at both the Rocky Hill and Tule Recreation Areas would need to be relocated or floodproofed. This includes flood-proofing restrooms at the Tule and Rocky Hill recreation areas, constructing a high-water boat ramp and enlarging parking capacity at Rocky Hill Recreation, protecting in place the Tule Recreation Area well and storage tank with an earthen berm, and relocating the Rocky Hill Recreation Area storage tank, well, and metal shed to higher ground. Simultaneous with Phase 2 construction and conforming to the requirements of USACE Engineering Regulation 1110-2-4401 (30 May 1997), SCE will independently replace fifteen (15) existing lattice steel transmission towers with fourteen (14) new higher H-frame hybrid structures and approximately 11,800 feet of transmission lines that cross over the western edge of Lake Success to comply with the California Public Utilities Commission General Order No. 95, dated January 2020. SCE's construction was anticipated in the Project's environmental decision documents. Approximately 36 temporary "shoo-fly" poles would be installed to facilitate transferring the transmission lines from the old towers to the new structures. This work would occur after the ogee weir construction is complete when lake levels are low to avoid in-water work. The minimal amount of soil disturbed during replacement of the transmission towers would be hydroseeded with a native seed mix. The new towers would be spaced to avoid construction work in the seasonal wetlands that form in some parts of the dry lakebed.

Location

The Richard L. Schafer Dam and Lake Success reservoir are located on the main branch of the Tule River about 6 miles east of Porterville in Tulare County, California, within the foothills of the Sierra Nevada, 50 miles north of Bakersfield and 60 miles southeast of Fresno. The Tule River drains about 390 square miles into Lake Success. It then flows from the reservoir through Porterville and continues for 25 miles through agricultural areas before being completely diverted into irrigation canals.

Material Required for Construction

Table 1 denotes the total estimated quantities and details of material needed to construct the 10-foot high concrete ogee weir across the emergency spillway, armor the abutments of the California Highway 190 bridge that crosses over the lake, protect Frazier Dike with rock revetment, and relocate or flood-proof several existing structures and supporting utilities at both the Rocky Hill and Tule Recreation Areas, including construction of a high-water boat ramp. Estimated quantities of material excavation and fill within Lake Success (as delineated by the existing Ordinary High Water Mark [OHWM]/gross pool elevation, which represents the boundary of jurisdictional WOTUS) are included in the table.

Table 1. Proposed Action material quantities (cy = cubic yards; sy = square yards).

Construction Action	Total Quantity	Unit	Quantity within Lake Success	Unit
Excavated material (rock/soil)	55,000	cy	8,930	cy
Imported soil	2,919	cy	0	cy
Coarse/fine bedding material	1630	cy	175	cy
Concrete	14,920	cy	8,380	cy
Riprap/rock revetment	15,795	cy	375	cy
Filter fiber	4,480	sy	0	sy
Steel reinforcement	550	tons	0	tons
Asphalt concrete paving	41,950	sy	0	sy

General Description of Dredged or Fill Material

Constructing the ogee weir would require placement of 8,300 cubic yards of concrete within WOTUS. Prior to placement of the concrete, approximately 8,370 cubic yards of bedrock would be removed. Approximately 80 cubic yards of concrete and 90 cubic yards of riprap would be placed within WOTUS for the high-water boat ramp. Approximately 285 cubic yards of riprap, 110 cubic yards of coarse bedding material (crushed rock or imported quarry stone), and 65 cubic yards of fine bedding material (smaller crushed rock/sand) would be placed within WOTUS to help protect Frazier Dike. Six prefabricated concrete bases would be needed for the three transmission towers that a going within WOTUS. Twenty similar concrete bases would be removed for the five transmission towers being demolished within WOTUS by SCE.

The proposed action would not violate any Federal regulations. Due to work within WOTUS, a Section 401 water quality certification is required. The proposed construction area is greater than one acre, therefore the contractor would be required to obtain a National Pollution Discharge Elimination System permit and prepare a Stormwater Pollution Prevention Plan. SCE would also obtain a Low or Limited Threat Dewatering Permit since some dewatering might be necessary during installation or removal of the transmission towers. Both SCE and USACE construction contractors would follow all recommended best management practices (BMPs) for all permits, as well as those outlined in the accompanying Environmental Assessment.

Construction Duration

- Real Estate Procurement: October 2020 – January 2022
- Environmental Mitigation: 2021-2032
 - Land acquisition: October 2021 – January 2022
 - Contract award: Winter 2022
 - Site preparation: summer/fall 2022
 - Planting: fall 2022/2023
 - Maintenance and management: 2023-2026 (USACE); 2026 – 2033 (LTRID)
- Construction Start: October 2021
 - Rocky Hill Recreation Area and pumphouse: October 2021 – May 2022
 - Frazier Dike: October 2021 – January 2022
 - Tule Recreational Area: February 2022 – September 2022
 - Hwy 190 bridge abutments: October 2021 – November 2021
 - Excavation and blasting left abutment and ogee base: October 2021 – May 2022
 - Ogee spillway: February 2022 – October 2022
 - SCE transmission line replacement: October 2021 – October 2022
- Construction Completion: May 2023

IV. FACTUAL DETERMINATIONS

USACE would enlarge Lake Success by raising the emergency spillway elevation 10 feet by constructing an ogee weir. These changes would increase the capacity of the reservoir by 28,000 acre-feet and the surface area by 605 acres. A portion of the ogee weir, Frazier Dike rock slope protection, high-water boat ramp, and new transmission towers would be constructed below Lake Success' OHWM/gross pool elevation and would occur within jurisdictional WOTUS.

Physical substrate determinations

Lake Success is freshwater aquatic habitat. Most of the lake shore is underlain by unconsolidated substrate with less than 75 percent cover of stones, boulders, or bedrock and less than 30 percent cover of vegetation (USFWS 2014). Prior studies have classified the shore as rocky edge habitat (EDAW 2009). The emergency spillway ranges from unconsolidated substrate near the upstream entrance to mostly solid bedrock at the existing sill where the ogee weir would be constructed.

The ogee weir would permanently replace 22,375 square feet (0.514 acres) of bedrock substrate within the lake with an equal amount of concrete. This is not a significant change in the physical substrate of Lake Success and only represents 0.021 percent of the lake's surface area. The emergency spillway is at an elevation that lake water only typically reaches once every eight years for two to eight weeks. Adding rock slope protection to Frazier Dike would permanently replace 2307 square feet (0.053 acres) of unconsolidated substrate within the lake with an equal amount of riprap. This is not a significant change in the physical substrate of Lake Success and only represents 0.0022 percent of the lake's surface area. The new high-water boat ramp would

permanently replace 3740 square feet (0.086 acres) of unconsolidated substrate with 3300 square feet of concrete and 440 square feet of riprap. This is not a significant change in the physical substrate of Lake Success and only represents 0.0035 percent of the lake's surface area. The bottom end of the boat ramp is at 645 feet (NAVD88), an elevation that lake water only typically reaches once every three years for four to eight weeks. Replacing the 15 existing SCE lattice steel transmission towers with 14 higher H-frame hybrid structures would not result in a net loss of lake habitat. The existing towers have four legs that each rest on a concrete base, while the new towers would only have two legs. In addition, SCE would place only three of the new transmission towers within the lake, while five of the existing towers that are currently in the lake would be removed. The existing transmission towers predated the lake by almost four decades. After SCE removes the existing towers, areas with bare soil would be seeded with native plants, resulting in a net gain of 167 square feet of vegetated substrate. Overall, the project will result in a net gain of lake habitat since the spillway raise would increase the maximum area of Lake Success by 605 acres. This will greatly offset any of the minor losses of substrate and lake habitat from the project.

In compliance with the CWA and to avoid impacts, a site specific plan with measures addressing proper disposal of silt, debris, refuse, or other pollutants associated with construction on the water side of the spillway would be implemented to prevent fill or rock material and road surface runoff from spilling into the reservoir. With implementation of the BMPs required in the general construction permit, the water quality certification, and additional measures, as applicable, effects to water quality are expected to be less than significant.

Water circulation, fluctuation, and salinity determinations

The project would have less than significant effects on the lake's current, water patterns, and circulation. The net reduction in transmission towers would reduce the number of unnatural barriers in the lake and should result in minute increases in natural circulation patterns. The ogee weir, high-water boat ramp, and Frazier Dike riprap would all have minor impacts on the lake's currents and circulation. However, these would only occur for a few weeks at a time on a less than annual basis. The ogee weir should have negligible impacts on currents and circulation since the emergency spillway is a relatively narrow part of the lake and represents a tiny fraction of the lake's volume during gross pool events. The boat ramp would indirectly change currents and circulation from recreational users and their boats stirring up water and sediment. This is minor compared to the lake as a whole. The armoring of Frazier Dike would slightly roughen the shore along the dike compared to the existing unconsolidated substrate. This could cause a slight reduction in water speed during the few weeks, roughly once every eight years, when lake levels are high. The project would have no long-term effects on water chemistry, salinity, clarity, color, odor, taste, dissolved gas levels, temperature, nutrients, or eutrophication.

Suspended particulate/turbidity determinations

Construction would not occur in the water. Standard BMPs such as straw wattles, silt fences, and revegetation would prevent runoff or eroded sediment from entering Lake Success. Therefore, there would be no changes to the kinds and concentrations of suspended particles or turbidity in the vicinity of the project.

The new boat ramp would indirectly increase turbidity in the lake from recreationists launching boats. This would not be a net increase since there are currently three operable boat ramps but only one of the existing ramps would be usable during higher lake levels made possible by the project from raising the spillway 10 feet. Thus, with the new boat ramp only two boat ramps out of four would be open during periods of high water levels, compared to the existing three. Overall, there should not be a net gain in turbidity from boaters due to the project. The new high-water boat ramp serves to mitigate for the loss of two boat ramps during periods of high water. The high-water boat ramp would not be usable when water levels are below 645 feet (NAVD88), which is the predominant condition for the lake.

Contaminant determinations

Small amounts of fill material associated with construction activity would become integrated into the existing lake substrate below the gross pool elevation (655.1 feet NAVD88). The gross pool elevation is reached when the water level in the reservoir is at the crest of the spillway and generally represents the elevation where all flood storage in the reservoir is filled (USACE 2016). The fill material from construction activities consists of concrete and either blasted rock from widening the spillway or rock/gravel material from a permitted commercial quarry. The material proposed for discharge would not introduce, relocate, or increase contaminants. USACE would employ water quality BMPs, such as silt fencing and revegetation, to ensure that any sediment movement to existing adjacent jurisdictional waters would not occur. USACE has adequately minimized dredge/fill material movement and the project is in compliance with the 404(b)(1) guidelines.

Aquatic ecosystem and organism determinations

The project would not have a significant effect on the structure or function of the lake's ecosystem. There are no anadromous, catadromous, or estuarine species in Lake Success or the Tule River because the river does not have an ocean outlet. There are no known special-status fish or other aquatic species in Lake Success (EDAW 2009). Many fish species are nonnative game species that were originally introduced for recreational purposes. Some non-game fish species exist in the reservoir including common carp. Extensive aquatic surveys have shown that the lake is dominated by carp (USACE 1999; EDAW 2009).

Lake Success supports a stocked warm water fishery and is known for year-round bass fishing. Common species found in the reservoir include Florida bass (*Micropterus floridanus*),

largemouth bass (*Micropterus salmoides*), and spotted bass (*Micropterus punctulatus*); channel catfish (*Ictalurus punctatus*); black crappie (*Pomoxis nigromaculatus*); white crappie (*Pomoxis annularis*); carp (*Cyprinus carpio*); green sunfish (*Lepomis cyanellus*); redear sunfish (*Lepomis microlophus*); bluegill (*Lepomis macrochirus*); and threadfin shad (*Dorosoma petenense*). Lake Success is stocked several times in late fall with catchable-sized trout. These are quickly caught and do not survive into spring due to high water temperatures (USACE 1999). Since the spillway raise project features would not affect the lake (there is no in-water work), implementation of the proposed action would not impact aquatic life in the reservoir or the Tule River downstream of the reservoir. BMPs would be used to ensure that runoff into Lake Success does not occur. All temporarily disturbed areas would be restored to original contour and reseeded. The few permanent impacts (0.649 acres) would cause a slight decrease in habitat complexity (for example, a small amount of rocky edge habitat would be replaced by concrete for the high-water boat ramp), which would be offset by the creation of approximately 605 acres of additional lake habitat after the spillway raise is complete.

Determination of cumulative effects on the aquatic ecosystem

Construction activities have the potential to temporarily degrade water quality through the direct release of soil and construction materials into water bodies or the indirect release of contaminants into water bodies through activities. Related projects are not likely to be under construction during the same timeframe as this project. Since Lake Success is on federal land and the proposed action is adjacent to the lake, concurrent activities that could affect water quality are under the jurisdiction of USACE and will be appropriately coordinated. However, if the proposed action's BMPs failed and construction was occurring downstream during the same timeframe, water quality could be slightly diminished due to the combined increase in turbidity. This is unlikely to happen since BMPs are inspected regularly and are designed to handle expectant storm events for the local area. Furthermore, the portion of the proposed action with the highest likelihood to cause downstream impacts to water quality is the construction of the ogee weir. There is little existing sediment in the spillway and the bedrock excavation needed to construct the ogee weir is not likely to produce more than a minor amount of sediment, which is even less likely to reach downstream areas due to the distance—almost three-quarters of a mile—to the Tule River. Therefore, the cumulative contribution to downstream turbidity would be less than significant.

Projects that further urban development could increase runoff as the amount of impervious surfaces is increased. Potential new housing developments may cause more stormwater runoff laden with contaminants common in urban/suburban areas (*i.e.*, pesticides, lawn fertilizers, hydrocarbons). The increased volume of municipal sewage from the new developments could also introduce more pollutants to waters within the Tulare Basin. The method by which treated wastewater is discharged would determine the severity of the impact to water quality from new and proposed residential subdivisions near the project area. All projects would be required to coordinate with the Regional Water Quality Control Board and overall water quality would be required to meet the Basin Plan objectives. The proposed action activities associated with the Spillway Raise would result in less-than-significant effects to water quality. Degradation of

water quality from the project would be short term and limited to the construction period. The project would not cumulatively contribute to long-term adverse effects that may result from development projects.

Proposed disposal site determinations

In-water construction would not occur. No excavation or placement of fill would occur within Lake Success and therefore, no mixing or dispersal of fill material would occur within the water. Standard BMPs, such as straw wattles, silt fences, and revegetation, would prevent runoff or eroded sediment from entering Lake Success.

V. FINDING OF COMPLIANCE

No significant adaptations of the 404(b)(1) guidelines were made relative to this evaluation. The proposed project would not cause or contribute to significant degradation to WOTUS, including adverse effects on human health; life stages of organisms dependent on the aquatic ecosystem; ecosystem diversity; productivity and stability; and recreational, aesthetic, and economic values.

A review of the proposed project indicates that:

1. The discharge represents the least environmentally damaging practicable alternative, and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem.

Yes No

2. The activity does not appear to (1) violate applicable state water quality standards or effluent standards prohibited under the CWA, or (2) jeopardize the existence of federally listed endangered or threatened species or designated marine sanctuary.

Yes No

3. The activity will not cause or contribute to significant degradation of waters of the U.S., including adverse effects on human health; life stages of organisms dependent on the aquatic ecosystem; ecosystem diversity; productivity and stability; and recreational, aesthetic, and economic values.

Yes No

4. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

Yes No

Note: A negative response indicates that the proposed project does not comply with the guidelines.

VI. REFERENCES

[USACE] United States Army Corps of Engineers. 1999. Tule River Basin Investigation, California. Final Feasibility Report and Final Environmental Impact Statement/Environmental Impact Report. Sacramento, California. 476 pgs.

[USACE] U.S. Army Corps of Engineers. 2011. Success Dam Seismic Remediation San Joaquin Valley, California: Floodplain Mapping Study for Economic Analysis.

[USACE] United States Army Corps of Engineers Institute for Water Resources. 2016. Status and Challenges for USACE Reservoirs. Alexandria, VA.

EDAW, Inc. 2009. Lake Success Fisheries and Aquatic Resources Survey Report. Success Dam Seismic Remediation Project. Sacramento, CA.

[USFWS] U. S. Fish and Wildlife Service. 2014. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Available from <http://www.fws.gov/wetlands/>

APPENDIX I - LIST OF INTERESTED PARTIES CONTACTED

Type	Name	Position
State	Sharri Bender Ehlert	District 6 Director
State	Department of Parks & Recreation	
State	Devon J. Mathis	Assemblyman
State	Melissa Hurtado	Senator
State	Wildlife Conservation Board c/o CDFW	
State	Department of Fish & Wildlife	
State	District 4 Office	
State	Office of Historic Preservation	
State	Central Valley Region, Fresno Branch Office	
State	Central Valley Flood Protection Board	
State	Department of Water Resources	
State	Water Resources Control Board	
State	Natural Resources Agency	
State	State Clearinghouse	
State	Public Utilities Commission	
State	Department of Housing and Community Development	
State	Kenneth Foster	Southern California Region
State	Department of Public Health	
Tribe	Robert Robinson	
Tribe	Rueben Barrios Sr.	
Tribe	Robert L. Gomez, Jr	
Tribe	Neil Peyron	
Tribe	Kenneth Woodrow	
Federal	Kevin McCarthy	Congressman
Federal	Dianne Feinstein	Senator
Federal	Kamala Harris	Senator
Federal	Alessandro Amaglio	Environmental Officer
Federal	Charlie Mauldin	
Federal	Natural Resources Conservation Service	
Federal	Lauren Estenson	Fish & Wildlife Biologist
Federal	Supervisors Office	
Federal	Advisory Council on Historic Preservation	
Landowner	Tulare County	
Landowner	Dan and Janice Weisenberger	
Landowner	Four Corners Inc	
Landowner	Dennis Franks	
Landowner	Daylene Gill Stout	
Landowner	Keith A Blevins	
Landowner	Ryan and Melissa Ruckman	
Landowner	Lorna Kirkland	
Landowner	Sengdao Bounyavong	
Landowner	Evita Diaz Santiago Oseguera	
Landowner	Beverly J Weisenberger	
Landowner	Sheri Babcock	
Landowner	Kelly and Jennifer Jeffries	

Landowner	David Coy	
Landowner	Lonnie and Shauna Mcallister	
Landowner	Denis and Marcia Doran	
Landowner	Louis Brent and Sharon Gill	
Landowner	Jake Platt LLC	
Landowner	Joy Collier	
Landowner	Paul G Hankins	
Landowner	Hester Family Limited Partnership	
Landowner	Gill Cove LLC	
Landowner	Russell L Davis	
Landowner	Brett and Danielle Nixon	
Landowner	Martin Hamilton	
Landowner	Karyn Stevens	
Landowner	Edith F Peterson	
Landowner	Rocky Hill Cove LP	
Library	Porterville Public Library	
Library	Springville Branch Library	
Library	Strathmore Branch Library	
Local	John D. Lollis	City Manager
Local	Dan Vink	
Local		
Local	Valarie Ballard	Southern Region Compliance Manager
Local		
Local	Long Range Planning Division	
Local	Current Planning Division	
Local	Parks and Recreation Division	
Local	Tulare County Flood Control District	
Local	Dennis Townsend	District 5 Chairman
Local	Mark A. Gilkey	General Manager
Local		
Local		
Local	Fire Warden	
Local	Porterville Substation	
Local	John Avila	General Manager
Local	Bill Parsons	Publisher
Local	Reggie Ellis	Publisher
NGO	Daniel Gluesenkamp	Executive Director
NGO		
NGO		
NGO		
NGO	National Headquarters	
NGO	State of California Program	

Org/Company

Caltrans
State of California
CA 26th State Assembly District
CA 14th State Senate District
State of California
State of California
Department of Fish & Wildlife
State of California
California Regional Water Quality Control Board
State of California
State Lands Commission
State of California
Kern Valley Indian Council
Santa Rosa Rancheria Tachi Yokut Tribe
Tubatulabals of Kern Valley
Tule River Indian Tribe
Wuksache Indian Tribe/Eshom Valley Band
CA 23rd Congressional District
CA 116th US Congress
CA 116th US Congress
FEMA Region IX
Lake Success USACE Park Headquarters
US Department of Agriculture
US Fish and Wildlife Service
Sequoia National Forest
United States of America

City of Porterville
Tulare County Library
Tulare County Library
City of Porterville
Lower Tule River Irrigation District
Porterville Irrigation District
San Joaquin Valley Air Pollution Control District, Southern Region Office
Springville Chamber of Commerce
Tulare County Resource Management Agency
Tulare County Board of Supervisors
Tulare Lake Basin Water Storage District
Porter Vista Public Utility District
Southern California Edison
California Department of Forestry
Sheriff's Department
Tulare Mosquito Abatement District
The Porterville Recorder
The Sun-Gazette Newspaper
California Native Plant Society
Tule River Association
Tulare County Audubon Society
Tule River Parkway Association
Sierra Club
The Nature Conservancy