

**Findings of Fact  
and  
Statement of Overriding Considerations  
of the  
California Department of Fish and Wildlife**

**as a**

**Lead Agency under the  
California Environmental Quality Act  
(Pub. Resources Code, § 21000 et seq.)**

**for the**

**Salmon Conservation and Research Facility  
and  
Related Management Actions Project**

**as analyzed in the**

**Final EIR**

**June 04, 2014**

## INTRODUCTION

The California Department of Fish and Wildlife (CDFW or Department) has prepared these findings to comply with the California Environmental Quality Act (“CEQA”) (Pub. Resources Code, § 21000 et seq.). CDFW is a “lead agency” under CEQA.

CDFW’s current effort under CEQA arises from its plans to construct and operate the proposed Salmon Conservation and Research Facility (SCARF) and Related Fisheries Management Actions Project (Project or Proposed Project). The Proposed Project is related to the Settlement Agreement reached as a result of federal court action in *Natural Resources Defense Council (NRDC) et al. v. Kirk Rodgers et al.* (*NRDC v. Rodgers* 2006). The United States (U.S.) Department of the Interior, U.S. Department of Commerce, NRDC, and the Friant Water Users Authority (FWUA) signed the Settlement Agreement. The Settlement Agreement identified two major goals that are being implemented through the San Joaquin River Restoration Program (SJRRP): 1) a Restoration Goal to restore and maintain fish populations in good condition, including naturally reproducing and self-sustaining populations of salmon and other fish in the Restoration Area (defined as the main stem of the San Joaquin River from below Friant Dam to the confluence with the Merced River), and 2) a Water Management Goal. Pursuant to a Memorandum of Understanding between the Settling Parties, CDFW and the Department of Water Resources (DWR) (State Agency MOU), CDFW and DWR agreed to assist the Settling Parties in the Settlement Agreement’s implementation, consistent with the State Agencies’ authorities, resources, and broader regional resource strategies. The Implementing Agencies of the SJRRP are the Bureau of Reclamation (Reclamation) and the U.S. Fish and Wildlife Service (USFWS) from the U.S. Department of Interior, the National Marine Fisheries Service (NMFS) from the U.S. Department of Commerce, and CDFW and DWR from the State of California Natural Resources Agency.

In 2012, DWR and Reclamation completed a Program Environmental Impact Statement/Report (PEIS/R) evaluating the SJRRP pursuant to CEQA and the National Environmental Policy Act (NEPA) (Reclamation and DWR 2012). This Environmental Impact Report (EIR), prepared to analyze the Proposed Project, leveraged the analysis conducted in the PEIS/R where relevant. More information regarding the overall SJRRP can be found on the program’s website: <http://www.restoresjr.net/>.

In furtherance of the State Agency MOU, CDFW proposes to undertake several related actions, including (1) constructing and operating the SCARF; (2) reintroducing Chinook salmon to the Restoration Area<sup>1</sup> (including donor stock collection, broodstock

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<sup>1</sup> The Restoration Area includes the San Joaquin River below Friant Dam to the confluence of the Merced

development, and/or direct translocation); (3) managing Chinook salmon runs in the Restoration Area; (4) conducting research and monitoring related to Chinook salmon in the San Joaquin River; and (5) managing and supporting recreation within the Restoration Area. These actions would be adaptively managed to address uncertainties, such as changes in abundance of source populations, regulatory obligations, flow conditions/constraints, fish stocking, and passage/habitat conditions within the Restoration Area.

## **INITIAL STUDY/NOTICE OF PREPARATION AND PUBLIC REVIEW**

No initial study was prepared for the Proposed Project. A Notice of Preparation (NOP) for the Proposed Project was prepared pursuant to the CEQA Guidelines<sup>2</sup> (CEQA Guidelines § 15082) and circulated to the Office of Planning and Research's State CEQA Clearinghouse on November 21, 2012, with hard copies circulated on November 26, 2012. The scoping period continued for 35 days and concluded on December 26, 2012. The NOP presented general background information on the Proposed Project, the scoping process, the environmental issues to be addressed in the EIR, and the anticipated uses of the EIR. The NOP was posted on the CDFW website, and more than 550 hard copies of the NOP were distributed by certified mail to a broad range of stakeholders including state, federal, and local regulatory agencies and jurisdictions, water utilities, non-profit organizations, and property owners in the vicinity of the Proposed Project. In addition, on November 26, 2012, an announcement of the release of the NOP, including the dates, times, and locations of scoping meetings, was published in the Fresno Bee, Sacramento Bee, and Chico Enterprise Record. The NOP is included in the Draft EIR (DEIR) in Appendix B, Notice of Preparation.

Once the DEIR was complete, a Notice of Availability (NOA) and Notice of Completion (NOC) were prepared pursuant to the CEQA Guidelines (CEQA Guidelines, §§ 15085 - 15087) and circulated to the Office of Planning and Research's State Clearinghouse (SCH) on October 7, 2013. The public review period continued for 56 days and concluded on December 2, 2013. The NOA, NOC and DEIR were posted on the CDFW website, and more than 640 hard copies of the NOA were distributed to a broad range of stakeholders including state, federal, and local regulatory agencies and jurisdictions, water utilities, non-profit organizations, and property owners in the vicinity of the Proposed Project. In addition, on October 7, 2013, an announcement of the release of the DEIR, including the dates, times, and locations of public meetings, was published in the Fresno Bee, Sacramento Bee, and Chico Enterprise Record. The NOA, NOC, and newspaper advertisements are included in the Final EIR (FEIR) in Appendix

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River, as set forth in the Settlement Agreement.

<sup>2</sup> The CEQA Guidelines referenced herein are found in Title 14 of the California Code of Regulations, section 15000 et seq.

A, DEIR Notices and Mailing List. The EIR, discussed herein, includes the DEIR, the FEIR, and all appendices.

### **SCOPE, PURPOSE, AND EFFECT OF FINDINGS**

Findings are required by each “public agency” that approves a “project for which an environmental impact report has been certified which identifies one or more significant effects on the environment[.]” (Pub. Resources Code, § 21081, subd. (a); CEQA Guidelines, § 15091, subd. (a); see also Pub. Resources Code, § 21068 (“significant effect on the environment” defined); CEQA Guidelines, § 15382 (same).)

These findings, as a result, are intended to comply with CEQA’s mandate that no public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant effects thereof unless the agency makes one or more of the following findings:

- (1) Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment;
- (2) Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency;
- (3) Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the EIR.

(Pub. Resources Code, § 21081, subd. (a); CEQA Guidelines, § 15091, subd. (a).)

These findings are also intended to comply with the requirement that each finding by the Department be supported by substantial evidence in the administrative record of proceedings, as well as accompanied by a brief explanation of the rationale for each finding. (*Id.*, § 15091, subds. (a), (b); see also Discussion following CEQA Guidelines, § 15091.) To that end, these findings provide the written, specific reasons supporting the Department’s decision under CEQA to implement the Proposed Project described in the EIR (SCH # 2012111083). These findings are not merely informational, but rather constitute obligations that will become binding when the Department formally approves the Proposed Project.

## ADMINISTRATIVE RECORD OF PROCEEDINGS

For purposes of these findings, the administrative record of proceedings for CDFW's Proposed Project consists, at a minimum, of the following documents:

- The Notice of Determination;
- All resolutions or ordinances adopted by the lead agency approving the Proposed Project or required by law (including project approval and EIR certification resolutions and the mitigation monitoring and reporting program);
- The DEIR, comments on the DEIR and the responses to those comments, including any modification of the environmental documents and Proposed Project made after the comment period (essentially, the FEIR, but also expressly including the DEIR);
- The remainder of the FEIR, including all appendices and other materials (references);
- The staff reports prepared for the approving bodies of the lead agency;
- Transcripts or minutes of all hearings;
- The remainder of the administrative record, which includes:
  - Internal agency communications (within CDFW and the California Department of General Services [DGS] and between CDFW/DGS or consultants and other agencies, including email)
  - Miscellaneous (press releases, articles)
  - Prior EIR(s) for related project(s) and any other materials related to the prior EIR(s)' certification and project adoption that are still available to CDFW (if not included in the FEIR and related documents)

The custodian of the documents comprising the administrative record of proceedings is CDFW, located at 1416 Ninth Street, Sacramento, California 95814. All related inquiries should be directed to CDFW's Office of the General Counsel at (916) 654-3821.

CDFW has relied on all of the documents listed above in exercising its independent judgment and reaching its decision with respect to the Proposed Project.

## MITIGATION MONITORING AND REPORTING PROGRAM

As noted above, and as consistent with CEQA and the CEQA Guidelines, a mitigation monitoring and reporting program (“MMRP”), has been prepared by CDFW for the SCARF. (See Pub. Resources Code, § 21081.6, subd. (a)(1); CEQA Guidelines, § 15097.) The Department will use the MMRP to track compliance with mitigation measures imposed by the Department and the MMRP will remain available for public review during the compliance period.

### IMPACTS FOUND TO BE BENEFICIAL, HAVE NO IMPACT OR LESS THAN SIGNIFICANT IMPACTS

The EIR analyzed in detail the full array of potential impact areas to methodically identify any impacts which could be potentially significant associated with the implementation of the Proposed Project. This included impacts to or associated with aesthetics, air quality, fisheries, vegetation and wildlife, cultural resources, geology, greenhouse gas emissions, potentially hazardous conditions, hydrology, land use, noise, and recreation, as well as cumulative impacts on the environment. These impacts are discussed in detail in Chapters 4 through 8 of the DEIR. In doing so, numerous impacts were identified which were beneficial, would have no impact, or which would have less than significant impacts on the environment. The following table summarizes these impacts based for each project action:

Project Action	Level of Impact		
	Beneficial	No Impact	Less than Significant
SCARF Construction		5	22
SCARF Operations	1	5	37
Fish Reintroduction	2	2	25
Fisheries Management	1	4	21
Fisheries Research and Monitoring		2	15
Recreation Management		3	17
Cumulative Impacts	1	1	3

### LESS THAN SIGNIFICANT IMPACTS WITH MITIGATION

The EIR identified potentially significant environmental impacts that would result with implementation of the Proposed Project, absent mitigation, for the following effects. However, CDFW has required changes to the Proposed Project in order to avoid or substantially lessen the potentially significant effects on the environment, such that the following impacts would be less than significant.

### **Impact AES-CONSTRUCT-3:**

Implementation of the Proposed Project could result in changes to the existing visual character or quality due to construction of the SCARF, a potentially significant impact.

#### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

#### **Explanation:**

Visual changes because of the SCARF would include two small residences, a hatchery building, a utility building, fish tanks, and ponds--changes which some viewers could potentially consider to be significant. Implementation of Mitigation Measures AES-CONSTRUCT-3a, -3b, and -3c would ensure that this impact is less than significant and the visual character of the community is preserved by using compatible construction materials and landscaping and minimizing visibility of infrastructure elements. Specifically:

- Mitigation Measure AES-CONSTRUCT-3a: DGS, CDFW, or the construction contractor shall select materials and colors of the facilities to be compatible with the surrounding developed and natural environments.
- Mitigation Measure AES-CONSTRUCT-3b: CDFW or the construction contractor shall use native plants for landscaping in a manner consistent with Mitigation Measure BIO-CONSTRUCT-11a (Minimize Area of Disturbance of Riparian Habitat) and with Mitigation Measure BIO-CONSTRUCT-11b (Develop and Implement Revegetation Plan for Riparian Habitat Disturbed by Construction). The text of Mitigation Measures BIO-CONSTRUCT-11a and BIO-CONSTRUCT-11b is provided under the explanation to Impact BIO-CONSTRUCT-11.
- Mitigation Measure AES-CONSTRUCT-3c: DGS, CDFW, or the construction contractor shall install pipelines and utilities underground to the extent feasible.

**Impact AES-CONSTRUCT-4:**

Implementation of the Proposed Project could result in new sources of light or glare from the SCARF during construction, a potentially significant impact.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

During construction of the Proposed Project, security lighting may be used, which could create a potentially significant impact. Implementation of Mitigation Measure AES-CONSTRUCT-4 will ensure the impact remains less than significant by installing minimally invasive lighting. Specifically:

- Mitigation Measure AES-CONSTRUCT-4: CDFW shall ensure that exterior construction security lighting is hooded and directed downward toward the SCARF, and away from adjacent properties.

**Impact AES-OP-1:**

Implementation of the Proposed Project could result in adverse effects on scenic vistas and the surrounding area's visual character because of SCARF operations, a potentially significant impact.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

The SCARF facilities during operation would alter the views of the San Joaquin River riparian corridor from public roadways, the San Joaquin Hatchery Public Access and Trail and residences in the Waldby neighborhood, a change some individual viewers may find significant. Implementation of Mitigation Measures AES-CONSTRUCT-3a, -3b, and -3c will ensure the impact remains less than significant, by using compatible construction materials and landscaping and minimizing visibility of



some infrastructure elements. The text of Mitigation Measures AES-CONSTRUCT-3a, -3b, and -3c is provided above under the explanation to Impact AES-CONSTRUCT-3.

**Impact AES-OP-2:**

Implementation of the Proposed Project could result in new sources of light or glare from the SCARF operations, a potentially significant impact.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Operations of the new SCARF facilities would use exterior lighting fixtures, as well as metallic features, which could reflect lighting or the sun and create sources of glare. The lighting and glare could create a long term, potentially significant impact that may interfere with the viewing of dark nighttime skies by residents of Friant. Implementation of Mitigation Measures AES-OP-2a and -2b will reduce this impact to a less than significant level by adopting procedures to reduce any new sources of light and glare. The mitigation measures state the following:

- Mitigation Measure AES-CONSTRUCT-2a: CDFW shall ensure that permanent lighting utilizes lights that are low wattage, or incorporates appropriate shielding, and that lighting is directed away from sensitive uses and adjacent properties.
- Mitigation Measure AES-CONSTRUCT-2b: To reduce glare, CDFW shall ensure that all structures are painted with non-glare surfacing or constructed of materials that do not produce glare.

**Impact AQ-OP-3:**

Implementation of the Proposed Project could create objectionable odors that would affect a substantial number of people, a potentially significant impact.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Although there have been no recorded or confirmed odor complaints related to the existing San Joaquin Fish Hatchery (SJFH) or Interim Facility in the past 6 years (January 2006 through August 2012) (Hockett pers. comm.), SCARF operations may generate objectionable odors if fish mortalities are disposed into streams to provide an energy source and nutrients to the riverine environment. Odors associated with the decaying fish may be detected by nearby sensitive receptors, therefore, these fish disposal activities could generate potentially significant objectionable odors. Implementation of Mitigation Measure AQ-OP-3, which would restrict fish disposal locations and require specific fish carcass disposal methods, in conjunction with compliance with San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 4102 regarding nuisance, would reduce this impact to less than significant.

Mitigation Measure AQ-OP-3 requires CDFW to implement at least one of the following measures to minimize the likelihood of potential odors from fish disposal activities affecting a substantial number of sensitive receptors:

- Limit fish disposal locations to areas that are at least 1,000 feet from any potential sensitive receptors, including terrestrial recreationists such as hikers.
- Implement disposal methods that ensure that fish carcasses are weighed down and disposed of within a stream channel instead of on a stream bank.

**Impact AQ-MANAGEMENT-1:**

The construction of fish segregation weirs as part of the Proposed Project could conflict with or obstruct implementation of the SJVAPCD's air quality plans, exceed SJVAPCD ROG, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, CO, and SO<sub>x</sub> significance thresholds, or expose sensitive receptors to substantial pollutant concentrations. Consequently, this impact is considered potentially significant.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Construction of the fish segregation weirs would potentially generate ROG, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, CO, and SO<sub>x</sub> emissions from land disturbance and/or exhaust from construction equipment, including haul or equipment trucks, and worker commutes. Because specific project-level data about the amount, use, and locations of this equipment are currently unavailable, these activities are conservatively assumed to have the potential to conflict with or obstruct implementation of the SJVAPCD's air quality plans, to exceed thresholds established by the SJVAPCD, and to expose sensitive receptors to substantial pollutant concentrations. Implementation of Mitigation Measure AQ-MANAGEMENT-1 would require project-level air quality analysis and mitigation and reduce construction air emissions to levels below SJVAPCD's construction significance thresholds and would therefore result in a less than significant impact:

- Mitigation Measure AQ-MANAGEMENT-1: As future individual project components are further defined to a level that construction emissions can be estimated, and prior to implementing that component or taking actions that commit CDFW to implementing that component, CDFW will prepare a complete, quantitative project-level air quality analysis for that component.

The quantitative construction air quality analyses will be based on the types, locations, numbers, and operations of equipment to be used; the amount and distance of material to be transported; and worker trips required. In addition, the analysis will be based on the projected quantity and frequency of vehicle and/or truck trips, and other activities that generate emissions. The analysis will determine whether the combined emissions of the quantified components' construction activities exceed the SJVAPCD's construction air quality thresholds. In addition, the analysis will evaluate whether the combined emissions from all project components constitute a significant health risk from diesel fueled equipment.

If the analysis determines that construction emissions exceed the air quality significance thresholds, then CDFW will identify and implement appropriate mitigation. As a performance standard, the mitigation shall be sufficient to reduce construction emissions so that the Proposed Project's

emissions are below the applicable significance thresholds. Examples of appropriate mitigation may include, but not be limited to, SJVAPCD Regulation VIII, alternative fueled equipment, phasing of material hauling trips, use of chemical additives or after-market devices to reduce emissions on existing equipment, use of electrically powered equipment, reduction in total equipment hours, use of newer equipment models, adopting a vehicle idling policy requiring all vehicles to adhere to a 5 minute idling policy, and sourcing of material from local sources. Actual emissions efficiency for off-road equipment and motor vehicles will be at least as efficient as the most recent CARB fleet average for off-road equipment and motor vehicles for the current calendar year.

In the event that the mitigation strategies (either those listed above or others developed to achieve the performance standard) are calculated to be insufficient to reduce construction emissions levels below significance thresholds, then CDFW will enter into a Voluntary Emission Reduction Agreement (VERA) with SJVAPCD. A VERA is a contractual agreement in which the project proponent agrees to mitigate project specific emissions by providing funds for the SJVAPCD's Emission Reduction Incentive Program (ERIP). The funds are disbursed by ERIP in the form of grants for projects that achieve emission reductions. Types of emission reduction projects that have been funded in the past include electrification of stationary internal combustion engines (e.g., agricultural irrigation pumps), replacing old heavy-duty trucks with new, cleaner, more efficient heavy-duty trucks, and replacement of old farm tractors. The VERA will be used to offset the project's increase in emissions so that the Proposed Project would have no increase in construction emissions above the significance threshold.

Similarly, if the air quality analysis indicates that the activities pose a significant health risk, then CDFW will identify mitigation measures, which, as a performance standard, will ensure health risks are at a less than significant level. Examples of appropriate mitigation may include, but not be limited to, use of alternative fueled equipment, use of aftermarket control devices such as diesel particulate filters, use of electrical equipment where possible, or reduction in number of hours of equipment use with a minimum reduction in diesel particulate matter of 85% compared to a Tier 2 engine or equivalent to 100 trucks per day based on CARB's Air Quality and Land Use Handbook.

### **Impact AQ-RECREATION-1:**

Implementation of the Proposed Project results in the potential for construction activities related to enhancing recreational fishing opportunities to conflict with or obstruct the implementation of SJVAPCD's Air Quality Plans, exceed SJVAPCD's ROG, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, CO, and SO<sub>x</sub> significance thresholds, or expose sensitive receptors to substantial pollutant concentrations. Consequently, this impact is considered potentially significant.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

Enhancement of recreational fishing opportunities on the San Joaquin River may require construction activities that would potentially generate ROG, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, CO, and SO<sub>x</sub> emissions from land disturbance and/or exhaust from construction equipment, including haul or equipment trucks, and worker commutes. Because specific project-level data about the amount, use, and locations of this equipment are currently unavailable, these activities are conservatively assumed to have the potential to conflict with or obstruct implementation of the SJAPCD's air quality plans, to exceed thresholds established by the SJVAPCD, and to expose sensitive receptors to substantial pollutant concentrations. Implementation of Mitigation Measure AQ-MANAGEMENT-1 would require project-specific air quality analysis and mitigation and reduce construction air emissions to levels below SJVAPCD's construction significance thresholds and would therefore result in a less than significant impact. The text of Mitigation Measure AQ-MANAGEMENT-1 is provided above under the explanation to Impact AQ-MANAGEMENT-1.

### **Impact FISH-CONSTRUCT-1:**

Implementation of the Proposed Project could result in sedimentation and turbidity in the San Joaquin River from construction-related erosion, which could adversely impact fish and their habitat. This impact is potentially significant.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Ground-disturbing activities, such as grading, excavation, and vegetation removal can result in exposed soils susceptible to erosion. SCARF construction has the potential to erode soil and increase sedimentation and turbidity in the San Joaquin River adjacent to, and downstream of the site. High, chronic levels of suspended sediment can have detrimental effects on salmonid survival, growth, and health (Sigler et al. 1984; Servizi and Martens 1992; Newcombe and Jensen 1996; ICF International 2012). Although any increase in turbidity associated with construction of the SCARF facilities is likely to be brief and occur only in the vicinity of the site (i.e., the secondary channel of the San Joaquin River) and attenuate downstream as suspended sediment settles out of the water column, these temporary spikes in suspended sediment may result in behavioral avoidance of the site by fish; several studies have documented active avoidance of turbid areas by juvenile and adult salmonids (Bisson and Bilby 1982; Lloyd 1987; Servizi and Martens 1992; Sigler 1984). Consequently, the impacts of sedimentation and turbidity from SCARF construction on fish species are considered potentially significant.

To reduce these impacts to a less than significant level, the Proposed Project would include preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) in compliance with the State Water Resources Control Board's General Permit for Discharges of Storm Water Associated with Construction Activity. Additionally, the amount of sediment generated by construction would be minimized by mitigation measures that specify construction best management practices (BMPs) and measures to minimize erosion. These mitigation measures are Mitigation Measure GEO-CONSTRUCT-1a and Mitigation Measure GEO-CONSTRUCT-3, respectively. With these measures in place, impacts to fish species and their habitat would be less than significant. The text of Mitigation Measure GEO-CONSTRUCT-1a is provided under the explanation to Impact GEO-CONSTRUCT-1, and the text of Mitigation Measure GEO-CONSTRUCT-3 is provided under the explanation to Impact GEO-CONSTRUCT-3.

**Impact FISH-CONSTRUCT-2:**

Implementation of the Proposed Project could result in the risk of release of construction-related hazardous materials, chemicals, and waste to the San Joaquin River, potentially harming fish.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

During SCARF construction, construction equipment may be sources of hazardous materials, such as fuels, lubricating oil, grease, and/or hydraulic fluid. Hazardous materials could harm aquatic organisms and habitats, either due to a direct spill into the river during instream construction or due to spills occurring on land being washed into the river by storm runoff, thereby resulting in a potentially significant impact. However, with implementation of a SWPPP and Mitigation Measure GEO-CONSTRUCT-1a, which specifies the implementation of BMPs during construction, the risk for release of hazardous materials would be less than significant. The text of Mitigation Measure GEO-CONSTRUCT-1a is provided above under the explanation to Impact GEO-CONSTRUCT-1.

**Impact FISH-CONSTRUCT-3:**

Implementation of the Proposed Project could result in potentially significant alterations of riparian or instream fish habitat from SCARF construction.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Riparian and aquatic vegetation may be lost as a result of construction of SCARF structures in or near the secondary channel. Loss of riparian vegetation may result in increased water temperatures, reduced instream habitat availability, increased predation, and reduced prey availability.

The majority of the Proposed Project would be constructed on disturbed or previously developed land. However, SCARF construction activities related to the volitional release channel and return flow outfall would temporarily disturb approximately 11,000 square feet of riparian habitat, and would result in a permanent loss of approximately 5,000 square feet of riparian habitat. This is considered a significant impact on fish habitat. Implementation of Mitigation Measures BIO-CONSTRUCT-11a and 11b, by ensuring avoidance or, where avoidance is not possible, replacement of significant riparian vegetation, would reduce this impact to a level that is less than significant. The text of Mitigation Measure BIO-CONSTRUCT-11a and Mitigation Measure BIO-CONSTRUCT-11b is provided under the explanation to Impact BIO-CONSTRUCT-11.

**Impact FISH-CONSTRUCT-4:**

Implementation of the Proposed Project could alter the behavior or cause physical harm to special-status fish species during construction, a potentially significant impact.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

It is unlikely that special-status fishes would be present in the area disturbed by SCARF construction; however, instream and streambank activities associated with SCARF construction could directly impact special-status fishes such as Kern brook lamprey ammocetes (juveniles) and juvenile salmonids if they are present in the secondary channel during construction. Construction-related impacts could potentially include loss of individuals, decreased foraging success, and increased predation risk.

Installation of the volitional release channel would involve instream construction activities that would cause a temporary alteration in conditions in the San Joaquin River side channel and potentially affect fish and aquatic resources. These effects include noise and hydrostatic pressure waves associated with equipment during instream construction (ICF International 2012). These pressure waves may have adverse physiological effects on fish, including damage to internal organs, over relatively long distances (Washington et al. 1992).



Downstream migratory barriers currently in place reduce the likelihood that special-status fish species will occur at the SCARF site. However, these barriers are porous and are not operated over the entire year and special-status fishes, including fall-run Chinook salmon and Kern brook lamprey, are known to occur in Reach 1A (CDFW, unpublished data). Although the Proposed Project's footprint in waters is limited, the temporary impact of instream construction may be significant if adult Kern brook lamprey or fall-run Chinook juveniles are present in the secondary channel. Implementation of Mitigation Measures FISH-CONSTRUCT-4a and -4b would reduce the impact of instream construction to a less than significant level by capturing and relocating special status fish species outside the work area before construction begins and maintaining their exclusion from the area during construction. Specifically:

- Mitigation Measure FISH-CONSTRUCT-4a: Prior to commencing instream construction, a barrier will be constructed around the affected area and qualified fisheries biologists shall survey the enclosure by making a minimum of three passes by electrofishing, using protocols developed by NMFS (2000). All fish captured, including special-status species, will be placed into a suitable holding container of cool, aerated stream water and then relocated to a suitable location near the construction area. Construction in the side channel will occur when it is dry or has low flow to the extent feasible; water in the work area will be diverted using coffer dams or similar structures.
- Mitigation Measure FISH-CONSTRUCT-4b: The fish exclusion structure will remain in place during all instream construction activities and will be monitored daily during instream construction to ensure that it is effectively excluding fish. If the fisheries biologist determines that the enclosure has been compromised, instream construction will be stopped until the biologist has repeated Mitigation Measure FISH-CONSTRUCT-4a and the enclosure has been repaired and is deemed effective.

#### **Impact FISH-MANAGEMENT-1:**

Implementation of the Proposed Project could significantly affect special-status aquatic species during construction of fish segregation weirs or barriers.

#### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Construction of segregation weirs and barriers may impact special-status aquatic species with the potential to occur in the Restoration Area (Table 6-4 of the DEIR), particularly if the new features require establishment of permanent foundations on the river's bed and bank. Impacts associated with construction of fish segregation weirs may include clearing vegetation, grading, and placement of fill in the river. Direct impacts to special-status aquatic species and their habitats would be considered potentially significant. Implementation of Mitigation Measure FISH-MANAGEMENT-1 would reduce this impact to a less than significant level by requiring pre-construction site assessment and implementation of specified avoidance and minimization measures for any special-status aquatic species that may be present.

- Mitigation Measure FISH-MANAGEMENT-1: CDFW shall implement appropriate Conservation Measures from Appendix I, CDFW's *Conservation Measures for Biological Resources That May Be Affected by Program-level Actions*, prior to and during the construction of fish segregation weirs and barriers. Pre-construction planning shall include a site assessment by a qualified fisheries biologist to determine the potential for special-status species to occur in the vicinity. If the biologist determines that special-status aquatic species may be present, CDFW shall implement the applicable Appendix I avoidance and minimization measures for each species that may be present.

**Impact FISH-MANAGEMENT-2:**

Implementation of the Proposed Project could significantly affect aquatic species due to bank destabilization, erosion, and increased sedimentation during installation and operation of weirs and barriers or trap and haul activities.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

An evaluation of the fish-blocking effectiveness of the Hills Ferry Barrier (HFB) was performed by Reclamation during August through November 2010 (Portz et al. 2011). Portz et al. (2011) determined that the sand-silt-clay substrate comprising the river bottom experienced erosion, especially around the barrier's support structures,

footings, base, and conduit panels, with scour holes also developing underneath and at each end of the barrier. The scour holes allowed at least 22 Chinook salmon to pass through the barrier. Substrate conditions at the potential Salt and Mud Sloughs barrier sites have not been investigated, but are likely to be similar to the HFB site.

Although the Reach 1A Segregation Weir is proposed for construction in the vicinity of the Hwy 41 crossing, its exact location has not yet been identified. Nevertheless, substrate conditions in the San Joaquin River at the Hwy 41 crossing are much different than at the HFB, with a seemingly less erodible gravel-cobble substrate being dominant.

The highly erodible river bed and bank at the HFB make installation of an instream weir at this location problematic. Even installation of a permanent concrete sill to stabilize vertical and horizontal erosion and provide a solid barrier foundation (recommended by Portz et al. 2011) might be compromised by the highly unstable bottom substrate. By comparison, substrate conditions at the proposed Reach 1A Segregation Weir appear much more stable. In one of the few studies that assessed fish forage conditions in the San Joaquin River, Saiki and Schmitt (1985) reported that benthic macroinvertebrate standing crop and Shannon-Weaver diversity index were much lower at Fremont Ford (shifting sand substrate; located within Reach 5 immediately upstream of the HFB) than at an upstream location at Fort Washington (gravel-cobble substrate; located within Reach 1A). Saiki and Schmitt (1985) also reported that resident bluegills had fuller stomachs and ate a more diverse diet where the supply of benthic macroinvertebrates was most abundant and diverse. If native aquatic species respond in similar fashion to environmental conditions, then the degraded habitat (e.g., unstable and erodible substrate, and high sedimentation) found at the HFB could have an adverse effect on fish.

Modification and operation of the HFB, the Reach 1A Segregation Weir, barriers at Salt and Mud Sloughs or other locations, and other activities related to trap-and-haul efforts (collection, streamside rearing) may result in some level of bank and bed erosion and resultant sedimentation, which is considered a potentially significant impact on fish for the reasons stated above. Erosion and sedimentation resulting from construction would be minimized by Mitigation Measures GEO-CONSTRUCT-1a, GEO-MANAGEMENT-1a and GEO-MANAGEMENT-1b by implementing construction BMPs, stabilizing soils that are disturbed by construction activities, and implementing procedures to minimize turbidity and flow of water returned to the river following Chinook salmon transport, respectively. Erosion and resultant sedimentation resulting from weir operations may occur, but these sediment loads from local bank erosion and scour would not be substantial enough to degrade habitat so as to result in a significant adverse effect to fish or their habitat. Thus, with implementation of Mitigation Measures GEO-CONSTRUCT-1a, GEO-MANAGEMENT-1a and GEO-MANAGEMENT-1b, these

impacts are considered to be less than significant. The text of Mitigation Measure GEO-CONSTRUCT-1a is provided under the explanation to Impact GEO-CONSTRUCT-1, and the text of Mitigation Measures GEO-MANAGEMENT-1a and GEO-MANAGEMENT-1b is provided under the explanation to Impact GEO-MANAGEMENT-1.

**Impact FISH-MANAGEMENT-5:**

Implementation of the Proposed Project could interfere with the movements of large-bodied (non-target) fish, including federally listed species such as Central Valley Steelhead and Green Sturgeon, due to trap and haul activities or the presence of segregation weirs.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

The HFB potentially impedes adult Central Valley steelhead from moving upstream, although the weir is not intended to be in place during the time when steelhead are most likely to occur in the area (mid-December through mid-February) (Portz et al. 2011). Following restoration, improved flows and water quality in the upper San Joaquin River may attract Central Valley steelhead, green sturgeon, and other large-bodied fishes (e.g., white sturgeon, striped bass, common carp, channel catfish). Operation of the HFB and other proposed weirs to impede upstream passage of fall-run Chinook salmon is expected to affect all large-bodied special-status fishes. To the extent that operation of weirs for fisheries management under the Proposed Project impede passage to a greater extent than under existing operations of the HFB, these impacts would be considered potentially significant. Implementation of Mitigation Measures FISH-MANAGEMENT-5a and -5b would reduce this impact to a less than significant level by monitoring the area around the fish weir or trap and making modifications, if necessary, to the weir or weir setup to reduce impacts to special status fishes.

- Mitigation Measure FISH-MANAGEMENT-5a: If actions described above in Impact FISH-MANAGEMENT-5 are used in the Restoration Area (which includes the San Joaquin River below Friant Dam to the confluence of the Merced River, as set forth in the Settlement Agreement), CDFW shall assess the species composition of fish communities within the 500-foot

reach both upstream and downstream of each segregation weir or trap, during the time of year that the weir(s) or trap is in place. The monitoring activities shall focus on large bodied special-status fish species such as green sturgeon and steelhead. Monitoring techniques may include the use of visual surveys, rod and reel angling, set lines, fyke nets, DIDSON™, or seines.

- Mitigation Measure FISH-MANAGEMENT-5b: If as a result of Mitigation Measure FISH-MANAGEMENT-5a or through other means, CDFW identifies that, outside of the current seasonal operation of the HFB (September to mid-December), the migration of special-status large bodied fishes could be impeded by the operation of the weir(s) or trap and haul activities, then CDFW shall modify the operation of the weir or implement measures that allow fish to bypass the weir so that movement of large bodied special-status fish species such as green sturgeon and steelhead is not impeded. Such measures may include removal or relocation of the weir(s), or operating a trap(s) to allow for manual selection of fish passing across the barrier.

#### **Impact FISH-MANAGEMENT-8:**

Implementation of the Proposed Project could significantly impact fish as a result of segregation weirs or the deployment of fish trapping devices for trap and haul activities.

#### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

#### **Explanation:**

Under the Proposed Project, CDFW may deploy various types of fish traps to move fish within the Restoration Area (i.e., trap and haul activities). Furthermore, the HFB is porous and does not prohibit passage of all adult salmon. CDFW will typically deploy fyke nets or other fish trapping devices to capture any fish that succeed in passing the weir. Prolonged entrainment of fish in the trapping devices can cause stress and reduce fitness. Management activities involving trap and haul of spring-run Chinook salmon in the Restoration Area may also have similar impacts to large bodied fish as those described for the segregation weirs (Impact FISH-MANAGEMENT-5). These impacts would be potentially significant with regard to special-status fishes such as

Chinook salmon and steelhead. Implementation of Mitigation Measures FISH-MANAGEMENT-5a, FISH-MANAGEMENT-5b, FISH-MANAGEMENT-8a, and FISH-MANAGEMENT-8b, would reduce this impact to a less than significant level by monitoring the area around the fish weir or trap and making modifications, if necessary, to the weir or weir setup to reduce impacts to special status fishes, ensuring all traps and trapping apparatuses are operated to minimize stress caused to fish, and removing or adjusting traps if mortality rates for fish surpass an established threshold. The text of Mitigation Measures FISH-MANAGEMENT-5a and FISH-MANAGEMENT-5b is provided above under the explanation to Impact FISH-MANAGEMENT-5.

- Mitigation Measure FISH-MANAGEMENT-8a: To reduce stress on captured fish, all trapping devices will be checked at least once per day. Untargeted wildlife (e.g., snakes, turtles) caught in traps will be released into suitable habitat for the species. Traps will be checked more frequently during times when conditions are stressful (e.g., high temperatures, large amounts of debris during high flow events) to reduce the time that fish are subject to trap-related stress. Fish will be carefully handled and given sufficient time to recover (at least 30 minutes) prior to being released back into the river. If rotary screw traps are used, they will be operated in accordance with the USFWS "*Draft Rotary Screw Trap Protocol for Estimating Production of Juvenile Chinook Salmon*" (USFWS 2008) and/or similar protocols which are at least as protective and developed after conferring with USFWS and, if required, NMFS.
- Mitigation Measure FISH-MANAGEMENT-8b: If mortalities greater than 2 fish or 2% of total catch are observed in a given day due to high debris loads, traps will be removed or raised out of the water until conditions are suitable for survival of fish (i.e., reduced winds or streamflow, improved weather conditions). For rotary screw traps, if predation causes such mortality, a structural refuge will be installed inside the trap to reduce predation. This will consist of a perforated plastic box or similar refuge for small fish within the rotary screw trap to prevent predation by larger fish captured in the trap.

### **Impact FISH-MONITORING-2:**

Implementation of the Proposed Project could result in incidental mortalities as a result of field research and monitoring activities.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

Instream monitoring activities, while necessary to support and evaluate the success of the Proposed Project, have potential for impacts on aquatic resources within the lotic (flowing water) environment. Individual research and monitoring events are not likely to result in significant impacts. However, the collective impact of all research and monitoring efforts have the potential to result in significant impacts on fish and aquatic habitats in the Restoration Area and broodstock collection streams. Potential impacts associated with instream monitoring activities are generally associated with sampling techniques that are intrusive and potentially injurious to fish and fish habitats, suggesting that the substitution of less intrusive and non-lethal procedures is preferable.

Field studies employing rotary screw traps to sample juvenile salmon in Central Valley rivers have documented incidental mortalities ranging between 0.2% and 4.5% (Gaines et al. 2003; Montgomery et al. 2007; Watry et al. 2007), although one study reported an unusually high daily mortality rate of 50% during a period of extremely low catches (Watry et al. 2007). Scientific collecting permits that authorize take of juvenile salmon may include stipulations requiring permit holders to terminate sampling when mortalities exceed a certain threshold. The permit holder may also be required to notify the appropriate federal or state agencies, and to retain dead fish on ice or in an appropriate preservative for delivery to research or museum facilities.

Incidental sampling mortality has the potential to significantly impact fish populations. Implementation of Mitigation Measures FISH-MONITORING-2a, -2b -2c, -2d, and -2e would reduce this impact to a less than significant level by ensuring established fish handling and capturing procedures are adhered to, employing the use of passive capturing of fish instead of active fish capture, and removing or adjusting traps if mortality rates for fish surpass an established threshold. Specifically:

- Mitigation Measure FISH-MONITORING-2a: When conducting active sampling, CDFW shall adhere to fish handling procedures prescribed in *Guidelines for the Use of Fishes in Research* (Nickum et al. 2004), or any more current protocols which are considered at least as protective.
- Mitigation Measure FISH-MONITORING-2b: To reduce impacts associated with active instream monitoring activity such as electrofishing,

seining, and use of jet or propeller motor boats by investigators, the use of passive capture equipment will be used in place of active sampling whenever appropriate and feasible. Passive sampling equipment includes entanglement gear such as gill nets and trammel nets, and entrapment gear such as fyke nets and rotary screw traps.

- Mitigation Measure FISH-MONITORING-2c: Both passive and active capture gears require collection and handling of organisms, which can potentially result in injury and stress to fish. Wherever possible and appropriate, observational techniques will be used in place of capture techniques to reduce the need to handle organisms. Examples of observational techniques include snorkeling, underwater photography, and video monitoring (Merz and Merz 2004). When water clarity is poor, remote-sensing camera procedures, such as DIDSON™ and other electronic or acoustic techniques will be used (Baumgartner 2006).
- Mitigation Measure FISH-MONITORING-2d: Rotary screw traps will be operated in accordance with the USFWS "*Draft Rotary Screw Trap Protocol for Estimating Production of Juvenile Chinook Salmon*" (USFWS 2008) and/or similar protocols which are at least as protective and developed after conferring with USFWS and, if required, NMFS. USFWS (2008) includes several measures, as follows. To reduce stress on captured fish, all trapping devices will be checked at least once per day when in the fishing position. Untargeted wildlife (e.g., snakes, turtles) caught in traps will be released into suitable habitat for the species. Traps will be checked more frequently during times when conditions are stressful (e.g., high temperatures, large amounts of debris during high flow events) to reduce the time that fish are subject to trap-related stress. Fish may need to be anesthetized, which would be done using methods acceptable to USFWS and NMFS before they are handled and given sufficient time to recover (at least 30 minutes) prior to being released back into the river.
- Mitigation Measure FISH-MONITORING-2e: If mortalities greater than two fish or 2% of total catch are observed in a given day due to high debris loads, traps will be raised out of the water until conditions are suitable for survival of fish (i.e., reduced winds or streamflow, improved weather conditions). If predation causes such mortality, a structural refuge will be installed inside the trap to reduce predation. This will consist of a perforated plastic box or similar refuge for small fish within the rotary screw trap to prevent predation by larger fish captured in the trap.



### **Impact FISH-RECREATION-1:**

Implementation of the Proposed Project could significantly impact fish species during construction of improvements at recreational angling sites.

#### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

#### **Explanation:**

As part of the Proposed Project, CDFW may enhance recreational angling opportunities in off-channel ponds adjacent to the San Joaquin River. These enhancements may include ground-disturbing activities such as excavation or placement of fill. These activities have the potential to adversely affect special-status fish species and their habitats listed in Table 6-4 of the DEIR. Direct impacts on special-status fish and their habitats would be considered potentially significant. Implementation of Mitigation Measure FISH-RECREATION-1 would reduce this impact to a less than significant level by implementing appropriate conservation measures prior to and during the construction of recreational fishing enhancements. More specifically:

- Mitigation Measure FISH-RECREATION-1: CDFW shall implement appropriate conservation measures from Appendix I, CDFW's *Conservation Measures for Biological Resources That May Be Affected by Program-level Actions*, prior to and during the construction of recreational fishing enhancements. Pre-construction planning shall include a site assessment by a qualified fisheries wildlife biologist to determine the potential for special-status species to occur in the vicinity. If the biologists determine that special-status species may be present, CDFW shall implement the applicable Appendix I avoidance and minimization measures for each species that may be present.

### **Impact BIO-CONSTRUCT-1:**

Implementation of the Proposed Project could significantly impact special status plant species.

#### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Although it is unlikely that special-status plant species will be present at the SCARF site, construction activities including ground disturbance and vegetation clearing could cause negatively affect special-status plant species. Also, while the Proposed Project would not significantly adversely affect habitat for special-status plant species, direct impacts to special-status plants would be considered potentially significant. Implementation of Mitigation Measures BIO-CONSTRUCT-1a and -1b would reduce this impact to a less than significant level by requiring floristic surveys at the SCARF site one year prior to ground disturbing activities, and, if special status plants are detected within or near the construction zone, implementing measures to avoid the special-status plants during construction or minimize impact to the species. Specifically:

- Mitigation Measure BIO-CONSTRUCT-1a: Within one year prior to commencement of ground disturbing activities, a qualified CDFW botanist will perform surveys for special-status plant species with the potential to occur at the SCARF site. Floristic surveys will be performed according to the *Protocols for Surveying and Evaluating Impacts to Specials Status Native Plant Populations and Natural Communities* (CDFG 2009 or current version). Floristic surveys will include the use of a reference population to increase the likelihood of detection, and will be performed during the appropriate bloom period(s) for each species. If special-status plants are detected within the construction zone or within a 100-foot radius of the construction zone, CDFW will implement Mitigation Measure BIO-CONSTRUCT-1b.
- Mitigation Measure BIO-CONSTRUCT-1b: If special-status plants are detected within the construction zone or within a 100-foot radius of the construction zone, CDFW will adjust the construction footprint or establish exclusion fencing to avoid impacts to the plants. Locations of special-status plant populations will be clearly identified in the field by staking, flagging, or fencing a minimum 100-foot wide buffer around them prior to the commencement of activities that may cause disturbance. No activity will occur within the buffer area. Some special-status plant species are annual plants, meaning the plant completes its entire lifecycle in one growing season. Other special-status plant species are perennial plants that return year after year until they reach full maturity. Due to the differences in life histories, all general conservation measures will be

developed on a case-by-case basis and will include strategies that are species and site-specific to avoid or minimize impacts to special-status plants.

If avoidance is not feasible, then CDFW will implement measures to minimize the impact to the species. Minimization measures may include transplanting perennial species, seed collection and dispersal for annual species, and other conservation strategies that will protect the viability of the local population. If minimization measures are implemented, monitoring of plant populations will be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be no net reduction in the size or viability of the local population.

### **Impact BIO-CONSTRUCT-2:**

Implementation of the Proposed Project could significantly impact special-status vernal pool branchiopods.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

Seasonally ponded depressions at the SCARF site provide marginally suitable habitat for special-status branchiopods, such as vernal pool fairy shrimp. Although special-status vernal pool branchiopods have not been detected at the SCARF site, if they do exist at the site then impacts to their habitat would be considered potentially significant. These impacts to occupied habitat may occur during grading or excavation for construction of SCARF. Implementation of Mitigation Measures BIO-CONSTRUCT-2a, -2b, and -2c would reduce potential impacts to a less than significant level by requiring surveys to be performed for special-status vernal pool branchiopod species prior to construction activities, adopting procedures to avoid or minimize impacts to suitable vernal pool branchiopod habitat. Specifically:

- Mitigation Measure BIO-CONSTRUCT-2a: Prior to implementation of construction activities, CDFW biologists will perform surveys for special-status vernal pool branchiopods species in seasonally ponded depressions with the potential to be impacted by construction of the

SCARF. Surveys will be performed according to the *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (USFWS 1996 or current version).

- Mitigation Measure BIO-CONSTRUCT-2b: The Proposed Project will be designed to avoid impacts to suitable vernal pool branchiopods habitat. Such avoidance measures may include adjusting roadway and pipeline alignments, minimizing the footprint of borrow sites, and locating staging/stockpile areas outside of suitable habitat.

If vernal pools are present, a 250-foot no disturbance buffer will be established from the high water mark of the vernal pools and seasonal wetlands that provide suitable habitat for vernal pool crustaceans. Wetland habitat will be delineated by staking, flagging or fencing. This buffer will be established prior to ground-disturbing activities, and it will remain until ground-disturbing activities in that area are completed.

- Mitigation Measure BIO-CONSTRUCT-2c: If occupied vernal pool branchiopods habitat cannot be avoided, CDFW will first identify if there are potential wetland mitigation opportunities on-site and will preferentially conserve, restore, or construct new wetland habitat at this location. If habitat cannot be restored on-site or in the immediate vicinity of the disturbance location, replacement at a nearby off-site location will be provided. The replacement of habitat will be equivalent to the nature of the habitat lost, and will be provided at a suitable ratio to ensure that, at a minimum, there is no net loss of habitat acreage or value. The replacement habitat will be set aside in perpetuity for habitat use. Mitigation ratios to achieve the “no net loss” standard will be determined in consultation with the USFWS.

If off-site compensation includes dedication of conservation easements, purchase of mitigation credits or other off-site conservation measures, the details of these measures will be developed through consultation with USFWS. The plan will include information on responsible parties for long-term management, holders of conservation easements, long-term management requirements, and other details, as appropriate, for the preservation of long-term viable populations. Any impacts that result in a compensation purchase will be required to do so with an endowment for land management in perpetuity prior to any project groundbreaking activities.

### **Impact BIO-CONSTRUCT-3:**

Implementation of the Proposed Project could significantly impact the California tiger salamander (CTS) and the western spadefoot.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

Small mammal burrows in annual grasslands within the SCARF site provide potentially suitable upland habitat for CTS and western spadefoot. CTS and western spadefoot species are known to breed in close proximity to the SCARF site and may use burrows throughout the site as upland habitat.

Construction activities, such as excavation of borrow areas and placement of fill for the access road, that impact suitable upland habitat for CTS and western spadefoot, have the potential to result in significant direct and indirect impacts to these species. Implementation of the Mitigation Measures BIO-CONSTRUCT-3a, -3b, -3c, and -3d would reduce the impact to a less than significant level for both species by requiring surveys for the presence/absence of CTS, avoiding impacts to suitable CTS habitat, and avoiding construction-related impacts to the western spadefoot by following established protocol. Specifically:

- Mitigation Measure BIO-CONSTRUCT-3a: CDFW will conduct a minimum of 2 years of surveys to determine the presence/absence of CTS at the SCARF site. Surveys will be conducted in accordance with the *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (USFWS 2003). In consultation with the USFWS, CDFW may modify survey protocols to reflect site conditions and potential utilization of habitat by CTS. If protocol surveys result in negative findings of CTS for 2 consecutive years, then Mitigation Measure BIO-CONSTRUCT-3c would not be implemented.
- Mitigation Measure BIO-CONSTRUCT-3b: To the extent feasible, the Proposed Project will be designed to avoid impacts to suitable upland CTS habitat. Such avoidance measures may include adjusting roadway and

pipeline alignments, minimizing the footprint of borrow sites, and locating staging/stockpile areas outside of suitable upland habitat.

- Mitigation Measure BIO-CONSTRUCT-3c: If CTS are detected during protocol surveys conducted under Mitigation Measure BIO-CONSTRUCT-3a, or in the absence of conducting 2 years of protocol-level surveys, CDFW will implement the following actions during construction to minimize potential impacts to CTS.
  - Prior to commencing ground disturbing activities, construction workers will be educated regarding CTS and the measures intended to protect this species.
  - When feasible, there will be a 50-foot no-disturbance buffer around burrows that provide suitable upland habitat for CTS. Burrows considered suitable for CTS will be identified by a qualified CDFW biologist. The biologist will delineate and mark the no-disturbance buffer.
  - All suitable burrows directly impacted by construction will be hand excavated under the supervision of a qualified wildlife biologist. If CTS are found, the biologist will relocate the organism to the nearest burrow that is outside of the construction impact area.
  - All ground-disturbing work will occur during daylight hours. In coordination with USFWS, and depending on the level of rainfall and site conditions. CDFW will monitor the National Weather Service (NWS) 72-hour forecast for the work area. If a 70% or greater chance of rainfall is predicted within 72 hours of project activity, all activities in areas within 1.3 miles of potential or known CTS breeding sites will cease until no further rain is forecast. If work must continue when rain is forecast, a qualified biologist will survey the project site before construction begins each day rain is forecast. If rain exceeds 0.25 inch during a 24-hour period, work will cease until no further rain is forecast. This restriction is not applicable for areas located greater than 1.3 miles from potential or known CTS breeding sites once they have been encircled with CTS exclusion fencing. However, even after exclusion fencing is installed, this condition would still apply to construction related traffic moving through areas within 1.3 miles of potential or known CTS breeding sites but outside of the salamander exclusion fencing (e.g. on roads).
  - For work conducted during the CTS migration season (November 1 to May 31), exclusionary fencing will be erected around the

construction site during ground disturbing activities after hand excavation of burrows has been completed. A biological monitor will visit the site weekly to ensure that the fencing is in good working condition. Fencing material and design will be subject to the approval of USFWS. If exclusionary fencing is not used, a qualified biological monitor will be on-site during all ground disturbance activities. Exclusion fencing will also be placed around all spoils and stockpiles.

- For work conducted during the CTS migration season (November 1 to May 31), a qualified biologist will survey the active work areas (including access roads) in mornings following measurable precipitation events. Construction may commence once the biologist has confirmed that no CTS are in the work area.
- Prior to beginning work each day, underneath equipment and stored pipes greater than 1.2 inches (3 cm) in diameter will be inspected for CTS. If any are found they will be allowed to move out of the construction area under their own accord.
- Trenches and holes will be covered and inspected daily for stranded animals. Trenches and holes deeper than 1 foot will contain escape ramps (maximum slope of 2:1) to allow trapped animals to escape uncovered holes or trenches. Holes and trenches will be inspected prior to filling.
- All food and food-related trash will be enclosed in sealed trash containers at the end of each workday and removed completely from the construction site once every three days to avoid attracting wildlife.
- A speed limit of 15 mph will be maintained on dirt roads.
- All equipment will be maintained such that there are no leaks of automotive fluids such as fuels, oils, and solvents. Any fuel or oil leaks will be cleaned up immediately and disposed of properly.
- Plastic monofilament netting (erosion control matting) or similar material will not be used at the project site because CTS may become entangled or trapped. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
- Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in a designated location that is at least 100 feet from wetlands and the San Joaquin River channel. If it is not feasible to store hazardous materials 100 feet from wetlands and the river channel, then spill containment measures will be

implemented to prevent the possibility of accidental discharges to wetlands and waters.

- Mitigation Measure BIO-CONSTRUCT-3d: Minimize construction-related impacts to the western spadefoot by applying the following procedures:
  - Prior to commencing ground disturbing activities, construction workers will be educated regarding western spadefoot, and the measures intended to protect these species.
  - For work conducted during the western spadefoot toad migration and breeding season (November 1 to May 31), a qualified biologist will survey the active work areas (including access roads) in mornings following measurable precipitation events. Construction may commence once the biologist has confirmed that no spadefoot toads are in the work area.
  - When feasible, there will be a 50-foot no-disturbance buffer around burrows that provide suitable upland habitat for western spadefoot toad. Burrows considered suitable for spadefoot will be identified by a qualified CDFW biologist. The biologist will delineate and mark the no-disturbance buffer.
  - If western spadefoot is toad is found within the construction footprint, it will be allowed to move out of harm's way of its own volition or a qualified biologist will relocate the organism to the nearest burrow that is outside of the construction impact area.
  - Prior to beginning work each day, underneath equipment and stored pipes greater than 1.2 inches (3 cm) in diameter will be inspected for western spadefoot toad. If any are found, they will be allowed to move out of the construction area under their own accord.
  - Trenches and holes will be covered and inspected daily for stranded animals. Trenches and holes deeper than 1 foot will contain escape ramps (maximum slope of 2:1) to allow trapped animals to escape uncovered holes or trenches. Holes and trenches will be inspected prior to filling.

#### **Impact BIO-CONSTRUCT-4:**

Implementation of the Proposed Project could significantly impact the western pond turtle.



**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Perennially flooded depressions (i.e., ponds) and portions of the San Joaquin River within the SCARF site provide suitable habitat for western pond turtle (WPT). Construction activities that directly impact WPT or their nests have the potential to result in significant impacts to this species. These activities may include filling of ponds for construction of SCARF buildings and the access road, as well as construction of the volitional release channel in the secondary channel of the San Joaquin River. Implementation of Mitigation Measure BIO-CONSTRUCT-4 would reduce this impact to a less than significant level by requiring pre-construction surveys for the presence of WPT, and, if WPT or WPT nests are discovered, implementing measures to minimize disturbance to WPT or WPT nests. Specifically:

- Mitigation Measure BIO-CONSTRUCT-4: Pre-construction surveys for WPT will be conducted by a qualified biologist 14 days before and 24 hours before the start of construction activities where suitable habitat exists (i.e., along riparian areas, ponds and freshwater emergent wetlands). If WPT or their nests are observed during pre-construction surveys, the following measures will be implemented:
  - A qualified biologist will be on site to monitor construction in suitable WPT habitat. WPT found within the construction area will be allowed to leave on its own volition or it will be captured by the qualified biologist and relocated out of harm's way to the nearest suitable habitat immediately upstream or downstream from the project site.
  - If WPT nests are identified in the work area during pre-construction surveys, a 300-foot no-disturbance buffer will be established between the nest and any areas of potential disturbance. Buffers will be clearly marked with temporary fencing. Construction will not be allowed to commence in the exclusion area until hatchlings have emerged from the nest, or the nest is deemed inactive by a qualified biologist.

### **Impact BIO-CONSTRUCT-5:**

Implementation of the Proposed Project could significantly impact burrowing owl populations.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

Construction could disturb burrowing owls through noise, visual distraction, or direct impacts to occupied habitat. These impacts would be considered potentially significant. Implementation of Mitigation Measure BIO-CONSTRUCT-5 would reduce potential impacts to burrowing owls to a less than significant level by requiring a survey for the presence of burrowing owls prior to initiating ground-disturbance activities, and implementing procedures to minimize disturbance if burrowing owls are present. Specifically:

- Mitigation Measure BIO-CONSTRUCT-5: Prior to initiating ground-disturbing activities, CDFW will conduct surveys for burrowing owls in accordance with protocols established in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012 or current version). If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction survey, the site will be resurveyed. If burrowing owls are detected, disturbance to burrows will be avoided during the nesting season (February 1 through August 31). CDFW will establish buffers around occupied burrows in accordance with guidance provided in the *Staff Report on Burrowing Owl Mitigation*, and at the discretion of the qualified CDFW wildlife biologist. Buffers around occupied burrows will be a minimum of 656 feet (200 meters) during the breeding season, and 160 feet (100 meters) during the non-breeding season.

Outside of the nesting season (February 1 through August 31), passive owl relocation techniques will be implemented. Owls would be excluded from burrows within 160 feet of construction by installing one-way doors in burrow entrances. The work area will be monitored daily for 1 week to confirm owl departure from burrows prior to any ground-disturbing activities. Where possible, burrows will be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe will be

inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow.

If occupied burrows cannot be avoided during the non-breeding season, CDFW will enhance or create burrows in adjacent habitat at a 1:1 ratio (burrows destroyed to burrows enhanced or created) one week prior to implementation of passive relocation techniques. If burrowing owl habitat enhancement or creation takes place, CDFW will develop and implement a monitoring and management plan to assess the effectiveness of the mitigation.

**Impact BIO-CONSTRUCT-6:**

Implementation of the Proposed Project could significantly impact raptor populations, including special-status raptor species.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Raptors, including special-status species such as Swainson's hawk, white-tailed kite, bald eagle, and golden eagle, are known to nest along the San Joaquin River corridor and may construct nests in the vicinity of the SCARF site. Construction activities could disturb nesting raptors through generation of noise, visual distraction, or direct impacts to occupied nests (e.g., tree removal). Construction activities that disturb nesting raptors, including special-status raptors, would be considered potentially significant. Implementation of Mitigation Measures BIO-CONSTRUCT-6a and -6b would reduce impacts to special-status raptors to a less than significant level. Additionally, implementation of Mitigation Measure BIO-CONSTRUCT-6c would reduce impacts to non-listed raptors to a less than significant level by requiring a survey for bald and golden eagle nests within an established radius of any construction area, and, if a nest is observed, preventing disturbance to an area within an established radius to the nest during the breeding season. Surveys are also required for other species of raptors if construction takes place between February 1 and August 31, and, if nests are detected, a buffer zone of no disturbance will be enforced. If suitable nesting trees are to be removed due to SCARF construction, CDFW shall mitigate by replacing with suitable nesting trees. In greater specificity:

- Mitigation Measure BIO-CONSTRUCT-6a: Surveys for bald and golden eagle nests will be conducted within 2 miles of any construction area supporting suitable nesting habitat and important eagle roost sites and foraging areas. Surveys will be conducted in accordance with the *USFWS Interim Golden Eagle Inventory and Monitoring Protocols* (USFWS 2010), and CDFW's *Bald Eagle Breeding Survey Instructions* (CDFG 2010), or current guidance.

If an active eagle's nest is found, project disturbance will not occur within 0.5 mile of the active nest site during the breeding season (December 30 through July 1), or in any area that may disturb the nesting birds. The 0.5 mile no-disturbance buffer will be maintained throughout the breeding season or until the young have fledged and are no longer dependent upon the nest or parental care for survival.

- Mitigation Measure BIO-CONSTRUCT-6b: If construction occurs between February 1 and August 31, CDFW will conduct surveys for nesting raptors, with a focus on Swainson's hawk and white-tailed kite, in accordance with established CDFW raptor survey protocols (e.g., CDFG 2000, or current guidance). Surveys will cover a minimum of a 0.5-mile radius around the construction area. If nesting raptors are detected, CDFW will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. Buffers will be maintained until a qualified CDFW biologist has determined that young have fledged and are no longer reliant upon the nest or parental care for survival.

If potential nesting trees are to be removed during construction activities, removal will take place outside of Swainson's hawk nesting season and CDFW will develop a plan to replace known Swainson's hawk nest trees at a ratio of 3:1. If replacement planting is implemented, monitoring will be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be 65% survival of all replacement plantings.

- Mitigation Measure BIO-CONSTRUCT-6c: If construction occurs between February 1 and August 31, CDFW will conduct surveys for nesting raptors in accordance with established CDFW raptor survey protocols. Surveys will cover a minimum of a 0.5-mile radius around the construction area. If nesting raptors are detected, CDFW will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. Buffers around active raptor nests will

be 500 feet for non-listed raptors, unless a qualified biologist determines that smaller buffers would be sufficient to avoid impacts to nesting raptors. Factors to be considered for determining buffer size will include: the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; and baseline levels of noise and human activity. Buffers will be maintained until a qualified CDFW biologist has determined that young have fledged and are no longer reliant upon the nest or parental care for survival. If potential nesting trees are to be removed during construction activities, removal will take place outside of the raptor nesting season and CDFW will develop a plan to replace known nest trees at a ratio of 3:1. If replacement planting is implemented, monitoring will be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be 65% survival of all replacement plantings.

**Impact BIO-CONSTRUCT-7:**

Implementation of the Proposed Project could significantly impact special-status passerine species and birds protected under the Migratory Bird Treaty Act (MBTA).

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Special-status passerines such as willow flycatcher may construct nests in the vicinity of the SCARF site. Many species of birds protected under the MBTA may also nest at the SCARF site. Construction activities could disturb nesting passerines through generation of noise, visual distraction or direct impacts to occupied nests (e.g., vegetation removal). Construction activities that disturb nesting special-status passerines or birds protected under the MBTA would be considered potentially significant. Implementation of Mitigation Measures BIO-CONSTRUCT-7a and -7b would reduce this impact to a less than significant level by requiring a survey for special-status birds if construction begins between February 1 and August 31. If nests of special-status birds are detected, a buffer zone will be implemented. Also, impacts to native nesting birds will be avoided whenever possible, and if nesting birds are observed in the construction area, a buffer zone will be implemented. In greater specificity:

- Mitigation Measure BIO-CONSTRUCT-7a: If construction begins between February 1 and August 31, CDFW will conduct surveys for special-status birds within a 1,000-ft radius of the construction area. Surveys will be conducted by biologists adhering to guidance offered in *Western Yellow-billed Cuckoo Natural History Summary and Survey Methodology* (Halterman et al. 2009); *Least Bell's Vireo Survey Guidelines* (USFWS 2001); and/or *A Survey Protocol for Willow Flycatcher in California* (Bombay et al. 2003). If nests are detected, CDFW will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. No-disturbance buffers around active nests will be a minimum of 500 feet, unless a qualified CDFW biologist determines that smaller buffers would be sufficient to avoid impacts to nesting birds. Factors to be considered for determining buffer size will include: the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; and baseline levels of noise and human activity. Buffers will be maintained until a qualified CDFW biologist has determined that young have fledged and are no longer reliant upon the nest or parental care for survival.
- Mitigation Measure BIO-CONSTRUCT-7b: Whenever possible, impacts to native nesting birds will be avoided by not conducting project activities that involve clearing of vegetation, generation of mechanical noise, or ground disturbance during the typical breeding season (February 1 to September 1), if species covered under the Migratory Bird Treaty Act and Fish and Game Code sections 3503, 3503.5, and/or 3513 are determined to be present.

If construction begins between February 1 and August 31, CDFW will conduct surveys for nesting birds within a 1,000-ft radius of the construction area. If nests are detected, CDFW will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. Buffers around active nests will be a minimum of 250 feet, unless a qualified CDFW biologist determines that smaller buffers would be sufficient to avoid impacts to nesting birds. Factors to be considered for determining buffer size will include: the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; and baseline levels of noise and human activity. Buffers will be maintained until young have fledged or the nests become inactive.

### **Impact BIO-CONSTRUCT-8:**

Implementation of the Proposed Project could significantly impact special-status bat species.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

Natural communities and artificial structures at the SCARF site provide suitable roosting habitat for several species of special-status bats. Table 7-2 identifies bat species with potential to roost or forage in the vicinity of the SCARF site. None of these bat species have been documented within the site (California Natural Diversity Database (CNDDDB) 2012). Removal of structures and large trees (i.e., greater than 24 inches diameter at breast height (DBH)) has the potential to impact bats and their roosts. Implementation of Mitigation Measures BIO-CONSTRUCT-8a, -8b, and -8c would reduce this impact to a less than significant level by requiring a pre-construction survey for special-status bats, and, if special-status bats are detected, minimizing disturbance to them as a result of construction activities. Specifically:

- Mitigation Measure BIO-CONSTRUCT-8a: No less than 7 days and no more than 14 days prior to the beginning of ground disturbance and/or construction activities, a qualified CDFW wildlife biologist, or wildlife biologist approved by CDFW, will conduct surveys for special-status bats during the appropriate time of day to maximize detectability to determine if bat species are roosting near the work area. Survey methodology may include visual surveys of bats (observation of presence of bats during foraging period), inspection for suitable habitat or bat sign (guano), or use of ultrasonic detectors (Anabat, etc.). Visual surveys may consist of a daytime pedestrian survey looking for evidence of bat use (e.g., guano) and/or an evening emergence survey to note the presence or absence of bats and will include trees within 0.25 mile of project construction activities. The type of survey will depend on the condition of the potential roosting habitat. If no bat roosts are found, then no further study is required. If evidence of bat use is observed, the number and species of bats using the roost will be determined.

- Mitigation Measure BIO-CONSTRUCT-8b: CDFW will avoid disturbance to roosts to the greatest extent feasible. If roosts must be removed, the bats will be excluded from the roosting site before it is removed. A mitigation program addressing compensation, exclusion methods, and roost removal procedures will be developed prior to implementation. Exclusion methods may include use of one-way doors at roost entrances (bats may leave, but not reenter), or sealing roost entrances when a site can be confirmed to contain no bats. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young).
- Mitigation Measure BIO-CONSTRUCT-8c: If roosts cannot be avoided or it is determined that construction activities may cause roost abandonment, such activities may not commence until permanent, elevated bat houses have been installed outside of, but near the construction area. Placement and height will be determined by a qualified CDFW wildlife biologist, but the height of bat house will be at least 15 feet. Bat houses will be multi-chambered and be purchased or constructed in accordance with CDFW standards. The number of bat houses required will be dependent upon the size and number of colonies found, but at least one bat house will be installed for each pair of bats (if occurring individually), or of sufficient number to accommodate each colony of bats to be relocated.

**Impact BIO-CONSTRUCT-9:**

Implementation of the Proposed Project could significantly impact the American badger.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Annual grassland at the SCARF site provides suitable habitat for the American badger. This species has been observed on nearby lands (Live Oak Associates 2008). Construction activities could directly harm badgers by burying or excavating active dens. These impacts would be considered potentially significant. Implementation of Mitigation Measure BIO-CONSTRUCT-9 would reduce this impact to a less than significant level by requiring a pre-construction survey for American badger den sites at



the SCARF site, and, if dens are discovered, implementing procedures to minimize disturbance to American badgers that may be affected by SCARF construction. Specifically:

- Mitigation Measure BIO-CONSTRUCT-9: No less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities, CDFW will conduct a survey to determine if American badger den sites are present at the SCARF site. If dens are found, they will be monitored for badger activity. If CDFW determines that dens may be active, the entrances of the dens will be blocked with soil, sticks, and debris for three to five days to discourage the use of these dens prior to project disturbance activities. The den entrances will be blocked to an incrementally greater degree over the three to five-day period. After the qualified CDFW biologist determines that badgers have stopped using active dens, the dens will be hand-excavated with a shovel to prevent re-use during construction. No disturbance of active dens will take place when cubs may be present and dependent on parental care, as determined by a qualified CDFW biologist.

**Impact BIO-CONSTRUCT-10:**

Implementation of the Proposed Project could significantly impact the San Joaquin kit fox (SJKF).

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Evidence of SJKF occurring at the SCARF site is scant, and the nearest confirmed record of a SJKF population is in western Madera County approximately 40 miles away. However, suitable habitat is present in the vicinity of the SCARF site. Construction vehicle traffic and ground disturbing activities including excavation, placement of fill, and soil compaction could potentially impact SJKF. Implementation of Mitigation Measure BIO-CONSTRUCT-10 would reduce this impact to a less than significant level by requiring a pre-construction survey for SJKF dens, and, if dens are discovered, implementing procedures to minimize disturbance to the SJKF if individuals may be affected by SCARF construction activities. Specifically:

- Mitigation Measure BIO-CONSTRUCT-10: A qualified biologist will conduct pre-construction surveys no less than 14 days and no more than 30 days before the commencement of construction activities to identify potential dens more than 5 inches in diameter. CDFW will implement USFWS' *Standardized Recommendations for Protection of San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 1999, 2011). CDFW will notify USFWS in writing of the results of the pre-construction survey within 30 days after these activities are completed.

If potential dens are located within the proposed work area and cannot be avoided during construction activities, a USFWS-approved biologist will determine if the dens are occupied. If occupied dens are present within the proposed work area, they will be avoided through the use of exclusion zones following the most current USFWS procedures (currently USFWS 1999, 2011). Furthermore, CDFW will notify USFWS immediately if a natal or pupping den is found in the survey area, and will present the results of pre-activity den searches within 5 days after these activities are completed and before the start of construction activities in the area. CDFW, in coordination with USFWS, will determine if SJKF den removal is appropriate. If unoccupied dens need to be removed, the USFWS-approved biologist will remove these dens by hand-excavating them in accordance with USFWS procedures (USFWS 1999, 2011).

Additional conservation measures will be coordinated between USFWS and CDFW, and may include replacing dens, installing off-site artificial dens, acquiring compensatory habitat, or other conservation options. Compensation may include dedicating conservation easements, purchasing mitigation credits, or other off-site conservation measures, and the details of these measures will be included in the mitigation plan and must occur with full endowments for management in perpetuity. The plan will include information on responsible parties for long-term management, holders of conservation easements, long-term management requirements, and other details, as appropriate, for the preservation of long-term viable SJKF populations. If conservation measures are implemented, CDFW will monitor their performance annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be no net reduction in the size or viability of the local SJKF population.

### **Impact BIO-CONSTRUCT-11:**

Implementation of the Proposed Project could significantly impact riparian habitat and Fremont cottonwood woodland.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

The majority of the SCARF would be constructed on disturbed and previously developed land. However, portions of the SCARF would be constructed in riparian habitat and Fremont cottonwood woodland (Alliance code 61.1300.00), which is identified as a sensitive natural community by CDFW. Riparian habitat that would be impacted by construction is classified as black willow thickets [*Salix gooddingii*/*Rubus armeniacus* alliance (Alliance code 61.211.07)]. Impacts to riparian habitat would be required for construction of the volitional release channel, return flow drum filters, and return flow outfall (Figure 2-3 of the EIR). Construction activities would temporarily disturb approximately 11,000 square feet. of riparian habitat during clearing and grubbing for access, and would result in a permanent loss of approximately 5,000 square feet of riparian habitat for construction of the volitional release channel, return flow drum filters, and return flow outfall. Impacts to Fremont Cottonwood woodland would result from tree removal and placement of fill for construction of the hatchery building and aquaculture tanks (Figure 2-3 of the EIR). This would result in a permanent loss of approximately 3,000 square feet of Fremont Cottonwood woodland. According to a field survey conducted in April 2013 using protocols established by the U.S. Department of Forestry (USFS 2007), approximately 54 native trees (cottonwood, valley oak, interior live oak, willow, and white alder) greater than 4 inches DBH are located on the SCARF site and any number of these may be removed during construction in riparian and Fremont cottonwood woodland habitats. These impacts are considered to be potentially significant. Implementation of Mitigation Measures BIO-CONSTRUCT-11a and -11b would reduce this impact to a less than significant level by ensuring construction activities do not disturb vegetation outside of the defined work area, and by implementing a revegetation plan for sensitive and riparian plant communities that are disturbed by construction of the Proposed Project. Specifically:

- Mitigation Measure BIO-CONSTRUCT-11a: The disturbance or removal of vegetation will not exceed the minimum necessary to complete construction and will only occur within the defined work area.

- Mitigation Measure BIO-CONSTRUCT-11b: CDFW will develop a revegetation plan for riparian habitat and sensitive natural communities disturbed by construction. All disturbed soils and new fill in riparian habitat or sensitive natural communities will be revegetated with site-appropriate native species. Any native vegetation 4 inches or greater DBH damaged or removed as result of construction activity will be replaced at a 3:1 ratio; this ratio will increase to 10:1 for native trees of 24 inches DBH and greater. Revegetation areas will be maintained and monitored to ensure a minimum of 65 percent survival of the plantings after 5 years.

**Impact BIO-CONSTRUCT-12:**

Implementation of the Proposed Project could significantly impact federally protected wetlands.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

The Proposed Project would place fill in the jurisdictional waters of the U.S. for construction of the volitional release channel and return flow drum filters (Figure 2-3 of the EIR). Construction activities would temporarily disturb approximately 1,550 square feet of wetlands, and fill approximately 3,500 square feet of jurisdictional wetlands. These activities would result in a loss of wetland area and may degrade wetland function and values. This is considered a potentially significant impact. Implementation of Mitigation Measures BIO-CONSTRUCT-12a and -12b would reduce this impact to a less than significant level by ensuring authorization for work in jurisdictional waters via the requirement of obtaining necessary permits from the USACE and RWQCB and following established procedures for disturbance of these waters. Additionally, incidental fill of wetland areas will be minimized wherever possible. Specifically:

- Mitigation Measure BIO-CONSTRUCT-12a: Work within areas defined as waters of the U.S. that includes placement of fill will require a CWA Section 404 permit from the USACE and Section 401 Water Quality Certification from the RWQCB. All work proposed in jurisdictional waters of the U.S. will be authorized by permits from the USACE and RWQCB. In areas where project activities are temporary in nature, jurisdictional wetland and other waters of the U.S. will be restored to their condition

prior to disturbance. In areas where permanent disturbance to jurisdictional waters or wetlands will occur, CDFW will first identify if potential mitigation sites are present within close proximity to the area of disturbance, and will construct new or restore degraded wetlands. If waters or wetlands cannot be restored on-site or in the immediate vicinity of the disturbance location, replacement at a nearby off-site location will be provided. The replacement of waters or wetlands will be equivalent to the nature of the habitat lost, and will be provided at a suitable ratio to ensure that, at a minimum, there is no net loss of habitat acreage or value. The replacement habitat will be set aside in perpetuity for habitat use. Mitigation ratios to achieve the “no net loss” standard will be determined in consultation with the USACE and RWQCB.

- Mitigation Measure BIO-CONSTRUCT-12b: Incidental fill of wetland areas will be minimized wherever possible. Temporary construction fencing will be erected around wetlands areas to reduce the potential of incidental fill. Areas affected by construction will be restored to pre-construction contours and revegetated using a mix of native vegetation in accordance with Mitigation Measure BIO-11b.

#### **Impact BIO-OP-1:**

Operations of the SCARF due to lighting of the facility could significantly impact special-status wildlife species and their habitats.

#### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

#### **Explanation:**

Lighting at the SCARF would include outdoor lighting used to illuminate aquaculture areas and building access points. Lighting has potential to displace individuals from suitable habitat or otherwise result in a substantial adverse effect to the special-status wildlife species with the potential to occur at the site. This is considered a potentially significant impact. However, Mitigation Measure AES-CONSTRUCT-4 requires that lighting be properly shielded and not directed toward sensitive areas such as riparian habitat adjacent to the SCARF site. With implementation of this mitigation measure, lighting elements are not anticipated to displace individuals from suitable habitat or otherwise result in a substantial adverse effect to any of the special-status

wildlife species with the potential to occur at the site. Therefore, implementation of this mitigation measure would reduce this impact to a less than significant level. The text of Mitigation Measure AES-CONSTRUCT-4 is provided above under the explanation to Impact AES-CONSTRUCT-4.

**Impact BIO-REINTRO-3:**

Implementation of the Proposed Project could significantly impact special-status wildlife species during broodstock juvenile collection.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Broodstock collection of juvenile spring-run Chinook salmon from wild stocks may coincide with the breeding season for special-status terrestrial wildlife species known to occur in the streams targeted for collection. Special-status wildlife species have the potential to be adversely affected by juvenile collection activities through excessive turbidity generated in the collection streams, access to and from streams, as well as noise levels that exceed the baseline condition. Implementation of Mitigation Measure BIO-REINTRO-3 would reduce this impact to a less than significant level by providing for site-specific biological resources evaluation and implementation of appropriate conservation measures. Specifically:

- Mitigation Measure BIO-REINTRO-3: When project activities are defined to a level that impacts to biological resources can be evaluated, and prior to implementing that component or taking actions that commit CDFW to implementing that component, CDFW will assess the site to determine the potential for impacts to biological resources. At minimum, the assessment will include a California Natural Diversity Database (CNDDDB) search of the site vicinity (minimum 5-mile radius), and a site visit by a qualified botanist and wildlife biologist to evaluate the potential for special-status species and sensitive habitats to be impacted by the activity. If the biologists determine that special-status species or sensitive habitats may be affected by the activity, CDFW will implement the conservation measures listed in Appendix I, *CDFW's Conservation Measures for Biological Resources That May Be Affected by Program-level Actions*, for each species and habitat type that may be affected.

**Impact BIO-REINTRO-6:**

Broodstock collection associated with the Proposed Project could interfere with wildlife movement, established wildlife corridors, or the use of the area as a native wildlife nursery.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Wild broodstock collection would not interfere with the movement of terrestrial wildlife species or affect nursery sites. However, movement of aquatic organisms, such as amphibians and reptiles, may be temporarily affected by stream seining, the use of fyke nets, and/or use of rotary screw traps. These impacts would be considered potentially significant. Implementation of Mitigation Measure FISH-MANAGEMENT-8a and FISH-MONITORING-2d, would minimize impacts to aquatic wildlife movement and use of nursery sites by monitoring the area around fish weirs or traps and making modifications, if necessary, to the weir or weir setup to reduce impacts to special status fishes, and ensuring all traps and trapping apparatuses are operated to minimize stress caused to fish. Implementation of this mitigation measure would reduce the impact to a level that is considered less than significant. The text of Mitigation Measure FISH-MANAGEMENT-8a is provided above under the explanation to Impact FISH-MANAGEMENT-8, and the text of Mitigation Measure FISH-MONITORING-2d is provided above under the explanation to Impact FISH-MONITORING-2.

**Impact BIO-MANAGEMENT-1:**

Implementation of the Proposed Project could significantly impact special-status species during the construction of fish segregation weirs and barriers.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Proposed fisheries management actions may include installing fish segregation weirs to separate spawning spring- and fall-run Chinook salmon, and barriers to block fish migration into Salt and Mud Sloughs. Construction of segregation weirs and migration barriers may impact special-status species and their habitats, particularly if the weirs or barriers require establishment of permanent foundations on the riverbank. Impacts associated with construction of fish segregation weirs and barriers may include clearing vegetation, grading, and placement of fill. Direct and indirect impacts to special-status species and their habitats would be considered potentially significant. Implementation of Mitigation Measure BIO-REINTRO-3 would reduce this impact to a less than significant level by providing for site-specific biological resources evaluation and implementation of appropriate conservation measures. The text of Mitigation Measure BIO-REINTRO-3 is provided above under the explanation to Impact BIO-REINTRO-3.

**Impact BIO-MANAGEMENT-2:**

Operation of fish segregation weirs/barriers and other instream equipment as part of the Proposed Project could interfere with wildlife movement, established wildlife corridors, or the use of the area as a native wildlife nursery.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Fish segregation weirs and migration barriers would not interfere with the movement of terrestrial wildlife species or affect nursery sites. However, movement of aquatic organisms, such as amphibians and reptiles, may be temporarily affected by weirs, use of traps or nets in conjunction with weirs or trap and haul efforts, and/or other equipment associated with trap and haul activities (e.g., streamside rearing). For example, movement of reptiles such as western pond turtle and giant garter snake may be obstructed by the weirs and associated nests. These impacts would be considered potentially significant. Implementation of Mitigation Measure FISH-MANAGEMENT-8a and FISH-MONITORING-2d, which would require CDFW to check traps on a daily basis would minimize impacts to aquatic wildlife movement and use of nursery sites, and reduce the impact to a level that is considered less than significant. The text of Mitigation Measure FISH-MANAGEMENT-8a is provided above under the explanation



to Impact FISH-MANAGEMENT-8, and the text of Mitigation Measure FISH-MONITORING-2d is provided above under the explanation to Impact FISH-MONITORING-2.

**Impact BIO-MONITORING-1:**

Implementation of the Proposed Project could result in significant impacts to special-status plant species during research and monitoring activities.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Field-based research and monitoring conducted as part of the Proposed Project may include the use of seining, electrofishing and/or the use of rotary screw traps. Special-status plant species have the potential to be adversely affected during research and monitoring activities through access to and from streams, dispersal of non-native or invasive species, and release of noxious materials, such as fuel. Special-status plant species growing adjacent to streams may be trampled or matted during research and monitoring activities. Repeated access to and from streams for research and monitoring activities may result in introduction of invasive plant species, compaction of soils, and direct impacts to special-status plants. These impacts, including direct impacts to special-status plants, are considered potentially significant. Implementation of Mitigation Measure BIO-REINTRO-3 would reduce this impact to a less than significant level by providing for site-specific biological resources evaluation and implementation of appropriate conservation measures. The text of Mitigation Measure BIO-REINTRO-3 is provided above under the explanation to Impact BIO-REINTRO-3.

**Impact BIO-MONITORING-2:**

Implementation of the Proposed Project could result in significant impacts to special-status wildlife species during research and monitoring activities.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

Research and monitoring activities may adversely impact special-status wildlife species through generation of noise, access to and from streams, creation of temporary movement barriers, or the release of noxious materials (e.g., fuel). Noise generated during research and monitoring would primarily come from vehicles, human conversation, and mechanized equipment. The noise levels generated by research and monitoring activities would exceed the baseline condition in many locations throughout the Restoration Area. However, these activities would occur in only a handful of locations spread throughout the Restoration Area and would be short-term and intermittent in nature. For these reasons, the increased noise and human activity are not anticipated to result in substantial displacement of individuals from suitable habitat or otherwise result in a substantial adverse effect to any of the special-status wildlife species.

Use of temporary research and monitoring equipment such as rotary screw traps would not adversely affect terrestrial wildlife. However, movement of semiaquatic organisms, such as amphibians and reptiles, may be temporarily affected by use of traps or nets. These impacts would be considered potentially significant. Implementation of Mitigation Measure FISH-MANAGEMENT-8a and FISH-MONITORING-2d, which would require CDFW to check traps on a daily basis, would minimize impacts to special-status aquatic wildlife and reduce the impact to a level that would be less than significant. The text of Mitigation Measure FISH-MANAGEMENT-8a is provided above under the explanation to Impact FISH-MANAGEMENT-8, and the text of Mitigation Measure FISH-MONITORING-2d is provided above under the explanation to Impact FISH-MONITORING-2.

Access to and from streams for research and monitoring activities could disrupt breeding activity by directly trampling or destroying nests, or indirectly by causing visual distractions. In addition, use of equipment in proximity to nesting birds could have adverse effects due to repeated human disturbance near the nest. These impacts would be considered potentially significant. Implementation of Mitigation Measure BIO-REINTRO-3 would reduce this impact to a less than significant level by providing for site-specific biological resources evaluation and implementation of appropriate conservation measures. The text of Mitigation Measure BIO-REINTRO-3 is provided above under the explanation to Impact BIO-REINTRO-3.

### **Impact BIO-MONITORING-3:**

Implementation of the Proposed Project could result in significant impacts to riparian habitat, sensitive natural communities, and federally protected wetlands during research and monitoring activities.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Repeated access to and from streams for research and monitoring activities may result in impacts to riparian habitat and sensitive natural communities. These impacts would be considered potentially significant. Implementation of Mitigation Measure BIO-REINTRO-3 would reduce this impact to a less than significant level by providing for site-specific biological resources evaluation and implementation of appropriate conservation measures. The text of Mitigation Measure BIO-REINTRO-3 is provided above under the explanation to Impact BIO-REINTRO-3.

**Impact BIO-MONITORING-4:**

Implementation of the Proposed Project could result in significant impacts to wildlife movement and nursery sites during research and monitoring activities.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Research and monitoring would not interfere with the movement of terrestrial wildlife species or affect nursery sites. However, movement of aquatic organisms, such as amphibians and reptiles, may be temporarily affected by instream trapping devices such as Fyke nets and rotary screw traps. These impacts would be considered potentially significant. Implementation of Mitigation Measure FISH-MANAGEMENT-8a and FISH-MONITORING-2d, which would require CDFW to check traps on a daily basis would minimize impacts to aquatic wildlife movement and use of nursery sites, and reduce the impact to a level that is considered less than significant. The text of Mitigation Measure FISH-MANAGEMENT-8a is provided above under the explanation to Impact FISH-MANAGEMENT-8, and the text of Mitigation Measure FISH-MONITORING-2d is provided above under the explanation to Impact FISH-MONITORING-2.

**Impact BIO-RECREATION-1:**

Implementation of the Proposed Project could result in significant impacts to special status plant species during construction of improvements at recreational angling sites.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

As part of the Proposed Project, CDFW may enhance recreational angling opportunities in off-channel ponds adjacent to the San Joaquin River. These enhancements may include ground disturbing activities such as excavation or placement of fill. These activities have the potential to adversely affect special-status plant species and their habitats, including species listed in Table J-1 of Appendix J, *Supporting Documentation Related to Biological Resources - Vegetation and Wildlife*. Species identified as potentially occurring in Reach 1A are the mostly likely to be impacted by actions conducted to enhance recreational angling. Direct impacts to special-status plants and their habitats would be considered potentially significant. Implementation of Mitigation Measure BIO-REINTRO-3 would reduce this impact to a less than significant level by providing for site-specific biological resources evaluation and implementation of appropriate conservation measures. The text of Mitigation Measure BIO-REINTRO-3 is provided above under the explanation to Impact BIO-REINTRO-3.

**Impact BIO-RECREATION-2:**

Implementation of the Proposed Project could result in significant impacts to special status plant species by increased traffic of anglers and other recreational users.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

Providing access to new angling areas along the San Joaquin River may result in impacts to special-status plant species and their habitats. Special-status plant species growing adjacent to streams may be trampled or matted by anglers. Repeated access to and from streams for angling may result in excessive ground disturbance and compaction of soils. This may result in the loss or decline of a special-status plants species population along the river or degradation of suitable habitat, which could result in potentially significant impacts. Implementation of Mitigation Measures BIO-REINTRO-3 and BIO-RECREATION-2 would reduce this impact to a less than significant level by providing for site-specific biological resources evaluation and implementation of appropriate conservation measures and requiring CDFW to implement measures to minimize impacts to natural areas around the SCARF site. The text of Mitigation Measure BIO-REINTRO-3 is provided above under the explanation to Impact BIO-REINTRO-3.

- Mitigation Measure BIO-RECREATION-2: Prior to developing recreational enhancements, CDFW will implement the Mitigation Measure BIO-REINTRO-3. If the qualified botanist identifies special-status plants species in the vicinity of the recreational enhancements, CDFW will implement measures to minimize potential impacts. Minimization measures may include constructing pathways, fencing, signage, and other strategies to reduce the potential for trampling or matting that will protect the viability of the local plant population and suitable habitat. If minimization measures are implemented, monitoring of plant populations will be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be no net reduction in the size or viability of the local population.

### **Impact BIO-RECREATION-3:**

Implementation of the Proposed Project could result in significant impacts to special status wildlife species during construction of improvements at recreational angling sites.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

As part of the Proposed Project, CDFW may enhance recreational angling opportunities in off-channel ponds adjacent to the San Joaquin River. These enhancements may include ground disturbing activities such as excavation or placement of fill. These activities have the potential to adversely affect special-status wildlife species and their habitats. Implementation of Mitigation Measure BIO-REINTRO-3 would reduce this impact to a less than significant level by providing for site-specific biological resources evaluation and implementation of appropriate conservation measures. The text of Mitigation Measure BIO-REINTRO-3 is provided above under the explanation to Impact BIO-REINTRO-3.

**Impact BIO-RECREATION-5:**

Implementation of the Proposed Project could result in significant impacts to riparian habitat and other sensitive natural communities as a result of angling enhancements.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Construction of angling enhancement projects is likely to occur adjacent to the San Joaquin River and may affect riparian habitat and other stream-side sensitive natural communities. Impacts may occur during clearing and grubbing, excavation, grading and placement of fill. Direct impacts to these habitats would be considered potentially significant. Implementation of Mitigation Measure BIO-REINTRO-3 would reduce this impact to a less than significant level by providing for site-specific biological resources evaluation and implementation of appropriate conservation measures. The text of Mitigation Measure BIO-REINTRO-3 is provided above under the explanation to Impact BIO-REINTRO-3.

**Impact BIO-RECREATION-6:**

Implementation of the Proposed Project could result in significant impacts to federally protected wetlands as a result of construction of angling enhancements.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Construction of angling enhancement projects may include impacts to federally protected wetlands including placement of fill or change in hydrology. These activities may result in a loss of wetland area and may degrade wetland function and values. Implementation of Mitigation Measure BIO-REINTRO-3 would reduce this impact to a less than significant level by providing for site-specific biological resources evaluation and implementation of appropriate conservation measures. The text of Mitigation Measure BIO-REINTRO-3 is provided above under the explanation to Impact BIO-REINTRO-3.

**Impact BIO-RECREATION-7:**

Implementation of the Proposed Project could significantly impact wildlife movement, established wildlife corridors, or the use of the area as a native wildlife nursery.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

The San Joaquin River and associated riparian habitat serve as a wildlife movement corridor. The lands adjacent to the river are also utilized as movement corridors by a variety of birds, amphibians, reptiles, and mammals. No new permanent physical dispersal or migration barriers for terrestrial wildlife would be developed. However, construction of angling enhancements may create temporary physical barriers and noise disturbance which may affect species in the vicinity of the enhancement sites. This may include disruption of nesting or breeding of wildlife species, which would be considered potentially significant. Implementation of Mitigation Measure BIO-REINTRO-3 would reduce this impact to a level that is considered less than significant by providing for site-specific biological resources evaluation and

implementation of appropriate conservation measures. The text of Mitigation Measure BIO-REINTRO-3 is provided above under the explanation to Impact BIO-REINTRO-3.

**Impact CR-CONSTRUCT-1:**

Implementation of the Proposed Project could result in a substantial adverse impact on archaeological resources from project construction.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

An archaeological survey was conducted of the SCARF site and one archaeological resource, CA-FRE-3643H, was identified and recorded. However, additional archaeological remains may be buried with no surface manifestation. It is estimated that building site preparation would extend to depths of up to 10 feet. In addition, trenching for pipelines and underground utilities could potentially uncover buried archaeological deposits, as could improvements to East Belcher Road. Archaeological remains could consist of prehistoric or historic-era artifacts. Prehistoric materials most likely would include obsidian and chert flaked-stone tools (e.g., projectile points, knives, choppers); tool-making debris; or milling equipment, such as mortars and pestles. Historic-era materials may include structural remains associated with the Grant Rock and Gravel Company or the San Joaquin Rock and Gravel Company that were not previously identified as part of site CA-FRE-3643H; agricultural implements; stone or concrete footings and walls; and deposits of metal, glass, and/or ceramic refuse. Should previously undiscovered resources be found that are determined eligible for the California Register of Historic Resource (CRHR), and Proposed Project activities be determined to have potential to render the resource ineligible for the CRHR, impacts would be considered potentially significant. Implementation of Mitigation Measure CR-CONSTRUCT-1a and -1b would reduce any impacts on CRHR-eligible archaeological sites accidentally uncovered during construction to less than significant by requiring evaluation of all cultural resources for inclusion into CRHR, requiring mitigation for resources deemed ineligible due to the effects of the Proposed Project construction, and halting construction if a cultural resource is discovered via construction activity until verification by a qualified archaeologist. Specifically:

- Mitigation Measure CR-CONSTRUCT-1a: CDFW shall ensure that all cultural resources identified prior to or during construction of the various



Proposed Project components will be evaluated for eligibility for inclusion in the California Register of Historic Resource (CRHR). Where implementation of the Proposed Project necessitates ground disturbance at sites besides the SCARF (e.g., sites for recreational enhancements), a records search and pedestrian survey shall be conducted prior to construction. Resource evaluations will be conducted by individuals who meet the U.S. Secretary of Interior's professional standards in archaeology and architectural history. If any of the resources that are identified during this evaluation meet the eligibility criteria identified in PRC section 5024.1, or PRC section 21083.2(g), CDFW will develop and implement mitigation measures according to CEQA Guidelines section 15126.4(b) before construction begins or resumes.

For resources eligible for listing in the CRHR that would be rendered ineligible by the effects of project construction, CDFW shall implement mitigation measures. Mitigation measures for archaeological resources shall be selected from the following: avoidance; incorporation of sites within parks, greenspace, or other open space; capping the site; deeding the site into a permanent conservation easement; or data recovery excavation. Mitigation measures for archaeological resources shall be developed in consultation with responsible agencies, including but not limited to the State Office of Historic Preservation and, as appropriate, interested parties such as Native American tribes. Mitigation measures for historic architectural resources shall be consistent with the U.S. Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. Implementation of the approved mitigation would be required before beginning/resuming any construction activities with potential to affect identified eligible resources at the site.

- Mitigation Measure CR-CONSTRUCT-1b: Not all cultural resources are visible on the ground surface. If any cultural resources, such as structural features, unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, human remains, or architectural remains are encountered during any project construction activities, work shall be suspended immediately at the location of the find and within an appropriate radius of at least 50 feet. A qualified archaeologist shall conduct a field investigation of the specific site and recommend mitigation necessary for the protection or recovery of any cultural resource concluded by the archaeologist to represent a historical resource or unique archaeological resource. Mitigation Measure CR-CONSTRUCT-1a would then be implemented.

**Impact CR-CONSTRUCT-3:**

Implementation of the Proposed Project could result in human remains being disturbed, including those interred outside of formal cemeteries within the SCARF construction area.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Human remains are not known to exist within the SCARF site, and soils consist of alluvial terrace deposits of loose sand and gravel that have been subject to inundation and scouring during flood events; however, buried human remains may be present. Any ground disturbance could uncover subsurface remains, but excavations of up to 10 feet in depth for building site preparation, and trenching for pipelines and underground utilities, have the greatest potential to expose human remains, if they are present.

Impacts on accidentally discovered human remains would be considered a significant impact. Implementation of Mitigation Measures CR-CONSTRUCT-1b and CR-CONSTRUCT-3 would ensure that the Proposed Project would not result in any substantial adverse effects on human remains uncovered during the course of construction, by requiring that work be halted if human remains are uncovered and the County Coroner be contacted. Adherence to these procedures and other provisions of the California Health and Safety Code would reduce potential impacts on human remains to a less than significant level. The text of Mitigation Measure CR-CONSTRUCT-1b is provided above under the explanation to Impact CR-CONSTRUCT-1.

- Mitigation Measure CR-CONSTRUCT-3: If human remains are accidentally discovered during the Proposed Project's construction activities, the requirements of California Health and Human Safety Code section 7050.5 must be followed. Potentially damaging excavation must halt in the area of the remains, with a minimum radius of 50 feet, and the local County Coroner must be notified. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code section 7050.5[b]). If the Coroner determines that the remains are those of

a Native American, he or she must contact NAHC by phone within 24 hours of making that determination (Health and Safety Code section 7050[c]). Pursuant to the provisions of PRC section 5097.98, the NAHC shall identify a Most Likely Descendent (MLD). The MLD designated by the NAHC shall have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods.

**Impact CR-MANAGEMENT-1:**

Implementation of the Proposed Project could result in a significant impact on CRHR-eligible archaeological resources due to weir construction, demolition, or modification and trap and haul activities.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Details for the installation of fish segregation weirs within the San Joaquin River have not yet been developed, but actions are likely to include structural modifications to or relocation of the HFB, construction of similar structures near the downstream end of Reach 1A of the San Joaquin River, at Salt or Mud Sloughs, or at other locations to be determined. Trap and haul efforts would involve temporary instream traps (e.g., fyke nets, etc.) and streamside rearing equipment. Access to new weir locations and instream equipment would also be required. CDFW will be required to determine whether archaeological resources are present within these project areas prior to construction and whether the construction activities have the potential to accidentally uncover archaeological remains.

Trap and haul activities for fisheries management would involve temporary installation of fyke nets or other fish traps, and use of streamside rearing equipment. Streambed disturbance would be minimal from this equipment, and the likelihood of impacting cultural resources exceptionally low. The construction, demolition, or modification of fish segregation weirs, on the other hand, could involve ground disturbance. Thus, these ground-disturbing actions have the potential to significantly affect archaeological resources that are eligible for the CRHR. Implementation of Mitigation Measures CR-CONSTRUCT-1a and -1b would reduce impacts to less than significant by requiring evaluation of all cultural resources for inclusion into CRHR, requiring mitigation for resources deemed ineligible due to the effects of the Proposed

Project construction, and halting construction if a cultural resource is discovered via construction activity until verification by a qualified archaeologist. The text of Mitigation Measures CR-CONSTRUCT-1a and CR-CONSTRUCT-1b is provided above under the explanation to Impact CR-CONSTRUCT-1.

### **Impact CR-MANAGEMENT-2:**

Implementation of the Proposed Project could result in a significant impact on CRHR-eligible structures from weir construction, demolition, or modification.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

The HFB is a seasonal weir on the San Joaquin River, 850 feet upstream from the river's confluence with the Merced River, which was first constructed in 1993 and subsequently modified in 2003. Details have not yet been determined, but the Project will likely either modify the existing weir by constructing a permanent concrete sill to stabilize erosion and provide a solid barrier foundation, or move the weir downstream toward the Merced River confluence. The HFB is not eligible for listing in the CRHR because of its age. However, other proposed developments regarding the construction, demolition, or modification of weirs, such as construction of a new weir on Reach 1A of the San Joaquin River or construction of access to new weir sites, have the potential to significantly affect historical resources of the built environment. Implementation of Mitigation Measures CR-CONSTRUCT-1a and 1b would reduce significant impacts to such resources to a less than significant level by requiring evaluation of all cultural resources for inclusion into CRHR, requiring mitigation for resources deemed ineligible due to the effects of the Proposed Project construction, and halting construction if a cultural resource is discovered via construction activity until verification by a qualified archaeologist. The text of Mitigation Measures CR-CONSTRUCT-1a and CR-CONSTRUCT-1b is provided above under the explanation to Impact CR-CONSTRUCT-1.

### **Impact CR-MANAGEMENT-3:**

Implementation of the Proposed Project could result in human remains being disturbed, including those interred outside of formal cemeteries within the SCARF construction area.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Modifications to the HFB, relocation of the HFB, construction of a new weir on Reach 1A or the San Joaquin River, and construction of access to new weir sites are all ground-disturbing activities that have the potential to accidentally affect buried human remains, which would be considered a significant impact. These significant impacts can be reduced to less than significant by implementing Mitigation Measures CR-CONSTRUCT-1b and -3, which will require construction to stop if a cultural resource is discovered via construction activity until verification by a qualified archaeologist, and, if human remains are discovered, that the County Coroner be contacted. The text of Mitigation Measure CR-CONSTRUCT-1b is provided above under the explanation to Impact CR-CONSTRUCT-1, and the text of Mitigation Measure CR-CONSTRUCT-3 is provided above under the explanation to impact CR-CONSTRUCT-3.

**Impact CR-RECREATION-1:**

Implementation of the Proposed Project could significantly impact CRHR-eligible archaeological resources from recreation enhancement actions.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Plans for improving recreational opportunities have not yet been developed, but could include ground-disturbing activities such as enhancing off-channel ponds and providing access (trails and roads) to recreation facilities for additional fishing opportunities near the Restoration Area. CDFW will be required to determine whether archaeological resources are present within these project areas before construction begins and whether the construction activities have the potential to accidentally uncover archaeological remains. A significant impact would result if CRHR-eligible archaeological deposits were identified as the result of recreation enhancement projects, and Proposed Project activities would render the deposits ineligible for the

CRHR,. Implementation of Mitigation Measures CR-CONSTRUCT-1a and -1b would reduce impacts to less than significant levels by requiring evaluation of all cultural resources for inclusion into CRHR, requiring mitigation for resources deemed ineligible due to the effects of the Proposed Project construction, and halting construction if a cultural resource is discovered via construction activity until verification by a qualified archaeologist. The text of Mitigation Measures CR-CONSTRUCT-1a and CR-CONSTRUCT-1b is provided above under the explanation to Impact CR-CONSTRUCT-1.

**Impact CR-RECREATION-2:**

Implementation of the Proposed Project could significantly impact CRHR-eligible structures from recreation enhancement.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Plans for improving recreational opportunities have not yet been developed, but recreation enhancement actions could affect buildings or structures eligible for the CRHR. Proposed Project activities that would render such buildings or structures ineligible for the CRHR would be considered a significant impact. Implementation of Mitigation Measures CR-CONSTRUCT-1a and 1b would reduce impacts on historical resources of the built environment to less than significant levels by requiring evaluation of all cultural resources for inclusion into CRHR, requiring mitigation for resources deemed ineligible due to the effects of the Proposed Project construction, and halting construction if a cultural resource is discovered via construction activity until verification by a qualified archaeologist. The text of Mitigation Measures CR-CONSTRUCT-1a and CR-CONSTRUCT-1b is provided above under the explanation to Impact CR-CONSTRUCT-1.

**Impact CR-RECREATION-3:**

Implementation of the Proposed Project could result in human remains being disturbed, including those interred outside of formal cemeteries within the SCARF construction area.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Ground-disturbing activities related to recreation enhancement activities, such as enhancing off-channel ponds and providing access (trails and roads), have the potential to accidentally affect buried human remains. This would be a potentially significant impact. This impact would be reduced to less than significant with the implementation of Mitigation Measures CR-CONSTRUCT-1b and -3, which will require construction to stop if a cultural resource is discovered via construction activity until verification by a qualified archaeologist, and, if human remains are discovered, that the County Coroner be contacted. The text of Mitigation Measure CR-CONSTRUCT-1b is provided above under the explanation to Impact CR-CONSTRUCT-1, and the text of Mitigation Measure CR-CONSTRUCT-3 is provided above under the explanation to Impact CR-CONSTRUCT-3.

**Impact GEO-CONSTRUCT-1:**

Implementation of the Proposed Project could result in substantial soil erosion or the loss of topsoil from SCARF construction.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Removal of soils from nearby areas over an 11-month construction period would create loose soils that could potentially be transported via stormwater runoff, causing loss of soil productivity and potential degradation of receiving waters. This would be considered a potentially significant impact.

However, to comply with the 2010 Uniform Building Code and the Fresno County Ordinance Code, the Proposed Project would implement erosion control methods during construction that would minimize the Proposed Project's potential to result in substantial soil erosion. In addition, the Proposed Project would include preparation and

implementation of a SWPPP in compliance with the SWRCB's General Permit for Discharges of Storm Water Associated with Construction Activity. The SWPPP would, at a minimum, include an Erosion Control Plan and describe BMPs and their implementation, inspection, maintenance, and repair requirements, and their monitoring or reporting requirements. The SWPPP and the associated mitigation measure would minimize the Proposed Project's potential to result in substantial soil erosion. The implementation of BMPs is included as Mitigation Measure GEO-CONSTRUCT-1a.

In addition, excavation recommendations from the Geotechnical Investigation Report (Geocon 2012) are included as Mitigation Measures GEO-CONSTRUCT-1b and -1c, which would be implemented to minimize erosion-related risks. With implementation of these mitigation measures, which require CDFW, DGS, or their contractor(s) to implement construction BMPs, and that erosion slopes are minimized and meet Cal/OSHA standards, these impacts would be less than significant. Specifically:

- Mitigation Measure GEO-CONSTRUCT-1a: CDFW, DGS, or their contractor(s) shall implement the following measures:
  - Implement practices to minimize the contact of construction materials, equipment, and maintenance supplies with storm water.
  - Limit fueling and other activities involving hazardous materials to use in designated areas only; provide drip pans under equipment and conduct daily checks of vehicle condition.
  - Implement wildlife-friendly practices to reduce erosion of exposed soil, including stabilization for soil stockpiles, watering for dust control, establishment of perimeter silt fences, and/or placement of fiber rolls.
  - Implement practices to maintain water quality, including silt fences, stabilized construction entrances, and storm-drain inlet protection.
  - Develop spill prevention and emergency response plans to handle potential fuel or other spills.
  - Where feasible, limit construction to dry periods.

The performance standard for this mitigation measure is use of the best available technology that is economically achievable.

- Mitigation Measure GEO-CONSTRUCT-1b: CDFW, DGS, or their contractor(s) shall ensure that temporary excavation slopes meet Cal/OSHA requirements, as appropriate. Excavation sloping, benching, the use of trench shields, and the placement of trench spoils should



conform to the last applicable Cal/OSHA standards. Nearby utilities, structures, and other improvements shall be protected from potential damage by earth movements.

- Mitigation Measure GEO-CONSTRUCT-1c: CDFW, DGS, or their contractor(s) shall implement the following measures:
  - Construction methods will incorporate appropriate erosion-prevention actions. This may include, but will not be limited to, reducing slope steepness as much as possible, re-vegetating slopes as appropriate, and directing surface drainage away from the tops of slopes. Actions shall be taken to compact fill soils uniformly.
  - The guidance from the Geocon 2012 Geotechnical Investigation Report shall be used for erosion-prevention techniques, modified if necessary depending on actual field conditions.

### **Impact GEO-CONSTRUCT-2:**

Implementation of the Proposed Project could result in settlement at the SCARF site as a result of soil instability and expansion.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

Soils underlying the proposed SCARF site have a low shrink-swell (expansive) potential (Geocon 2012). In addition, as described above, the project site overlies soils that consist of fill material and alluvium overlying granitic bedrock, which have a low liquefaction potential. The Proposed Project is also not likely to be affected by lateral spreading (Geocon 2012). However, the variable and loose consistency of the alluvium found in some borings makes it unsuitable for direct support of additional fill or building improvements in its existing condition (Geocon 2012). In addition, fill material may impact the soil stability for building improvements. This could result in a significant impact. Mitigation Measures GEO-CONSTRUCT-2a and -2b, as recommended in the geotechnical investigation, are described below and will be incorporated into the Proposed Project to minimize this risk, resulting in a less than significant impact by ensuring the stability of fill material and surrounding earth. Specifically:

- Mitigation Measure GEO-CONSTRUCT-2a: CDFW, DGS, or their contractor(s) shall implement the following measures:
  - All earthwork operations should be observed by a qualified inspector who is a California licensed Professional Geologist and is also a California Certified Engineering Geologist. A test fill will be constructed to determine the suitability of fill material for use at the site. The results of the test fill will be used to determine the appropriate method for conditioning, placement and compaction of fill material necessary at the site to ensure stable foundation conditions are achieved. Within the existing effluent detention pond area, existing fill and loose alluvium should be removed down to competent granite bedrock. The removal should extend at least 5 feet laterally beyond the footprint of the proposed hatchery compound, including the parking area.
  - Over-excavation bottoms, areas to receive fill or areas left at-grade should be thoroughly scarified to a minimum depth of 8 inches, uniformly moisture-conditioned at or near optimum moisture content, and compacted to at least 90% relative compaction. Scarification in exposed, hard bedrock areas is not required.
  
- Mitigation Measure GEO-CONSTRUCT-2b: CDFW, DGS, or their contractor(s) shall implement the following measures:
  - If fill soils consist of sand and gravel mixtures with silt or clay binder, these soils should be blended with other soils containing sufficient fines to provide adequate binder (usually 10–15% fines by dry weight).
  - If pond-bottom sediment is used, it should be dried and sufficiently blended with other soils such that the resulting fill does not contain organics in excess of 3% by dry weight.
  - Imported fill material should be primarily granular with a “very low” expansion potential (Expansion Index less than 20) and a Plasticity Index less than 15. Imported fill material should also contain sufficient binder and be free of organic material and construction debris; it should not contain rocks/cementations larger than 6 inches in their greatest dimension.

**Impact GEO-CONSTRUCT-3:**

Implementation of the Proposed Project could result in subsidence and collapse on-site as a result of shallow groundwater levels.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

The depth to groundwater in the immediate vicinity of the settling ponds ranges from 3 to 6 feet below ground surface (Geocon 2012). These relatively shallow groundwater levels could potentially affect the stability of soils underlying the Proposed Project, resulting in potential subsidence and collapse, which would be a significant impact. However, recommendations made in the Geotechnical Investigation Report (Geocon 2012) with respect to groundwater are listed below as Mitigation Measure GEO-CONSTRUCT-3 and will be incorporated into the design and construction of the Proposed Project to reduce the potential for subsidence, collapse, and subsurface seepage. The incorporation of Mitigation Measure GEO-CONSTRUCT-3 would reduce this impact to a less than significant level by requiring CDFW, DGS or their contractor(s) to manage the groundwater situation at the construction site. Specifically:

- MITIGATION MEASURE GEO-CONSTRUCT-3: CDFW, DGS, or their contractor(s) shall implement the following measures:
  - Drain the settling ponds several weeks prior to grading, and perform earthwork and grading operations during the summer, if possible.
  - Be prepared to accommodate potential perched groundwater and seepage in deeper project excavations, such as the pond removal excavations. Depending on the extent of perched groundwater at the time of grading, temporary dewatering measures, such as wellpoints or trench drains, may be required. Some form of subgrade stabilization may be necessary where wet, unstable soils are exposed.
  - Depending on conditions found at the time of construction, mitigation alternatives, such as over-excavation and replacement with gravel wrapped in geosynthetic fabric, may be necessary to provide a stable bottom.

### **Impact GEO-CONSTRUCT-4:**

Implementation of the Proposed Project at the location could result in on-site structure instability.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Foundation instability could result in damage to structures and/or hazards to humans, and thus would be considered a significant impact. Foundation stability depends on the site geologic conditions and design. The Geotechnical Investigation Report provided several recommendations to ensure that the proposed buildings may be supported on conventional shallow foundations bearing entirely on engineered fill. The proposed recommendations are described as Mitigation Measure GEO-CONSTRUCT-4 and will be incorporated into the design of the Proposed Project. Incorporation of Mitigation Measure GEO-CONSTRUCT-4 would result in a less than significant impact by requiring foundational stability of SCARF buildings to be addressed in construction planning. Specifically:

- Mitigation Measure GEO-CONSTRUCT-4: CDFW, DGS, or their contractor(s) shall implement the following measures:
  - Foundation design will incorporate appropriate measures to maximize long-term stability. This may address, but will not be limited to, footings and reinforcement specifications, the use of aggregate base and compacted fill or native soils, and methods to permit drainage for areas below the design flood elevation.
  - The Geocon 2012 Geotechnical Investigation Report may be used as guidance, but final design and implementation will depend on actual field conditions, and modifications will be made as necessary.
  - A qualified geotechnical engineer will oversee onsite field investigations and approved final design.

**Impact GEO-OP-1:**

Implementation of the Proposed Project at the location could result in a significant increase in discharge flow as a consequence of SCARF operations, resulting in substantial soil erosion along the return flow outfall channel.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Water would flow either directly into the secondary channel of San Joaquin River or into the SCARF settling ponds, before eventually discharging to the secondary channel of the San Joaquin River. Although the expected range of flow would be between 2 and 15 cubic feet per second (cfs), peak flow may be as high as 20 cfs. The channel receiving this discharge will need to be able to accommodate a potential peak flow of 20 cfs. Otherwise, such discharges could lead to channel erosion, which would be considered a potentially significant impact. Mitigation Measure GEO-OP-1 is necessary to determine if additional flow resulting from the Proposed Project would exceed the capacity of the return flow outfall channel or cause erosion. Investigations as included in Mitigation Measure GEO-OP-1 would involve recommendations that would be incorporated into SCARF operations to ensure that the return flows from the outfall or the volitional release channel shall not cause channel instability or erosion and sedimentation downstream. Therefore, the impact would be reduced to less than significant with implementation of this mitigation measure.

- Mitigation Measure GEO-OP-1: Due to the increased flow through the return flow outfall channel, CDFW, DGS, or their contractor(s) shall conduct an investigation into the capacity of the channel and its connection to the San Joaquin River to verify that the channel and connection point have the capacity to support potential increased flows. Similarly, the volitional release channel would require the same investigation. The geotechnical investigation would be conducted by a qualified hydrologist(s) or hydraulic engineer(s) (or team of such experts) and detailed in a technical report.

If the geotechnical investigation results indicate that the flow capacities of the affected channels would not be sufficient to accommodate the Proposed Project's flows, recommended actions will be included in the report. CDFW will implement the report's recommended actions. Potential recommendations may include but not be limited to: expansion and/or reinforcement of the existing outfall and volitional release channels, a reduction of flow rates to a level that can be supported by the existing channels, and/or an investigation into and development of alternative channels to support peak flows. As a performance standard, in no case

shall the return flows from the outfall or the volitional release channel cause channel instability or erosion and sedimentation downstream.

**Impact GEO-MANAGEMENT-1:**

Implementation of the Proposed Project at the location could result in erosion due to disturbance of the streambank or stream channel from the installation, operation, or removal of research and monitoring equipment.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Weirs and trap and haul activities may be required for the management of spring- and fall-run Chinook salmon populations in the Restoration Area. The installation, removal, or repurposing of fish weirs potentially could create loose soils and increase erosion on the streambanks. Additionally, installing or removing the weirs and/or releasing fish that have been trapped and hauled for management purposes may change the flow of water in both the upstream and downstream vicinity of the barrier or the release location. This changed flow could affect erosion patterns. These would be potentially significant impacts. Mitigation Measures GEO-MANAGEMENT-1a and -1b would be implemented to minimize erosion-related risks by stabilizing soils that are disturbed by construction activities and implementing procedures to minimize turbidity and flow of water returned to the river following Chinook salmon transport. With implementation of these mitigation measures, these impacts would be less than significant.

- Mitigation Measure GEO-MANAGEMENT-1a: Project activities will be done in such a manner as to not increase erosion within the banks of the river during or immediately following rainfall events. All disturbed soils at project activity sites will be stabilized to reduce erosion potential, both during and following installation of equipment (e.g., weirs, fyke nets, traps, etc.). After removal of such equipment, soils shall be stabilized and recontoured, as necessary.
- Mitigation Measure GEO-MANAGEMENT-1b: Water deposited back into the river following Chinook salmon transport shall be done at a rate to minimize water turbidity and erosion. As necessary at each site, temporary

energy dissipaters such as rip rap shall be placed at the point of discharge to moderate the return of water to the channel.

**Impact GEO-MONITORING-1:**

Implementation of the Proposed Project at the location could result in erosion due to disturbance of the streambank or stream channel from the installation, removal, or repurposing of segregation weirs and trap and haul activities.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Instream monitoring equipment, including screw traps and fry traps, may be used in order to assess the effectiveness of the Proposed Project. Traps would need to be anchored either to the streambed or banks, and may disturb the streambanks or stream bottom during installation or removal. Such disturbances could create loose sediment that could potentially cause erosion and degrade downstream waters. This would be a potentially significant impact. Similar to Impact GEO-MANAGEMENT-1 above, Mitigation Measures GEO-MANAGEMENT-1a and -1b would be implemented to minimize erosion-related risks. With implementation of these mitigation measures, these impacts would be less than significant because soils that are disturbed by construction activities would be stabilized and procedures would be implemented to minimize turbidity and flow of water returned to the river following Chinook salmon transport. The text of Mitigation Measures GEO-MANAGEMENT-1a and GEO-MANAGEMENT-1b is provided under the explanation to Impact GEO-MANAGEMENT-1.

**Impact GEO-RECREATION-1:**

Implementation of the Proposed Project requires a geotechnical investigation as a result of additional structural improvements before the initiation of recreation management activities.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

Because the specific locations for physical improvements associated with recreation management activities have not been identified, the geologic, soil, and seismic stability of these sites has not yet been investigated in great detail. That said, due to the distance from the closest known fault, potential seismic-related hazards, such as the potential rupture of a known earthquake fault, ground shaking, liquefaction, or landslide, are not considered substantial. However, foundation stability depends on the site's geologic unit stability and soil stability, as well as on accommodation of the project design to the site's geologic features. This factor could result in a potentially significant impact.

Construction of new off-stream or in-stream recreational facilities would require additional geotechnical field investigations to assess appropriate mitigation measures. Based on the assessment for construction of the SCARF and the geologic evaluation of the project area, it would appear that any geologic or seismic issues that arise can be adequately addressed such that significant impacts would not result. The geotechnical investigation is included below as Mitigation Measure GEO-RECREATION-1, which requires a geotechnical investigation of soil and geologic conditions at future sites of recreation and management roads and facilities. With incorporation of the mitigation recommendations in the Geotechnical Investigation Report, the Proposed Project would have a less than significant impact.

- Mitigation Measure GEO-RECREATION-1: A geotechnical investigation must be conducted by a qualified geotechnical engineer (or team of geotechnical engineers) to evaluate subsurface soil and geologic conditions at future sites of recreation management roads and facilities. The investigation report should provide conclusions and recommendations relative to the geotechnical aspects of designing and constructing the recreation management roads and facilities, which are yet to be determined. Recommendations should address site and geologic conditions, including soil, groundwater, and corrosion. They should also address geologic hazards, such as regional active faults, ground shaking, liquefaction, and flooding. The report should provide seismic design criteria; excavation and cut-and-fill characteristics; criteria for foundations, retaining walls, and pavement; and any other design criteria appropriate for the Proposed Project such that the facilities remain stable.

The proposed recreation management activities will incorporate all recommendations put forth by the Geotechnical Investigation Report into the design and construction of the Proposed Project.



### **Impact GEO-RECREATION-2:**

Implementation of the Proposed Project could result in a loss of soil productivity and a potential degradation of receiving waters resulting from soil erosion or the loss of topsoil caused by construction activities associated with enhancing fishing opportunities in or near the recreation area.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

As stated above, the exact location and design of future recreation enhancement actions are yet to be determined. However, potential activities may include the construction of access roads and facilities near enhanced recreational fishing sites as a component of recreation management activities. This would be considered a potentially significant impact.

To comply with the 2010 Uniform Building Code, standard erosion control methods would be implemented during construction; this would minimize the Proposed Project's potential to result in substantial soil erosion from construction activities associated with enhancing recreational fishing opportunities. If construction activities meet applicable criteria, prior to any construction activities, the Proposed Project would include preparation and implementation of a SWPPP in compliance with the SWRCB's General Permit for Discharges of Storm Water Associated with Construction Activity of the fisheries management barriers. The SWPPP would, at a minimum, include an Erosion Control Plan and describe BMPs and their implementation, inspection, maintenance, and repair requirements, as well as their monitoring or reporting requirements. In addition BMPs, as described in Mitigation Measure GEO-CONSTRUCT-1a, and Cal/OSHA excavation standards, as described in Mitigation Measure GEO-CONSTRUCT-1b, would be implemented to reduce erosion and loss of topsoil.

The SWPPP and associated mitigation measures would minimize the Project's potential to result in substantial soil erosion. With the incorporation of Mitigation Measures GEO-CONSTRUCT-1a and -1b, which require CDFW, DGS, or their contractor(s) to implement construction BMPs and that excavation slopes meet Cal/OSHA standards, this impact would be less than significant. The text of Mitigation

Measures GEO-CONSTRUCT-1a and GEO-CONSTRUCT-1b is provided above under the explanation to Impact GEO-CONSTRUCT-1.

**Impact HAZ-CONSTRUCT-3:**

Implementation of the Proposed Project could impede fire or emergency response because of a temporary increase in vehicle traffic during construction.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Construction-related employee vehicle trips and truck trips for the Proposed Project would potentially increase traffic on North Friant Road over the duration of the 11-month construction period. In addition, construction of the Proposed Project's access road improvements that would extend from East Belcher Avenue to the SCARF site may result in temporary traffic impacts. An increase in traffic or roadway construction activities could potentially impair emergency responders. However, the presence of construction-related vehicles would be temporary and only a limited number of employee vehicles and trucks would travel to and from the project site on a daily basis during the 11-month construction period. Staging areas would be within the project site, and access to the project site for fire and emergency response vehicles would be maintained at all times. This impact is considered potentially significant.

To minimize any potential interference with an adopted emergency response plan or emergency evacuation plan, Mitigation Measure HAZ-CONSTRUCT-3 would be implemented and include a construction traffic management plan (TMP). This impact would be less than significant with mitigation.

- Mitigation Measure HAZ-CONSTRUCT-3: CDFW, DGS, or the construction contractor, in consultation with the County, will prepare and implement a Traffic Management Plan (TMP). CDFW will be responsible for ensuring that the plan is adequately developed and implemented. CDFW will provide the TMP to the Fresno County Public Works and Planning Department and Caltrans. The TMP will include recommended traffic-control and traffic-reduction measures as identified in the Transportation Management Plan Guidelines issued by the Division of Traffic Operations Office of System Management Operations (Caltrans

2009). CDFW will implement all traffic-control or traffic-reduction measures described in the TMP. In addition, to the extent feasible, construction-related traffic and any temporary road closures shall be scheduled during non-peak traffic periods.

The measures included in the TMP shall be consistent with any applicable guidelines outlined in the Standard Specifications for Public Works Construction, the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices, and the Work Area Traffic Control Handbook. The plan will include the following items:

- Defined location and timing of any temporary lane closures;
- Identification and provision for circumstances requiring the use of temporary traffic control measures, flag persons, warning signs, lights, barricades, and cones, etc. to provide safe work areas in the vicinity of the project site or along the haul routes, including for those roadway segments that have substandard width (less than 18 feet), and to warn, control, protect, and expedite vehicular and pedestrian traffic and access by emergency responders;
- Implementation of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak-hour traffic, placement of detour signs (if required), lane closure procedures (if required), flaggers (if required), placement of cones for drivers, and designated construction access routes and access points;
- Notification to adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur;
- Address the potential for construction-related traffic to impede emergency response vehicles and present a specific training and information program for construction workers to ensure awareness of emergency procedures from project-related accidents;
- Identification of haul routes for movement of construction vehicles that will minimize impacts on vehicular and pedestrian traffic and circulation and safety, and provision for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by CDFW and/or DGS in coordination with the construction contractor;

- Development of a process for responding to and tracking complaints pertaining to construction activity, including identification of an onsite complaint manager; and
- Documentation of road pavement conditions for all routes that would be used by construction vehicles both before and after project construction. Roads damaged by construction vehicles will be repaired to the level at which they existed before project construction.

### **Impact HAZ-MANAGEMENT-2:**

Implementation of the Proposed Project could impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan as a result of the construction of fish segregation weirs and barriers.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

Vehicle and truck trips would be required for the construction of fish segregation weirs. An increase in traffic or roadway construction activities could potentially impair emergency responders. Although the presence of construction-related vehicles would be temporary, and access to the project site for fire and emergency response vehicles would be maintained at all times, this impact is considered potentially significant. To minimize any potential interference with an adopted emergency response plan or emergency evacuation plan, a construction traffic management plan (TMP), as described in Mitigation Measure HAZ-CONSTRUCT-3, would be implemented. This impact would be less than significant with mitigation. The text of Mitigation Measure HAZ-CONSTRUCT-3 is provided above under the explanation to Impact HAZ-CONSTRUCT-3.

### **Impact HAZ-MANAGEMENT-3:**

Implementation of the Proposed Project could result in the potential for fish segregation weirs to be constructed on a site that is included on a list of hazardous materials sites compiled pursuant to California Government Code section 65962.5.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

The project area associated with fish segregation weir activities has not been assessed for inclusion on hazardous materials sites lists nor assessed with a Phase 1 Environmental Site Assessment. Therefore, selected sites for fish segregation weir construction or removal may take place on locations that are current or historical hazardous materials sites. Neither specific project-level data about construction activities, nor specific project-level data about the location of sensitive receptors relative to the project site, are available at this time. Thus, these activities would have the potential to expose workers and nearby sensitive receptors to hazardous materials. Implementation of Mitigation Measure HAZ-MANAGEMENT-3 would reduce the risk of hazardous materials exposure to a less than significant level. Specifically:

- Mitigation Measure HAZ-MANAGEMENT-3: CDFW will implement the following measures to assess and minimize potential hazards on sites selected for the construction or removal of fish segregation weirs. CDFW will have a qualified expert perform a Phase 1 Environmental Site Assessment and hazardous-site records search for the Proposed Project sites. This process will include the identification of potential hazards within the project sites and identification of nearby sensitive receptors. The assessment will determine whether hazards and hazardous materials are present and, if so, their potential impact on workers and nearby sensitive receptors. The analysis will also include recommendations to reduce potential risks from identified hazards and hazardous materials. CDFW will implement recommendations provided in the Phase 1 Environmental Site Assessment and comply with all applicable regulations. Compliance with these regulations will include preparation of a hazardous materials business plan, which would include a training program for employees and an emergency plan (Cal EMA 2012). CDFW will implement applicable provisions of the EPA, OSHA, Cal/OSHA, Cal/EPA, Cal EMA, and CUPA permitting processes, and any applicable county general plan policies. Should the site have unmitigable hazardous conditions, or mitigation is not feasible, CDFW shall choose an alternate site.

### **Impact HAZ-RECREATION-2:**

As a result of implementing the Proposed Project, it is possible that construction and operations activities related to enhancing recreational fishing opportunities could take place on a site that is included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5.

#### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

#### **Explanation:**

The discussion of hazardous sites in Impact HAZ-MANAGEMENT-3 adequately examines potential risks from recreation management, inasmuch as the project area associated with these activities has not been assessed for inclusion on hazardous materials sites lists or assessed with a Phase 1 Environmental Site Assessment. Moreover, selected sites for recreation management may take place on locations that are current or historical hazardous materials sites. Neither specific project-level data about recreation management activities, nor specific project-level data about the location of sensitive receptors relative to the project sites, are available at this time. Thus, these activities would have the potential to expose workers and nearby sensitive receptors to hazardous materials.

Implementation of Mitigation Measure HAZ-MANAGEMENT-3 would reduce the risk of hazardous materials exposure to a less than significant level. The text of Mitigation Measure HAZ-MANAGEMENT-3 is provided above under the explanation to Impact HAZ-MANAGEMENT-3.

### **Impact HAZ-RECREATION-3:**

Implementation of the Proposed Project could result in recreation management activities taking place within two miles of a public airport or private airstrip.

#### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

The proximity of recreation management activities to public airports or private airstrips cannot be determined at this time; therefore, recreation management activities could potentially take place within 2 miles of a public airport or private airstrip. For this reason, impacts are considered potentially significant. Implementation of Mitigation Measure HAZ-RECREATION-3 would reduce any potential impacts to a less than significant level by ensuring design and construction for recreation activities complies with applicable airport use plans. Specifically:

- Mitigation Measure HAZ-RECREATION-3: As stated in the California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15154, CDFW shall ensure that the design and construction will comply with all applicable comprehensive airport land use plans within which boundaries the Project falls.

If a comprehensive airport land use plan has not been adopted for a project within 2 nautical miles of a public airport or public-use airport, the Airport Land Use Planning Handbook published by the California Department of Transportation's Division of Aeronautics will serve as the guide for the design and construction of the Proposed Project with regard to potential airport-related safety hazards and noise problems.

**Impact HAZ-RECREATION-4:**

As result of implementation of the Proposed Project, there is potential for construction activities related to enhancing recreational fishing opportunities to impair the implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Construction activities would result in an increase in vehicle and truck trips. An increase in traffic or roadway construction activities could potentially impair emergency responders. Although the presence of construction-related vehicles would be temporary

and access to the project sites for fire and emergency response vehicles would be maintained at all times, this impact is considered potentially significant.

To minimize any potential interference with an adopted emergency response plan or emergency evacuation plan, a construction TMP, as described in Mitigation Measure HAZ-CONSTRUCT-3, will be implemented. This impact would be less than significant with mitigation. The text of Mitigation Measure HAZ-CONSTRUCT-3 is provided above under the explanation to Impact HAZ-CONSTRUCT-3.

### **Impact HYD-CONSTRUCT-1:**

Implementation of the Proposed Project could violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality during SCARF construction.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

SCARF construction will involve construction of structures, a parking area, an access road and other ancillary improvements. During construction activities, the removal of vegetation, grading and excavation would expose soils and increase susceptibility to erosion, which may impact water quality. The existing ponds on the site would be dewatered, and shallow groundwater may be encountered during construction, providing a direct means for contamination of groundwater or discharge of contaminated dewatering effluent. This is considered a potentially significant impact. The construction activities associated with the SCARF site would be subject to construction-related stormwater permit requirements of the NPDES program. As required by the NPDES General Construction Permit (SWRCB 2009; Order No. 2009-0009-DWQ, NPDES NO. CAS000002), SWPPP would be prepared that identifies BMPs to prevent or minimize the introduction of contaminants into surface waters from construction activities. In addition to the SWPPP, the Proposed Project has developed construction-related mitigation measures that would further protect water quality and minimize erosion (See EIR, Chapter 9, *Geology, Soils and Seismicity*). Dewatering of existing ponds would follow the provisions of the General Construction Permit or the General Dewatering Permit, which includes measures sufficient to prevent impacts to water quality. Shallow groundwater pumped during construction would either be stored and then transported offsite for treatment or be treated onsite and released as effluent. Compliance with the required NPDES construction permits and implementation of the



Mitigation Measures GEO-CONSTRUCT-1a and GEO-CONSTRUCT-1c would reduce this impact to less than significant by ensuring CDFW, DGS, or their contractor(s) implement construction BMPs, and that erosion slopes meet Cal/OSHA standards. The text of Mitigation Measure GEO-CONSTRUCT-1a and GEO-CONSTRUCT-1c is provided above under the explanation to Impact GEO-CONSTRUCT-1.

**Impact HYD-CONSTRUCT-3:**

Construction of the Proposed Project could substantially alter the drainage pattern of the site or area, including through the alteration of the course of a stream or rivers, which could result in substantial erosion or siltation on or off of the SCARF site.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Construction activities for the SCARF would disturb approximately 17 acres and create approximately 11 acres of impermeable surfaces (note that these estimates are based on preliminary design, during final design and construction, these acreages could vary). On-site runoff from the main building pad (i.e., the area for the hatchery building, fish culture tanks, and parking) would be collected and routed overland into catch basins and released into an existing 42-inch reinforced concrete pipe (RCP) that serves the SJFH. During periods of high runoff, this pipe discharges stormwater to the secondary channel of the San Joaquin River. Runoff from the main building pad would be pre-treated before entering the pipe with catch basin inserts to trap pollutants (e.g., sediment, hydrocarbons, trash). Runoff from other facilities, such as the access road and ancillary improvements, would follow existing stormwater drainage patterns, and be routed into an existing RCP that currently discharges stormwater into the secondary channel of the San Joaquin River.

The SCARF site also receives drainage from land to the south and east of the site. This drainage is currently routed into the four non-operational aquaculture ponds on the SCARF site via underground pipes. As part of the Proposed Project, the underground stormwater lines would be rerouted to the settling ponds of the SJFH. Drainage from the site and the land south and east of the site during construction activities could cause erosion or siltation. This is considered a potentially significant impact.

With the implementation of a SWPPP, Mitigation Measures GEO-CONSTRUCT-1a and GEO-CONSTRUCT-1c, and the drainage management measures that are a part of the Proposed Project, the quantity and delivery of stormwater from the site would not appreciably change following construction, and therefore would not cause substantial erosion or siltation at the site or in the San Joaquin River. This impact is therefore less than significant with mitigation. The text of Mitigation Measure GEO-CONSTRUCT-1a and GEO-CONSTRUCT-1c is provided above under the explanation to Impact GEO-CONSTRUCT-1.

### **Impact HYD-CONSTRUCT-6:**

Implementation of the Proposed Project will place structures within a 100-year flood hazard area, resulting in impeding or redirecting flood flows from SCARF construction.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

The Proposed Project would involve the construction of structures within the 100-year flood hazard area and designated floodway. While all such structures would be designed to flood, and would allow flood flows to pass through them, the potential remains for these structures to raise base flood elevations, generate erosion, or cause other flooding-related impacts. This is considered a potentially significant impact. Implementation of Mitigation Measure HYD-CONSTRUCT-6 would ensure that this impact is less than significant by reducing the impacts on project site flooding, if necessary, through design to reduce potential flooding effects to an acceptable level. Specifically:

- Mitigation Measure HYD-CONSTRUCT-6: Prior to finalizing the SCARF design, CDFW will conduct an analysis of pre- and post-project flood conditions in the SCARF area. The analysis will include an assessment of the potential change in velocity, floodplain storage and Base Flood Elevation (BFE) for the pre- and post-project conditions. If the analysis determines that the SCARF would significantly decrease floodplain storage or result in a significant increase in the BFE, velocity, or cause erosion, then measures will be designed and implemented to reduce these potential effects to an acceptable level. This could include bank

stabilization measures at erosional locations, development of increased floodplain storage, redesign to avoid increases in the BFE, etc. As a performance standard, the design and construction shall conform to the standards contained in the most current version of Fresno County Code Chapter 15.48; such standards are considered by CDFW to reduce this impact to a less than significant level.

**Impact HYD-OP-3:**

Implementation of the Proposed Project could result in the exposure of people and structures to flood risk from SCARF operations.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

As described in Impact HYD-CONSTRUCT-6, the Proposed Project would place structures within the 100-year flood hazard area and designated floodway. SCARF workers and their families would potentially be exposed to flood risk when San Joaquin River flows exceed 12,000 cfs. This is considered a potentially significant impact. The SCARF's Draft Emergency Evacuation Plan (EIR, Appendix M, *Draft Emergency Evacuation Plan for the SCARF*, of the DEIR) describes the steps required if flooding at SCARF is imminent. If conditions for flooding exist, the Hatchery Manager will alert hatchery personnel and other residents and provide a notice to evacuate. Upon notice to evacuate, residents will evacuate, and if time permits prior to evacuation, remove fish from the premises, remove the Mobile Fish Lab and USFWS Tagging Trailer, and remove other mobile equipment that is prone to water damage. Hazardous materials will be secured to prevent spillage. In addition to the Emergency Evacuation Plan, Mitigation Measure HYD-CONSTRUCT-6 (described above) would be implemented to reduce the impacts on project site flooding through design to reduce potential flooding effects to an acceptable level. With implementation of this mitigation measure, this impact would be less than significant. The text of Mitigation Measure HYD-CONSTRUCT-6 is provided above under the explanation to Impact HYD-CONSTRUCT-6.

**Impact HYD-MANAGEMENT-1:**

Implementation of the Proposed Project could significantly impact water quality and hydrology from barrier construction.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Construction of the fish segregation weirs would take place during summertime low-flow periods to minimize water quality and biological impacts. Construction could require stream dewatering. Construction could include installation of a permanent concrete sill to stabilize erosion and provide a solid barrier foundation with suitable anchoring points. During construction, erosion could occur along the channel bed or slopes, which would cause turbidity and water quality impacts. This impact is considered potentially significant.

The Proposed Project has developed construction-related mitigation measures that would be used during instream construction. With the implementation of Mitigation Measures GEO-CONSTRUCT-1a and GEO-CONSTRUCT-1c, slope protection and stabilization techniques and channel protection and stabilization techniques would be used. These include, but are not limited to, the use of silt fences, revegetation of slopes, reducing slope steepness, and redirecting surface drainage from the tops of slopes. With the implementation of these mitigation measures, this impact would be less than significant. The text of Mitigation Measure GEO-CONSTRUCT-1a and GEO-CONSTRUCT-1c is provided above under the explanation to Impact GEO-CONSTRUCT-1.

**Impact HYD-MONITORING-1:**

Implementation of the Proposed Project could affect water turbidity from the installation of fish monitoring equipment and from fish monitoring activities.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Instream monitoring techniques, including screw traps, fry traps, and snorkel, redd, and carcass surveys, would be used in order to assess the effectiveness of the

Proposed Project. Traps would need to be anchored either to the streambed or banks, and may disturb the stream bottom during installation activities, which could release sediment and cause turbidity. Snorkel, redd, and carcass surveys may cause similar disturbances that could increase turbidity.

As described in Mitigation Measures FISH-MONITORING-2b and -2c, passive sampling and observational techniques will be used in place of active sampling techniques, whenever appropriate and feasible, to reduce physical disturbance to the habitat. The reduction in the disturbance to the streambed and banks would reduce the potential for increased turbidity. Therefore, this impact is less than significant with mitigation. The text of Mitigation Measures FISH-MONITORING-2b and -2c is provided above under the explanation to Impact FISH-MONITORING-2.

### **Impact HYD-RECREATION-1:**

Implementation of the Proposed Project could significantly impact water quality and hydrology due to the construction of improvements at recreational angling sites.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

As part of the Proposed Project, CDFW may enhance recreational angling opportunities in off-channel ponds adjacent to the San Joaquin River. These enhancements may include ground-disturbing activities such as the removal of vegetation, grading, excavation or placement of fill. These activities would expose soils and increase the susceptibility to erosion, which may impact water quality.

The construction activities for recreational improvement are subject to the construction-related stormwater permits of the NPDES programs. A SWPPP would be required if construction activities would disturb one or more acres at a single site, or collectively would disturb one or more acres. The SWPPP would identify BMPs to prevent or minimize the introduction of contaminants into surface waters from construction activities. BMPs for the Proposed Project could include, but are not limited to, stabilization for soil stockpiles, establishment of perimeter silt fences, stabilized construction entrances, and storm drain inlet protection. The SWPPP will include site-specific structural and operational BMPs to ensure water quality standards and waste discharge requirements are met. These measures are described further in Chapter 9,

*Geology, Soils and Seismicity*, in the Mitigation Measures GEO-CONSTRUCT-1a and GEO-CONSTRUCT-1c, which implement channel and slope protection and stabilization techniques. These mitigation measures would still be applicable even if the acreage threshold requiring preparation of a SWPPP is not exceeded. With preparation of a SWPPP, if required, and the incorporation of these mitigation measures, this impact is less than significant. The text of Mitigation Measure GEO-CONSTRUCT-1a and GEO-CONSTRUCT-1c is provided above under the explanation to Impact GEO-CONSTRUCT-1.

### **Impact LU-MANAGEMENT-1:**

Implementation of the Proposed Project results in the potential for the fish segregation weirs or trap and haul efforts to conflict with existing and planned land uses within or adjacent to the weir, trap, or other sites or with applicable land use plans, policies, and regulations.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

The HFB may be relocated, removed, or repurposed. The relocation would most likely be downstream toward the confluence. The land uses downstream of the current location are identical to the existing land uses. The Reach 1A Separation Weir may be constructed on the San Joaquin River near Hwy 41. Additional weirs may be constructed near the entrance of the Salt and Mud Sloughs and other various locations. Also, fish traps might be placed in various locations within the Restoration Area in order to facilitate outmigration of Chinook salmon past existing barriers. The surrounding land uses are primarily agriculture and open space/recreation. It is anticipated that the activities associated with these fisheries management activities would not conflict with existing land uses or land use plans, policies or regulations; however, until the exact locations are determined, this is impossible to determine definitively, and it is therefore considered a potentially significant impact.

Because the riverbed in these locations is under the California State Lands Commission (CSLC) jurisdiction, it would be necessary to obtain a lease from CSLC prior to construction of weirs and possibly the placement of fish traps. Issuance of such a lease would ensure consistency with CSLC's plans, policies, and regulations, and as such there would be no impact related to CSLC consistency.

Implementation of Mitigation Measure LU-MANAGEMENT-1 would ensure that the impact on land use and planning from the fisheries management activities is less than significant. Specifically:

- Mitigation Measure LU-MANAGEMENT-1: As part of the design for removal or relocation of the two fish weirs, DGS, CDFW or the contractor shall investigate land uses at and adjacent to potential sites, along with relevant plans, policies and regulations. The weirs, fish traps and other equipment shall not be sited in locations that create land use incompatibilities.

### **Impact LU-RECREATION-2:**

Implementation of the Proposed Project results in the potential for enhanced recreational ponds to conflict with land use plans, policies, or regulations or adjacent existing and planned land uses.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

There is a possibility that CDFW would choose locations for enhancement of recreational fishing in areas that would conflict with existing or planned land uses and/or local land use policies. A few of the potential locations for pond enhancements are in areas zoned for agriculture or mining. CDFW would evaluate consistency with land use plans, policies, and regulations before enhancing off-channel ponds. Although a conflict is unlikely, there remains a possibility that the impact on land use plans and adjacent land uses could be potentially significant.

Mitigation Measure LU-RECREATION-2 would be implemented in order to avoid potential land use conflicts, resulting in a less than significant impact.

- Mitigation Measure LU-RECREATION-2: As part of the selection of recreational enhancement sites, CDFW shall investigate land uses at and adjacent to potential sites, along with relevant plans, policies and regulations. CDFW will choose locations for enhancement of recreational fishing that would not conflict with existing or planned land uses and/or local land use policies.

### **Impact NOISE-OP-1:**

Implementation of the Proposed Project results in the potential for a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the Project, or the potential to result in the generation of noise levels in excess of standards established in a local general plan, noise ordinance, or standards of other agencies.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

The proposed SCARF would operate in a manner similar to the existing SJFH. SCARF facilities that could potentially generate noise would include mechanical equipment at the hatchery building. Some of the noted noise-generating operations could include the following:

- Intermittent operation of trucks on-site and forklifts for transporting equipment;
- Use of mechanical equipment, such as pumps; heating, ventilation, and air conditioning (HVAC) and refrigeration units; and feeding equipment; and
- Operation of the aeration system.

SCARF components include the aeration tower and primary filtration system. The filtration system would operate under gravity feed; no pumps or mechanized equipment would be required. However, as recorded during noise monitoring, the existing aeration tanks at the SJFH produce the constant sound of running water, which may produce some annoyance to sensitive receptors. Noise levels at existing aeration tanks were measured as 55 dBA at a distance of approximately 40 feet. However, the location of this component for the Proposed Project would be approximately 200 feet from any sensitive receptor. Therefore, because of the greater distance between the aeration tower equipment and anticipated sensitive receptors, the resulting sound at the receptors would be less than 55 dBA and the increases over current ambient sound levels are anticipated to be less than significant.

The hatchery building would be constructed of metal or a concrete masonry unit/metal combination. This building would house staff rooms, a freezer, dry-feed storage, pump room, and tanks. The hatchery building would be approximately 150 feet



west of the nearest residential area. The exact specification of mechanical equipment is not available currently, but it is possible that sound pressure levels at a distance of 150 feet could exceed the Fresno County threshold of 45 dBA L<sub>50</sub>. This is considered a potentially significant impact. Mitigation Measure NOISE-OP-1 contains measures that would reduce impacts associated with mechanical equipment to less than significant levels. Specifically:

- Mitigation Measure NOISE-OP-1: To reduce potential noise impacts from mechanical equipment, CDFW shall locate mechanical rooftop equipment for HVAC and refrigeration units as far from residential homes as possible. If such functioning rooftop equipment were unavoidably as close as 150 feet to the nearest sensitive receptor, then equipment will be selected that features lower-speed rotating components (e.g., fans, pumps, compressors), factory-approved acoustically-insulated housings or enclosures, and other typical means of noise control or sound abatement so that its resulting sound pressure level at a distance of 150 feet does not exceed the Fresno County threshold of 45 dBA L<sub>50</sub>.

#### **Impact NOISE-MANAGEMENT-1:**

Implementation of the Proposed Project results in the potential for the construction of fish segregation weirs to substantially increase noise levels.

#### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

#### **Explanation:**

Construction of weirs or the structural modification to the HFB or a proposed similar structure along the San Joaquin River or at other locations would have the potential to result in an impact on surrounding sensitive receptors. If noise were to exceed applicable thresholds, a significant impact would result.

Implementation of Mitigation Measure NOISE-MANAGEMENT-1 would reduce impacts associated with weir construction. This measure includes, but is not limited to, using available noise control and abatement techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) on the equipment and vehicles involved in the activity. Construction of weirs would be a short-term temporary noise impact, and would be reduced using this mitigation

measure. Therefore, with implementation of Mitigation Measure NOISE-MANAGEMENT-1, this impact would be less than significant after mitigation. Specifically:

- Mitigation Measure NOISE-MANAGEMENT-1: Before engaging in noise-generating activity associated with the construction of weirs, structural modification of the Hill's Ferry Barrier, or other construction activity, CDFW will evaluate how close sensitive receptors are located to the construction site, and whether the construction activity would exceed applicable noise thresholds. This evaluation will utilize the same FTA-based general assessment methodology that was used to predict the noise that would be generated during SCARF construction. Should the noise levels be anticipated to exceed the threshold for any sensitive receptors, CDFW will implement specific noise control measures to mitigate impacts associated with construction. These measures may include, but are not limited to, the following:
  - Best available noise control techniques (including factory-approved mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) will be used for all equipment and trucks to minimize construction noise impacts.
  - If impact equipment (e.g., concrete/rock breaker, rock drill) is used during project construction, hydraulic- or electric-powered equipment will be used to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust will be used (a muffler can lower noise levels from the exhaust by up to 10 dBA). External jackets on the tools themselves will be used, which could achieve a reduction of 5 dBA. Where considered practical, quieter procedure alternatives, such as drilling or vibratory methods, will be used instead of impact equipment.
  - Stationary noise sources will be located away from sensitive receptors. If the sources must be located near sensitive receptors, adequate sound abatement (with enclosures and mufflers, where appropriate) will be used to ensure performance standards are met. Enclosure openings or vents will face away from sensitive receptors. If any stationary equipment (e.g., pumps, ventilation fans, generators) is operated beyond the ordinance time limits, this equipment will conform to the affected jurisdiction's noise limits.

In addition, CDFW will designate a project liaison to be responsible for responding to noise complaints during construction. The name and phone number of the liaison will be conspicuously posted at construction areas and on all advanced notifications. The liaison will take steps to resolve complaints, including the arrangement of periodic noise monitoring, if necessary. Results of noise monitoring will be presented at regular project meetings with the project contractor, and the liaison will coordinate with the contractor to modify any construction activities that generate excessive noise levels.

**Impact NOISE-RECREATION-1:**

Implementation of the Proposed Project results in the potential for recreation management activities to expose persons to noise and vibration levels that exceed applicable standards established by a local general plan or noise ordinance or by agencies with jurisdiction.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

In general, activities associated with recreation management are not anticipated to result in significant changes to the existing noise and vibration environment. However, construction activities associated with recreational fishing enhancements would have the potential to result in an impact on surrounding sensitive receptors. If noise were to exceed applicable thresholds, a significant impact would result.

Implementation of Mitigation Measure NOISE-MANAGEMENT-1 would reduce impacts associated with construction. This measure includes, but is not limited to, using available noise control and abatement techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) on the equipment and vehicles involved in the activity. Construction would be a short-term temporary noise impact, and would be reduced using this mitigation measure. Therefore, with implementation of Mitigation Measure NOISE-MANAGEMENT-1, this impact would be less than significant after mitigation. The text of Mitigation Measure NOISE-MANAGEMENT-1 is provided above under the explanation to Impact NOISE-MANAGEMENT-1.

### **Impact REC-CONSTRUCT-1:**

Implementation of the Proposed Project could result in an increase in recreational use at neighboring facilities during SCARF construction such that substantial deterioration of facilities would occur due to the temporary closure of the San Joaquin Hatchery Public Access and Trail Project.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

The SCARF site is situated between the existing SJFH and Lost Lake Park. Both sites are popular with recreationists, tourists, and school groups. Construction activities of the Proposed Project would not interfere with the use of the existing SJFH or Lost Lake Park. Construction traffic would enter the project site from East Belcher Avenue, a road that is not used by either of the neighboring facilities, and staging areas for construction equipment would not reduce parking areas for the other facilities. The San Joaquin Hatchery Public Access and Trail Project is still in development. If it is completed before the construction of the SCARF, the Proposed Project might temporarily limit use of the new trail by the public for safety reasons or damage the trail. Implementing Mitigation Measures REC-CONSTRUCT-1a, REC-CONSTRUCT-1b, and REC-CONSTRUCT-1c would reduce this impact to less than significant by minimizing impacts to the San Joaquin Hatchery Public Access and Trail. Specifically:

- Mitigation Measure REC-CONSTRUCT-1a: CDFW will coordinate construction activities with the San Joaquin River Conservancy (SJRC) to minimize the extent and duration of rerouting of the newly built San Joaquin Hatchery Public Access and Trail Project during construction of the SCARF.
- Mitigation Measure REC-CONSTRUCT-1b: CDFW or its contractor shall provide signage during construction of the SCARF to notify those using the San Joaquin Hatchery Public Access and Trail of trail and access disruptions.
- Mitigation Measure REC-CONSTRUCT-1c: If the San Joaquin Hatchery Public Access and Trail becomes damaged during construction of the SCARF, CDFW or its contractor shall re-construct damaged trail and public access points within 2 years of the damage.

### **Impact TR-CONSTRUCT-1:**

Implementation of the Proposed Project could result in significant impacts to roadway and intersection operating conditions from SCARF construction-related traffic.

### **Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

### **Explanation:**

Construction activities for the SCARF are expected to last for 11 months. These activities (including the staging area activities) would generally be limited to the SCARF site. However, the paving of the SCARF access road may require limited construction activities on North Friant Road. Also, trenching-related activities for SCARF's new water supply pipeline may affect Brooktrout Drive, Flemming Avenue, and/or Waldby Street. The worker vehicles and/or haul trucks associated with the Proposed Project may potentially contribute to traffic delays on North Friant Road and other local roadways, particularly during peak a.m. or p.m. hours. The Proposed Project's construction activities would require up to approximately 10 workers (with up to an assumed total of 25 roundtrips per day). Also, the grading activities for the Proposed Project would require approximately 1,438 haul-truck trips over an approximately 66-day period, which averages to approximately 22 haul-truck trips spread throughout the day. The anticipated primary access routes used for ingress/egress to the Proposed Project's construction site would be North Friant Road and the unpaved access road, East Belcher Avenue.

Impacts on transportation and traffic during SCARF construction include the potential to disrupt traffic flows, block lanes in area roadways, and contribute to deterioration of LOS and/or increased volumes of traffic in fewer lanes. Emergency access would be available to the SCARF site via Flemming Avenue or East Belcher Avenue at all times. Construction activities on North Friant Road, Brooktrout Drive, Flemming Avenue, and/or Waldby Street would be temporary. Although the activities would be temporary, the SCARF construction activities would result in a potentially significant impact. However, implementing Mitigation Measure HAZ-CONSTRUCT-3, which requires preparation and implementation of a TMP. The text of Mitigation Measure HAZ-CONSTRUCT-3 is provided above under the explanation to Impact HAZ-CONSTRUCT-3.

**Impact TR-CONSTRUCT-2:**

Implementation of the Proposed Project could result in significant impacts to transit, bicycle, and pedestrian facilities from SCARF construction-related traffic.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Traffic impacts during SCARF construction can include disruption of alternative modes of transportation, such as blocking bicycle or pedestrian pathways on area roadways. Impacts on transportation and traffic would be temporary in nature but could significantly conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation. However, implementing Mitigation Measure HAZ-CONSTRUCT-3, which requires preparation and implementation of a TMP, would reduce this impact to a less than significant level. The text of Mitigation Measure HAZ-CONSTRUCT-3 is provided above under the explanation to Impact HAZ-CONSTRUCT-3.

**Impact CUM-2:**

Implementation of the Proposed Project could have a significant cumulative impact on air quality in the project area, because the San Joaquin Valley Air Basin is currently designated as a nonattainment area for federal and state ozone and PM<sub>2.5</sub> standards as well as state PM<sub>10</sub> standards.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

The SJVAPCD has adopted a cumulative threshold of significance of 10 tons per year for ozone precursors (ROG and NOX). Operation of the Proposed Project would result in emissions of particulate matter and exhaust gases that would not exceed these

criteria. However, it is possible that construction activities associated with the Proposed Project would exceed the criteria. Implementation of Mitigation Measure AQ-MANAGEMENT-1 would reduce construction air emissions to levels below SJVAPCD's construction significance thresholds. Therefore, with implementation of Mitigation Measure AQ-MANAGEMENT-1, the incremental contribution of the Proposed Project would not be cumulatively considerable. The text of Mitigation Measure AQ-MANAGEMENT-1 is provided under the explanation of Impact AQ-MANAGEMENT-1.

**Impact CUM-5:**

Implementation of the Proposed Project could have a significant cumulative impact on terrestrial vegetation, wildlife, and sensitive communities.

**Finding:**

Changes or alterations have been required in, or incorporated into, the Proposed Project which avoid or substantially lessen the significant effects on the environment. (Pub. Resources Code, § 21081, subd. (a)(1); CEQA Guidelines, § 15091, subd. (a)(1).)

**Explanation:**

Potential adverse effects of the Proposed Project on particular terrestrial vegetation, wildlife, and sensitive communities (as discussed in Chapter 7 of the DEIR) may include: direct physical disturbance; indirect stress-inducing disturbances such as noise; creation of barriers to movement, migration or dispersal; and degradation of habitat (see DEIR Chapter 7, Biological Resources – Vegetation and Wildlife, for complete description of impacts).

As explained in Impact BIO-CONSTRUCT-1, five special-status plant species have potential to occur at the SCARF site because suitable habitat is present, or in the case of Sanford's arrowhead, the species was observed at the site in 2012. It is not likely that the Proposed Project would contribute substantially to any foreseeable decline of any special-status plants with implementation of Mitigation Measures BIO-CONSTRUCT-1a and -1b. Therefore, the incremental contribution of the Proposed Project would not be cumulatively considerable, and is considered less than significant.

As described in BIO-CONSTRUCT-2, the SCARF site provides marginally suitable habitat for special-status branchiopods such as vernal pool fairy shrimp. Mitigation Measures BIO-CONSTRUCT-2a through -2c would reduce potential impacts to less than significant. With mitigation, it is not likely that the Proposed Project would contribute substantially to any foreseeable decline in the range or population viability of

special-status branchiopods. Thus, the incremental contribution of the Proposed Project would not be cumulatively considerable, and is considered less than significant.

As explained in BIO-CONSTRUCT-3, CTS and western spadefoot species are known to breed in close proximity to the SCARF site and may use burrows throughout the site as upland habitat. It is not likely that the Proposed Project would contribute substantially to any foreseeable decline of CTS or western spadefoot with implementation of Mitigation Measures BIO-CONSTRUCT-3a through -3d. Therefore, the incremental contribution of the Proposed Project would not be cumulatively considerable, and is considered less than significant.

As described in Impact BIO-CONSTRUCT-4, the western pond turtle is the only reptile species for which the Proposed Project poses a significant threat. Mitigation Measure BIO-CONSTRUCT-4 would minimize impacts to the western pond turtle. With mitigation, it is not likely that the Proposed Project would contribute substantially to any foreseeable decline in the range or population viability of the western pond turtle. Thus, the incremental contribution of the Proposed Project would not be cumulatively considerable, and is considered less than significant.

As described in Impacts BIO-CONSTRUCT-5 through -10, the SCARF site is known to provide habitat for several special-status avian species (burrowing owl, Swainson's hawk, white-tailed kite, willow flycatcher, and others), several special-status bat species, and two special-status mammals (American badger and San Joaquin kit fox). The Proposed Project may adversely impact these species if they are present during construction. Mitigation Measures BIO-CONSTRUCT-5 through -10 would reduce these impacts to less than significant. The incremental effects of the Proposed Project on avian and mammal Species of Concern would not be cumulatively considerable because the magnitude of impact that may occur is not likely to contribute substantially to any foreseeable decline in the range or population viability. Thus, the incremental contribution of the Proposed Project would not be cumulatively considerable, and is considered less than significant.

As described in Impact BIO-TER-CONSTRUCT-11, the Proposed Project would result in a permanent loss of sensitive natural communities: about 5,000 square feet of riparian habitat and 3,000 square feet of Fremont cottonwood woodland. Mitigation Measures BIO-TER-CONSTRUCT-11a and -11b would ensure that the impacts are minimized and revegetation plans are implemented that result in no net effect. Thus, the incremental contribution of the Proposed Project would not be cumulatively considerable, and is considered less than significant.

As described in Impact BIO-CONSTRUCT-12, the Proposed Project would result in the fill of a small amount of federally protected wetlands. Mitigation Measures BIO-



CONSTRUCT-12a and -12b would minimize the impact to wetlands and result in no net effect. Thus, the incremental contribution of the Proposed Project would not be cumulatively considerable, and is considered less than significant.

The Proposed Project is not likely to result in substantial loss or degradation of habitats that support the species and communities described above, and direct impacts to individuals are unlikely. This conclusion is based on field surveys on the SCARF site and the known distribution of these organisms and their habitats in relationship to anticipated actions under the Proposed Project. Thus, the incremental contribution of the Proposed Project would not be cumulatively considerable.

### **SIGNIFICANT AND UNAVOIDABLE IMPACTS**

The EIR identified significant and unavoidable environmental impacts that would result with implementation of the Proposed Project. Implementation of the Proposed Project may result in significant and unavoidable impacts to biological resources and to the atmosphere via greenhouse gas emissions. However, the Department has determined that overriding economic, legal, social, and other benefits of the Proposed Project outweigh the resulting unavoidable impacts.

#### **Impact FISH-REINTRO-1:**

Implementation of the Proposed Project could result in a disturbance to suitable fish spawning and rearing habitat, damage to existing redds, and/or overharvest of eggs and juveniles during broodstock collection.

#### **Finding:**

Specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or alternatives identified in the EIR. (Pub. Resources Code, § 21081, subd. (a)(3); CEQA Guidelines, § 15091, subd. (a)(3).)

#### **Explanation:**

The SCARF's production of juveniles would play a central role in restoring a spring-run Chinook salmon population in the San Joaquin River, as mandated by the Settlement Agreement. Establishing broodstock for the SCARF would require collection of eggs and juveniles primarily from the Feather River Fish Hatchery (FRFH), which is already occurring as part of CDFW's ongoing management activities. The EIR also evaluates at a programmatic level the use of naturally spawning spring-run stock comprised of a large number of unrelated individuals from drainages in the Sacramento

basin (e.g., Feather, Yuba, Deer, Mill, Butte, Battle, and Clear creeks) and San Joaquin basin (e.g., Stanislaus and Mokelumne rivers).

In salmonid populations, the egg life stage contains the largest number of individuals and highest natural mortality rate in the wild. Therefore, if collection methods can achieve a high survival rate of collected eggs, then eggs offer the potential for the greatest number of fish obtained with the least effect on the donor stock. To achieve genetic diversity (and minimize the number of siblings) within the founding population on the San Joaquin River, collection of a relatively smaller number of eggs from multiple redds is more desirable than a relatively larger number of eggs from one or only a handful of redds (Reclamation and DWR 2012). The process of collecting eggs from a redd has the potential to negatively impact the survival of eggs remaining in the redd. Live spawned eggs can be harvested by hand-digging or by redd pumping (Reclamation and DWR 2012). These collections are usually made at the eyed stage when eggs are less sensitive. Nevertheless, some level of disturbance of spawning habitat and potential loss or injury of unharvested eggs are unavoidable impacts of collecting eggs from natural redds.

Alternatively, collection of juveniles from donor stocks does offer some advantages over the use of eggs. Use of juveniles increases genetic diversity per collection event. Juveniles from donor stocks are the progeny of many mating pairs in the population, and therefore it may reduce the potential of siblings being collected due to intermixing of juveniles prior to collection. This approach allows early selection pressure to occur in the wild rather than in the Conservation Facility, and does not select for hatchery conditions (domestication selection) as occurs with egg collections (Börk and Adelizi 2010).

A second advantage of using juveniles over eggs is that existing sampling activities in donor streams provide opportunities to collect juveniles without increasing habitat disturbance. Selecting a method for collecting juveniles in rivers depends on requirements for number of samples, target fish size, timing and duration of the sampling period, habitat conditions, funding availability, capture efficiencies of gear, holding duration and location, and acceptable lethal impacts to fish (see Table 3.2 in Reclamation and DWR 2012). Some collection techniques that generally result in low juvenile mortalities include seining, screw traps, Fyke nets, and electrofishing. However, when used improperly or indiscriminately, all of these techniques can result in injury and mortality to target and non-target fish. Whichever method is used, the fish collected would be tagged and a tissue sample collected (e.g., fin clip). Some level of disturbance to juvenile rearing habitat during collection is an unavoidable impact. Impacts can be minimized by using stationary Fyke nets and rotary screw traps instead of seining, which requires active wading within the stream. For a description of potential direct

impacts and associated mitigation measures related to disturbance caused by collection activities, see Impact FISH-MONITORING-2.

Collection of broodstock has potential for significant impacts on naturally spawning populations. Prior to collection, CDFW would be required to obtain an ESA section 10(a)(1)(A) permit from NMFS (or as a sub-grantee to USFWS), which would include conditions designed to be protective of spring-run Chinook salmon and non-target species, including take totals and monitoring criteria for broodstock collection from naturally spawning spring-run Chinook donor stock populations. When implementing broodstock collection, CDFW would adhere to all ESA section 10(a)(1)(A) permit conditions for collection of eggs and juveniles from naturally spawning donor stocks.

The following provides an example approach and explains criteria and performance standards that could be applied in determining appropriate take totals; however, the final approach for establishing these totals would be developed after conferring with USFWS and NMFS:

1) *Stream-specific estimates of viable population size*

Information regarding historic and current adult population size of potential spring-run Chinook donor stock populations is available in the San Joaquin River Restoration Program (SJRRP) Stock Selection Strategy (SJRRP 2010). The Viable Salmonid Population (VSP) concepts outlined in McElhany et al. (2000) could be used to determine stream-specific minimum population sizes. Available information about abundance, growth rate, effective population size, genetic diversity and structure, and environmental factors could be incorporated into stream-specific take threshold determinations (Lindley et al. 2004, Waples et al. 2004, Baerwald et al. 2011). Population viability analyses have already been conducted and effective population size has been calculated for Butte, Mill, and Deer creeks (Lindley et al. 2007).

After minimum population size is determined for a specific stream, the total amount of take for that stream could be determined on an annual basis based on adult escapement numbers. Collection may only be allowed after a given stream attains its pre-defined minimum population size threshold. Additional information from rotary screw traps, weirs, hatchery escapement estimates, and other monitoring activities may also be warranted to account for stochastic environmental events and adaptively managed broodstock collection activities.

## 2) *Lifestage-specific survival probability*

The relative impact of collection of different life stages should be weighted by the probability of survival to reproduction. A numerical value could be assigned to each life stage, where earlier life stages would receive lower values than subsequent stages due to their lower probability of survival. Life stages to be targeted for broodstock collection could then be determined based on the take level allowed from a particular stream in a particular year (determined annually by adult escapement, as described above).

For example, if year- and stream-specific take is defined as  $T_n$ , the total number of eggs, fry, and smolts ( $N_E$ ,  $N_F$ , and  $N_S$ , respectively) to be taken for a specific season could be adaptively determined based on the following formula:

$$T_n \geq (P_{EA} * N_E) + (P_{FA} * N_F) + (P_{SA} * N_S),$$

where  $P_{EA}$  is the probability that an egg will survive to adulthood,  $P_{FA}$  is the probability that a fry will survive to adulthood, and  $P_{SA}$  is the probability that a smolt will survive to adulthood. Total take for that year (i.e., the right side of the formula) would be limited to a value at or below  $T_n$ .

Life stage-specific survival estimates for Chinook salmon are available in Quinn (2005); however, stream-specific environmental conditions should also be considered if possible when determining these life stage-specific survival estimates (Williams 2010).

To address these impacts, CDFW would implement Mitigation Measure FISH-REINTRO-1, using a methodology such as the one described above. This mitigation measure will allow CDFW to address these impacts and develop take totals. However, because sufficient details or specific take totals do not currently exist, specific mitigation measures or performance standards cannot be identified at this time. CEQA requires that specific mitigation and/or performance standards be provided to avoid improper mitigation deferral. It is the intent of CDFW to not have significant adverse impacts on donor stock populations. However, because full compliance with CEQA's standards for mitigation is not possible at this time, CDFW is conservatively finding this impact as significant and unavoidable. Future, more detailed analysis will be conducted as necessary through tiered CEQA documentation prior to broodstock collection from naturally spawning spring-run donor stock.

- Mitigation Measure FISH-REINTRO-1: Determine Stream-specific Take Totals. CDFW will confer with USFWS and NMFS to determine stream-specific take totals that incorporate estimates of viable population size, life

stage-specific survival, and the maintenance of genetic diversity of the donor stock populations. These take totals will be incorporated as specific permit conditions in a ESA section 10(a)(1)(A) permit, which must be issued prior to broodstock collection. At a minimum, the selected threshold(s) shall ensure that the adverse effects of broodstock collection will not be substantial in the context of the overall population of each spring-run donor stock.

#### **Impact FISH-RECREATION-4:**

Implementation of the Proposed Project could result in riparian or instream habitat degradation or the spread of invasive species or pathogens from recreational fishing enhancements.

#### **Finding:**

Specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or alternatives identified in the EIR. (Pub. Resources Code, § 21081, subd. (a)(3); CEQA Guidelines, § 15091, subd. (a)(3).)

#### **Explanation:**

Improved access to recreational facilities in Reach 1 would encourage increased vehicular (including off-road) and foot traffic in the vicinity of the facilities, and increased boat traffic in the river. Off-road vehicular and foot traffic can lead to riparian and instream habitat degradation ranging from trampling and removal of streambank vegetation to damage to the river bottom substrate. Exposed soil is vulnerable to erosion during windy and rainy conditions, resulting in increased turbidity and sedimentation in the river. Higher vehicular and boat traffic also increases the likelihood that invasive species (e.g., New Zealand mudsnail, quagga and zebra mussels, didymo) and pathogens (viruses, parasites) from other waters may be spread to the San Joaquin River if special efforts are not made by members of the public to clean and disinfect contaminated vehicles, boats, boat trailers, and fishing equipment. Disturbance of soil and subsequent erosion caused by increased foot traffic by recreational anglers is not anticipated to significantly adversely impact fisheries resources (refer to Impact HYD-RECREATION-2 in the DEIR). Impacts associated with AIS and pathogens have the potential to significantly impact fish and aquatic habitats. Existing public education programs and control measures are already implemented, such as those available at the Stop Aquatic Hitchhikers! Website:

[http://www.protectyourwaters.net/prevention/prevention\\_generic.php](http://www.protectyourwaters.net/prevention/prevention_generic.php)

Despite these practices, this impact is considered significant because public education programs and control measures rely primarily on voluntary efforts by members of the public to help avoid the spread of invasive species. Because no other feasible mitigation exists beyond the measures currently in place, this impact is considered significant and unavoidable.

**Impact GHG-MANAGEMENT-1:**

Implementation of the Proposed Project results in the potential for construction of fish segregation weirs to generate substantial greenhouse gas (GHG) emissions or conflict with the California Air Resources Board's (CARB's) applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs.

**Finding:**

Specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or alternatives identified in the EIR. (Pub. Resources Code, § 21081, subd. (a)(3); CEQA Guidelines, § 15091, subd. (a)(3).)

**Explanation:**

Construction of the fish segregation weirs would potentially generate GHG emissions from construction equipment exhaust, including exhaust from haul or equipment trucks and worker commutes. Specific project-level data about the amount, use, and locations of this equipment are not available at this time. In addition, specific project-level data about the construction periods are not available. In the absence of such information, it is believed that these activities would generate GHG emissions that, in combination with the other Proposed Project components, could exceed the construction significance threshold. This is considered a potentially significant impact. Implementation of Mitigation Measure GHG-MANAGEMENT-1 would ensure that construction GHG emissions would be below the construction significance threshold. Compliance with these significance thresholds would ensure that the fisheries management activities also comply with CARB's adopted Scoping Plan. Therefore, with implementation of Mitigation Measure GHG-MANAGEMENT-1, this impact is considered less than significant. However, this mitigation measure may not be feasible. Should the mitigation be determined to be infeasible (for instance, if inadequate funding were available to purchase emissions offsets), impacts would be considered significant and unavoidable.

- Mitigation Measure GHG-MANAGEMENT-1: Prepare Project-Level Quantitative Analysis of Construction-Related GHG Emissions, and Implement Measures to Reduce and/or Offset Emissions. As future

individual Proposed Project components are further defined to a level that construction emissions can be estimated, and prior to implementing that component or taking actions that commit CDFW to implement that component, CDFW will prepare a complete, quantitative project-level GHG emissions analysis for that component.

The GHG emissions analysis will be based on the types, locations, numbers, and operations of equipment to be used; the amount and distance of material to be transported; and worker trips required. The analysis will determine whether the combined emissions of the various quantified components' construction activities exceed the construction thresholds (230 metric tons CO<sub>2</sub>e/year amortized or district approved BPS).

If the analysis determines that construction emissions will exceed the construction thresholds, CDFW will first implement all feasible, applicable GHG emission reduction measures and propose these as BPS for the project, up to a 29% reduction from a defined business-as-usual baseline or 1,100 metric tons CO<sub>2</sub>e per year. Potential GHG emission reduction measures to be considered include, but are not limited to the following:

- Utilize alternative fueled vehicles such as electric or biodiesel for equipment and vehicles.
- Utilize newer, more fuel efficient equipment and vehicles for construction.
- Increase employee vanpool share (2% of vanpool mode share).
- Utilize locally sourced material.

In the event that the mitigation measures are insufficient to reduce construction emissions to be equal to or less than the significance thresholds, then CDFW shall purchase sufficient GHG emission credits to offset the Proposed Project's construction net increase in emissions above the thresholds. These may include GHG credits that have been banked under SJVAPCD Rule 2301 or other GHG credits that are considered acceptable by SJVAPCD.

### **Impact GHG-RECREATION-1:**

Implementation of the Proposed Project results in the potential for construction activities related to enhancing recreational fishing opportunities to generate substantial

GHG emissions or conflict with the CARB's applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs.

**Finding:**

Specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or alternatives identified in the EIR. (Pub. Resources Code, § 21081, subd. (a)(3); CEQA Guidelines, § 15091, subd. (a)(3).)

**Explanation:**

Enhancement of recreational fishing opportunities on the San Joaquin River may require construction activities that would potentially generate GHG emissions from construction equipment exhaust, including exhaust from haul or equipment trucks and worker commutes. Specific project-level data about the amount, use, and locations of this equipment are not available at this time. In addition, specific project-level data about the construction periods is not available. Thus, these activities, in combination with SCARF construction and construction of fish segregation weirs, would generate construction-related GHG emissions that could exceed the construction significance threshold. This is considered a potentially significant impact.

Implementation of Mitigation Measure GHG-MANAGEMENT-1 would ensure that construction GHG emissions would be below the construction significance threshold. Compliance with these significance thresholds would ensure that the enhanced recreation opportunities also comply with CARB's adopted Scoping Plan. Therefore, with implementation of Mitigation Measure GHG-MANAGEMENT-1, this impact is considered less than significant. However, this mitigation measure may not be feasible. Should the mitigation be determined to be infeasible (for instance, if inadequate funding were available to purchase emissions offsets), impacts would be considered significant and unavoidable.

**Impact CUM-4:**

Implementation of the Proposed Project results in the potential to adversely affect wild spring-run Chinook populations in the collection areas.

**Finding:**

Specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or alternatives identified in the EIR. (Pub. Resources Code, § 21081, subd. (a)(3); CEQA Guidelines, § 15091, subd. (a)(3).)



**Explanation:**

The listing status of Spring-run Chinook salmon under the state and federal endangered species acts substantiates that this species is already considered to be subject to cumulatively significant impacts. As described in Impact FISH-REINTRO-1, Mitigation Measure FISH-REINTRO-1 would be taken such that wild broodstock collection would only occur when such adverse effects would not be possible. This mitigation measure will allow CDFW to address impacts and develop take totals. However, because sufficient details or specific take totals do not currently exist, specific mitigation measures or performance standards cannot be identified at this time. CEQA requires that specific mitigation and/or performance standards be provided to avoid improper mitigation deferral. It is the intent of CDFW not to have significant adverse impacts on donor stock populations. However, because full compliance with CEQA's standards for mitigation is not possible at this time, CDFW is conservatively finding that this activity would have a considerable contribution to this cumulative impact, and impacts are therefore considered significant and unavoidable. Future, more detailed analysis will be conducted as necessary through tiered CEQA documentation prior to broodstock collection from naturally spawning spring-run donor stock.

**Impact CUM-6:**

Implementation of the Proposed Project will result in the generation of GHGs, which is a significant cumulative impact.

**Finding:**

Specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or alternatives identified in the EIR. (Pub. Resources Code, § 21081, subd. (a)(3); CEQA Guidelines, § 15091, subd. (a)(3).)

**Explanation:**

Anthropogenic emissions of GHGs are widely accepted in the scientific community as contributing to global warming. Any measurable contribution by the Proposed Project would be cumulatively considerable. Mitigation Measure GHG-MANAGEMENT-1 has been identified to reduce emissions. However, it may not eliminate emissions, and in addition, it may not be feasible to implement (for instance, if inadequate funding were available to purchase emissions offsets). As a result, the Proposed Project's contribution to GHG emissions would be a significant and unavoidable cumulatively considerable incremental contribution to a significant cumulative impact on generation of GHG emissions.

## ALTERNATIVES

Where a lead agency has determined that, even after the adoption of all feasible mitigation measures, a project as proposed will still cause one or more significant environmental effects that cannot be substantially lessened or avoided, the agency, prior to approving the project as mitigated, must first determine whether, with respect to such impacts, there remain any project alternatives that are both environmentally superior and feasible within the meaning of CEQA. (See, e.g., *Citizens for Quality Growth v. City of Mt. Shasta* (1988) 198 Cal.App.3d 433, 445.) Specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or alternatives identified in the EIR. (Pub. Resources Code, § 21081, subd. (a)(3); CEQA Guidelines, § 15091, subd. (a)(3).) Bases for infeasibility may include, but are not limited to, inconsistency with agency goals or policies and failure to satisfy project objectives. (See, e.g., *California Native Plant Soc'y v. City of Santa Cruz* (1009) 177 Cal.App. 4<sup>th</sup> 957, 1001; *Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 208 Cal.App.4<sup>th</sup> 899,947.)

The EIR examines four alternatives to the Proposed Project. These alternatives were determined to be potentially feasible and would generally meet the Project objectives. These alternatives are described in detail in Chapter 19 of the DEIR. Chapter 19 of the DEIR also describes that the Proposed Project is considered to best meet the Project objectives and is environmentally superior overall compared to any of the alternatives; as such, none of the alternatives evaluated in the EIR were selected in favor of the Proposed Project. A brief description of each alternative is provided below.

### **No Project Alternative:**

CDFW would not construct the SCARF or other facilities to propagate spring-run or fall-run Chinook salmon; including the structures comprising SCARF, drainage and stormwater management features, and other associated improvements. No Chinook salmon donor stock would be gathered and transported to the SCARF site to establish a broodstock, and there would be no active reintroduction of spring-run Chinook salmon to the Restoration Area. The operations and design of the existing HFB would not be modified, and no other fish segregation weirs would be constructed.

Under the No Project Alternative, all of the impacts (both adverse and beneficial) associated with the construction and operation of the SCARF would be avoided, as well as those from fish reintroduction, fisheries management, fisheries research and monitoring, and recreation management. This would include all of the significant and unavoidable impacts of the Proposed Project.

**Finding:**

Specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or alternatives identified in the EIR. (Pub. Resources Code, § 21081, subd. (a)(3); CEQA Guidelines, § 15091, subd. (a)(3).)

**Explanation:**

This alternative is not feasible because it would not accomplish fundamental Proposed Project objectives; most importantly, it would not support and assist implementation of the Settlement Agreement, specifically: (1) it would not support the Settling Parties in achieving the SJRRP Restoration Goal; and (2) it would not fulfill the other commitments identified in the State Agency MOU pertaining to the Settlement Agreement.

**Spring-Run Only Alternative:**

The Spring-Run Only Alternative would reintroduce only spring-run Chinook salmon to the Restoration Area. No fall-run Chinook salmon would be actively reintroduced. While volitional reintroduction of fall-run Chinook salmon would be likely, CDFW would focus its management activities on spring-run.

Overall, this alternative would be anticipated to have reduced impacts compared to the Proposed Project, to the extent it would avoid impacts associated with fall-run reintroduction. This would particularly be the case relative to active fall-run reintroduction approaches that may be conducted under the Proposed Project (e.g., broodstock collection). It also may increase the success of spring-run reintroduction efforts through mechanisms such as reducing potential for redd superimposition or competition for resources between spring-run and fall-run Chinook in the Restoration Area.

**Finding:**

Specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or alternatives identified in the EIR. (Pub. Resources Code, § 21081, subd. (a)(3); CEQA Guidelines, § 15091, subd. (a)(3).)

**Explanation:**

Under this alternative, the benefits associated with fall-run reintroduction activities would be diminished compared to the Proposed Project; spring and fall-run Chinook salmon historically coexisted in the San Joaquin River, and actively managing

for both runs would be anticipated to benefit salmon stocks statewide by increasing available habitat in the San Joaquin River with an associated increase in fall- and spring-run Chinook salmon populations. This alternative would be infeasible because, as compared to the Proposed Project, it would fail to meet the objective of supporting the Settling Parties in achieving the SJRRP Restoration Goal, which is to reintroduce spring and fall-run Chinook salmon, with a priority for wild spring-run if factors beyond the control of the Settling Parties make achieving restoration of fall and spring-run infeasible. As such, this alternative would render Chinook reintroduction incomplete as compared to the Proposed Project. Finally, this alternative would not avoid or substantially lessen any of the Proposed Project's significant and unavoidable impacts.

### **Hatchery Broodstock Only Alternative:**

Under the Hatchery Broodstock Only Alternative, rather than using a combination of broodstock from the FRFH and wild sources, only the FRFH would be used to provide a source of spring-run broodstock. No wild sources of broodstock would be used.

Under this alternative, all impacts associated with the collection of wild spring-run Chinook broodstock from Butte, Deer, Mill, Battle, and Clear Creeks, opportunistic collections of spring-run fish from the Yuba River, and opportunistic collection of Chinook salmon exhibiting spring-run life history from the Stanislaus, Mokelumne, and Yuba rivers would be avoided. This alternative would therefore avoid the significant and unavoidable impacts of the Proposed Project related to wild broodstock collection. However, as discussed previously, it is the intent of CDFW to not have significant adverse impacts on donor stock populations. CDFW conservatively found these impacts as significant and unavoidable to avoid improper mitigation deferral, because sufficient details or specific take totals do not currently exist, and specific mitigation measures or performance standards cannot be identified at this time to ensure impacts on wild broodstock would be less than significant.

Impacts from SCARF construction, operation, fish reintroduction, fisheries research and monitoring, and recreation management would still occur. The impacts of collection from the FRFH would be the same as under existing (baseline) conditions. Should the SCARF need to be operated for a longer period of time in order to establish the spring-run Chinook population, the impacts associated with Proposed Project activities (besides SCARF construction and collection of wild broodstock) would continue over this extended period.

**Finding:**

Specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or alternatives identified in the EIR. (Pub. Resources Code, § 21081, subd. (a)(3); CEQA Guidelines, § 15091, subd. (a)(3).)

**Explanation:**

The use of hatchery fish would be less likely to meet the Proposed Project objective of restoring naturally reproducing and self-sustaining populations of Chinook salmon than the Proposed Project, because hatchery fish have been shown to be less fit in natural environments than wild fish and contribute to increased straying rates. Consequently, this alternative is infeasible for environmental and biological reasons because it would not successfully accomplish the Proposed Project objective to support achievement of the Restoration Goal.

In addition, as discussed above, future environmental analysis and mitigation is expected to ensure that impacts from wild broodstock collection would not be significant. For this reason, this alternative is not considered necessary to avoid or substantially reduce this significant and unavoidable impact.

**SCARF Siting Alternative:**

Under the SCARF Siting Alternative, an alternate location would be found to construct the SCARF facility, subject to the following criteria:

- Proximity to the San Joaquin River
- Proximity to Friant Dam
- Site ownership (public ownership or a willing seller)
- Access to utilities and infrastructure

The SCARF Siting Alternative would avoid all site-specific impacts at the proposed site.

**Finding:**

Specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or alternatives identified in the EIR. (Pub. Resources Code, § 21081, subd. (a)(3); CEQA Guidelines, § 15091, subd. (a)(3).)

### **Explanation:**

Impacts at alternative SCARF sites would likely be similar in kind and scope to those of the planned SCARF site. Additionally, this alternative could result in additional impacts associated with development and extensions of infrastructure that go beyond what would be required for the Proposed Project by not being located adjacent to the existing hatchery and infrastructure, in particular water supply infrastructure. Such impacts may include impacts air quality and greenhouse gas emissions from the use of construction vehicles and equipment; biological impacts to wetland, riparian, and upland habitats and the special-status plant and wildlife species that may use the habitats; geology and soils impacts from soil erosion; and water quality impacts from construction. One of these impacts (greenhouse gas emissions) was found as cumulatively significant and unavoidable for the Proposed Project, and so avoiding additional contributions to this impact is considered desirable.

Additionally, at least one possible alternative location (the River Vista parcel) would result in land use inconsistencies. Specifically, the River Vista parcel is included in the San Joaquin River Parkway Master Plan, and has been identified to be set aside as a natural conservation area. Since alternative locations (specifically, the site of the Proposed Project) would not create such a conflict, the River Vista side is considered less desirable.

Finally, this alternative would not avoid or substantially lessen any of the Proposed Project's significant and unavoidable impacts – none of which are expected to result from Proposed Project activities at the SCARF site, itself. Therefore the SCARF Siting Alternative is not considered to be environmentally superior to the Proposed Project.

### **STATEMENT OF OVERRIDING CONSIDERATIONS**

This section addresses CDFW's obligations under Public Resources Code section 21081, subdivisions (a)(3) and (b). (See also CEQA Guidelines, §§ 15091, subd. (a)(3), 15093.) Under these provisions, CEQA requires CDFW to balance, as applicable, the economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of the revised regulations against the backdrop of unavoidable significant environmental impacts. For purposes of CEQA, if the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable significant environmental effects, those effects may be considered acceptable and the decision making agency may still approve the underlying project.

The EIR analyzes and discusses the significant and unavoidable environmental effects CDFW expects to occur. (See, e.g., DEIR, § 6.5.3, pp. 6-51 to 6-54 and 6-74 to 6-75; § 10.4.3, pp. 10-9 to 10-11 and 10-12; and § 18.5.3, pp. 18-29 and 18-32.) As the sections previously mentioned discuss in detail, implementation of the Proposed Project may result in significant and unavoidable effects to spawning and rearing habitat (including riparian or instream habitat) from wild broodstock collection due to the lack of details available with which to develop adequate CEQA mitigation at this time. Also, as the sections previously mentioned discuss in detail, implementation of the recreational enhancement components of the Proposed Project may result in significant and unavoidable effects related to introduction of invasive species, due to the lack of feasible mitigation that can ensure that impacts would be less than significant. Finally, as the sections previously mentioned discuss in detail, implementation of the Proposed Project may result in significant and unavoidable effects related to greenhouse gas emissions, due to the potential infeasibility of the identified mitigation measure.

For purposes of CEQA, CDFW's implementation of the Proposed Project may result in the following significant and unavoidable effects to the environment:

- Impact FISH-REINTRO-1: Disturbance to Suitable Spawning and Rearing Habitat, Damage to Existing Redds, and Overharvest of Eggs and Juveniles during Broodstock Collection
- Impact FISH-RECREATION-4: Riparian or Instream Habitat Degradation or Spread of Invasive Species or Pathogens from Recreational Fishing Enhancements
- Impact GHG-MANAGEMENT-1: Potential for Construction of Fish Segregation Weirs to Generate Substantial GHG Emissions or Conflict with the CARB's Applicable Plans, Policies, or Regulations Adopted for the Purpose of Reducing the Emissions of GHGs
- Impact GHG-RECREATION-1: Potential for Construction Activities Related to Enhancing Recreational Fishing Opportunities to Generate Substantial GHG Emissions or Conflict with the CARB's Applicable Plans, Policies, or Regulations Adopted for the Purpose of Reducing the Emissions of GHGs
- Impact CUM-4: Effects of Wild Broodstock Collection
- Impact CUM-6: Effects on the Generation of Greenhouse Gas Emissions

#### Balancing the Benefits of Final Action by the Department with the Significant and Unavoidable Environmental Effects.

As noted above, CDFW is charged by CEQA to balance, as applicable, the economic, legal, social, technological, or other benefits, including region-wide or

statewide environmental benefits, of the Proposed Project against the backdrop of significant unavoidable environmental impacts. This section describes those benefits. In addition, CDFW finds that, after weighing the benefits of the Proposed Project against related unavoidable significant environmental impacts, the benefits of the Proposed Project outweigh its unavoidable adverse environmental effects so that the adverse environmental effects may be considered “acceptable” (CEQA Guidelines § 15093, subd. (a).)

CDFW has determined that the Proposed Project should be approved and that any remaining unmitigated environmental impacts attributable to the Proposed Project are outweighed by the following specific overriding considerations, each one being a separate and independent basis upon which to approve the Proposed Project. In other words, any single benefit described below is adequate to support the approval of the Proposed Project in spite of its unavoidable environmental impacts. Substantial evidence in the record demonstrates the following benefits that would occur as a result of approving the Proposed Project:

- First, the Proposed Project may not in fact result in all of the significant and unavoidable impacts identified above. In the case of broodstock collection, future CEQA evaluation and development of mitigation measures are anticipated to ensure impacts would be less than significant; however, in some instances, CDFW simply lacks the data or it is infeasible to obtain sufficient information at this time to support a conclusion that mitigation will, in fact, successfully reduce the impact to a less than significant level. With respect to wild broodstock collection future more detailed analysis would be conducted as necessary through tiered CEQA documentation prior to broodstock collection from naturally spawning spring-run donor stock. This is expected to ensure that impacts from wild broodstock collection would not be significant. In the case of GHG emissions, potentially feasible mitigation exists which could reduce impacts to a level that is less than significant, but it is unknowable at this time whether CDFW would be able to acquire the funding to implement mitigation to achieve that level of reduction in the impact.
- Second, the Proposed Project arises from the SJRRP, which in turn is a product of the Settlement Agreement reached as a result of federal court action in *Natural Resources Defense Council (NRDC) et al. v. Kirk Rogers et al.* (NRDC v. Rodgers 2006). The U.S. Department of the Interior, U.S. Department of Commerce, NRDC, and the Friant FWUA signed the Settlement Agreement. Pursuant to the State Agency MOU, CDFW agreed to assist the Settling Parties in the Settlement Agreement’s implementation, consistent with CDFW’s authorities, resources, and



broader regional resource strategies. As such, the SJRRP must be implemented in order to be compliance with the Settlement Agreement, and as a signatory to the MOU, CDFW has committed to assist the Settling Parties in the Settlement Agreement's implementation, consistent with the State Agencies' authorities, resources, and broader regional resource strategies. Furthermore, implementation of the Settlement Agreement is anticipated to have beneficial effects to salmon populations and the ecosystems in which they are found, which are considered to outweigh the significant and unavoidable impacts of the Proposed Project.

More specifically, the Proposed Project would assist in achieving the Restoration Goal of the Settlement Agreement, the benefits of which are anticipated to outweigh the Proposed Project's significant and unavoidable effects. The Restoration Goal is to restore and maintain fish populations in good condition, including naturally reproducing and self-sustaining populations of salmon and other fish in the Restoration Area (defined as the main stem of the San Joaquin River from below Friant Dam to the confluence with the Merced River). The ways in which the Proposed Project would assist in achieving the Restoration Goal are described further in the following paragraphs.

As stated in detail in the DEIR, within sections 2.4.3 and 2.4.4 (pp. 2-7 through 2-41), implementation of the Proposed Project, which includes the construction and operation of the SCARF as well as associated improvements, would enable CDFW to produce a conservation stock of fall- and spring-run Chinook salmon that is genetically diverse while minimizing impacts to source populations, as described in the Proposed Project objectives. Chinook salmon historically existed in the San Joaquin River but were subsequently fully extirpated, and therefore creation of a robust broodstock would be anticipated to benefit salmon stocks statewide.

Implementation of the Proposed Project also would help satisfy the Restoration Goal of the SJRRP and would support CDFW's mission by allowing for the management and conservation of native salmon in the San Joaquin River for their ecological significance. The Proposed Project would replace the Interim Conservation Facility, which is not sufficiently large to produce the numbers of fish needed to develop a founding stock for the San Joaquin River and therefore would fail to meet the Restoration Goal of the SJRRP.

The Proposed Project may also include the removal, repurposing, or construction of instream barriers to segregate Chinook salmon runs in the Restoration Area (DEIR § 2.4.5, pp. 2-43 through 2-46) in order to prevent overlap of spring- and fall-run salmon spawning. Because many details surrounding this aspect of the Proposed Project are not known at this time, these actions are generally evaluated at a program level in the EIR. Nevertheless, if operation of instream barriers are shown to assist in the establishment of fall- and spring-run Chinook salmon, implementation of this aspect of the Proposed Project would assist in achieving the Restoration Goal of the SJRRP.

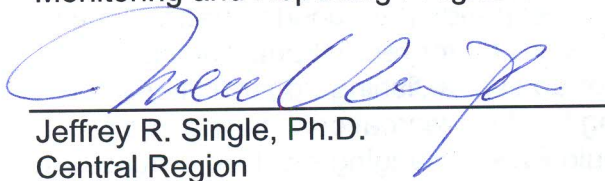
Under the Proposed Project, CDFW would also conduct research in the Restoration Area related to Chinook salmon habitat, genetics, and survival (DEIR § 2.4.6, pp. 2-46 through 2-50). The results of studies in the area may increase the success of salmon reintroduction efforts via adaptive management measures based on the results of the studies. This would also assist in achieving the Restoration Goal of the SJRRP.

- Third, the Proposed Project involves enhancement of recreational opportunities, the benefits of which are a consideration when evaluating whether to approve the Proposed Project despite its significant and unavoidable impacts. Providing such recreational opportunities is consistent with CDFW's mission. Enhancement of recreational opportunities as part of the Proposed Project include the following possible actions: enhancing off-channel ponds (i.e., ponds or abandoned gravel mining pits without river connectivity) for recreational fishing, providing access to and facilities for additional fishing opportunities in or near the Restoration Area, stocking trout for recreational fishing in off-channel ponds near the San Joaquin River, changing stocking practices in the San Joaquin River below Friant Dam to protect reintroduced Chinook salmon, increasing enforcement of fishing regulations in the Restoration Area, and/or increasing monitoring of recreational activities within the Restoration area (DEIR § 2.4.7, pp. 2-50 through 2-51).
- Finally, the following impacts that would occur as a result of implementation of the Proposed Project may have a beneficial impact on the surrounding area (refer to DEIR Executive Summary, pp. ES-24 through ES-54):
  - Impact FISH-REINTRO-6: Cascading Effects in Aquatic Food Webs from Chinook Salmon Produced either within the Restoration Area or by the SCARF

- Impact FISH-MANAGEMENT-6: Effects on Chinook Salmon in San Joaquin River Tributaries due to Non-Operation of Hills Ferry Barrier
- Impact REC-OP-2: Operation of SCARF Would Provide New Recreational Facilities
- Impact REC-REINTRO-1: An Increase in Recreational Opportunities Would Occur in the Potentially Affected Area from the Reintroduction of Chinook Salmon
- Impact CUM-3: Effects of Fish Species and Their Habitats

Taken as a whole and individually, weighing the above economic, legal, social, technological, and other benefits, including region-wide and statewide environmental benefits, of the Proposed Project against the Project's unavoidable significant environmental impacts, CDFW has found that the benefits of the Proposed Project individually and collectively outweigh its unavoidable adverse environmental effects and its adverse environmental effects are therefore considered acceptable.

CDFW has reviewed and considered the information contained in the EIR, finds that the EIR reflects its independent judgment and discretion, finds that the EIR was completed in compliance with CEQA, and hereby certifies the EIR. In so doing, CDFW adopts these findings of fact and the Statement of Overriding Considerations as set forth above, approves the Project for purposes of CEQA, and adopts the Mitigation Monitoring and Reporting Program.



Jeffrey R. Single, Ph.D.  
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California Department of Fish & Wildlife

June 4, 2014

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Cal EMA see California Emergency Management Agency  
Caltrans see California Department of Transportation  
CDFG see California Department of Fish and Game  
CNDDDB see California Natural Diversity Database  
DWR see California Department of Water Resources  
NMFS see National Marine Fisheries Service  
Reclamation see U.S. Bureau of Reclamation  
USFS see U.S. Forest Service  
USFWS see U.S. Fish and Wildlife Service

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