

RECLAMATION

Managing Water in the West

Environmental Assessment

Goodwin Dam Spawning Gravel Placement Project

Estimated NEPA Lead Agency Cost
Associated with Developing and Producing
this Environmental Assessment: \$63,000

Mission Statements

The Department of the Interior (DOI) conserves and manages the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provides scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honors the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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List of Acronyms and Abbreviations

BA	Biological Assessment
CA	California
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CCAA	California Clean Air Act
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CNDDDB	California Natural Diversity Database
Corps	US Army Corps of Engineers
CVPIA	Central Valley Project Improvement Act
CWA	Clean Water Act
DOI	Department of the Interior
EA	Environmental Assessment
EO	Executive Order
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
OHWM	Ordinary High Water Mark
Quad	Quadrangle
Reclamation	Bureau of Reclamation
RM	River mile
RWQCB	Regional Water Quality Control Board
SHPO	State Historic Preservation Officer
SLC	State Lands Commission
SWRCB	State Water Resources Control Board
USFWS	Fish and Wildlife Service

Section 1 Introduction

In conformance with the National Environmental Policy Act, 42 U.S.C. § 4431 et seq. (NEPA), as amended, the Bureau of Reclamation (Reclamation) has prepared this Environmental Assessment (EA) to evaluate and disclose potential environmental impacts associated with implementation of the Stanislaus River Salmonid Spawning Habitat Restoration – Gravel Injection Project (Proposed Action).

This EA describes the existing environmental resources in the project area, evaluates the impacts of the No Action and Proposed Action alternatives on the resources, and proposes measures to avoid, minimize, or mitigate any adverse impacts. This EA was prepared in accordance with NEPA, Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations (CFR) 1500-1508), and Department of the Interior Regulations (43 CFR Part 46).

1.1 Background

The Central Valley Project Improvement Act (CVPIA), section 3406 (b)(13) directs the Department of the Interior (DOI) to “develop and implement a continuing program for the purpose of restoring and replenishing, as needed, salmonid spawning gravel lost due to the construction and operation of Central Valley Project dams, bank protection projects, and other actions that have reduced the availability of spawning gravel and rearing habitat in the Stanislaus River at Goodwin Dam, and in the American and Sacramento Rivers downstream from the Nimbus and Red Bluff Diversion Dams, respectively.” This CVPIA program may include preventive measures, such as re-establishment of meander belts and limitations on future bank protection activities, in order to avoid further losses of instream and riparian habitat. The Proposed Action is a salmonid spawning habitat restoration project.

The Proposed Action is located at river mile (RM) 58 on the Stanislaus River, approximately 250 meters downstream of Goodwin Dam and three RMs upstream of the town of Knights Ferry in Calaveras County, California. The project site is approximately at 37°51’40.17”N Latitude and 120°37’59.98”W Longitude.

1.2 Need for the Proposal

The need for the Proposed Action derives from the declines of naturally spawned salmonid stocks due in part to loss of spawning and rearing habitat through curtailment of gravel recruitment due to blockage of the river channel by dams and the alteration in flow patterns.

Section 2 Alternatives Including the Proposed Action

This EA considers two possible alternatives: the No Action Alternative and the Proposed Action. The No Action Alternative reflects future conditions without the Proposed Action and serves as a basis of comparison for determining potential impacts to the human environment that would result from implementation of the Proposed Action.

Identification of the reasonable range of alternatives for this EA was based upon consideration of the need to increase and improve salmon, steelhead, and native rainbow trout spawning and rearing habitat in the project area.

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not replenish spawning gravel in this reach of the Stanislaus River. Further declines in habitat quality would be likely, as spawning habitat within this reach of the Stanislaus River would remain in a deteriorated condition.

2.2 Proposed Action Alternative

Reclamation proposes to conduct a salmonid spawning habitat restoration project in the Stanislaus River at RM 58 in Goodwin Canyon. This is an ongoing program in compliance with the CVPIA, Section 3406(b)(13), and the proposed project consists of gravel augmentation. In addition, the Proposed Action is a general commitment in the Reinitiation of Consultation on the Coordinated Long-Term Operation of the Central Valley Project and State Water Project

Gravel Augmentation

Spawning gravel will be added to the existing restoration site annually as needed in the reach of the Stanislaus River at RM 58. Initially, up to 15,000 tons of gravel will be added at this site and distributed across the active channel in the area shown in Figure 1. Gravel would be placed at depths ranging from approximately 1 to 7 feet deep. As gravel is distributed downstream by flows, additional gravel, as needed, would be added to this area in subsequent years. The gravel washed downstream would be utilized until it reaches a deep bedrock pool about ¼ mile downstream. Gravel would be placed at intervals of one to a few years apart as the need is determined by ongoing monitoring of gravel conditions and fish use of the gravel. New gravel would be needed to replenish the spawning gravel that washes downstream and is not replaced by upstream sources. Gravel would be added to the lower part of the reach using front end loaders. Access to the upstream reach for equipment is limited so gravel would be added using a “habitat builder”. The “habitat builder” is basically a gravel pump system. There are two six-inch water pumps which “y” into an eight-inch line. Gravel is screened and fed into a hopper. The gravel is then forced by water via a pump into the eight-

inch line and is directed to wherever it is to be placed. Barrels are used to support the discharge pipe on the water's surface and help with the placement of the material.

The project site has an irrigation canal immediately adjacent to where the gravel pump would be running. Water from the canal would be used to operate the gravel pump. The canal water comes from Goodwin Dam, about 500 feet upstream of the project site.

The gravel would be stockpiled at the U.S. Army Corps of Engineers property as shown in Figure 1 and transported via a front-end loader along the canal access road to the gravel.

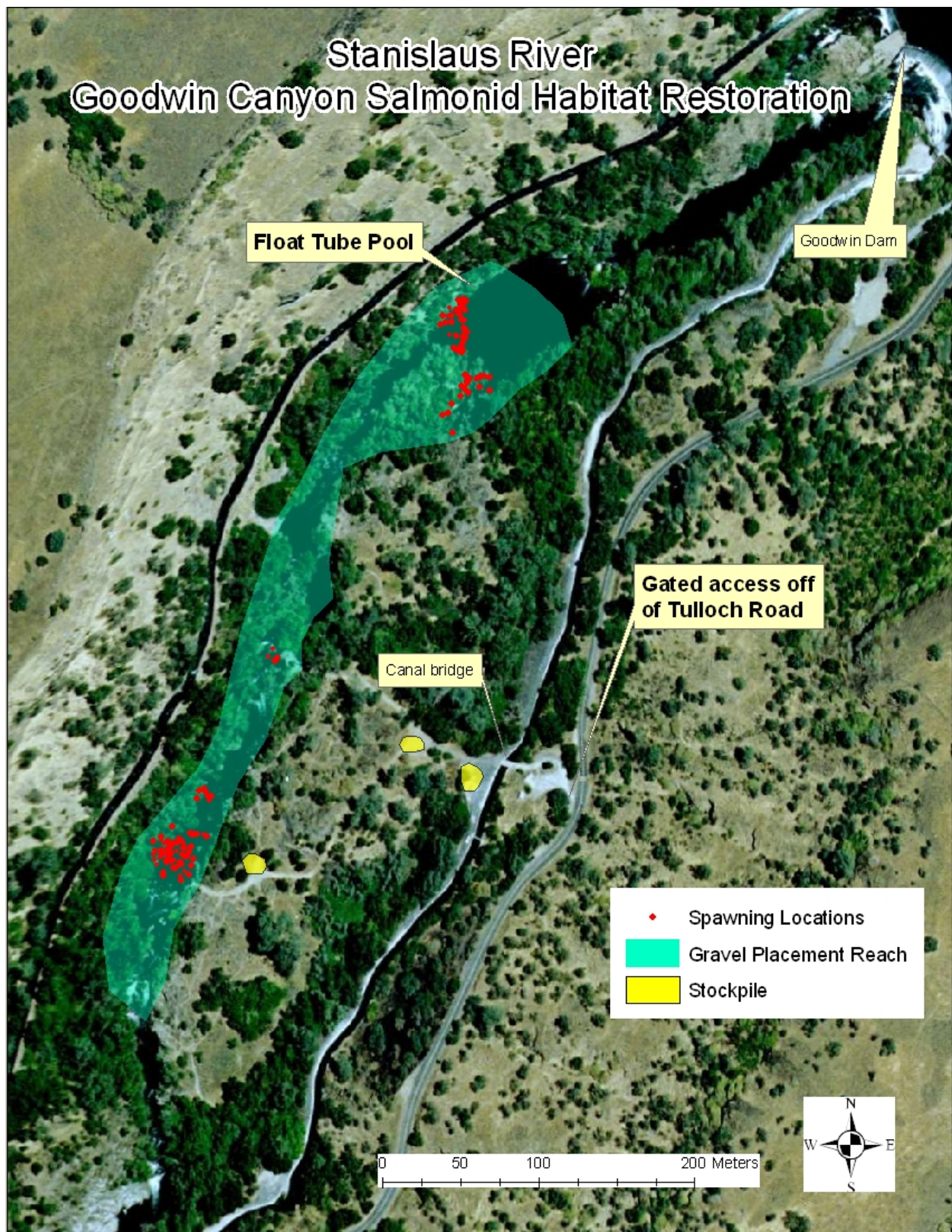


Figure 1. Stanislaus River at Goodwin Canyon spawning gravel placement reach map. Location of gravel stockpile areas and access roads are shown.

Section 3 Affected Environment and Environmental Consequences

Department of the Interior Regulations, Executive Orders, and Reclamation guidelines require a discussion of Native American Indian sacred sites, Indian Trust Assets, and Environmental Justice when preparing environmental documentation. Impacts to these resources were considered and found to be minor or absent. Brief explanations for their elimination from further consideration are provided below.

Indian Trust Assets (ITAs): ITAs are legal interests in assets that are held in trust by the U.S. for federally recognized Indian tribes or individuals. There are no Indian reservations, Rancherias or allotments in the project area. The nearest ITA is Chicken Ranch Rancheria which is approximately 11 miles north/northwest of the project site. The Proposed Action does not have a potential to affect ITAs.

Indian Sacred Sites: Sacred sites are defined in Executive Order 13007 (May 24, 1996) as “any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site.” There are no identified Indian Sacred Sites within the Proposed Action area; therefore this project would not inhibit use or access to any Indian Sacred Sites.

Environmental Justice: Executive Order 12898 requires each Federal agency to identify and address disproportionately high and adverse human health or environmental impacts, including social and economic effects of its program, policies, and activities on minority populations and low-income populations. The Proposed Action would not result in adverse human health or environmental impacts to minority or low-income populations.

3.1 Environmental Consequences of the No Action Alternative

Under the No Action Alternative, Reclamation would not replenish gravel in the Proposed Action area. If the project is not implemented, further declines in habitat quality would be likely, as spawning habitat within this reach of the Stanislaus River would remain in a deteriorated condition.

3.2 Environmental Consequences of the Proposed Action

This section describes the affected environment and evaluates the environmental consequences that may occur with implementation of the Proposed Action and the No Action Alternative.

3.2.1 Air Quality

Section 176 (c) of the Clean Air Act (CAA) (42 USC 7506 (c)) requires that any entity of the Federal government must conform to the applicable State Implementation Plan (SIP) required under Section 110 (a) of the CAA (42 USC 7401 (a)) before an action is otherwise approved. The action must be consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and achieving expeditious attainment of those standards.

Affected Environment

The Proposed Action is located within Calaveras County Air Pollution Control District (CCAPCD), which is part of the Mountain Counties Air Basin (MCAB). The CCAPCD is responsible for implementing emissions standards and other requirements of federal and state laws. Under the California Clean Air Act of 1988 (CCAA), air pollution control districts are responsible for attaining and maintaining state ambient air quality standards.

Criteria air pollutants are prevalent pollutants in the air that are known to be deleterious to human health. Criteria air pollutants are designated as nonattainment, attainment, and unclassified and includes ozone (O₃), carbon monoxide (CO), nitrogen dioxide, sulfur dioxide (SO₂), particulate matter (PM₁₀ and PM_{2.5}), and lead.

The CCAPCD is in attainment for all NAAQS criteria pollutants of concern except for ozone (O₃). Under California Ambient Air Quality Standards (CAAQS) the CCAPCD is in attainment for all criteria pollutants except for ozone (O₃) and particulate matter (PM₁₀).

Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no impacts to air quality since no construction would take place. Therefore, no impacts on air quality would occur.

Proposed Action

The Proposed Action would involve minor ground disturbance, the use of construction equipment, and worker commutes that would result in temporary emissions.

For the purpose of this analysis, it was assumed up to approximately 15,000 tons of gravel would be placed in river each year. Placement of gravel will occur during the hours between 6:30 am to 6:30 pm during June through mid-September. Type 3 or

Type 3-3 trucks will most likely be used to transport the gravel to the staging area. Placement of 15,000 tons would result in approximately 1,250 trips (round trip) annually. Additional traffic would occur from daily worker trips to the sites.

Construction emissions would vary from day to day and by activity, timing, intensity, and wind speed and direction. Generally, air quality impacts from the Proposed Action would be temporary and localized in nature.

Short-term air quality impacts would be associated with construction and would generally arise from dust generation (fugitive dust), operation of construction equipment, and worker vehicle trips. Fugitive dust results from land clearing and vehicle traffic on paved and unpaved roads. Fugitive dust is a source of airborne particulates, including PM₁₀ and PM_{2.5}. Large earth-moving equipment, trucks, and other mobile sources powered by diesel or gasoline are also known sources of combustion emissions, including NO_x, CO, VOC, SO₂, and small amounts of air toxins.

3.2.2 Biological Resources

Affected Environment

The project area is located at RM 58 on the Stanislaus River, approximately 250 meters downstream of Goodwin Dam and three RMs upstream of the town of Knights Ferry in Calaveras County, California (37°51'40.17"N Latitude and 120°37'59.98"W Longitude).

The Stanislaus River is a major tributary of the San Joaquin River. Surrounding habitat along the riparian edge is valley foothill riparian. This habitat is characterized by a canopy layer of cottonwoods, California sycamores, and valley oaks. Subcanopy cover trees are white alder and boxelder, while shrub layers include wild grape, California blackberry, and willows (CDFW, 1995).

Since the installation of the Goodwin, Tulloch, and New Melones Dams, the habitat has been significantly degraded. The reduction of peak flows and sediment trapping in the reservoir decreases river dynamics, isolates the river from the floodplains, removes the side channels, resulting a channel that is heavily encroached upon by riparian vegetation. Combined with in-river aggregate mining and the conversion of floodplain into agricultural land, the area of suitable salmonid spawning and rearing habitats has been substantially reduced. As a result, anadromous salmonids are limited to the lower 60 miles downstream of Goodwin Dam.

Gravels added to the river can make up for the deficit caused by the dams and maintain a mobile bed suitable for salmon spawning. Currently, the dams trap nearly all the sediment supplied from the watershed. Compared with the San Joaquin River and its other tributaries, the lower reach downstream of Goodwin Dam provides valuable spawning and rearing habitat for Chinook salmon and steelhead.

Special Status Species

Special-status species addressed in this section include plants and animals that are legally protected or are otherwise considered sensitive by Federal, State, or local resource conservation agencies and organization. These include species that are State listed and/or Federally listed as rare, threatened, or endangered; those considered as candidates or proposed for listing as threatened or endangered; and plants considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered.

California Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 protects rare and endangered plants in California and prohibits take of endangered or rare native plants. Based on a review of California Natural Diversity Database (CNDDB) and CNPS database searches for rare and endangered plant species was conducted for the surrounding U.S. Geological Survey (USGS) Quads (2015), the federally threatened Layne's Ragwort, Hoover's Spurge, Colusa Grass, Valley Orcutt Grass, Chinese Camp brodiaea and Red Hills Vervain, and federally endangered Hartweg's Golden Sunburst, Hairy Orcutt grass, and Greene's Tuctoria returned occurrences. Under the California Rare Plant Rank they are listed as 1B (Plants Rare, Threatened, or Endangered in California or Elsewhere). CNPS further designates the level of endangerment with a Threat Rank, with .1 meaning a plant is seriously threatened, a rank of .2 means fairly threatened, and a rank of .3 means not very threatened in California. The following is a list of rare and endangered plants with recorded occurrences in surrounding Quads:

- Layne's Ragwort (*Packera layneae*) 1B.2 Federally Threatened
- Hartweg's Golden Sunburst (*Pseudobahia bahiifolia*) 1B.1 Federally Endangered
- Hoover's Spurge (*Euphorbia hooveri*) 1B.2 Federally Threatened
- Succulent Owl's-clover (*Castilleja campestris* var. *succulenta*) 1B.2 Federally Threatened
- Colusa grass (*Neostapfia colusana*) 1B.1 Federally Threatened
- San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*) 1B.1 Federally Threatened
- Hairy Orcutt grass (*Orcuttia Pilosa*) 1B.1 Federally Endangered
- Greene's Tuctoria (*Tuctoria greenei*) 1B.1 Federally Endangered
- Chinese Camp brodiaea (*Brodiaea pallida*) 1B.1 Federally Threatened
- Red Hills Vervain (*Verbena californica*) 1B.1 Federally Threatened

The Proposed Action does not include vegetation removal and there are no anticipated impacts to existing vegetation. Installation of the gravel pump would impact little, if any, riparian vegetation in the project area.

Migratory Bird Treaty Act

A list of bird species with recorded occurrences within the surrounding quads was also obtained from the CNDDB (2015). The list was compared to the Service's list of protected species under the Migratory Bird Treaty Act (MBTA) of 1918

(2015a). Protected migratory bird species with recorded occurrences in the Proposed Action project area are included in Table 1.

Threatened or Endangered Species

The U.S. Fish and Wildlife Service (Service) and National Marine Fisheries Service (NMFS) have jurisdiction over federally listed threatened and endangered species. An endangered species is defined as “...any species which is in danger of extinction throughout all or a significant portion of its range.” A threatened species is defined as “...any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range” (16 USC Section 1532). Section 9 of the Endangered Species Act of 1973 (ESA) makes it illegal to “take” (defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in such conduct”) endangered and threatened species (16 USC 1538).

A special-status species list was generated from the Service Information for Planning and Conservation (IPaC) website for the surrounding area on February 3, 2020 (USFWS 2017). The following Table 1 includes those federally listed species with recorded occurrences within the surrounding USGS 7.5-minute Quads based on the CNDDDB (2015). The table also includes the species’ status, determination of impacts from the Proposed Action, and a summary of the rationale supporting the determination.

Table 1 – Special Status Species List				
Common Name	Scientific Name	Status ¹	Effect ²	Summary of Effects Determination ³
Mammals				
San Joaquin Kit Fox	<i>Vulpes macrotis mutica</i>	FE	NE	Occurrences ⁴ outside of the Action area. No critical habitat has been designated
Plants				
Colusa Grass	<i>Neostapfia colusana</i>	FT	NE	Occurrences ⁴ and Critical Habitat outside of the Action Area
Hartweg's Golden Sunburst	<i>Pseudobahia bahiifolia</i>	FE	NE	Occurrences ⁴ outside of the Action area. No critical habitat has been designated
Red Hills Vervain	<i>Verbena californica</i>	FT	NE	Occurrences ⁴ outside of the Action area. No critical habitat has been designated
Invertebrates				
Valley Elderberry Longhorn Beetle	<i>Desmocerus californicus dimorphus</i>	FT	NE	Occurrences ⁴ and Critical Habitat outside of the Action Area
Vernal Pool Fairy Shrimp	<i>Branchinecta lynchi</i>	FT	NE	Occurrences ⁴ and Critical Habitat outside of the Action Area
Vernal Pool Tadpole Shrimp	<i>Lepidurus packardii</i>	FE	NE	Occurrences ⁴ and Critical Habitat outside of the Action Area
Birds				
Bald Eagle	<i>Haliaeetus leuccephalus</i>	SE MBTA	NE	Federally delisted. Bald & Eagle Protection Act. No known eagle nests in Proposed Action area.
Golden Eagle	<i>Aquila chrysaetos</i>	MBTA	NE	Bald & Eagle Protection Act. No known eagle nests in Proposed Action area.
Amphibians				
California Red-legged Frog	<i>Rana draytonii</i>	FT	NE	Occurrences ⁴ and Critical Habitat outside of the Action Area
California Tiger Salamander	<i>Ambystoma californiense</i>	FT	NE	Occurrences ⁴ and Critical Habitat outside of the Action Area

¹ Status: Federal Listing (**FE**: Endangered; **FT**: Threatened; **X**: Critical Habitat)

State Listing (**SE**: Endangered; **ST**: Threatened; **SC**: Candidate)

MBTA: Migratory Bird Treaty Act

² Effects determination

NE: No Effect to federally listed species anticipated from the Proposed Action.

NLAA: Not Likely to Adversely Affect with Environmental Protection Measures

LAA: May Affect, and Likely to Adversely Affect

³ Summary of rationale supporting determination

⁴ California Natural Diversity Database 2014 recorded occurrences in the surrounding 9 Quads.

Bald Eagle (*Haliaeetus leucocephalus*)

Although the bald eagle was federally delisted in 2007, the Bald and Golden Eagle Protection Act (16 USC 668-668c) continues prohibitions on take including disturbance, such as injury, decreasing productivity, or substantially interfering with normal breeding, feeding, or sheltering, or nest abandonment. Under California Endangered Species Act, the bald eagle is listed an endangered and designated as Fully Protected by CDFW.

The bald eagle is a large bird of prey that winters throughout California. They forage opportunistically on fish and waterfowl but also prey on other small animals and eat carrion. Bald eagles winter along rivers, lakes, or reservoirs that support adequate fish or water bird prey and have mature trees or large snags available for perch sites.

There are no known eagle nests located in the project area. Preconstruction nesting surveys will be conducted by a qualified biologist no more than two weeks prior to construction.

Golden Eagle (*Aquila chrysaetos canadensis*)

The golden eagle is listed as a fully protected species in California, while the Bald and Golden Eagle Protection Act (16 USC 668-668c) contains prohibitions on take including disturbance, such as injury, decreasing productivity, or substantially interfering with normal breeding, feeding, or sheltering, or nest abandonment.

The golden eagle is an aerial predator that can be found throughout California. Most are resident in California, while some migrate into California for winter. They build nests on cliffs or in the largest trees of forested stands and prey on small animals and eat carrion. (CDFW, 2020)

There are no known eagle nests located in the project area. Preconstruction nesting surveys will be conducted by a qualified biologist no more than two weeks prior to construction.

Fisheries

Impact on fisheries with implementation of the Proposed Action would be limited to fish in the project area. The project area is habitat for three species of management concern: North American Green Sturgeon Southern Distinct Population Segment (DPS) (*Acipenser medirostris*), California Central Valley steelhead DPS (*Onchorhynchus mykiss*), and Central Valley fall-run Chinook salmon (*Oncorhynchus tshawytscha*).

North American Green Sturgeon Southern DPS (Acipenser medirostris)

The Southern DPS of North American Green Sturgeon was listed as threatened on April 7, 2006 (71 FR 17757) and is designated as a California species of special concern. The Green Sturgeon Southern DPS primarily spawns in the Sacramento

River basin and San Joaquin River Basin. On October 5, 2017, an adult Green Sturgeon was observed in the Stanislaus River near Knights Ferry, California (Anderson et al. 2018). Critical habitat was designated for the Southern population North American Green Sturgeon DPS on October 9, 2009 (74 FR 52300) and does not include the Proposed Action project area.

California Central Valley Steelhead DPS (*Onchorhynchus mykiss*)

California Central Valley (CCV) steelhead were listed as threatened under the ESA on January 5, 2006 (71 FR 834) and include all naturally spawned populations of steelhead in the Sacramento and San Joaquin rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays, and their tributaries. Critical habitat was designated for Central Valley steelhead on September 2, 2005 (70 FR 52488) and includes the Stanislaus River. Central Valley steelhead were thought to be extirpated from the San Joaquin River system, until monitoring from 2001 detected small populations in the Stanislaus and Mokelumne, and Calaveras (McEwan 2001). On the Stanislaus River, small numbers of steelhead smolts have been capture in rotary screw traps at Caswell State Park and Oakdale each year since 1995 (S.P. Cramer and Associates Inc. 2000).

Large-scale loss of spawning and rearing habitat has been attributed as having the single greatest effect on steelhead distribution and abundance (McEwan and Jackson 1996). Historically, steelhead spawned and reared primarily in mid- to high-elevation streams where water temperatures remained suitable all year. Yoshiyama et al. (1996) estimated that 82 percent of the historical Chinook salmon spawning and rearing habitat has been lost. The percentage of habitat loss for steelhead is presumably greater, because steelhead were more extensively distributed than Chinook salmon. Steelhead could have used numerous smaller tributaries not used by Chinook salmon due to the steelhead's upstream migration during periods of higher flow, superior leaping ability, ability to use a wider variety of spawning gravels, and ability to pass through shallower water.

Central Valley Fall-Run Chinook Salmon (*Oncorhynchus tshawytscha*)

The first fall-run Chinook salmon adult migrants entering the Stanislaus River are typically observed in late September. The majority of spawning occurs from October through December. Eggs are laid in nests called redds, and need cool water and good water flow (to supply oxygen) to survive. Once spawning is completed, adult Chinook salmon die. Juveniles typically emerge from the gravel in December through March and rear in fresh water for 1-7 months, usually moving downstream into large rivers within a few weeks. Salmon smolts initiate migration during storm events and flow is positively correlated with migration rate. Out-migrating smolts employ a nocturnal migration strategy, a behavior likely influenced by predation. Turbidity also has a strong positive relationship with increased survival during out-migration, likely by decreasing predation efficiency. However, this relationship is also influenced by the strong positive association between turbidity and large flow events.

Critical Habitat

The federal ESA requires that the Service and NMFS designate critical habitat for species listed as federally endangered or threatened. “Critical habitat” is defined in ESA as: (1) specific areas within the geographical area occupied by the species at the time of listing, if they contain physical or biological features essential to a species’ conservation, and those features may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation (16 USC 1531 et seq).

Critical habitat has been designated for the California Central Valley Steelhead Distinct Population Segment (DPS) located within the project area

Primary Constituent Elements of Critical Habitat

Anadromous Salmonids

Primary constituent elements (PCEs) of anadromous salmonid critical habitat are similar and are essential for supporting one or more life stages of each ESU or DPS (spawning, rearing, migration, and foraging). On September 2, 2005, NMFS released the designated critical habitat for seven ESUs of salmon in California (50 CFR 226.211). The specific PCEs included in that designation were: (1) freshwater spawning sites with conditions and substrate that support spawning, incubation, and larval development; (2) freshwater rearing areas with sufficient water quantity and floodplain connectivity to create and maintain suitable habitat conditions supporting juvenile growth and mobility, water quality and food to support growth and development, and natural cover components (e.g., large wood, shade, large substrate) to escape high flows and predation; (3) unobstructed freshwater migration corridors with sufficient cover and water quantity and quality suitable for juvenile and adult movement and survival; (4) suitable estuarine habitat with natural cover (e.g., aquatic vegetation, large wood, side channels), food, and sufficient water quantity and quality to support growth, movements, and physiological changes (e.g., smoltification) of juvenile and adult fish; (5) nearshore marine areas with sufficient cover, food, and water quantity and quality; and (6) offshore marine areas with sufficient food and water quality to support growth and maturation.

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act (Public Law 104 to 297), mandates all federal agencies consult with NMFS on any activities or proposed activities authorized, funded, or conducted by that agency that may adversely impact essential fish habitat (EFH) of commercially managed marine and anadromous fish species (Section 305(b)(2)). These regulations require that federal action agencies provide NMFS with a written assessment of the effects of their action on EFH (50 CFR Section 600.920). EFH includes specifically identified waters and substrate necessary for fish spawning, breeding, feeding, or growing to maturity. Important components of EFH for spawning, rearing, and migration include suitable

substrate composition; water quality (e.g., dissolved oxygen, nutrients, temperature); water quantity, depth and velocity; channel gradient and stability; food; cover and habitat complexity (e.g., large woody debris, pools, channel complexity, aquatic vegetation); space; access and passage; and floodplain and habitat connectivity (Pacific Fishery Management Council 2003). EFH also includes all habitats necessary for the production of commercially valuable aquatic species, to support a long-term sustainable fishery, and contribute to a healthy ecosystem (16 USC 1802[10]).

There is no designated EFH for any listed species in the project area.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act, as amended in 1964, was enacted to protect fish and wildlife when Federal actions result in the control or modification of a natural stream or body of water. The statute requires Federal agencies to take into consideration the effect that water-related projects would have on fish and wildlife resources. Consultation and coordination with the Services are required to address ways to prevent loss of and damage to fish and wildlife resources and to further develop and improve these resources.

Environmental Consequences

No Action Alternative

Under the No Action Alternative, Reclamation would not replenish gravel in the Proposed Action area. If the project is not implemented, further declines in habitat quality would be likely, as spawning habitat within this reach of the Stanislaus River would remain in a deteriorated condition.

Proposed Action

Rare and Endangered Plants

The aforementioned ESA listed plants will not be impacted by the Proposed Action. The Proposed Action does not include vegetation removal and there are no anticipated impacts to existing vegetation. Installation of the gravel pump would impact little, if any, riparian vegetation in the project area.

Invasive Species

Equipment would be inspected prior to arrival at the construction area, including the physical removal of plant seeds and parts from equipment.

Migratory, Songbirds, and Raptors

Surveys for nesting activity of raptors would occur within a 250-foot radius of the construction site and concentrate on mature trees. Surveys for migratory birds, including bald and golden eagles, would be conducted by a qualified biologist within a 50-foot radius of the construction site no more than two weeks prior to construction. If any active nests are observed, these nests and nest trees would be protected (while occupied) during project activities, using buffer zones,

monitoring or delaying activities. The general nesting season for songbirds and raptors in the project area is approximately March 1 – August 31. No vegetation removal will occur as part of the Proposed Action.

The Proposed Action would provide benefits to fish populations, which would increase foraging opportunities for foragers such as bald and golden eagles.

Fisheries

The life stage timing of Green Sturgeon, CCV steelhead, and fall-run Chinook Salmon in the Stanislaus River does not make it likely any of these species will be harmed during the gravel placement. The timing of construction work is set to occur from June to mid-September. CCV steelhead typically spawn in tributaries from December through April (NMFS 2014). Their eggs usually hatch within four weeks, depending on stream temperature, and the yolk sac fry remain in the gravel after hatching for another four to six weeks (CDFG 1996). Juvenile steelhead are present through the area year round. They are strong swimmers and able to avoid the gravel placement activities. Fall-Run Chinook Salmon spawn during October to December, with juveniles typically emerging from the gravel in December through March. Most juveniles leave the river in the spring. Green Sturgeon spawn during late winter to late spring but are not anticipated to be as far upstream as the project area.

Short-term increases in turbidity and suspended sediment levels associated with construction may negatively impact fish populations temporarily through reduced availability of food, reduced feeding efficiency, and exposure to suspended sediment released into the water column. Fish responses to increased turbidity and suspended sediment can range from behavioral changes (alarm reactions, abandonment of cover, and avoidance) to sublethal effects (e.g., reduced feeding rate), and, at high suspended sediment concentrations for prolonged periods, lethal effects (Newcombe and Jensen 1996). If this occurs while adults are spawning or embryos are incubating, injury or mortality to incubating eggs or alevins may occur through the infiltration of fine sediment into salmonid redds with a reduction of intra-gravel water circulation and in severe cases entombment of salmonid eggs and through preventing Green Sturgeon eggs from adhering to each other. The deposition of fine sediments in food producing riffles could also reduce the abundance and availability of aquatic insects on which juveniles feed, and result in the loss of rearing cover for juveniles; in the action area, silt and sand on the stream bottom would be disturbed during placement of new materials, however, the amount of sediment that may be re-suspended during project installations is not likely to be significant; any re-suspension and re-deposition of instream sediments is expected to be localized and temporary and would not reach a level that would acutely affect aquatic organisms. The use of the proposed construction work window would prevent the siltation of any potential fall-run Chinook Salmon or CCV steelhead redds and Green Sturgeon eggs.

The use of seasonal work windows would generally prevent the siltation of fall-run Chinook Salmon, and steelhead redds and Green Sturgeon eggs.

The following BMPs are included to minimize adverse effects on fish:

- Added gravel would be uncrushed, rounded “natural river rock” with no sharp edges, and the distribution of particle size would be based on recommendations of the Anadromous Fish Restoration Program.
- Heavy equipment operating in the river will use readily biodegradable hydraulic fluid, equipment will be checked daily for leaks and any leaks will be fixed prior to activities in sensitive areas.
- Purchased gravel would be sorted, washed as needed, and have a cleanliness value of 85 or higher, based on CalTrans Test #227, and the gravel would be free of oils, clay, debris, and organic material.

The goal of the Proposed Action is to improve salmon and steelhead spawning habitat to increase the production of these species in the Stanislaus River. Work in the river would be limited to times of the year when effects on listed salmonid life stages in the river can be minimized.

Construction would dislodge aquatic benthic organisms and the gravel being placed in the river would take a few months to recolonize. During construction this would provide a feeding opportunity for fish downstream (Merz 2008).

Reclamation will seek concurrence from NMFS per Section 7 of the ESA and will adhere to additional site-specific measures that result from that consultation.

3.2.3 Cultural Resources

Cultural resources is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. Title 54 U.S.C. 300101 et seq., formerly and commonly known as the National Historic Preservation Act (NHPA) is the primary legislation for Federal historic preservation. Section 106 of the NHPA (54 U.S.C. 306108) requires Federal agencies to take into consideration the effects of their undertakings on historic properties and to afford the Advisory Council on Historic Preservation an opportunity to comment. Historic properties are those cultural resources that are listed on or eligible for inclusion in the National Register of Historic Places (National Register). The implementing regulations at 36 CFR § 800 for Section 106 describe the process that the Federal agency takes to identify historic properties within the area of potential effects and to assess the effects that the proposed undertaking will have on those historic properties, through consultations with the State Historic Preservation Officer (SHPO), Indian Tribes, and other identified consulting and interested parties.

Reclamation proposes to implement a salmonid spawning and rearing habitat restoration project on the Stanislaus River below Goodwin Canyon. The implementation and funding of the restoration project is an undertaking as defined in 36 CFR § 800.16(y) and is the type of activity that has the potential to cause effects on historic properties under 36 CFR § 800.3(a). Additionally, the U.S. Army Corps of Engineers, which has a permitting action related to this project,

designated Reclamation as the lead Federal agency for NHPA Section 106 compliance for this undertaking.

Affected Environment

In an effort to identify historic properties in the APE, a review was conducted of Reclamation's project records, internal records of cultural resources surveys, sites, and project data. A search of Oakdale ID and South San Joaquin Irrigation District records was also conducted. A records search was initiated at the Central California Information Center at California State University Stanislaus in Turlock, California. A Reclamation archaeologist conducted a cultural resources survey of the APE on March 13, 2020 to verify the extent of the built environment and identify any cultural resources in the APE. One historic era cultural resource, a previously undocumented segment of the Oakdale ID South Main Canal, part of the Oakdale ID distribution system, was identified within the APE.

The Oakdale ID distribution system includes the Goodwin Diversion Dam on the Stanislaus River, at which point water is diverted into the main canal systems. Currently, Oakdale ID operates and maintains over 330 miles of laterals, pipelines, and tunnels, 25 deep wells, and 48 lift pumps to serve local customers. The South Main Canal is one of the two primary canals with their headworks at Goodwin Dam approximately 968 feet north of the bridge crossing the canal in the APE. The canal totals approximately 21 miles long, beginning at Goodwin Dam and terminating approximately 1,800 feet southwest of the intersection of Warnerville Road and Stearns Road on the south side of Oakdale. The segment of the Oakdale ID South Main Canal within and adjacent to the APE is a concrete structure with gunnite lining that measures approximately 1,168-foot long, 20 feet wide (top width), and 4 feet deep (from the top of the canal prism). A dirt and gravel service road, measuring between 10 feet and 15 feet wide, is adjacent to the west side of the canal. The canal and road are cut into the steep hillside of the canyon in this location. The canal head works are at Goodwin Dam (completed in 1913) about 500 feet north of the northern most APE boundary. .

The Oakdale ID was recorded as a district (P-50-002303) under the theme of settlement and agricultural development in the Oakdale area with a period of significance of 1912-1948. Both the district and the nine canal segments recorded as part of this district, including the South Main Canal, were evaluated for inclusion on the National Register and recommended not eligible by Carey and Company, Incorporated (2007) and Nayyar and Jordan (2015). There appears to be no consensus determination in consultation with the SHPO related to the Oakdale ID district record. Furthermore, the segment of the South Main Canal within and adjacent to the APE, and Goodwin Dam, have not been recorded and evaluated for National Register eligibility, either individually or as part of the Oakdale ID system.

Evaluating the entire Oakdale ID water delivery system, including Goodwin Dam and the whole South Main Canal, is outside the scope of this relatively small

undertaking as the affected portion of the South Main Canal within the APE is 1,168 feet long while the entire canal is 21 miles long. The 1,168 feet of the South Main Canal within the APE represents slightly more than 1% of the overall canal. Therefore, for the purposes of this undertaking only, Reclamation will treat the Oakdale ID distribution system as eligible for inclusion on the National Register under Criterion A for its role in the economic development of Calaveras County. The South Main Canal will be treated as a contributing element under Criterion A for its association with the Oakdale ID distribution system.

Multiple existing access roads and existing staging areas are proposed to be used to implement the project with no proposed improvements.

Pursuant to 36 CFR § 800.5(a), Reclamation applied the criteria of adverse effect to the assumed National Register eligible Oakdale ID distribution system, which includes Goodwin Dam and the South Main Canal, and found that the proposed action would result in no significant alterations to the historic characteristics that make the South Main Canal eligible for the National Register. The proposed actions of implementing a restoration project along the canal will not alter any physical characteristics of the canal or its berm or its ability to convey significance to the Oakdale ID distribution system under Criterion A, either individually or as a contributing element to the Oakdale ID distribution system. Upon completion, the South Main Canal will be recontoured to its pre-construction form. The proposed activities associated with the restoration project are consistent with the existing conditions on the Stanislaus River and would result in no change in the viewshed of the Oakdale ID distribution system and not affect the integrity of location, setting, feeling, or association of the historic properties assumed eligible for the purposes of the restoration project undertaking. The use of an existing crossing over the South Main Canal for access to the APE is consistent with ongoing access and maintenance of the area.

Pursuant to the regulations at 36 CFR § 800.3(f)(2), Reclamation identified the California Valley Miwok Tribe, Chicken Ranch Rancheria of Me-Wuk, and Tuolumne Band of Me-Wuk Indians as Indian tribes who might attach religious and cultural significance to historic properties within the APE. Our office sent letters on May 18, 2020 to invite the participation of these tribes in the Section 106 process pursuant to 36 CFR § 800.4(a)(4). To date, no historic properties have been identified through consultation with these Indian tribes. If Native American concerns are subsequently raised, we will work to address them.

Utilizing these identification and evaluation efforts, Reclamation will be entering into consultation with the SHPO to seek their concurrence on a finding of no adverse effect to historic properties pursuant to 36 CFR § 800.5(b).

Environmental Consequences

No Action Alternative

Under the No Action Alternative, Reclamation would not implement the

restoration project. Conditions related to cultural resources would remain the same as existing conditions.

Proposed Action

The Proposed Action is a type of activity that has the potential to cause effects on historic properties under 36 CFR § 800.3(a). A records search, a cultural resources survey, and Tribal consultation identified one historic property within the APE, a segment of the South Main Canal. The South Main Canal is a contributing element to the Oakdale ID distribution system, however, due to the limited length of the South Main Canal (1,168 feet of 21 miles of the overall canal) affected by this project and since the overall Oakdale ID distribution system is largely outside the APE, these cultural resources were not formally evaluated for inclusion on the National Register, and recording and evaluating these cultural resources is outside the scope of this project. Therefore, for the purposes of this undertaking only, Reclamation will treat the Oakdale ID distribution system as eligible for inclusion on the National Register under Criterion A for its role in the economic development of Calaveras, Tuolumne, and Stanislaus Counties, and the South Main Canal is treated as a contributing element to that system. Reclamation determined that the Proposed Action would have no adverse effect to historic properties pursuant to 36 CFR § 800.5(b); therefore, no cultural resources would be affected as a result of implementing the Proposed Action.

3.2.4 Geology and Soils

Affected Environment

California is divided into 11 Geomorphic Provinces. The project area is located within the Great Valley and the Sierra Nevada province. The Sierra Nevada province is a tilted fault block with deep river canyons that cut into a western slope. The Great Valley province is an alluvial plain with the southern part drained by the San Joaquin River (CGS 2002).

Valley land soils consist of Aeolian soils. In the past, a balance existed between erosion and deposition along the Stanislaus River. However, construction of dams, levees, and water projects has altered streamflow and other hydraulic characteristics of the Stanislaus River. In some areas, human-induced changes have stabilized and contained the river, while in other reaches the loss of riparian vegetation has reduced sediment deposition and led to increased erosion.

Environmental Consequences

No Action Alternative

Under the No Action Alternative, Reclamation would not place gravel in the project area, therefore impacts on geology or soils would not occur.

Proposed Action

The Proposed Action consists of gravel placement within the Stanislaus river at the project area. Use of front-loaders to distribute the gravel could increase the potential for soil erosion.

In-river work, such as riffle supplementation would be completed by starting with gravel placement at the edge of the river, near the lower reach of the project area. This would allow for loaders to drive on the newly placed gravel and avoid distributing fine sediments. The upper reach of the project area would involve the use of the aforementioned “habitat builder” to distribute gravel, due to limited access for construction equipment. Up to 15,000 tons of gravel may be placed in the project area during the first year. Any following years will include gravel placement as needed.

The Proposed Action does not include excavation or vegetation removal and is unlikely to result in disturbed soils.

The project area is not located in a fault zone according to the Alquist-Priolo Earthquake Fault Zoning Map. The Proposed Action would not expose people or structures to potential adverse effects involving the rupture of a known earthquake fault, strong seismic ground shaking, or ground failure, including liquefaction. The Proposed Action would not involve septic tanks or alternative wastewater disposal systems.

3.2.5 Hazards and Hazardous Materials

Affected Environment

A hazardous material is defined as “a substance or material... capable of posing an unreasonable risk to health, safety, and property when transported in commerce” (49 CFR 171.8). California Health and Safety Code Section 25501 defines a hazardous material as “any material that... poses a significant present or potential hazard to human health and safety or to the environment if released.” Hazardous materials may include fuel, lubricants, and hydraulic fluid. A discussion of water quality and potential hazards to water quality associated with the project is presented in Section 3.2.6 Hydrology and Water Quality.

Fires present hazard risks to rural and urban development in the Stanislaus River area. Based on a review of the California Department of Forestry and Fire Protection (CAL-FIRE) statewide map of fire hazard severity zones, the upper Sacramento River area includes lands designated as high and very high risk (CAL-FIRE 2007).

Surface waters pose hazards to persons engaging in boating and other water-based activities on these water bodies. Water hazards are posed by equipment operations, flow velocity, morphology, instream or submerged material, accessibility, and water temperature.

Environmental Consequences

No Action Alternative

Under the No Action Alternative, Reclamation would not replenish gravel in the proposed action area. Therefore, no impacts on hazards or hazardous materials would occur.

Proposed Action

The potential spill of hazardous materials (e.g., fuel, lubricants, hydraulic fluid) during construction and staging activities into the Stanislaus River could have deleterious effects. Construction equipment operated in or adjacent to the river presents the risk of a spill of hazardous materials into the river (e.g., construction equipment leaking fluids). Construction activities that include refueling of construction equipment on location can result in minor fuel and oil spills. Without rapid containment and clean up, these materials could have deleterious effects on all salmonid life stages within close proximity to construction activities.

Reclamation, or a designated contractor, would develop measures to be implemented onsite that would keep construction and hazardous materials out of waterways and drainages. These measures would include provisions for daily checks for leaks; hand-removal of external oil, grease, and mud; and the use of spill containment booms for refueling. In addition, construction equipment refueling and regular maintenance would be restricted to designated staging areas located away from streams and sensitive habitats.

Reclamation expects that adherence to BMPs that dictate the use, containment, and cleanup of contaminants would minimize the risk of introducing such products to the waterway because the prevention and contingency measures would require frequent equipment checks to prevent leaks, would keep stockpiled materials away from the water, and would require that absorbent booms are kept on-site to prevent petroleum products from entering the river in the event of a spill or leak.

The Proposed Action would not be located on a site on the Hazardous Waste and Substances Site List, known as the Cortese List, pursuant to Government Code Section 65962.5 (DTSC 2015).

Portions of the Proposed Action are located within the High and Moderate Fire Hazard Severity Zone. Occupational Safety and Health Administration (OSHA) has fire protection and prevention standards (29 CFR 1926.150, Subpart F) which require a fire protection program to be followed throughout construction work. Reclamation will comply with the elements of OSHA's fire protection and prevention standards.

3.2.6 Hydrology and Water Quality

Affected Environment

Hydrology

The Stanislaus is one of eight major tributaries to the San Joaquin River. Flows in the Stanislaus are controlled by the releases from New Melones and Goodwin

Dam, and vary by season and year. Water stored in upstream reservoirs during the winter and spring is released in the summer and fall for municipal and industrial supply, irrigation, water quality, power generation, recreation, and fish and wildlife purposes. Since completion of the dams, flows are now lower in the winter and spring and higher in the summer and fall (Schneider, et al. 2003).

Most of the moisture in the Stanislaus Basin comes in the form of snow, with an annual precipitation ranges from 26 inches in a very dry year to 68 inches in a wet year (USACE 1980). The basin is characterized by cool and wet winters, and hot and dry summers. Major storms occur from November through April. Winter storms account for about 80% of the annual precipitation. Below 4,000 feet the precipitation usually falls as rain, which generally continues for 3 or 4 days. Above 4,000 feet, precipitation usually falls as snow. Most of the runoff from the Stanislaus River basin occurs from November through July. Historically the average annual runoff at the New Melones Dam is 1.1 million acre-ft with a maximum runoff of 2.8 million acre-feet in water year 1907 and minimum 0.16 million acre-feet in water year 1977. With dam regulation and water diversion under current operations, the annual runoff downstream of the Goodwin Dam is significantly reduced.

Currently New Melones Dam is designed to release flows less than 8,000 cfs during the 100-year flood (Kondolf et al., 2001). For that reason, the US Army Corp of Engineers (Corps) is required to maintain an 8,000 cfs floodway from Goodwin Dam to the San Joaquin River, subject to the condition that local landowners maintain private levees and prevent encroachment on the channel between levees.

Water Quality

The main sources of water in the Stanislaus River below Goodwin Dam are rain and snowmelt that collect in upstream reservoirs and are released in response to water needs or flood control. The quality of surface water downstream of Goodwin Dam is controlled by other human activities along the Stanislaus River, including agriculture and municipal and industrial (M&I) activities.

The lower Stanislaus River is on the State Water Resources Control Board (SWRCB) Clean Water Act (CWA) Section 303(d) list as impaired by mercury, pesticides, and other constituents of concern that are an unknown toxicity (SWRCB 2017). Mercury can negatively impact the beneficial uses of many waters of the state by making fish unsafe for human and wildlife consumption (SWRCB 2018). While pesticides are also impactful to aquatic organisms and human health when concentrated in surface water (CDPR 2020).

State and federal law mandates a series of programs for the management of surface water quality. In the State of California, water resources are protected under the federal CWA and the State Porter-Cologne Water Quality Control Act, which created the SWRCB and nine RWQCB, each responsible for a water-quality control plan (California RWQCB, 1998). In the project region, Central

Valley RWQCB is responsible for designating beneficial uses and establishing water quality objectives.

Environmental Consequences

No Action Alternative

Under the No Action Alternative, Reclamation would not replenish gravel in the proposed action area. Existing conditions would continue. Therefore, no impacts on hydrology or water quality would occur.

Proposed Action

Hydrology

The hydrologic effects of the Proposed Action are limited to changes in water surface elevations resulting from the introduction of the gravel.

The project design process would involve a flow and sediment transport model to assess river response resulting from the Proposed Action. As described in the technical modeling report (USBR 2020), Huang and Greimann used numerical modelling to estimate the geomorphic response of the gravel augmentation in the Stanislaus River downstream of the Goodwin Dam, and to estimate the impact to water surface elevations during a flow of 8,000 cfs. Huang and Greimann found that historical gravel augmentation from 1994 to 2018 helped reduce channel degradation in the reach from Knight's Ferry Bridge to Jacob Meyers; however, it may have increased the water surface elevation during required protection level of 8,000 cfs by about 0.9 feet in the reach from Goodwin Dam to Knight's Ferry Bridge and 0.2 feet in the reach from Knight's Ferry Bridge to Orange Blossom Bridge. The water surface elevation increase occurs in a short reach where the channel slope decreases. Without gravel augmentation, the river will continue to experience degradation in the reach from Knight's Ferry Bridge to Jacob Meyers. In a 20-year period, 180,000 cubic yards of sediment will be eroded from this reach.

Huang and Greimann's findings suggest that most of the augmented gravel remains in the reach from Goodwin Dam to Knight's Ferry Bridge. Even with gravel augmentation at Goodwin Dam, erosion is expected in the river channel from Knight's Ferry Bridge to Jacob Meyers Park. When compared with the current river bathymetry, the average water surface elevation increase in this canyon reach will be 0.3 feet. Downstream of the Knight's Ferry Bridge, the water surface elevation will decrease. Most of the gravel injected will remain in the reach from Goodwin Dam to Knight's Ferry Bridge.

Water Quality

The Proposed Action would be completed in accordance with permit conditions and BMPs to protect water quality. These practices would prevent sediments, fuels, hydraulic fluids, hazardous material, and other pollutants from entering the river, and control turbidity within acceptable levels.

Gravel placed in the river would be obtained from a commercial source and

processed to minimize turbidity plumes. Some turbidity is expected and would be monitored in accordance with relevant permits. If turbidity levels exceed permits standards, the pace of work would be altered to help meet standards. Instream work associated with placing the gravel in the river would likely result in short-term turbidity plumes immediately downstream of the construction area, within the permitted limits.

The re-suspension and deposition of instream sediments is an indirect effect of gravel entering the stream. Suspended solids and turbidity generally do not acutely affect aquatic organisms unless they reach high levels (i.e., levels of suspended solids reaching 25 mg/L). At these levels, suspended solids can negatively affect the physiology and behavior of aquatic organisms and may suppress photosynthetic activity at the base of food webs, affecting aquatic organisms either directly or indirectly (Alabaster and Lloyd 1980). Gravel placed in the river would be processed as needed to maintain water quality standards. Furthermore, the Clean Water Act § 401 Water Quality Certification that would be issued for the Proposed Action would limit the potential effects of fine sediment on fish by limiting the maximum increase of turbidity and suspended sediment over background levels.

Any re-suspension and re-deposition of instream sediments is expected to be localized and temporary and would not reach a level that would acutely affect aquatic organisms.

The following BMPs are included to minimize adverse impacts to water quality:

- During in river work, turbidity would be monitored and construction pace slowed if turbidity exceeds criteria established by the Regional Water Quality Control Board.
- Work will be completed in compliance with Clean Water Act §401 permits.
- All equipment working within the stream channel would be inspected daily for fuel, lubrication, and coolant leaks; and for leak potentials (e.g. cracked hoses, loose filling caps, stripped drain plugs); and all equipment must be free of fuel, lubrication, and coolant leaks.
- Vehicles or equipment would be washed/cleaned only at approved off-site areas.
- All equipment would be cleaned prior to working within the stream channel to remove contaminants that may enter the river and adjacent lands.
- All equipment would be fueled and lubricated in a designated staging area located outside the active river channel.
- Spill prevention kits would be in close proximity to construction areas, and workers would be trained in their use.
- Gravel would be processed as needed prior to being placed in the river.

3.2.7 Noise

The loudness of sound preserved by the human ear is dependent primarily on the overall sound pressure level and frequency content of the sound source. The human ear is not equally sensitive to loudness at all frequencies in the audible spectrum. To better relate overall sound levels and loudness to human perception, frequency-dependent weighting networks were developed. There is a strong correlation between the way humans perceive sound and A-weighted sound levels (abbreviated dBA). A-weighted sound levels are a standard tool to predict community response to environmental and transportation noise. Sound levels expressed as dB in this section are A-weighted sound levels, unless noted otherwise.

Affected Environment

The existing noise environment within the project area is typical of an open-space area. The existing noise environment is primarily influenced by vehicular traffic noise on local roadway networks, as well as water running through the Stanislaus River and Goodwin Dam.

Noise from commercial land uses and outdoor activities (e.g. people talking, dogs barking, etc.) contribute to the existing noise environment to a lesser extent. Equivalent sound level (L_{eq}) is an hourly average noise level descriptor. Noise-sensitive land uses generally include those uses where exposure to noise would result in adverse effects, as well as uses where quiet is an essential element of the intended purpose. In the vicinity of the project site, sensitive land uses include park areas near the gravel augmentation sites and along proposed gravel haul routes. These land uses could potentially experience noise impacts associated with project construction and/or increased traffic from project operation.

Table 2 – Construction Equipment Noise Levels		
Type of Equipment	L_{max} @ 50 (DBA) ¹	Acoustical Usage Factor %
Loader	80	40
Dump Truck	84	40
Pump	77	50

¹Source: Table 9.1 Construction Equipment Noise Emission Levels (USDOT 2017)

Environmental Consequences

No Action Alternative

Under the No Action Alternative, Reclamation would not replenish gravel in the proposed action area. There would be no impacts to noise since no construction would take place.

Proposed Action

Construction equipment noise levels listed in Table 2 are the maximum levels at 50 feet. The equivalent hourly average noise level (L_{eq}) would be less than the

maximum levels (Lmax) for each type of equipment. The Proposed Action would incorporate three BMPs for the control of construction noise levels.

Implementation of the following BMPs generally results in reduction of construction-generated noise levels by 15 dB to 25 dB. Additionally, sound from outdoor construction activities typically dissipates at a rate of 4.5 dBA to 6.0 dBA for each doubling of distance (FHWA 1980).

The following Best Management Practices (BMPs) are included to minimize noise impacts:

- Provide and maintain noise control devices for construction equipment. Construction equipment shall be properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (i.e., mufflers, silencers, wraps, etc).
- Coordinate routes and arrange equipment to minimize disturbance to noise-sensitive uses. Construction equipment usage shall be arranged to minimize travel adjacent to occupied residences and turned off during prolonged periods of non-use.
- Designate a disturbance coordinator to respond to all public complaints.

Due to the aforementioned BMPS, combined with project activities occurring away from the vicinity of residential and noise-sensitive areas, noise impacts would be temporary and localized and there would be no long-term operational noise sources. Construction associated with the project would include the use of front-end loaders, pumps, and trucks. Construction operations would not generate high levels of ground vibration, such as that from blasting, pile driving, or pavement breaking.

3.2.8 Recreation

Affected Environment

The Stanislaus River is an important recreational resource in California. This section describes existing recreation and public access resources in the project area, approximately at RM 58. Recreational activities within this area include fishing, boating, hiking, picnicking, and wildlife viewing/nature observation.

The Stanislaus River is well known for whitewater rafting. The four miles of rapids upstream from Knights Ferry, including the project area, attract numerous whitewater enthusiasts. Only non-motorized boats are allowed in the Stanislaus River between Goodwin Dam and Horseshoe Road.

Fishing is also a popular recreational activity in the Stanislaus River. The river is open to fishing from January 1 to March 31, and the fourth Saturday in May to October 31 each year. Trout, smallmouth bass, striped bass, carp, channel and white catfish and black crappie are common. The entire river is closed to fishing from November 1 to December 31 for protection of the fall Chinook salmon run (USACE 2020).

Several recreational sites exist on the Stanislaus River, including Goodwin Dam Recreation Area, which are managed by the USACE). Goodwin Dam Recreation

Area is located on the project area and includes opportunities for trail hiking and fishing activities.

Environmental Consequences

No Action Alternative

Under the No Action Alternative, Reclamation would not replenish gravel in the Proposed Action Area. Therefore, impacts to recreation would not occur.

Proposed Action

Construction would occur during normal work hours. During construction, trails would be signed, cautioning users that equipment would be crossing. When there are repetitive trucks hauling gravel across the trails a flag person wearing OSHA-approved vests and using the “Stop/Slow” paddle will be present.

No boaters are anticipated in the project area, as there is limited access to boats in the project area and directly downstream of Goodwin Dam. Signs will be posted around the project area informing recreationalists of project activity.

The Proposed Action would not increase the use of existing facilities, nor substantially contribute to the physical deterioration of facilities. The construction or expansion of new facilities would not be involved with implementation of the Proposed Action.

Recreation opportunities in the project area are abundant. Impacts to recreation from construction activities would be temporary and localized. Activities that may impact public recreation areas would be coordinated with the responsible agencies.

3.2.9 Transportation and Traffic

Determination of roadway operating conditions is based upon comparison of traffic volumes to roadway capacity. “Levels of service” (LOS) describe roadway operating conditions. LOS is a qualitative measure of the effect of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs. Levels of service are designated "A" through "F" from best to worst, which cover the entire range of traffic operations that might occur. LOS "A" through "E" generally represent traffic volumes at less than roadway capacity, while LOS "F" represents over capacity and/or forced conditions.

Affected Environment

Approximately 90 percent of Calaveras County residents commute to and from work by car, truck, or van. The share of commuters that walk or bike to work in the Calaveras County is approximately three percent. Approximately 0.3 percent of commuters use public transportation to get to work, while approximately seven percent of Calaveras County workers work at home (Calaveras County, 2018). Near the project area, California State Route 108 and Tulloch road are the main transportation routes.

Environmental Consequences

No Action Alternative

Under the No Action Alternative, Reclamation would not place gravel in the Proposed Action area. There would be no impacts to traffic since construction, including the transportation of gravel, would not occur.

Proposed Action

Construction activities would be confined to the project site, with access from paved roads. Traffic impacts would generally be related to the transportation of gravel to on-site stockpiles.

Construction-related traffic would occur from daily commutes by construction workers and the delivery of gravel. Gravel additions would be completed at the site using approximately 15,000 tons of gravel per year. Gravel placement would occur during the hours of approximately 6:30 am to 6:30 pm during June through mid-September. Type 3 truck or Type 3-3 trucks will most likely be used to transport the gravel to the staging area, each site would create approximately 1,250 trips round trip annually. Additional traffic would occur from daily worker trips to the site.

Pedestrian trails may be temporarily blocked during gravel delivery and construction activities. Haul trucks and equipment would cross several trails. During construction, these trails would be signed, cautioning users that equipment would be crossing. During times when there is repetitive trucks crossing the trails when gravel is being delivered, a flag person wearing OSHA-approved vests and using the “Stop/Slow” paddle may be present. Signage will be posted to prevent recreators from entering construction zones. Impacts to pedestrian trails would be temporary.

Potential impacts to traffic would be temporary and related to the construction activities. Existing land uses would not be altered by the Proposed Action and there would not be permanent changes to Levels of Service.

3.3 Environmental Commitments

Environmental commitments are measures or practices adopted to reduce or avoid adverse effects that could result from project implementation. These are also known as protective measures and are in accordance with relevant permits. Environmental commitments include pre-construction surveys. In addition, to avoid the spread of invasive species such as zebra and quagga mussels, New Zealand mudsnails and Chytrid Fungus to and from the project area measures would be implemented such as physical removal from equipment, freezing equipment and saturation of equipment in chemical solution(s). The following section describes the best management practices, environmental commitments, and mitigation measures that would be implemented under the Proposed Action:

Protection Measure #1 – Air Quality

- Reasonably available control measures would be implemented at each project site, including, but not limited to, watering dirt roads and construction areas.
- Hauling of gravel outside of the project sites would approximately from 6:30 am to 6:30 pm.

Protection Measure #2 – Fisheries

- In-river work will be during timing windows designed to have the lowest potential to adversely affect salmonids and sturgeon.
- Added gravel would be uncrushed, rounded “natural river rock” with no sharp edges, and the distribution of particle size would be based on with recommendations of the Anadromous Fish Restoration Program.
- Equipment operating nearby the river will use readily biodegradable hydraulic fluid, and equipment will be checked daily for leaks and any leaks will be fixed prior to activities in sensitive areas.
- Purchased gravel would be washed as needed and have a cleanliness value of 85 or higher, based on CalTrans Test #227, and the gravel would be free of oils, clay, debris, and organic material.
- Reasonable and prudent measures and EFH recommendations proposed by NMFS would be implemented by Reclamation.

Protection Measure #3 – Cultural Resources

- In the event that previously unidentified cultural resources are discovered as a result of this undertaking, the nearby construction activities would cease and Reclamation Cultural Resource Staff would be notified and consulted on how to proceed. Reclamation would follow the procedures for post-review discoveries on Federal lands as described in the regulations at 36 CFR § 800.13. Work may not continue in the area of the discovery until Reclamation issues a notice to proceed.
- In the event that human remains are identified during the course of the proposed project, all construction activities would cease and a Reclamation Archaeologist would be consulted on how to proceed. Note that all human remains identified on lands owned by the Federal government are subject to the Native American Graves Protection and Repatriation Act (NAGPRA) (25 USC 3001). The procedures for dealing with the discovery of human remains on Federal lands are described in the regulations that implement NAGPRA, found at 43 CFR § 10. All work in the vicinity of the discovery would be halted and Reclamation’s Regional Cultural Resources Officer as well as the U.S. Army Corps of Engineers would be notified immediately. This notification would be followed by a written report within 48 hours. Project implementation in the vicinity of the discovery would not resume until Reclamation complies with the 43 CFR § 10 regulations and provides notification to proceed.

- If human remains and associated materials are encountered during construction on non-Federal lands, work in that area would be halted and the Calaveras County Coroner's Office would be immediately contacted pursuant to Health and Human Safety Code Section 7050.5. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) would be notified within 24 hours of determination, as required by PRC Section 5097.

Protection Measure #4 – Hazardous Materials

- Standard precautions will be employed by construction personnel to prevent the accidental release of fuel, oil, lubricant or other hazardous materials.
- Construction personnel would check daily for leaks; conduct hand-removal of external oil and grease and maintain adequate amounts of absorbent materials and containment booms on hand to enable containment of any fuel spill.
- Construction equipment refueling and regular maintenance would be restricted to designated staging areas located away from streams and sensitive habitats.

Protection Measure #5 - Water Quality

- Turbidity would be monitored during instream work. If turbidity exceeds permit criteria, construction would be slowed or stopped until turbidity is within permitted levels.
- All equipment working within the stream channel would be inspected daily for fuel, lubrication, and coolant leaks; and for leak potentials (e.g. cracked hoses, loose filling caps, stripped drain plugs); equipment must be free of fuel, lubrication, and coolant leaks.
- Vehicles or equipment would be washed at approved off-site areas.
- All equipment would be cleaned prior to working within the stream channel.
- Equipment would be fueled and lubricated in designated staging areas located outside the stream channel and banks.
- Equipment operating in or nearby the river will use readily biodegradable hydraulic fluid, and equipment will be checked daily for leaks and any leaks will be fixed prior to activities in sensitive areas.
- Gravel would be processed as needed prior to being placed in the river. Purchased gravel would be washed and have a cleanliness value of 85 or higher, based on CalTrans Test #227, and the gravel would be free of oils, clay, debris, and organic material.

Protection Measure #6 – Noise

- Construction operations will be limited between the hours of 7 a.m. and 6 p.m.
- Noise control devices for construction equipment would be provided and maintained.
- Transportation routes would be coordinated and equipment arranged to minimize disturbance to noise-sensitive uses.
- A disturbance coordinator would be designated to respond to all public complaints.

Protection Measure #7 – Recreation and Traffic

- Construction would occur during normal work hours.
- Trails would be signed, cautioning users of the equipment. During times when there are repetitive trucks crossing the trails when gravel is being delivered, a flag person wearing OSHA-approved vests and using the “Stop/Slow” paddle may be present.

Protection Measures #8 – Invasive Species

- Equipment would be inspected prior to arrival at the construction area, including the physical removal of plant seed and parts from equipment, and freezing equipment and saturation of equipment in chemical solution(s) to avoid the spread of invasive species such as zebra and quagga mussels, New Zealand mudsnails and Chytrid Fungus.

Protection Measures #9 – General Measures

- No pets of any kind would be permitted on the construction sites.
- No firearms (except for Federal, State, or local law enforcement officers and security personnel) of any kind would be permitted on the construction site.
- Use of rodenticides and herbicides in the Proposed Action area are prohibited.
- A litter control program would be instituted. Construction personnel would provide closed garbage containers for the disposal of all food-related trash items. All garbage would be removed daily.

3.4 Cumulative Effects

The cumulative effects of implementation of reasonably foreseeable projects and the alternatives as compared to conditions under the No Action Alternative and the Proposed Action are discussed below. Cumulative effects are impacts on the environment that result from the incremental impacts of an alternative when added to other past, present, and reasonably foreseeable future actions of Federal, state, or local agencies or individual entities or persons (40 CFR 1508.7). Such impacts can result from individually minor, but collectively significant, actions taking place over time (40 CFR 1508.8). Cumulative effects include the effects of

future State, tribal, local or private actions that are reasonably certain to occur in the project area.

No future State, tribal, local, or private actions that are reasonably certain to occur in the project area were identified. The Proposed Action would have no effects to Indian Trust Assets, Indian Sacred sites, or minority or low income populations. Therefore, there are no adverse effects associated with implementing the Proposed Action and no cumulative effects to consider.

Section 4 Consultation & Coordination

Several Federal laws, permits, licenses and policy requirements have directed or guided the NEPA analysis and decision making process included in this EA.

4.0 Agencies and Persons Consulted

Reclamation will consult and coordinate with the SHPO, pursuant to 54 USC § 306108, commonly known as Section 106 of the NHPA, and its implementing regulation found at 36 CFR Part 800. Reclamation will consult with NMFS under Section 7 of the ESA.

4.1 Public Review Period

The EA was made available for public comment on May 26, 2020.

4.2 Federal Laws, Regulations, and Policies

Title 54 U.S.C. § 306108, Commonly Known as Section 106 of the National Historic Preservation Act

Title 54 U.S.C. § 306108, commonly known as Section 106 of the National Historic Preservation Act (formerly 16 U.S.C. 470 et seq.), requires Federal agencies to consider the effects of their undertakings on historic properties, properties determined eligible for inclusion in the National Register, and to afford the Advisory Council on Historic Preservation an opportunity to comment. Compliance with Section 106 follows a series of steps, identified in its implementing regulations found at 36 CFR Part 800, that include identifying consulting and interested parties, identifying historic properties within the area of potential effect, and assessing effects on any identified historic properties, through consultations with the California SHPO, Indian tribes and other consulting parties.

Reclamation will be entering into consultation with the SHPO, notifying them regarding a finding of “no adverse effects to historic properties pursuant to 36 CFR § 800.5(b).” Reclamation will not implement the Proposed Action until the National Historic Preservation Act Section 106 process has been completed.

Section 7 of the Endangered Species Act (16 USC § 1531 et seq.)

Section 7 of the Endangered Species Act requires Federal agencies to ensure that discretionary federal actions do not jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of the critical habitat of these species.

Reclamation has applied for Regional General Permit 16 (RGP 16) to comply with Section 404 of the Clean Water Act with the United States Army Corps of Engineers. The RGP 16 includes an associated NMFS Biological Opinion (BO) and a U.S. Fish and Wildlife Service (USFWS) Letter of Concurrence (LOC). The associated NMFS BO states, “it is NMFS’ opinion that the proposed action is not likely to jeopardize the continued existence [of the listed species] . . . or adversely modify designated critical habitat for these listed species.” NMFS BO at page 93. Further, the associated USFWS letter of concurrence states, “the Service concurs with your determination that the proposed project may affect, but is not likely to adversely affect [the listed species discussed.]” USFWS LOC at page 6. Based on these determinations, Reclamation will comply with the ESA Section 7 terms and conditions required by the NMFS BO or USFWS LOC, should Reclamation ultimately receive a RGP 16.

If the RGP 16 expires or is no longer valid, Reclamation will conduct informal consultation with NMFS and seek concurrence on Reclamation’s determination that the Proposed Action is Not Likely to Adversely Affect listed species or Adversely Affect any associated critical habitat. Reclamation has determined that the Proposed Action will have No Effect on USFWS ESA-listed species, and, therefore, will not seek concurrence from USFWS. Should the determination of No Effect change, Reclamation will consult with USFWS.

Section 401 of the Clean Water Act

Reclamation must obtain a Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB). This declaration states that any discharge complies with all applicable effluent limitations and water quality standards. Reclamation intends to submit appropriate Section 401 applications to the RWQCB.

Section 404 of the Clean Water Act

Gravel augmentation activities have been occurring at Goodwin Dam since 1997, and Reclamation has consulted with the U.S. Army Corps of Engineers (Corps) for those activities.

Reclamation intends to submit appropriate Section 404 applications to the Corps.

Section 10 of the Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act applies to the Stanislaus River, but only from the mouth of the river to Highway 120 in the Town of Oakdale, California. This section of the Stanislaus River does not include the project area.

Reclamation will seek further consultation should the Corps' Section 10 jurisdiction change.

Executive Order 11990: Protection of Wetlands

Executive Order (EO) 11990 established the protection of wetlands and riparian systems as the official policy of the federal government. It requires all federal agencies to consider wetland protection as an important part of their policies and take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. Consultation with the Corps regarding Section 404 compliance has taken place. Any measures implemented to protect and restore wetlands as part of the 404 permitting process will likely be sufficient to satisfy compliance with EO 11990.

Executive Order 11988: Flood Plain Management

EO 11988 requires Reclamation to regulate development in floodplains and preserve the floodplains' natural and beneficial values. Measures to comply with EO 11988 have been integrated into the Proposed Action.

Executive Order 11312: Invasive Species

EO 11312 (February 3, 1999) directs all federal agencies to prevent and control introductions of invasive nonnative species in a cost-effective and environmentally sound manner to minimize their economic, ecological, and human health impacts. The Proposed Action includes measures to comply with EO 11312, such as physical removal of plant seed and parts from equipment and inspections prior to arrival at the construction area.

Section 5 References

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