Stanislaus River Salmonid Habitat Restoration Project at Stanley Wakefield Wilderness Area

Environmental Assessment

and

Initial Study/Mitigated Negative Declaration

Public Draft

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TABLE OF CONTENTS

TABLE OF CONTENTS ..... **I**

LIST OF FIGURES ..... **III**

LIST OF TABLES ..... **IV**

LIST OF ACRONYMS ..... **V**

1 INTRODUCTION **1**

1.1 Overview 1

2 PURPOSE OF DOCUMENT **2**

2.1 Purpose and Need for Action and Proposed Action Objectives 3

2.2 Proposed Action Location 4

2.3 Background 4

2.4 Purpose and Need for Action and Proposed Action Objectives 9

2.5 Previous Environmental Documentation 9

2.6 Previous Salmonid Habitat Improvement Efforts 11

2.7 Required Proposed Action Permits and Approvals 11

3 ALTERNATIVES **16**

3.1 No Action Alternative 16

3.2 Proposed Action Alternative 16

3.3 Proposed Action Design 17

4 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES **24**

4.1 Aesthetics 26

4.2 Agricultural and Forestry Resources 33

4.3 Air Quality 35

4.4 Biological Resources 41

4.5 Cultural Resources 68

4.6 Energy 71

4.7 Geology and Soils 72

4.8 Greenhouse Gas Emissions 76

4.9 Hazards and Hazardous Materials 78

4.10 Hydrology and Water Quality 82
4.11 Land Use and Planning 89
4.12 Mineral Resources 91
4.13 Noise 93
4.14 Population and Housing 95
4.15 Public Services 96
4.16 Recreation 98
4.17 Transportation 100
4.18 Tribal Cultural Resources 102
4.19 Utilities and Service Systems 104
4.20 Wildfire 106
4.21 Mandatory Findings of Significance 108
4.22 Conclusion 109

5 CUMULATIVE IMPACTS 110

5.1 Related Activities 110

6 CONSULTATION AND COORDINATION 112

7 REFERENCES 113

APPENDIX A. 100% DESIGN PLANS

APPENDIX B. MITIGATION MANAGEMENT AND REPORTING PLAN

LIST OF FIGURES

Figure 1. Stanislaus River Salmonid Habitat Restoration Project at Stanley Wakefield Wilderness Area Project Location..... 7

Figure 2. Action Area for Stanislaus River Salmonid Habitat Restoration Project at Stanley Wakefield Wilderness Area..... 8

Figure 3. Conceptual map of the 100% design features..... 19

Figure 4. Proposed Action viewpoint location map..... 28

Figure 5. Delineation of wetlands and other waters of the U.S. for the Proposed Action. 55

Figure 6. Elderberry distribution within Action Area and anticipated impacts. 57

LIST OF TABLES

Table 1. Inundation area (acres) for existing conditions, the 100% design, and percent increase. 20

Table 2. Acreage of suitable fry and parr rearing habitat for existing conditions and the 100% design. Suitable habitat is defined as having a suitability greater than 0.25 20

Table 3. Designation/classification for criteria pollutants in the San Joaquin Valley Air Basin based on federal and state standards 36

Table 4. The emissions estimates of criteria pollutants for the Project in tons per year compared to the Valley Air significance thresholds and *de minimis* thresholds (SJVAPCD 2015). 37

Table 5. Construction equipment anticipated to be used for the Project 38

Table 6. Special status wildlife species potentially occurring in the Action Area. 44

Table 7. Special status plant species potentially occurring in the Action Area. 48

Table 8. Critical periods for special-status species that may be affected by Proposed Action activities 50

Table 9. Potentially Jurisdictional Wetlands and Waters of the U.S. 54

Table 10. Summary of elderberry impacts due to Proposed Action construction activities. 58

Table 11. The temporary impacts, permanent conversion, and new acres with implementation of the Proposed Action for the aquatic resource types found within the Action Area. 66

LIST OF ACRONYMS

AFRP	Anadromous Fish Restoration Program
ALUCP	Airport Land Use Compatibility Plan
APE	Area Potential Effects
ARB	Air Resources Board
BMP	Best Management Practices
CalEPA	California Environmental Protection Agency
CCR	California Code of Regulations
CCV	California Central Valley
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CFS	Cramer Fish Sciences
cfs	cubic feet per second
CMC	Carl Mesick Consultants
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO_2	Carbon Dioxide
CO_{2e}	Carbon Dioxide Equivalents
CV	Central Valley
CVFPB	Central Valley Flood Protection Board
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
DBH	Diameter-at-Breast-Height
DPS	Distinct Population Segment
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EA	Environmental Assessment

EC	Environmental Commitment
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EOP	Emergency Operation Plan
EPA	Environmental Protection Agency
ERPP	Ecosystem Restoration Program Plan
ESA	Environmental Species Act
FERC	Federal Energy Regulatory Commission
FHSZ	Fire Hazard Severity Zone
FMMP	Farmland Mapping and Monitoring Program
FONSI	Finding of No Significant Impact
FRGP	Fisheries Restoration Grant Program
GHG	Greenhouse Gas
HAPC	Habitat Areas of Particular Concern
IS	Initial Study
LRA	Local Responsibility Area
LSR	Lower Stanislaus River
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendant
MND	Mitigated Negative Declaration
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NAHC	Native American Heritage Commission
NAWQA	National Ambient Water Quality Assessment
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_x	Nitrogen Oxides
NPDES	National Pollution Discharge Elimination System
NTU	Nephelometric Turbidity Units
OHWM	Ordinary High-Water Mark
OID	Oakdale Irrigation District
PBF	Physical and Biological Features

PM	Particulate Matter
PRC	Public Resource Code
RKM	River Kilometers
RM	River Mile
ROD	Record of Decision
ROG	Reactive Organic Gas
SJRMP	San Joaquin River Management Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_x	Sulfur Dioxides
SR	State Route
SSJID	South San Joaquin Irrigation District
SWPPP	Stormwater Pollution Prevention Plan
tpy	Tons per year
USACE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VELB	Valley Elderberry Longhorn Beetle

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1 INTRODUCTION

1.1 OVERVIEW

The City of Oakdale (City) is proposing the Stanislaus River Salmonid Habitat Restoration Project at Stanley Wakefield Wilderness Area (Project) in Stanislaus County, California (Figure 1). Historical land uses in the Stanislaus River watershed have led to major geomorphic alterations to the river, including reduction of channel complexity and isolated floodplains, leading to the loss of important salmonid rearing habitat. Through funding from the California Department of Fish and Wildlife (CDFW) Fisheries Restoration Grant Program (FRGP)(Phase I) and the U.S. Fish and Wildlife Service (USFWS) Central Valley Project Improvement Act (CVPIA) (Phase II), the Project aims to restore and enhance the Stanislaus River off-channel and riparian ecosystem processes critical for juvenile California Central Valley (CCV) steelhead (*Oncorhynchus mykiss*) populations, with anticipated ancillary benefits to California's Central Valley (CV) Chinook Salmon (*O. tshawytscha*) and other native fish, on the lower Stanislaus River.

2 PURPOSE OF DOCUMENT

This Environmental Assessment/Initial Study (EA/IS) has been prepared to satisfy both the National Environmental Policy Act (NEPA; 42 United States Code [USC] 433et seq.) and the California Environmental Quality Act (CEQA; California Public Resources Code (PRC), Sections 1000 et seq.). The NEPA Lead Agency is the USFWS and the CEQA Lead Agency is the City.

This document was prepared to identify the environmental resources in the Action Area, analyze the effects to the environment of the Proposed Action and a No Action Alternative, and propose avoidance, minimization, and mitigation measures to reduce any effects to less than significant levels.

This EA/IS is an informational document used in the local planning and decision-making process and is not intended to recommend approval or denial of the Proposed Action. This EA/IS has been prepared to determine whether the Proposed Action would have a significant effect on the environment. The purposes of this EA/IS are to:

- provide the lead agencies with information to use in deciding whether to prepare an Environmental Impact Statement/Environmental Impact Report (EIS/EIR), Mitigated Negative Declaration (MND), or a Negative Declaration;
- enable the lead agencies to modify the Proposed Action to mitigate adverse impacts before an EIS/EIR is prepared, thereby enabling the Proposed Action to qualify for a Negative Declaration; and,
- document the factual basis for the finding, in a Negative Declaration, that a Proposed Action would not have a significant effect on the environment.

As lead agencies, the USFWS and the City are required to circulate an EA/IS for public review before adopting it. This document is being circulated for a 30-day review period. A notice will be posted at the Oakdale, CA post office that includes a Proposed Action description, the location where the document is available for interested parties to review and contact information to request a copy of the document. The EA/IS will be available from the USFWS Anadromous Fish Restoration Program (AFRP) office (850 S. Guild Avenue Lodi, CA 95240) and at the City office (280 N. Third Ave, Oakdale, CA 95361). Any comments should be returned attention to J.D. Wikert (USFWS) or Bryan Whitemyer (City). The City intends to adopt a MND for the Proposed Action. The USFWS intends to issue a Finding of No Significant Impact (FONSI). The EA/IS will be circulated by the State Clearinghouse so it may be reviewed by state agencies. Before adopting the Proposed Action, USFWS and The City must consider the proposed EA/IS along with any comments received during the public review process. If the USFWS and the City find, based on this EA/IS and any comments received, that the study adequately addresses the environmental issues associated with the Proposed Action and that no substantial evidence indicates that the Proposed Action will

have any significant effect on the environment, a FONSI will be prepared and a MND will be adopted. Adoption of the proposed EA/IS does not require implementation of the Proposed Action.

2.1 PURPOSE AND NEED FOR ACTION AND PROPOSED ACTION OBJECTIVES

The purpose of the Proposed Action is to design, implement, and monitor an off-channel habitat restoration that will improve rearing habitat for listed CCV steelhead, with anticipated ancillary benefits to Chinook Salmon and other native fish, on the lower Stanislaus River. The term restoration, an accepted colloquial term, is used hereafter to refer to naturalization, enhancement and rehabilitation of rivers and streams. Within an approximately 28-acre footprint, the Proposed Action will generate a restoration design that will re-grade and rehabilitate a perched floodplain and emergent wetland. The Proposed Action aims to create a variety of terrestrial and aquatic habitats, including oak grassland, floodplain, and side channels that function under a variety of flow conditions present on the lower Stanislaus River.

The primary objective of the Proposed Action is to augment, rehabilitate, and enhance productive Stanislaus River juvenile salmonid rearing habitat by providing juveniles access to the historic floodplain.

Additionally, the Proposed Action may:

- Address goals of existing recovery plans and work synergistically with existing restoration efforts on the Stanislaus River, and

- Improve community opportunities to participate in, learn about, and support salmonid habitat restoration and the value of functional riverine ecosystems.

The Proposed Action is funded by the CDFW FRGP (Phase I) and the USFWS CVPIA (Phase II). The Proposed Action is being led by the City and Cramer Fish Sciences (CFS). The success of the Proposed Action hinges on continued working partnerships with adjacent landowners, local and regional stakeholders, and state and federal agencies. The Proposed Action team will finalize the Proposed Action design plans, coordinate all regulatory compliance, conduct public outreach activities, implement the Proposed Action, and document Proposed Action success through a scientifically robust monitoring program. The Proposed Action team will also coordinate with adjacent landowners, resource agencies, stakeholders, and the local community to recover function habitat for salmonids, garner public support, and demonstrate benefits of river habitat restoration.

In addition to addressing goals outlined by state and federal resource agencies, the Proposed Action includes tracking physical and biological parameters in the restored ecosystem to answer critical questions about mechanisms and processes influencing rearing habitat quality for CV salmonids and the relative benefit of rehabilitating habitats. The monitoring plan will be designed to answer questions about the effects of habitat enhancement on physical conditions, and the subsequent response by juvenile salmonids. Ultimately, the Proposed Action aims to advance scientific understanding of rearing habitat restoration and to improve the effectiveness of future efforts in the Stanislaus and other CV rivers.

2.2 PROPOSED ACTION LOCATION

The Proposed Action is located in the Stanley Wakefield Wilderness Area (Wilderness Area), adjacent to Kerr Park, within the City (Figures 1 and 2). The Proposed Action encompasses an approximately 1,273-meters (m) (4,177-foot [ft]) segment of the Stanislaus River, a tributary to the San Joaquin River, approximately 68 river kilometers (rkm) upstream of the confluence with the San Joaquin River and approximately 24 rkm downstream of Goodwin Dam, between 37°47'24.22"N, 120°49'11.45"W (downstream limit) and 37°47'15.11"N, 120°48'33.39"W (upstream limit).

Elevations in the Action Area range from approximately 90 ft to 150 ft NAVD88 and contain a variety of terrestrial and aquatic habitats. The Action Area is characterized as having riparian woodland habitat of willows (*Salix* spp.), cottonwood (*Populus* spp.), and alders (*Alnus* spp.) where the Stanislaus River borders the Action Area to the north. Valley oak woodland habitat dominates the rest of the Action Area with a canopy of oak (*Quercus* spp.) and cottonwood with an understory of extensive stands of invasive Himalayan blackberry (*Rubus armeniacus*) and native elderberry (*Sambucus* spp.). The Stanislaus River flows west along the northern section of the Action Area, connected to riparian wetland along the left bank and emergent wetland located in the center of the Action Area.

Land use in the approximately 70-acre Action Area is largely park and open space. Surrounding land uses include a mix of single-family residential development and agricultural lands in the unincorporated community of East Oakdale to the north. A private golf course borders the Action Area to the south.

2.3 BACKGROUND

The Stanislaus River corridor historically supported a diverse, dynamic riparian ecosystem complex of seasonal wetlands, oxbow lakes, extensive forested floodplains, and meandering side channels (Elias 1924). A diversity of microhabitats existed in these shallow-water areas characterized by dense overhanging vegetation, cool water temperatures, large woody debris, low water velocity, and ample prey production. Since at least the mid 1800's the geomorphology of the Stanislaus River has been impacted from agriculture, gold and gravel mining, and flow and sediment regulation. Agricultural development in the corridor lead to alterations to local drainages and overbank habitats. As early as 1858 one of the first irrigation cooperatives on the Stanislaus River was formed by the Tulloch family, who built a diversion dam to supply water to farms in the area around Knight's Ferry. Levee construction in the lower river followed the Flood Control Act of 1944 and construction initiated in 1956 with various modifications made through the mid-1980's. Gravel, gold, sand and gravel mining occurred in the river from approximately the 1920's to the late 1960's and is thought to have extracted a considerable amount of coarse and fine sediment relative to the natural watershed supply (Kondolf et al. 2001; Schneider et al. 2003). Several large dams were constructed in the upper watershed that have altered the flow regime and supply of sediment. While there are multiple dams that regulate the flow of the Stanislaus River, including the reach representing the upstream limit of anadromy, Goodwin Dam (operational since 1913) and New Melones Dam (operational since 1978) have had the largest impact on peak runoff in the river. New Melones Dam releases no more

than 8,000 cubic feet per second (cfs), the designated 100-year flow downstream of the dam (FEMA 2008). Pre-dam, the river saw flows of 10,000 cfs occurring at least every 2 years and peak floods that exceeded 60,000 cfs. The U.S. Army Corps of Engineers (USACE) is also required to maintain an 8,000 cfs floodway from Goodwin Dam to the San Joaquin River. Because the reservoir releases much less than 8,000 cfs most of the time, even during flood season, agricultural encroachment into the floodplain has occurred and constrains the USACE from making large releases most of the time. Brown and Bauer (2009) showed that mean annual flow associated with full natural runoff has essentially been halved from 1979 to 2006, and that flows are generally reduced in the winter and spring and increased in the summer compared to pre-dam conditions.

Estimates of sediment supply reduction due to flow regulation are given by Kondolf et al. (2001). For the period from 1949 to 1999 an estimated 6,324,300 cubic yards (yd^3) of sand and gravel were extracted from mining pits between Goodwin Dam and Oakdale with 84,700 yd^3 of inputs from tributaries below Goodwin Dam (Kondolf et al., 2001). Sediment produced in the watershed above New Melones Dam was estimated to be 949,200 yd^3, highlighting the magnitude of sediment extraction. Due to these impacts the number of salmonid spawning riffles, as well as overbank flooding, in the river has decreased over time. In addition to the impacts caused by the lack of spawning substrate supplied to the river, it has been hypothesized that moderate flows have been flushing fine sediments from mining pits that eventually infiltrate spawning riffles, causing further degradation. To offset the reduction to spawning habitat lost, there has been at least 34,000 $yd^3$of gravel augmentation in the Stanislaus River since about 1994, primarily in the Goodwin Canyon reach.

The above alterations have reduced the amount of overbank habitat and degraded the quantity and quality of juvenile salmonid rearing habitat. Levees limit the lateral extent of flood releases from upstream dams, and flow regulation limits the magnitude of flood flows and sediment supply. As a result, the river has incised over time. For example, Kondolf et al. (2001) found incision on the river to be approximately 1.5 feet from 1980 to 1993 at the Highway 120 Bridge. The culmination of historical changes in the river limits overbank habitats needed for salmonids to rear and grow before emigrating to the delta and Pacific Ocean. The lack of suitable rearing habitat and migratory conditions are thought to be significant stressors to juvenile salmonids (Anchor QEA 2019). Other general stressors to salmonids in include temperature, predation, hatchery influences, entrainment in diversions, habitat limitations, and poor water quality.

The USFWS and National Marine Fisheries Service (NMFS) have determined that improved Stanislaus River watershed management to restore and protect instream and riparian habitat is a high priority (USFWS 2001; NMFS 2014). The CDFW has determined that the stretch of river between Goodwin Dam and the confluence with the San Joaquin River is of considerable importance for maintenance and restoration of Chinook Salmon and CV steelhead (CDFG 1990).

2.3.1 CENTRAL VALLEY PROJECT IMPROVEMENT ACT

There are a series of documents regarding the Stanislaus River that rely on analyses conducted and recommended in the broader programmatic review (CALFED 2000), which is used to guide specific projects. The AFRP is a component of a broader program, the CVPIA, which supports provisions for fish and wildlife habitat restoration. The CVPIA prepared a programmatic environmental impact statement (Reclamation 1999) and Record of Decision (ROD) (Reclamation 2001) in accordance with NEPA. A programmatic environmental document is frequently used to evaluate new programs, analyze a series of actions that are part of a larger project, or consider broad policy alternatives and programmatic mitigation measures. This document was prepared to address details and site-specific factors of the restoration actions in the Stanislaus River. This EA/IS for the Proposed Action is consistent with the CALFED and CVPIA programs and adopts appropriate provisions of the CVPIA's ROD. This EA/IS has been prepared to assess the impacts of the Proposed Action components as required by the State CEQA Guidelines and comply with NEPA requirements.

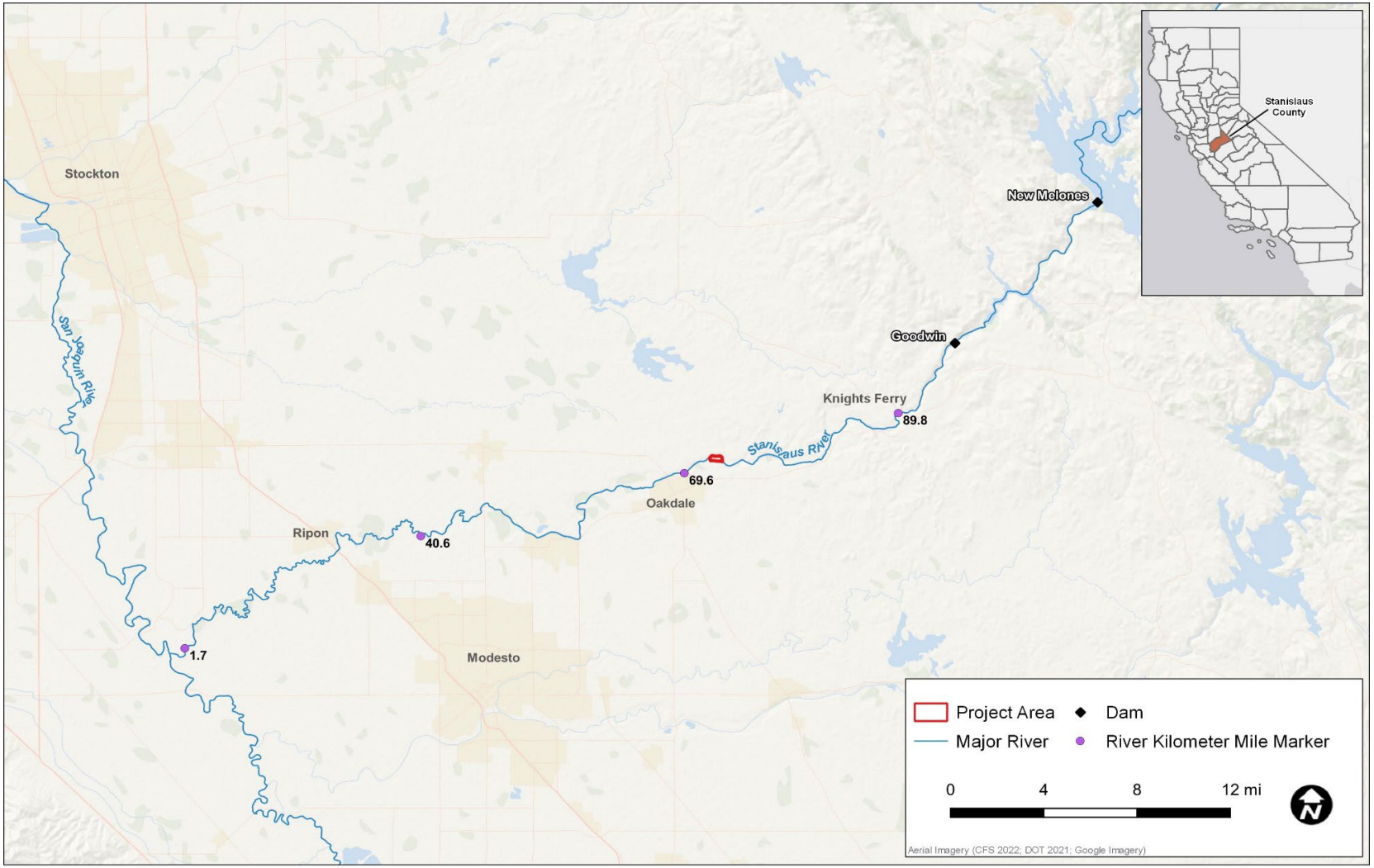

Figure 1. Stanislaus River Salmonid Habitat Restoration Project at Stanley Wakefield Wilderness Area Project Location

Figure 2. Action Area for Stanislaus River Salmonid Habitat Restoration Project at Stanley Wakefield Wilderness Area.

2.4 PURPOSE AND NEED FOR ACTION AND PROPOSED ACTION OBJECTIVES

The National Environmental Policy Act requires that an EA include a discussion of the Proposed Action's need and CEQA Guidelines (Section 15124 (b)) require a statement of the Proposed Actions objectives. The following paragraphs address these requirements.

The Stanislaus River ecosystem has been affected by European-American activities for more than a century, beginning with extensive gold mining in the 1850s. Since that time, riparian and instream habitats have been modified or converted for uses such as agriculture, mining, increased water diversions, and flood protection using levees and dams to regulate streamflow. These major impacts have led to the deterioration of riparian and instream habitat conditions on the Stanislaus River. Despite extensive habitat degradation, CV Chinook Salmon and CCV steelhead populations are still present in the lower reaches of the lower Stanislaus River (LSR) downstream of Goodwin Dam. The Stanislaus River is designated as critical habitat for the CCV Steelhead Distinct Population Segment (DPS) (70 FR 52488) between its confluence with the San Joaquin River and Goodwin Dam. The Action Area occurs within this reach. Thus, restoring habitat in the Stanislaus River provides an opportunity for management actions that will directly support natural production.

2.5 PREVIOUS ENVIRONMENTAL DOCUMENTATION

Salmonid rearing habitat and spawning gravel improvements for the lower Stanislaus River have been identified as priority actions in USFWS's Working Paper (USFWS 1995) and the AFRP Final Restoration Plan (USFWS 2001); in the California Department of Water Resources' comprehensive assessment for Chinook Salmon (DWR 1994); in several California Department of Fish and Game (CDFG) publications (CDFG 1990, 1993, 1996); and in NMFS' Central Valley Salmonid Recovery Plan (NMFS 2014) as part of the effort to improve rearing and spawning habitat for fall-run Chinook Salmon and Steelhead in the Stanislaus River. In addition, the following environmental documents have addressed the issues being considered at the Project site:

- ***CVPIA and AFRP.*** In Section 3406(b) of Public Law 102-575, the Secretary of the Interior is required to develop and implement a program that makes all reasonable efforts to double natural production of anadromous fish in CV rivers and streams. In response to this directive, USFWS prepared a draft plan for the AFRP and identified anadromous fish habitat deficiencies in each tributary within the CV (USFWS 2001). The Stanislaus River system was identified as High Priority with the need to "improve watershed management to restore and protect instream and riparian habitat, including consideration of restoring and replenishing spawning gravel" (USFWS 2001).

- The **CALFED Bay-Delta Program** is a cooperative state and federal effort established to reduce conflicts in the Delta by solving problems in ecosystem and water quality, water supply reliability, and levee and channel integrity. The goal of CALFED's Ecosystem Restoration Program Plan (ERPP) is to improve and increase aquatic and terrestrial habitats and improve ecosystem functions

in the Delta to support sustainable populations of diverse and valuable plant and animal species (CALFED 2000). The ERPP vision for the Stanislaus River includes maintaining suitable water temperatures, restoring stream flow, restoring coarse sediment recruitment, restoring stream channel and riparian habitat and ecological functions and processes to improve habitat for fall-run Chinook Salmon, late-fall run Chinook Salmon, Steelhead, riparian vegetation, and wildlife resources, restoring more natural channel configuration to restore gravel recruitment, transport, and cleansing processes.

- The **San Joaquin River Management Plan** (SJRMP) (1995) recommends projects and studies to be conducted on the mainstem San Joaquin River and its tributaries to address factors that currently limit populations of aquatic species. The SJRMP recommends for the Stanislaus River improving gravel quality to increase survival of Salmon eggs and enhance the channel and riparian corridor, among other things (SJRMP 1995).

- The **CDFW** recommends habitat rehabilitation in the Stanislaus River as part of the fisheries management strategies in several reports including Salmon and Steelhead restoration and enhancement plan (1990), Restoring CV Streams - A Plan for Action (1993), and Steelhead Restoration and Management Plan (1996), and Strategic Plan for Trout Management (2003).

- The **Federal Energy Regulatory Commission** (FERC) has issued six licenses for hydroelectric projects on the Stanislaus River. The first hydroelectric project upstream from the confluence of the Stanislaus and San Joaquin rivers is the Tulloch Development, FERC Project NO. 2067, of the Tri-Dam Project. The Tri-Dam Project is owned by the Oakdale Irrigation District (OID) and the South San Joaquin Irrigation District (SSJID). Oakdale Irrigation District and SSJID received an initial license for the Tulloch Development FERC Project NO. 2067 from the FERC effective 1 January 1955, for a term ending 31 December 2004. A new license was issued on 28 February 2006 for a term of 40 years ending on 1 January 2046. The Tulloch Development, FERC Project No. 2067, is located in Tuolumne and Calaveras counties near the town of Copperopolis. The development includes the 1,260-ac (510-ha) Tulloch reservoir, with a gross storage capacity of 66,968 acre-feet at a normal maximum elevation of 510 ft (155 m). Upstream of the Tulloch Development is the New Melones Dam and reservoir operated by the Bureau of Reclamation (USBR) as part of the Central Valley Project (CVP) to store and release Stanislaus River flows to meet water supply and environmental needs.

Salmonid rearing and spawning habitat restoration is recommended by the Department of Water Resources (DWR), AFRP, CALFED, SJRMP, NMFS, and CDFW. The actions undertaken at the Project site could be substantially beneficial to anadromous fish in the Stanislaus River.

2.6 PREVIOUS SALMONID HABITAT IMPROVEMENT EFFORTS

On the lower Stanislaus River, limited salmonid habitat improvement efforts have been completed. Multiple projects have been funded over the past twenty years; however, a limited number have been completed and the majority of those were gravel augmentation projects. Since 1994, gravel augmentation has been used to rehabilitate the natural gravel delivery process impeded by dam construction and enhance spawning grounds for Chinook Salmon and CCV steelhead in the Stanislaus River. The Knight's Ferry Gravel Replenishment Project was completed in 1999 by Carl Mesick Consultants (CMC) and cost $667,887 funded by CALFED (CMC 2002). The project added 13,000 tons of gravel to 18 spawning riffles in the lower Stanislaus River from Goodwin Dam to the City. In recent years, USBR and USFWS have placed gravel in Goodwin Canyon and Knight's Ferry with funds from the CVPIA. The Lover's Leap Restoration Project was completed in late summer of 2007 by KDH Environmental and was funded by AFRP and the Delta Fish Agreement. Approximately 18,000 tons of spawning gravel and 7,000 tons of large cobble were used to create or enhance 33 riffles for this project (KDH 2008). Total project cost was ~$1.1 million.

To date, a floodplain restoration project was completed on the lower Stanislaus River at Honolulu Bar (River mile [RM] ~49.5) to enhance salmonid rearing habitat. The Mohler Tract restoration converted agricultural land which occasionally floods, into natural riparian habitat through planting of native species. A planned levee breach at the upstream end of the property which would have allowed water to flow through the property during flood events was not implemented. As a result, the habitat floods from downstream during flood control flows. Public statements from the town of Ripon prevented the final step in the restoration process of removing the levee. In 2011, side channels were enhanced on private property adjacent to Lancaster Road at RM ~47.9, just downstream from the USACE's Buttonbush Park on the Stanislaus River to seasonally flood on an annual basis as a means to enhance salmonid rearing habitat. Juvenile Chinook Salmon, CCV steelhead and other native fishes have been documented using the side channel during the rearing season (CFS unpublished data). Buttonbush Park was restored in 2017 to reclaim floodplain and side channel habitat of a perched floodplain and improve spawning habitat in the main channel, while in 2018 additional off-channel rearing and main channel spawning habitat were restored on private property along Rodden Road near the town of Oakdale.

2.7 REQUIRED PROPOSED ACTION PERMITS AND APPROVALS

The following local, state, and federal permits and/or approvals are required prior to implementation of the Proposed Action:

Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act

The USACE is authorized to issue permits for discharges of dredged or fill material into waters of the United States. Application will be made for a Letter of Permission for the restoration of wetland and riverine habitats.

Section 401 of the Clean Water Act (CWA)

State water quality standards cannot be violated by the discharge of fill or dredged material into waters of the U.S. The State Water Quality Control Board, through the Central Valley Regional Water Quality Control Board (CVRWQCB), is responsible for issuing water quality certifications, or waivers thereof, pursuant to Section 401 of the Clean Water Act (CWA).

Federal Endangered Species Act (ESA)

The Federal Endangered Species Act (ESA) (16 USC 1531 et seq., 50 CFR 17, 22) grants protection over species that are formally listed as threatened, endangered, or proposed. Section 7(a)(1) requires Federal agencies to use their authorities to further the conservation of listed species. Section 7(a)(2) requires Federal agencies to consult (or confer for proposed species) with the Services to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. In addition to Section 7 requirements, Section 9 of the ESA prohibits the taking of endangered species of fish and wildlife. Take is broadly defined as those activities that "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect [a protected species], or attempt to engage in any such conduct." An activity can be in violation of take prohibitions even if the activity is unintentional or accidental. Significant modification or degradation of occupied habitat for listed species, or activities that prevent or significantly impair essential behavioral patterns, including breeding, feeding, or sheltering, are also considered "take" under the ESA. Section 10 provides exceptions to Section 9 take prohibitions. The USFWS and NMFS can issue permits to take listed species for scientific purposes, or to enhance the propagation or survival of a listed species. The USFWS and NMFS can also issue permits to take listed species incidental to otherwise legal activity. The Secretary of Commerce, acting through NMFS, is involved with Proposed Actions that may affect marine or anadromous fish species listed under the ESA. All other species listed under the ESA are under USFWS jurisdiction.

California Endangered Species Act, California Fish and Game Code 2081 and 2090

The California Endangered Species Act (CESA) allows CDFW the ability to authorize, by means of an incidental take permit or restoration management permit, incidental take of state-listed threatened, endangered or candidate species if certain conditions are met. For species that are both federally and state listed, CDFW can perform a consistency determination process to decide whether the federal biological opinion can also serve as the state incidental take permit.

The Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 USC 661 et seq.), amended 1946, 1958, 1978, and 1995, requires Federal agencies to coordinate with USFWS, or in some cases with NMFS, and with State fish and wildlife resource agencies before undertaking or approving Proposed Actions that control or modify surface water. This coordination is performed to ensure that wildlife resources held in public trust receive

appropriate consideration in and are coordinated with water resource development Proposed Actions. Federal agencies undertaking water Proposed Actions are required to fully consider recommendations made by USFWS, NMFS, and State fish and wildlife resources agencies in Proposed Action documents, such as NEPA and CEQA, and to include measures to reduce impacts on fish and wildlife in Proposed Action plans. The AFRP will work to ensure the Proposed Action complies with the Fish and Wildlife Coordination Act.

Magnuson-Stevens Fishery Conservation and Management Act of 1996 (reauthorized in 2007)

The Magnuson-Stevens Fishery Conservation and Management Act (MSA; Public Law 94-265) is the primary law governing management of marine fisheries in federal waters of the U.S. (within 200 nautical miles of shore). Pacific coast salmon species are subject to the MSA. Section 305(b) of the MSA directs Federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect essential fish habitat (EFH). The MSA defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". Adverse effects mean any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of or injury to benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects on EFH may result from actions occurring within EFH or outside of it and may include site-specific or EFH wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

Fish and Game Code Section 1600 et. seq., Streambed Alteration Agreement

California Department of Fish and Wildlife has regulatory authority with regard to activities occurring in streams and/or lakes that could adversely affect any fish or wildlife resource, pursuant to Fish and Game Code Section 1600 et seq. Authorization is required for proposed actions prior to any activities that could substantially divert, obstruct, result in deposition of any debris or waste, or change the natural flow of the river, stream, or lake, or use material from a stream or lake.

Migratory Bird Treaty Act (MBTA) (16 U.S.C. § 703 et seq.)

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions between the United States and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Unless permitted by regulations, the Act provides that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Subject to limitations in the Act, the Secretary of the Interior may adopt regulations determining the extent to which, if at all, hunting, taking, capturing, killing, possessing, selling, purchasing, shipping, transporting or exporting of any migratory bird, part, nest or egg will be allowed, having regard for temperature zones, distribution, abundance, economic value, breeding habits and migratory flight patterns.

The Proposed Action will comply with the MBTA. Migratory birds will be protected by implementation of specific EC's, including pre-construction surveys and impact avoidance measures that are part of the Proposed Action.

Central Valley Flood Protection Board Encroachment Permit

The Central Valley Flood Protection Board (CVFPB) issues permits to maintain the integrity and safety of flood control Proposed Action levees and floodways that were constructed according to flood control plans adopted by the Board of the State Legislature. An encroachment permit is not needed for the Proposed Action as it is outside of CVFPB jurisdiction.

State Water Resources Control Board

The State Water Resources Control Board requires Proposed Actions that disturb one or more acres of soil to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity as part of the National Pollution Discharge Elimination System (NPDES). The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must list Best Management Practices (BMPs) the discharger will use to protect storm water runoff and the placement of those BMPs. The contractor will work with CFS to ensure the Proposed Action has compliance. The contractor will be contractually required to implement the BMPs in the SWPPP.

National Historic Preservation Act, Section 106

Proposed Actions must coordinate with the State Historic Preservation Office and the Advisory Council on Historic Preservation regarding the effects that a Proposed Action may have on properties listed, or eligible for listing, on the National Register of Historic Places. Section 106 also requires Federal agencies to evaluate the effects of Federal undertakings on historical, archaeological, and cultural resources. The AFRP will work to ensure the Proposed Action has compliance with Section 106 of the National Historic Preservation Act (NHPA).

National Environmental Policy Act

This joint EA/IS was prepared pursuant to regulations implementing the NEPA (42 USC 4321 et seq.). National Environmental Policy Act provides a commitment that Federal agencies will consider environmental effects of their actions. This EA/IS provides information regarding the No-Action Alternative, the Proposed Action, and their environmental impacts. If, after certain key permits are obtained and the final EA/IS is released, the Proposed Action is found to have no significant environmental effects, a FONSI will be filed.

Floodplain Management - Executive Order 11988

Executive Order 11988 requires that all Federal agencies take action to reduce the risk of flood loss, to restore and preserve the natural and beneficial values served by floodplains, and to minimize the impact of floods on human safety, health, and welfare. The Proposed Action is within the 100-year floodplain. The Proposed Action supports the preservation and enhancement of the natural and beneficial values of floodplains and is in compliance with Executive Order 11988.

Protection of Wetlands - Executive Order 11990

Executive Order 11990 requires Federal agencies to follow avoidance, mitigation, and preservation procedures with public input before proposing new construction on wetlands. The EA/IS has identified that the restoration actions will not result in the net loss of any wetlands. Implementation of the proposed restoration could enhance wetlands or increase their area and is in compliance with Executive Order 11990.

Environmental Justice in Minority and Low-income Populations-Executive Orders 13007 and 12898

Executive Order 12898 requires Federal agencies to identify and address disproportionately high and adverse human health and environmental effects of Federal programs, policies, and activities on minority and low-income populations. The Proposed Action has considered the environmental, social, and economic impacts on minority and low-income populations and is in compliance with Executive Order 12898.

Indian Trust Assets, Indian Sacred Sites on Federal Land-Executive Order 13007, and American Indian Religious Freedom Act of 1978

These laws are designed to protect Indian Trust Assets, accommodate access and ceremonial use of Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical integrity of such sacred sites, and protect and preserve the observance of traditional Native American religions, respectively. The Proposed restoration activities and their associated mitigation measures will not violate these protections.

3 ALTERNATIVES

Two alternatives are considered in this document: the No Action Alternative and the Proposed Action Alternative.

3.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, there would be no implementation of restoration activities and no change to existing conditions would occur.

If the Proposed Action is not implemented, existing rearing habitat would continue to be limited and non-existent. Rearing habitat in the Stanislaus River is limited by several anthropogenic factors, which are described in Section 2.3 above. These factors will continue to limit salmonid rearing habitat.

3.2 PROPOSED ACTION ALTERNATIVE

3.2.1 OVERVIEW

The purpose of this Project is to design, implement, and monitor an off-channel habitat restoration that will improve rearing habitat for listed CCV steelhead, with anticipated ancillary benefits to Chinook Salmon and other native fish, on the lower Stanislaus River. The term restoration, an accepted colloquial term, is used hereafter to refer to naturalization, enhancement and rehabilitation of rivers and streams. Within an approximately 28-acre footprint, this Project will generate a restoration design that will re-grade and rehabilitate a perched floodplain and emergent wetland (Appendix A). The Project aims to create a variety of terrestrial and aquatic habitats, including oak grassland, floodplain, and side channels that function under a variety of flow conditions present on the lower Stanislaus River.

The primary objective of the Project is to augment, rehabilitate, and enhance productive Stanislaus River juvenile salmonid rearing habitat by providing juveniles access to the historic floodplain.

Additionally, the Project may:

- Address goals of existing recovery plans and work synergistically with existing restoration efforts on the Stanislaus River, and
- Improve community opportunities to participate in, learn about, and support salmonid habitat restoration and the value of functional riverine ecosystems.

3.2.2 ASSUMPTIONS FOR DEVELOPING PROPOSED ACTION

Basic assumptions that influenced the development of the Proposed Action include:

- Stream flow in the Action Area is suitable for fall run Chinook Salmon and CCV Steelhead. Stream flow is controlled by Reclamation via releases from Goodwin and New Melones dams.

- Existing Land Use: The Action Area is owned by the City who supports and contributes to the Proposed Action.

- Proposed Action construction activities would have minimal temporary impacts to the active channel, stream corridor, riparian vegetation, and any sensitive habitats.

3.2.3 PROPOSED ACTION DESCRIPTION

3.2.3.1 Site Selection

The Action Area was chosen as a key restoration location on the LSR. The following factors were important in determining site selection:

- The Stanley Wakefield Wilderness Area is located in a key spawning and rearing reach for fall-run Chinook Salmon and CCV steelhead.

- Degraded existing habitat condition (e.g., perched floodplain that does not inundate regularly during salmonid rearing period).

- Potential for enhancement (large area, public property)

- Physical access to the site to allow equipment entrance that would have minimal impacts on the stream corridor, riparian vegetation, any sensitive species habitat.

- Landowner collaboration (City of Oakdale).

3.3 PROPOSED ACTION DESIGN

3.3.1 SALMONID HABITAT DESIGN

The Project would meet the primary objective by expanding the existing emergent wetland and enhancing the connection to the Stanislaus River and creating a side channel along both the eastern portion of the Action Area and on the riverside terrace (Figure 3, Appendix A). The design will incorporate the use of large wood structures (i.e., trees with root wads) obtained from on-site excavations for floodplain and side channel habitat complexity. Excavation of the floodplain would extend approximately 1,900 linear ft (LF) from the upstream portion of the proposed eastern side channel north towards the enhanced wetland connection within the Action Area. Three alcoves would be created to provide high quality rearing habitat for juvenile salmonids. The existing disconnected wetland within the center of the Action Area would be expanded, enhancing the connection between the wetland and the Stanislaus River for drainage and providing a salmonid rearing habitat complex. Excavation would also occur at the northwest portion of the Action Area and extend approximately 505 LF to create a side channel on the riverside terrace (Figure 3, Appendix A). Approximately 54,800 yd^3 of material would be excavated from the perched Stanislaus River floodplain and remnant side channels within the Action Area. The constructed features will function under a

variety of flow conditions present on the lower Stanislaus River and will support a variety of ecological services, including salmonid rearing habitats and improve water quality, including temperature and dissolved oxygen under low flow conditions.

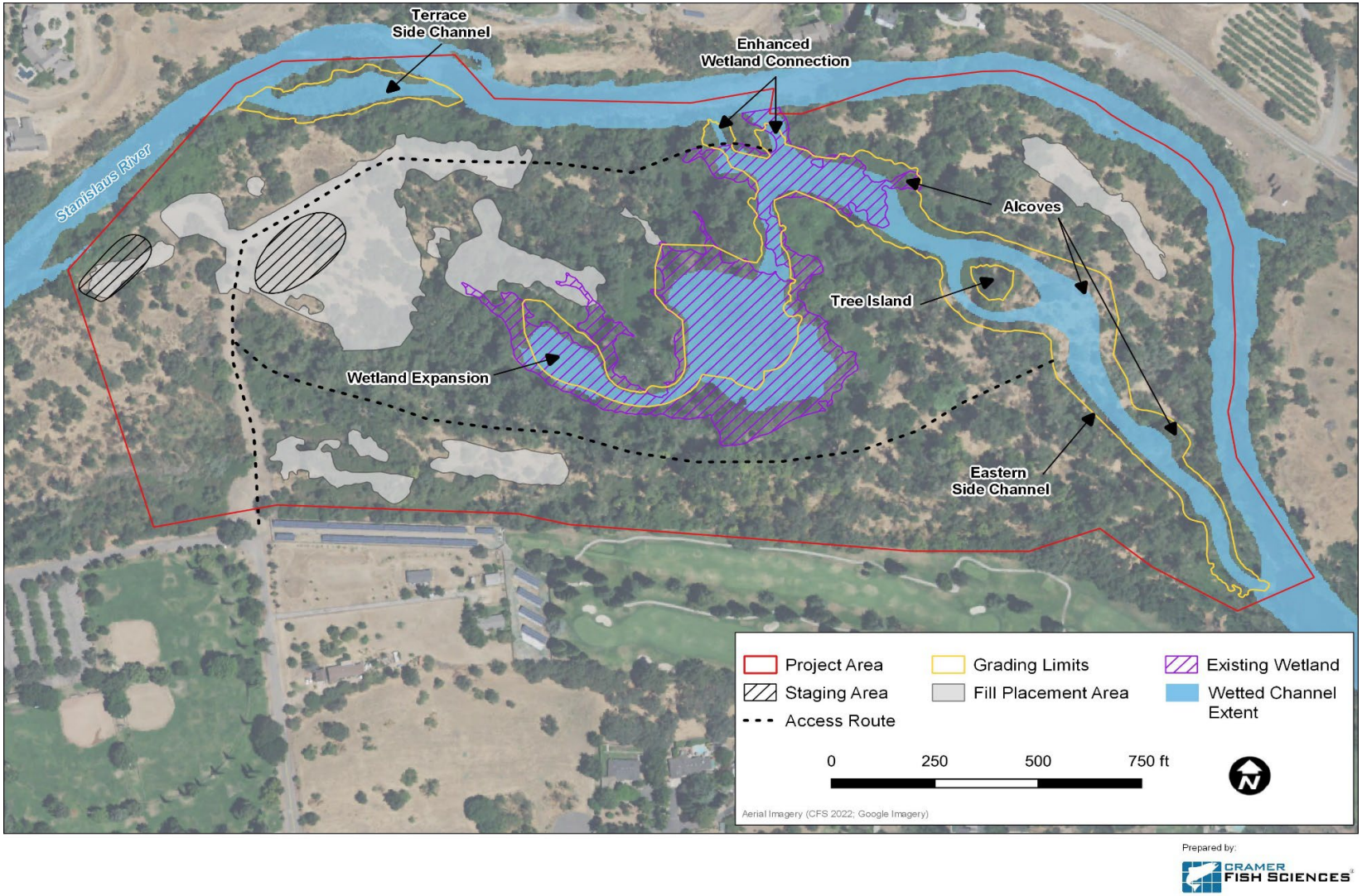

Figure 3. Conceptual map of the 100% design features.

3.3.2 RESULTS

3.3.2.1 Inundation

A basic function of the Proposed Action is to increase the frequency and extent of inundation for time periods relevant to steelhead.

Under existing conditions, for the design flows, inundation extent within the modeled domain ranged from approximately 10 to 14 acres. The 100% design increases this extent from approximately 10 to 22 acres. This yields a 55-62% increase in seasonally inundated habitat (Table 1).

Table 1. Inundation area (acres) for existing conditions, the 100% design, and percent increase.

Flow (cfs)	Existing	100% Design	% Increase
670	9.88	10.03	1%
1,789	11.71	18.16	55%
2,440	13.62	22.07	62%

3.3.2.2 Salmonid Rearing Habitat

Regardless of flow there is relatively little suitable rearing habitat for steelhead fry and parr in the Action Area under existing conditions. The little suitable habitat that does exist is constrained to the channel margins except at 2,440 cfs when the wetland becomes partially inundated. From 670 to 2,440 cfs, there is between 3.5 to 7.0 acres of suitable fry rearing habitat and 5.2 to 8.9 acres of suitable parr rearing habitat (Table 2).

Table 2. Acreage of suitable fry and parr rearing habitat for existing conditions and the 100% design. Suitable habitat is defined as having a suitability greater than 0.25.

	Suitable fry habitat				Suitable parr habitat			
Flow (cfs)	Existing	100% Design	Increase	% Increase	Existing	100% Design	Increase	% Increase
670	7.0	7.1	0.1	2%	8.9	9.1	0.1	2%
1789	3.5	9.9	6.3	179%	5.2	11.1	5.8	111%
2440	4.6	12.9	8.4	183%	5.3	13.4	8.1	151%

In total, the 100% design provides approximately 7.1 to 12.9 additional acres of suitable fry habitat and 9.1 to 13.4 acres of suitable parr habitat over existing conditions (Table 2). This represents approximately a

180% increase from existing conditions for fry habitat, and between 111% and 151% increase in parr habitat.

3.3.3 PROPOSED ACTION CONSTRUCTION

The Proposed Action will require the operation of construction equipment (e.g., rubber-tired front-end loaders, excavators, articulated haulers, dozers, etc.) within the Action Area. Construction equipment shall be clean and use biodegradable, vegetable-based lubricants and hydraulic fluids. To minimize any potential negative effects on salmonids, any in-water work will occur from 15 June to 15 November when flows are typically and comparatively low (approximately 200 cfs or less) and active salmonid spawning is not occurring. However, there is no expectation or need for construction activities to occur within the Stanislaus River either directly or indirectly aside from the upstream and downstream channel connections. Off-channel construction may occur throughout the year; mitigation measures to avoid impacts to special status species will be implemented.

3.3.3.1 Access and Staging

Staging areas will be restricted to existing roads and trails within and adjacent to the Action Area that would avoid any significant impacts to sensitive natural resources, as required by BMPs (see Section 3.3.4 below). Construction access to the Action Area would likely be from the entrance to the Wilderness Area at the intersection of North Kerr Park Drive and North Stearns Road (Figure 2). During construction, the contractor would install signs and limit access to the Wilderness Area for safety purposes.

Implementation of the Proposed Action design will require frequent coordination with the City to ensure proper staging of the site as well as daily access due to the proximity to both Kerr Park to the west and the Stanislaus River to the north. Each of these locations experience active public recreation, particularly during the summer months.

Construction activities will be sequenced such that connections between the side channel entrance and exit and the main channel will occur near the end of the earthwork activities to limit water flowing through the site until construction is near completion. Apart from connection of the side channel, there is no expected need for construction activities to occur within the Stanislaus River.

3.3.3.2 Proposed Action Implementation Time Frame

Out of channel construction may occur year-round. Construction is anticipated to occur in 2023 and require only one year to complete. Site stabilization would occur immediately once construction activities are complete, and revegetation planting would commence at the beginning of the rainy season, which would presumably begin in late-November and continue through February. Construction activities would take place during normal working hours, 7:00 am to 5:00 pm, Monday through Friday.

3.3.3.3 Revegetation

A preliminary revegetation plan has been developed for areas impacted during excavation and grading to create the new features and fill placement areas. Mitigation tree planting will occur in areas suitable for upland and riparian species in locations outside the grading areas. The native grass seeding areas include hydroseeding using a combination of an erosion control seed mix and a pollinator seed mix as show on the design drawings. Tree species for the upland tree planting and riparian tree planting zones are based on direct replacement of native trees impacted by construction. The Proposed Action will undergo a Section 7 consultation with the USFWS to assess impacts to Valley Elderberry Longhorn Beetle (VELB) (*Desmocerus californicus dimorphus*). It is anticipated that a Biological Opinion will be issued to address mitigation requirements for transplant and take of elderberry shrubs. A final revegetation plan will be developed after regulatory permitting coordination.

3.3.4 BEST MANAGEMENT PRACTICES

Proposed Action construction activities are expected to result in potential effects to sensitive natural resources. The Proposed Action would implement appropriate measures to minimize adverse effects (i.e., BMPs). Preliminary BMPs have been included into the 100% Design Plans and final measures will be developed after regulatory permitting coordination. These measures will be incorporated in construction documents prepared for the Proposed Action and will be contractually required of all construction contractors.

3.3.5 PROPOSED ACTION OPERATION AND MAINTENANCE

Following construction, post-project monitoring activities will take place to ensure the Proposed Action was built to design standards and specifications. After construction and revegetation are complete, the planted trees will require management during the initial establishment period following planting. There is no municipal water for irrigation at the site; therefore, watering will need to be undertaken using a hands-on methodology. Monthly watering will be required and could be accomplished using a watering truck and hoses, or temporary slow-release water tubes that slowly release water but require refilling every few weeks. The Proposed Action team and the City will coordinate to determine the most efficient approach for plant establishment and watering.

DETERMINATION:

On the basis of this initial evaluation:

	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
X	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature:	**Date:**
Printed Name:	

4 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section presents the affected environment and environmental consequences associated with each environmental issue area. The following guidance, adapted from Appendix H of the State CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000 – 15387; 27 July 2007) was followed. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required. "Negative Declaration: Potentially Significant Unless Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Significant Impact." Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). The analysis of each issue should identify: (1) the significance criteria or threshold used to evaluate each question; and (2) the mitigation measure identified, if any, to reduce the impact to less than significance.

The significance criteria used are based on Appendix G of the CEQA Guidelines and the Council on Environmental Quality NEPA Regulations (2016), and each impact category begins with a tabular summary of the criteria for determining significance and level of impact from the Proposed Action. Each subsection for which impacts are anticipated includes a description of existing conditions against which the potential for impacts is compared for each alternative. A discussion of the direct and indirect environmental consequences is followed with recommendations to avoid, minimize, and/or mitigate adverse effects. If no impact is anticipated for a particular impact category, a brief justification is provided.

This EA/IS uses the following terms to describe the significance of environmental impacts.

No Impact: A no impact determination is made when the Proposed Action would not have any direct or indirect impacts on the environment. It means no change from existing conditions.

Less than Significant Impact: An impact is considered less than significant when the physical change resulting from the Proposed Action would not exceed the applicable significance criterion. A less than significant impact would not result in a substantial or potentially substantial adverse change in the physical conditions within the area affected by the Proposed Action.

Significant Impact: An impact is considered significant when the physical change from the Proposed Action would result in a substantial or potentially substantial adverse change in the physical conditions within the area affected by the Proposed Action. Significant impacts are identified by the evaluation of the physical change resulting from the Proposed Action compared to the applicable significance criteria.

Potentially Significant Impact: An impact is considered potentially significant when there is substantial evidence that an effect may be significant however, there is some uncertainty in conditions related to the Proposed Action or the affected environment. This document takes a conservative approach, treating a potentially significant impact as significant.

Cumulative Impact: A cumulative impact refers to two or more effects, when considered together, are considerable or which compound or increase other environmental impacts. A significant cumulative impact is when the cumulative adverse change in the physical conditions within the Action Area would exceed the applicable significance criterion and the Proposed Action's contribution is "cumulatively considerable".

Mitigation Measure: Mitigation measures to avoid, minimize, reduce, or compensate for significant and potentially significant impacts of the Proposed Action, in accordance with the State CEQA Guidelines (§15370) and with NEPA regulations (40 CFR §1508.20), are recommended where applicable.

Evaluation of the potential effects of the alternatives resulted in the determination that there would not be any adverse direct, indirect, or cumulative effects on many resources due to the scale, scope, and schedule of the Proposed Action. The resource categories which were determined to have no impact were the following: land use and planning, agricultural and forest resources, population and housing, tribal cultural resources, mineral resources, and public services. These resource categories are discussed in the environmental checklist for CEQA. The resource categories which were determined to have potential adverse effects are discussed in more detail below.

4.1 AESTHETICS

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

4.1.1 EXISTING CONDITIONS

The Action Area is located on approximately 70 acres of public property owned by the City along the lower Stanislaus River within the Stanley Wakefield Wilderness Area in Stanislaus County, California. The Action Area is downstream of the Valley Oak Recreation Area and is accessible to pedestrians from the intersection of North Stearns Road and Kerr Park Drive, located at the southwest portion of the Action Area. The Oakdale Golf and Country Club, a private golf course, is located south of the Action Area. Additionally, there are several private residences north of the Action Area along the right bank of the Stanislaus River. Agricultural uses such as vineyards, orchards, row crops, and pasture, and the town of Oakdale, encompass the outer perimeter of the Stanislaus River and represent the dominant land uses in the surrounding area.

VISUAL CHARACTER

The Action Area is densely forested with riparian vegetation along the banks of the Stanislaus River. Riparian woodland dominates the rest of the Action Area with an emergent wetland located in the central

portion of the Action Area. The Stanislaus River corridor is identified as a visual resource in the *Oakdale 2030 General Plan* (City of Oakdale 2013).

VIEWPOINTS AND VIEWER GROUPS

Viewpoints were photographed in and adjacent to the Action Area that are representative of the visual character and resources present from the specified locations in Figure 4. Viewpoints include the following:

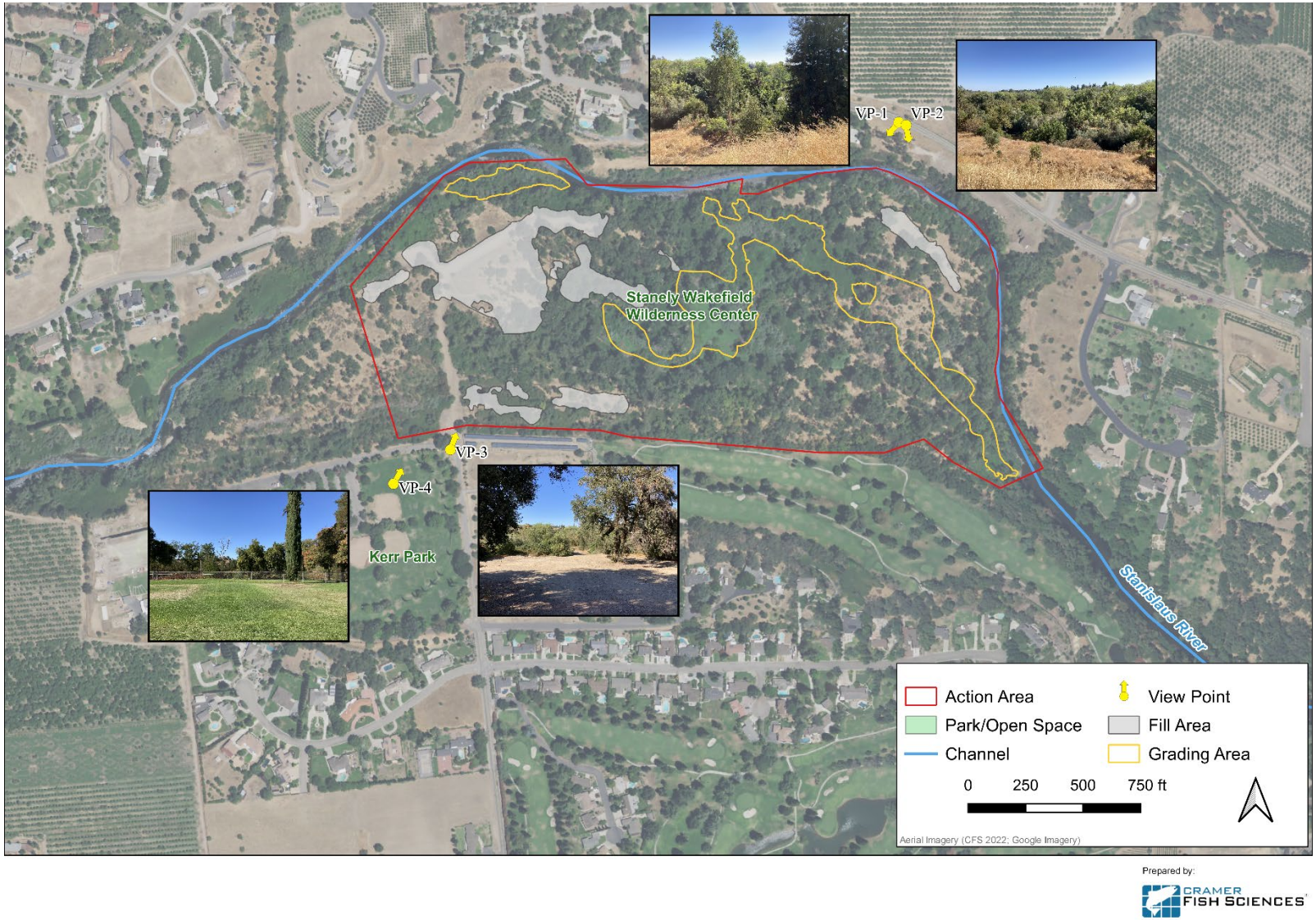

Figure 4. Proposed Action viewpoint location map

VP-1: Looking southwest from Rodden Road towards the northern portion of the Action Area. This view represents the perspective of a motorist traveling along Rodden Road or that of resident adjacent to the Action Area along the right bank of the Stanislaus River.

VP-2: Looking south from Rodden Road towards the eastern portion of the Action Area. This view represents the perspective of a motorist traveling along Rodden Road or that of resident adjacent to the Action Area along the right bank of the Stanislaus River.

VP-3: Looking north from the intersection of North Stearns Road and North Kerr Park Drive towards the southern portion of the Action Area. This view represents the perspective of a motorist or pedestrian traveling along these roadways to access Kerr Park. Access to the Action Area is via N Stearns Road.

VP-4: Looking northeast from Kerr Park towards the southern portion of the Action Area. This view represents the perspective of a pedestrian within Kerr Park.

Viewer groups would primarily include the following:

Private Residences

Private Residences are located north of the Action Area along the right bank of the Stanislaus River. These residences are situated on land elevated from the Stanislaus River with viewpoints looking down towards the Action Area, as seen in **VP-1** and **VP-2**. Views of the central portion of the Action Area are limited from the dense riparian vegetation along the left bank of the Stanislaus River.

Motorists

Motorists traveling along Rodden Road would have temporary and limited views of the Action Area, as seen in **VP-1** and **VP-2**. Views of the Action Area are limited due to the dense riparian vegetation along the left bank of the Stanislaus River. Motorists travelling along North Stearns Road and North Kerr Park Drive would have views of the access road to the Action Area, as seen in **VP-3**.

Pedestrians and Recreationalists

Pedestrians using Kerr Park or surrounding areas would have direct views of the Action Area (VP-3 and VP-4). Recreationalists using the main channel of the Stanislaus River, primarily individuals rafting during the summer months, would have direct views of the Action Area, as indicated by the orange arrows in **VP-1** and **VP-2**.

4.1.2 DISCUSSION

No Action Alternative

Aesthetic or visual resources would not be affected under the No-Action Alternative. Therefore, there would be **no impact**.

Proposed Action

a) Aesthetic or visual resources include the "scenic character" of a particular region and site. Scenic vistas can include both natural features, such as vegetation and topography, and manmade features (e.g., historic structures). Areas that are more sensitive to potential effects are usually readily observable, such as land found adjacent to major roadways and hilltops. The City's 2030 General Plan defines the Stanislaus River corridor as a visual resource.

During Proposed Action construction, heavy equipment and vehicles would be used in areas of the Action Area that are visibly obstructed by the dense riparian vegetation along the perimeter of the Action Area. Construction activities would not occur on the weekends when public use is the highest; therefore, potential impacts to visual resources during Proposed Project construction would be minimized. Construction activities would also only occur during typical work hours (7 am to 5 pm) on weekdays.

Proposed Action activities are not anticipated to greatly reduce the quality of views. When the Proposed Action is complete, the visual resources would be improved as recreationalists would be able to see a more natural floodplain with more natural vegetation communities within the Action Area.

b) The Proposed Action is not located within or in proximity to a scenic highway. Therefore, there would be **no impact.**

c) The Action Area is located in the Wilderness Area along the Stanislaus River. During construction, there will be temporary changes to visual resources for private citizens living on adjacent properties and recreational users of the river and surrounding areas. Impacts would be relatively short term, temporary, and with limited visibility. Therefore, there will be **a less than significant impact** to scenic resources or the visual character and quality of the site. When the Proposed Action is complete, the visual resources would be improved as recreationalists would be able to see more salmon during certain times of year and more natural vegetation communities within the Action Area.

d) The Proposed Action would not create a new source of light or glare; therefore, the Proposed Action would have **no impact** on day or nighttime views.

4.2 AGRICULTURAL AND FORESTRY RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non- agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

4.2.1 EXISTING CONDITIONS

The Proposed Action is located on land designated as Nonagricultural and Natura Vegetation and Urban and Built-up Land according to the Farmland Mapping and Monitoring Program (FMMP) (DOC 2018). The Action Area is not subject to Williamson Act contracts and there is no forest land on or in proximity to the Action Area.

4.2.2 DISCUSSION

No Action Alternative

Agriculture and forestry resources would not be affected under the No-Action Alternative. Therefore, there would be **no impact**.

Proposed Action

a-e) The Action Area is located on land designated as Nonagricultural and Natura Vegetation and Urban and Built-up Land according to the FMMP (DOC 2018) and is not subject to Williamson Act contracts (DOC 2015). The Proposed Action would be confined to the Wilderness Area, access road, and North Stearns Road that would be used for temporary access. The Proposed Action activities would not involve land conversion, conflict with existing zoning for agricultural use, or a Williamson Act contract. Therefore, **no impact** to agriculture would occur. The Proposed Action does not occur on forest land and would have **no impact** on any timber resources.

4.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

The Project is within the San Joaquin Valley Air Basin. The San Joaquin Valley Air Pollution Control District (Valley Air) is responsible for monitoring air quality in Stanislaus County. The Clean Air Act requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards to protect public health. National standards have been set for the following: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, respirable particulate matter (PM) (PM less than 10 microns in diameter; PM-10), fine PM (PM less than 2.5 microns in diameter; PM-2.5), and lead (Table 3). The air quality in the San Joaquin Valley Air Basin has been designated nonattainment by the Air Resources Board for ozone (one hour and eight hour), PM-10, and PM-2.5 and by the EPA for ozone 8-hour and PM-2.5 (Table 3).

The federal Clean Air Act and the California Clean Air Act require areas that are designated nonattainment to reduce emissions until standards are met. Air quality is affected by a combination of air contaminants, meteorological conditions, and the topographical configuration of the valley. A primary factor responsible for the increase of air pollution is the increased amount of pollutants and PM produced by vehicles, industrial processes, mining operations, and agricultural activities, such as burning and ground disturbance.

Table 3. Designation/classification for criteria pollutants in the San Joaquin Valley Air Basin based on federal and state standards.

Pollutant	Federal Standards	State Standards
Ozone – One Hour	No Federal Standard	Nonattainment/Severe
Ozone – Eight Hour	Nonattainment/Extreme	Nonattainment
PM 10	Attainment	Nonattainment
PM 2.5	Nonattainment/Moderate	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Lead (Particulate)	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

Sensitive Receptors

Sensitive receptors include hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. The occupants of these facilities, children, elderly, and the infirm, are more sensitive to poor air quality and associated health effects than the general population. In addition, residential areas are considered sensitive receptors because the general public spends substantial amounts of time at home. The nearest sensitive receptor, Cloverland Elementary School, is approximately 1.7 miles southwest from the nearest grading location.

4.3.1 DISCUSSION

No Action Alternative

Without the Proposed Action and under existing conditions, the air quality for the area would not be affected except for actions that take place under existing conditions; therefore, there would be **no impact**.

Proposed Action

a) The project does not conflict with or obstruct implementation of the San Joaquin Valley Air Quality Attainment Plan or Congestion Management Plan. There would be no impact.

b) The Project may cause temporary changes in air quality in the area, including the generation of dust and small particulates from the excavation and transportation of material from the cut areas to the fill areas (Figure 3) and operation of heavy equipment. Heavy equipment would be used to create the project features. Restoration activities may potentially result in localized, short-term emissions. Activities are temporary, so any changes in air quality due to the Project would be limited in duration.

Small quantities of dust may occasionally be produced and result in temporary increases in PM_{10} concentrations. Heavy equipment used during construction may include excavators, bulldozers, backhoes, and articulated haulers. Emissions estimates for the Project compared with Valley Air emissions thresholds are summarized in **Error! Reference source not found.**. A water truck would be used periodically throughout the work day to reduce dust on access roads, staging areas, and active work zones (**AQ-1 – Reduce Dust and Air Quality Impacts**). This would result in a **less than significant impact**.

c) Valley Air has established criteria for determining local air basin impact significance (SJVAPCD 2015). For the purpose of determining significance, the District's criteria for emissions of carbon monoxide is 100 tons per year (tpy), nitrogen oxides (NO_x) and reactive organic gases (ROG) are 10 tpy for each, sulfur oxides (SO_x) are 27 tpy, and PM_{10} and $PM_{2.5}$ are 15 tpy for each (**Error! Reference source not found.**). Proposed Project emissions that exceed the threshold limits set forth by Valley Air are considered significant and require mitigation. Valley Air has not established a significance threshold for construction greenhouse gas (GHG) emissions. Therefore, to evaluate GHG emissions for the Proposed Project under CEQA, the Sacramento Metropolitan Air Quality Management District (SMAQMD) threshold of 1,100 metric tons (1213 tons) of carbon dioxide equivalents ($CO_{2e)}$ was adopted (ARB 2014).

Table 4. The emissions estimates of criteria pollutants for the Project in tons per year compared to the Valley Air significance thresholds and *de minimis* thresholds (SJVAPCD 2015).

	NO_x (tpy)	ROG (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	CO (tpy)	SO_2 (tpy)
Project	0.20	0.09	0.85	0.18	1.67	0.01
Valley Air Threshold	10	10	15	15	100	27
Valley Air *de minimis* Threshold	25	25	100	100	100	100

Section 176 (C) of the Clean Air Act (42 U.S.C. 7506 (C)) requires any entity of the federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan required under Section 110 (a) of the Federal Clean Air Act (42 U.S.C. 7401 [a]) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with State Implementation Plan's purpose of eliminating or reducing the severity and number of violations of the National Ambient

Air Quality Standards and achieving expeditious attainment of those standards. Each federal agency must determine that any action proposed by the agency and subject to the regulations implementing the conformity requirements would conform to the applicable State Implementation Plan before the action is taken.

On November 30, 1993, the EPA promulgated final general conformity regulations at 40 CFR 93 Subpart B for all federal activities except those covered under transportation conformity. The general conformity regulations apply to a proposed federal action in a non-attainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutant caused by the Project equal or exceed certain *de minimis* amounts thus requiring the federal agency to make a determination of general conformity.

The emissions estimates for criteria pollutants from the Project were estimated using the following equipment (Table 5) plugged into the SMAQMD Roadway Construction Emissions Model version 9.0.0 (SMAQMD 2018; Appendix E). Rehabilitation activities may potentially result in localized, short-term emissions. Emissions may include hydrocarbons, nitrogen oxides, sulfur oxides, carbon monoxide, and PM. Activities are temporary, so any changes in air quality due to the Project would be limited in duration. Fugitive dust may be emitted during use of earth working equipment. Fugitive dust emissions during rehabilitation activities would vary daily based on activity type and level, fines content of the sediment, and the weather.

Table 5. Construction equipment anticipated to be used for the Project.

Construction Equipment	Model	Number Used	Horsepower
Excavator	Cat 352	2	425
Bulldozer	Cat D8	1	357
Backhoe Loader	Cat 420	1	92
Articulated Hauler	Cat 745	3	469
Water Truck	International	1	200

The emissions estimates for criteria pollutants are all substantially below the Valley Air significance thresholds and implementation of **AQ-1 – Reduce Dust and Air Quality Impacts** would minimize the production of fugitive dust. Therefore, this impact is **less than significant**.

c) Sensitive receptors include hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. The occupants of these facilities, children, elderly, and the infirm, are more sensitive to poor air quality and associated health effects than the general population. In addition, residential areas are considered sensitive receptors because the general public spends substantial amounts of time at home. There are approximately 10 residences on the north side of the Stanislaus River between 200 and 500 feet of

grading locations. There is a subdivision around the Oakdale Golf and Country Club with residences between 500 and 700 feet of grading locations. The Cloverland Elementary School is approximately 1.7 miles southwest from the nearest grading location. The emissions estimates for criteria pollutants are substantially below significance levels so air quality impacts on sensitive receptors in the vicinity of project activities are expected to be **less than significant**

The Project would result in short term emissions of diesel PM. Heavy equipment, including excavators, bulldozers, articulated haulers, and backhoe loaders all run on diesel and would produce diesel emissions during excavation, grading, transport, and placement of material. Valley Air has not adopted a methodology for analyzing the impact of diesel PM emission. However, the estimated emissions of PM_{10} are substantially below the significance threshold (Error! Reference source not found.). Considering the Project's one-year limited construction season (16 April through 31 October) and the rehabilitation activities occurring in an area with limited nearby residences or businesses, it is not likely that the Project would expose sensitive receptors to substantial pollutant concentrations. Therefore, **less than significant impact** is expected**.**

d) The only objectionable odor that may be produced by the Project would be from diesel exhaust from operation of heavy equipment and disturbance of wetland soils. The closest residences to the Project boundary where construction would occur are approximately 200 to 500 feet northwest through northeast of the Project area. There are also residences approximately 500 to 1,000 feet southwest through southeast of the nearest grading locations. All other residences are over a 1,000 feet away from areas where heavy equipment will be used. Overall, typical of rural residential areas, there are a relatively low number of residences in the immediate vicinity of the Project. Diesel exhaust and soil disturbance odors from rehabilitation activities would be restricted to the limited one-year construction season and would dissipate over time and distance. Therefore, construction activities would not be expected to create objectionable odors which would affect a substantial number of people, resulting in a **less than significant impact**.

Mitigation:

Mitigation Measure AQ-1. Reduce Dust and Air Quality Impacts.

The following dust reduction measures shall be implemented during transport of materials from the borrow areas (islands) where sediment will be removed to berm construction location and secondary channels where filling is planned to occur to reduce construction-related emissions:

- wet materials to limit visible dust emissions using water;
- provide at least 6 in (15.2 cm) of freeboard space from the top of the container; or,
- cover the container.

The following dust reduction measure shall be implemented during material transport to reduce construction-related emissions:

- limit or promptly remove any of mud or dirt on construction equipment and vehicles at the end of each workday, or once every 24 hours.

The following measure shall be implemented to ensure that emissions meet current air quality standards:

- the off-road work fleet average at a minimum must meet the current California Air Resources Control Board standards, including the use of Tier 4 emission standards of at least 0.4 g/hp-hr Nitrogen Oxides (NOx).

4.4 BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

4.4.1 EXISTING CONDITIONS

Cramer Fish Sciences biologists conducted multiple biological surveys in 2019, 2020 and 2022. Surveys were conducted on foot to assess existing habitat types and the potential for the Action Area to support special-status species and their habitats. Vegetation and tree surveys of the Action Area were conducted on 30 April 2020, with

no special status plant species observed (CFS 2020a). Fish community surveys and habitat typing were conducted in the Stanislaus River (CFS 2020b). CFS biologists delineated waters of the U.S. within the Action Area on 30 April 2020 (CFS 2020a).

The potential presence of special-status species or other special habitats in the Action Area was investigated with a search of the USFWS, CDFW, and California Native Plant Society (CNPS) databases. Special status species are species that are classified as such based on the following categories:

- Species listed or proposed for listing on the federal ESA as threatened or endangered (animals: 50 CFR §17.11, plants: 50 CFR §17.12, and proposed species: federal register notices)
- Candidate species for possible future federal ESA listing as threatened or endangered (61 FR 40)
- Species listed or proposed for listing under the CESA as threatened or endangered (14 CCR §670.5)
- Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.)
- CDFW designated species of special concern (CDFW 2022)
- Animals designated as fully protected under California Fish and Game Code (birds: Section 3511, mammals: 4700, and reptiles and amphibians: 5050)
- Plants considered by the CNPS and CDFW to be rare, threatened or endangered in California (California Rare Plant Rank 1A, 1B, 2A, and 2B) (CNPS 2022)

Official species lists were requested for the Action Area from the following sources to evaluate the potential impacts of the Proposed Action on biological resources:

- California Natural Diversity Database (CNDDB) for *Oakdale* and the eight surrounding U.S. Geological Survey quadrangles: *Knights Ferry, Copperopolis, Paulsell, Riverbank, Waterford, Escalon, Bachelor Valley,* and *Farmington* (CDFW 2022);
- California Native Plant Society (CNPS) Rare Plant Inventory Database for Oakdale and the eight surrounding U.S. Geological Survey quadrangles (CNPS 2022); and
- USFWS Information for Planning and Consultation (IPaC) Species List (USFWS 2022)

The evaluation of potential impacts of the Project on biological resources is based on information gathered during reconnaissance and focused surveys of the site as well as a review of relevant background information. Several animal and plant species listed by state and federal agencies as threatened, endangered, or a species of concern occur in or within proximity to the Action Area (CDFW 2022; USFWS 2022). Table 6 lists the special status

animal and Table 7 lists the special status plant species that may occur in the Action Area and may be affected by the Proposed Action. For the purposes of this document, species that are unlikely to occur in the Action Area are not discussed further in the sections below.

Table 6. Special status wildlife species potentially occurring in the Action Area.

Common Name *(Scientific Name)*	Status[1]			Distribution and Habitat Association	Potential for Occurrence in the Action Area[2]
	ESA	CESA	Other		
Invertebrates					
Monarch Butterfly *(Danaus plexippus)*	FC	--	--	Lay eggs on the Milkweed host plant (*Asclepias* spp.). Migrate to overwintering sites along the coast from Mendocino to San Diego Counties. Overwintering habitat includes Eucalyptus spp. stands.	**Unlikely.** This species may occur on site during winter months but is unlikely to be present during the construction period.
Valley Elderberry Longhorn Beetle *(Desmocerus californicus dimorphus)*	FT	--	--	Elderberry shrubs in riparian areas along rivers and streams in the Central Valley.	**Likely.** Elderberry shrubs are present in the Action Area.
Vernal Pool Fairy Shrimp *(Branchinecta lynchi)*	FT	--	--	Species occurs in a ride variety of vernal pool habitats in the coast ranges and Central Valley of California as well as two locations in southern Oregon's Jackson County (USFWS 2006a).	**Unlikely.** Suitable vernal pool habitat is absent from the Action Area.
Vernal Pool Tadpole Shrimp *(Lepidurus packardi)*	FE	--	--	Species range in vernal pools from the north end of the Central Valley around Redding to the south-Central Valley around Visalia, between the Coast Range and the Sierra Nevada. Distribution is patchy and consists of vernal pool complexes (King et al 1996).	**Unlikely.** Suitable vernal pool habitat is absent from the Action Area.
Fish					
Chinook Salmon – Central Valley fall-run ESU *(Oncorhynchus tshawytscha)*	FT	ST	--	Sacramento-San Joaquin basin; San Francisco, San Pablo, and Suisun bays eastward to Chipps Island. Requires cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	**Present.** The Action Area overlaps the range and habitat of species and is known to occur in the Stanislaus River.
Delta Smelt *(Hypomesus transpacificus)*	FT	--	--	Delta Smelt are tolerant of a wide salinity range. They have been collected from estuarine waters up to 14 ppt (parts per thousand) salinity. For a large part of their one-year life span, Delta Smelt live along the freshwater edge of the mixing zone (saltwater-freshwater interface), where the salinity is approximately 2 ppt. They spawn in shallow, fresh or slightly	**None.** The Action Area does not overlap the range of the species or

Common Name *(Scientific Name)*	Status[1]			Distribution and Habitat Association	Potential for Occurrence in the Action Area[2]
	ESA	CESA	Other		
				brackish water upstream of the mixing zone. Most spawning happens in tidally influenced backwater sloughs and channel edgewaters. Although spawning has not been observed in the wild, the eggs are thought to attach to substrates such as Cattails, Tules, tree roots and submerged branches. Delta Smelt are found only from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties (USFWS 1995).	provide suitable habitat for the species.
Hardhead (*Mylopharodon conocephalus*)	--	--	SSC	Sacramento- San Joaquin and Russian river systems (Moyle 2002). IT is typically found in small to large streams in a low to mid-elevation environment. Spawning occurs in May and June in the sand, gravel and rocky areas of pools and side pools.	**Present.** The Action Area overlaps the range and habitat of species and is known to occur in the Stanislaus River.
Green Sturgeon – southern DPS *(Acipenser medirostris)*	FT			Main-stream Sacramento River downstream of Keswick Dam (including the Yolo and Sutter bypasses), the Feather River below Oroville Dam, the Yuba River below Daguerre Point Dam, and the Sacramento-San Joaquin Delta (NOAA 2009). Although previously not thought to occur in the Stanislaus River, a single Green Sturgeon was identified using eDNA in 2017 upstream from the Action Area (Anderson et al. 2018).	**Possible.** Although this species is not common on the Stanislaus River, it was observed upstream from the Action Area in 2017.
Steelhead – Central Valley DPS *(Oncorhynchus mykiss)*	FT	--	--	Sacramento-San Joaquin basin; San Francisco, San Pablo, and Suisun bays eastward to Chipps Island. Requires cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta. For anadromous *O. mykiss*, adult migration from the ocean to CV spawning grounds occurs during much of the year, with peak migration occurring in the fall or early winter.	**Present.** The Action Area overlaps the range and habitat of species and is known to occur in the Stanislaus River.
Birds					
Burrowing Owl *(Athene cunicularia)*	--	--	SSC	Widely distributed throughout the lowlands of California; breeds/nests in open, sandy areas with low vegetation and grasslands (Bates 2006; Klute et al. 2003)	**Unlikely.** Suitable nesting habitat is absent from the Action Area.
Snowy Egret (*Egretta thula*)	--	--	MBTA	Occur in California along the coast and the CV. Nest in colonies on thick vegetation in isolated places such as estuaries, saltmarshes, tidal channels, shallow bays, and mangroves. Forage on beaches, shallow reefs, and wet fields.	**Present.** A rookery of egrets has been documented in the Action Area.

Common Name *(Scientific Name)*	Status[1]			Distribution and Habitat Association	Potential for Occurrence in the Action Area[2]
	ESA	CESA	Other		
Swainson's Hawk (*Buteo swainsoni*)	--	ST	--	Often nests adjacent to riparian systems of the valley and in lone trees or groves of trees in agricultural fields. Valley Oak, Fremont Cottonwood, Black Walnut and large Willows are the most commonly used nest trees in the CV. This species also requires large open grasslands with suitable nest trees and abundant prey. Migrating individuals move south through the southern and central interior of California in September and October, and north March through May.	**Possible.** The Action Area overlaps the range of species and suitable habitat exists.
Tricolored Blackbird (*Agelaius tricolor*)	--	ST	SSC	Northern California to upper Baja California, Mexico. Nests and forages in freshwater marshes with Cattails and Bulrushes (CDFW 2016).	**Unlikely.** The Action Area does not contain freshwater marsh habitat.
Yellow-breasted Chat *(Icteria virens)*	--	--	SSC	Occurs in California as a migrant and summer resident from late March to late September, breeding April - August (Garrett and Dunn 1981, Unitt 2004, Eckerle and Thompson 2001). Nesting restricted to narrow borders near streams with thick vegetation and large trees (Grinell and Miller 1944)	**Possible.** The Action Area overlaps the range of species.
Reptiles					
Giant Gartersnake *(Thamnophis gigas)*	FT	ST	--	Species range from Glenn County to the southern edge of the San Francisco Bay-Delta and from Merced County to northern Fresno County. Species is found in small, isolated patches of highly modified agricultural wetlands as 93% of historical wetlands in the Central Valley have been lost (Wood et. al 2015) Species prefers marsh and wetland type habitat including sloughs, drainage canals and irrigation ditches associated with rice cultivation (Halstead et al. 2013).	**None.** Habitat for this species is not present in the Action Area and it has not been observed in this reach.
Northern California Legless Lizard (*Anniella pulchra*)	--	--	SSC	Central California Coast inland to southwestern portions of the California Central Valley. May occur at stream edges where large oaks or cottonwoods are present but prefers sandy dunes and scrub habitat.	**Unlikely.** Preferred habitat is not present in Action Area.
Western Pond Turtle *(Emys marmorata)*	--	--	SSC	Coast ranges north of Santa Cruz and in the CV west of the Sierra crest, and there are also isolated populations near Susanville and in the Truckee, Carson, and East Walker rivers (Spinks et al. 2014). typically found at elevations from sea level to 5,000 ft in a wide variety of aquatic habitats including rivers, streams, lakes, ponds, and marshes as well as human created habitat such as irrigation ditches and sewage treatment ponds. Structures such as logs, rocks, bedrock outcrops, and exposed banks are required for basking. prefer aquatic habitats with access to deep, slow water containing underwater refugia (Ashton et al. 1997).	**Possible.** The Stanislaus River provides marginally suitable habitat for this species.
Amphibians					
California Tiger Salamander -	FT	ST	WL	The California Tiger Salamander is restricted to breeding in vernal pools and seasonal ponds, including many constructed stock ponds, in grassland and oak savannah plant communities, predominantly from sea level to	**Unlikely.** Vernal pools are not

Common Name *(Scientific Name)*	Status[1]			Distribution and Habitat Association	Potential for Occurrence in the Action Area[2]
	ESA	CESA	Other		
Central California DPS *(Ambystoma californiense pop. 1)*				2,000 ft (609.6 m), in central California. The California Tiger Salamander requires large contiguous areas of vernal pools (vernal pool complexes or comparable aquatic breeding habitat) containing multiple breeding ponds to ensure recolonization of individual ponds, in association with extensive upland areas.	present within the Action Area.
Western Spadefoot (*Spea hammondii*)	--	--	SSC	Can occur in oak woodlands, but is more common in grasslands, scrub, and chaparral; open areas with sandy or gravelly soil (USGS 2004). Breeding occurs in vernal pools and other temporary rain pools, water or feed tanks, and pools of intermittent streams.	**Unlikely.** The preferred habitat of the species is not present within or near the Action Area.
Mammals					
Pallid Bat (*Antrozous pallidus)*	--	--	SSC	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting.	**Unlikely.** No suitable habitat is present in Action Area.
San Joaquin Kit Fox (*Vulpes macrotis mutica*)	FE	--	--	The San Joaquin Kit Fox historically inhabited the semi-arid regions of California's Central Valley and adjacent foothills. Much of this range has been reduced due to agricultural and urban development, and the San Joaquin Kit Fox is now primarily found in the grasslands and scrub habitats of the southern San Joaquin Valley. They are also found in and adjacent to agricultural and urban areas (Spiegel et al. 1996).	**Unlikely.** Grassland habitat is absent from the Action Area.
Townsend's Big-eared Bat *(Corynorhinus townsendii)*	--	--	SSC	Historically occur throughout California, but the details of its distribution are not well known. It is most abundant in mesic habitats, prefers cave habitat, and is easily disturbed by human encroachment.	**Unlikely.** No suitable habitat is present in Action Area.
Western Mastiff Bat (*Eumops perotis californicus*)	--	--	SSC	Southeastern San Joaquin Valley and Coastal Ranges. Occurs in open, semi-arid to arid habitats, including coniferous and deciduous woodlands, coastal scrub, grasslands, chaparral, desert scrub, and urban. Cliff faces, high buildings, trees, and tunnels are required for roosting.	**Possible** Action Area and habitat overlaps species range.
Western Red Bat *(Lasiurus blossevilli)*	--	--	SSC	Common in some areas of California, occurring from Shasta County to the Mexican border, west of the Sierra Nevada/Cascades Crest, and deserts. Roosting habitat includes forests and woodlands between sea level and mixed coniferous forest. Preferred roost sites are in edge habitat adjacent to streams, fields, or urban areas.	**Possible.** Action Area and habitat overlaps species range.

[1]Status = Status of state and federally protected species protected under the ESA.
SE: State Endangered
FE: Federally Endangered
ST: State Threatened
FT: Federally Threatened
FC: Federal Candidate
SSC: State Species of Concern
MBTA: Migratory Bird Treaty Act

[2]Definition of Occurrence Indicators
Present: Species recorded in area and suitable habitat present.
Possible: Species recorded in area and habitat suboptimal.
Unlikely: Species recorded in area but habitat marginal or lacking entirely.
None: Species not recorded in study area and suitable habitat absent.

Table 7. Special status plant species potentially occurring in the Action Area.

Common Name *(Scientific Name)*	Status[1]			Distribution and Habitat Association	Potential for Occurrence in the Action Area[2]
	ESA	CESA	CNPS		
Plants					
Beaked Clarkia *(Clarkia rostrata)*	--	--	1B.3	Annual herb that grows in steep/rocky slopes in oak/pine woodlands and valley grasslands (CNPS 2021). Blooms from April to May.	**Unlikely.** Suitable steep/rocky slope habitat is absent from the Action Area.
Brazilian Watermeal (*Wolffia brasiliensis*)	--	--	2B.3	Aquatic plant that grows in mats on the surface of calm water bodies, such as ponds	**Unlikely.** No ponds are present in the Action Area.
Chinese Camp Brodiaea (*Brodiaea pallida*)	FT	SE	1B.1	Rocky, seasonally intermittent wet creek beds. Blooms May to June.	**Unlikely.** The closest extant population is near Chinese Camp (~30 miles from Action Area).
Colusa Grass (*Neostapfia colusana*)	FT	SE	1B.1	Vernal pool habitat in California's South Central Valley. Blooms May to August.	**Unlikely**. Vernal pool habitat is absent from Action Area.
Dwarf Downingia *(Downingia pusilla)*	--	--	2B.2	Annual herb that grows in foothill woodlands, valley grasslands, freshwater wetlands in vernal pools. Blooms March to May.	**Unlikely**. Although the Action Area overlaps the range of species, it was not detected during special status vegetation surveys.
Forked Hare-leaf (*Lagophylla dichotoma*)	--	--	1B.1	Valley grassland and foothill woodland communities. Blooms April to May.	**Unlikely.** Grassland habitat is absent from the Action Area.
Greene's tuctoria (*Tuctoria greenei*)	FE	SR	1B.1	Central Valley vernal pools. Blooms May to September.	**Unlikely**. Vernal pool habitat is absent from Action Area.
Hairy Orcutt Grass *(Orcuttia pilosa)*	FE	SE	1B.1	Central Valley vernal pools. Blooms May to September.	**Unlikely**. Vernal pool habitat is absent from Action Area.
Hartweg's Golden Sunburst (*Pseudobahia bahiifolia*)	FE	SE	1B.1	Grows in clay and often acidic soils in valley grasslands and foothill woodlands in the Central Valley of California. It occurs primarily in shallow, well-drained, fine-textured soils, nearly always on the north face of "mima mounds." Blooms March to April.	**Unlikely**. Habitat is absent from Action Area.

Common Name *(Scientific Name)*	Status[1]			Distribution and Habitat Association	Potential for Occurrence in the Action Area[2]
	ESA	CESA	CNPS		
Hoover's calycadenia (*Calycadenia hooveri*)	--	--	1B.3	It is found in rocky exposed areas 100-400 meters in elevation, in Valley Grassland and Foothill Woodland communities throughout California. Blooms July to September.	**Unlikely**. Action Area lacks rocky habitat.
Legenere (*Legenere limosa*)	--	--	1B.1	Found in a variety of habitats that include vernal pools, vernal marshes, ponds, sloughs, and floodplains of intermittent streams (USFWS 2005). Typically found within grassland, open woodland, or hardwood forest from 0 to 2000 ft elevation (USFWS 2005). Blooms April to June.	**Unlikely**. Although the Action Area overlaps the range of species, it was not detected during special status vegetation surveys.
San Joaquin Valley Orcutt Grass (*Orcuttia inaequalis*)	FT	SE	1B.1	Grows almost exclusively in vernal pool habitat in California's Central Valley. Blooms April to September.	**Unlikely**. Vernal pool habitat is absent from Action Area.
Stanislaus Monkeyflower (*Erythranthe marmorata*)	--	--	1B.1	Seeps and streambanks between 100-900 m elevation in cismontane woodland and lower montane coniferous forest. Blooms March to May.	**Unlikely.** Species range and habitat overlaps Action Area; however, it was not detected during special status vegetation surveys.
Tongue-leaf Copper Moss (*Scopelophila cataractae*)	--	--	2B.2	Rock or thin soil over rock; moderate to high elevations (800-2000 m).	**Unlikely.** The Action Area is lower than the species' elevation range.
Tuolumne Button-celery (*Eryngium pinnatisectum*)	--	--	1B.2	Endemic to California in wetlands and vernal pools. Blooms May to August.	**Unlikely**. Vernal pool habitat is absent from Action Area.

[1]Status = Status of state and federally protected species protected under the Endangered Species Act (ESA).
SE: State Endangered
FE: Federally Endangered
FE: Federally Threatened
SR: State Rare
California Native Plant Society (CNPS):
Rank 1A = Plants presumed extirpated in California and either rare or extinct elsewhere
Rank 1B = Plants rare, threatened, or endangered in California and elsewhere
Rank 2A = Plants presumed extirpated in California but common elsewhere
Rank 2A = Plants rare, threatened, or endangered in California but more common elsewhere
Rank 3 = Plants about which more information is needed
Rank 4 = Plants of limited distribution

CNPS Code Extensions:
.1 = Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 = Fairly threatened in California (20-80% occurrences threatened)
.3 = Not very threatened in California (less than 20% of occurrences threatened or no current threats known)

[2]Definition of Occurrence Indicators
Present: Species recorded in area and suitable habitat present.
Possible: Species recorded in area and habitat suboptimal.
Unlikely: Species recorded in area but habitat marginal or lacking entirely.
None: Species not recorded in study area and suitable habitat absent.

CRITICAL PERIODS

The potentially significant impacts from the Proposed Action would be those associated with site construction. Ground disturbing work may be conducted year-round, and appropriate surveys would be performed, and buffers implemented around observed special status species to avoid impacts to these species, discussed in greater detail below. No in-water construction is anticipated for this project, as seasonal floodplain and side channel excavation would occur during low flow period.

Table 8. Critical periods for special-status species that may be affected by Proposed Action activities.

Common Name	Critical Period
California Central Valley Steelhead	December through May
Central Valley Fall-run Chinook Salmon	October through June
Hardhead	April through May
Swainson's Hawk	March through August
Valley Elderberry Longhorn Beetle	November through June
Western Pond Turtle	March through July
Western Mastiff Bat	April through August
Western Red Bat	August through October
Yellow-breasted Chat	May through July

PROPOSED ACTION SITE SETTING

PLANT COMMUNITIES AND WILDLIFE HABITATS

The wildlife habitats described below are based on the California Wildlife Habitat Relationships in CDFW's Guide to Wildlife Habitats (Mayer and Laudenslayer 1988). Wildlife communities are correlated with vegetation communities. Vegetation communities within the Action Area were delineated using field surveys in combination with aerial photos. CDFW uses vegetation alliances to classify vegetation and the alliances are the unit for conservation of special status plant communities. The vegetation alliances within the Action Area were determined based on Sawyer et al. (2009).

Four terrestrial vegetation habitat types were observed within the Action Area: valley mixed riparian forest, coastal and valley freshwater marsh, Gooding's willow-red willow riparian woodland and forest, and valley oak woodland and forest. These terrestrial habitat types are further discussed below, as adapted from

Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986) and Manual of California Vegetation (CNPS 2000). Just outside of the northern boundary of the study area the Fremont cottonwood woodland transitions into blue oak woodland.

The Action Area includes perched floodplain habitat, the Stanislaus River main channel, and riparian and upland vegetation. There is residual riparian habitat in the Action Area that is used by various wildlife species.

TERRESTRIAL HABITATS

Four terrestrial habitat types were observed within the survey area: valley mixed riparian forest, coastal and valley freshwater marsh, Gooding's willow-red willow riparian woodland and forest, and valley oak woodland and forest. These terrestrial habitat types are further discussed below, as adapted from Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986) and Manual of California Vegetation (CNPS 2000). The aquatic habitat types observed within the survey area include the main channel of the Stanislaus River and emergent and riparian wetlands, which are described in detail in Section 4.4.2.

Valley Mixed Riparian Forest

Valley Mixed Riparian Forest is the dominant habitat type within the survey area. This habitat type is characterized by a tall, dense, winter-deciduous, broadleaf tree stratum. Dominant vegetation observed within the overstory included Fremont cottonwood (*Populus fremontii*), valley oak (*Quercus lobata*), Oregon ash (*Fraxinus latifolia*), white alder (*Alnus rhombifolia*), and Gooding's willow (*Salix gooddingii*). Other characteristic species included blackberry (*Rubus* spp.). The higher elevation areas of the survey area identified as valley mixed riparian forest had an overstory of Fremont cottonwood and valley oak. The valley mixed riparian forest adjacent to the Stanislaus River channel had an overstory of Fremont cottonwood, alder, and ash with an understory of willows (*Salix* spp.), box elder (*Acer negundo*), and blackberry (*Rubus armeniacus*).

Coastal and Valley Freshwater Marsh

Freshwater marsh communities are dominated by perennial, emergent monocots one to two meters tall. These communities are often dominated by cattails (*Typha* spp.) and/or bulrushes (*Scirpu*s spp.), forming closed canopies. This community is occasionally found along the coast and in valleys associated with rivers and other freshwater habitats. This community is much reduced in area compared to historical extent. Within the Project footprint, this community is found in a low-lying area in the middle of the survey area.

Goodding's Willow-Red Willow Riparian Woodland and Forest

Gooding's willow-red willow riparian woodland and forest habitat occurs in patches in the center of the survey area adjacent to emergent wetland. This habitat is dominated by black willow (*S. goodingii*) in the overstory and sandbar willow (*S. exigua*) in the understory.

Valley Oak Woodland and Forest

This community is characterized by valley oak as dominant or co-dominant in the canopy. This vegetation community occurred in the higher elevation, upland locations within the survey area. Other trees occurring with valley oak as part of this vegetation community in the survey area included Fremont cottonwood and interior live oak (*Q. wislizenii*). The understory was primarily dominated by annual grasses including ripgut grass (*Bromus diandrus*).

4.4.2 WETLANDS AND OTHER WATERS OF THE U.S.

The USACE has primary federal responsibility for administering regulations that concern jurisdictional Waters of the U.S., including wetlands, under Section 404 of the CWA. Section 404 regulates the discharge of dredged and fill material into Waters of the U.S. The USACE requires that a permit be obtained if a Proposed Action proposes placing structures within, over, or under navigable waters and/or discharging dredged or fill material into waters below the ordinary high water mark (OHWM). Waters of the U.S. are defined as "all waters used in interstate or foreign commerce; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent and ephemeral streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, where the use, degradation, or destruction of which could affect interstate commerce; impoundments of these waters; tributaries of these waters; or wetlands adjacent to these waters" (Section 404 of the CWA; 33 CFR Part 328). The limit of USACE jurisdiction for non-tidal waters (including non-tidal perennial and intermittent watercourses and tributaries to such watercourses) in the absence of adjacent wetlands is defined by the OHWM. The OHWM is defined as "the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (Section 404 of the CWA; 33 CFR Part 328).

Wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Section 404 of the CWA; 33 CFR Part 328).

A formal aquatic resources delineation of the Action Area was conducted by CFS on 30 April 2020. Emergent Wetland, Riparian Wetland, and Riverine – Lower Perennial were identified as potentially jurisdictional under Section 404 of the CWA (Figure 5). Table 9 shows the potentially jurisdictional wetlands and waters of the U.S. delineated in the Action Area.

Table 9. Potentially Jurisdictional Wetlands and Waters of the U.S.

Map ID	Waters Type	Total Acres	Linear Feet
Waters of the U.S.			
RLP-1	Riverine - Lower Perennial	0.17	280
RLP-2	Riverine - Lower Perennial	1.05	896
RLP-3	Riverine - Lower Perennial	1.69	1,930
Total:		**2.91**	**3,106**
Other Waters of the U.S.			
EW-1	Emergent Wetland	6.56	--
RW-1	Riparian Wetland	14.98	--
RW-2	Riparian Wetland	1.06	
RW-3	Riparian Wetland	0.81	--
RW-4	Riparian Wetland	1.48	--
Total:		**24.90**	**--**

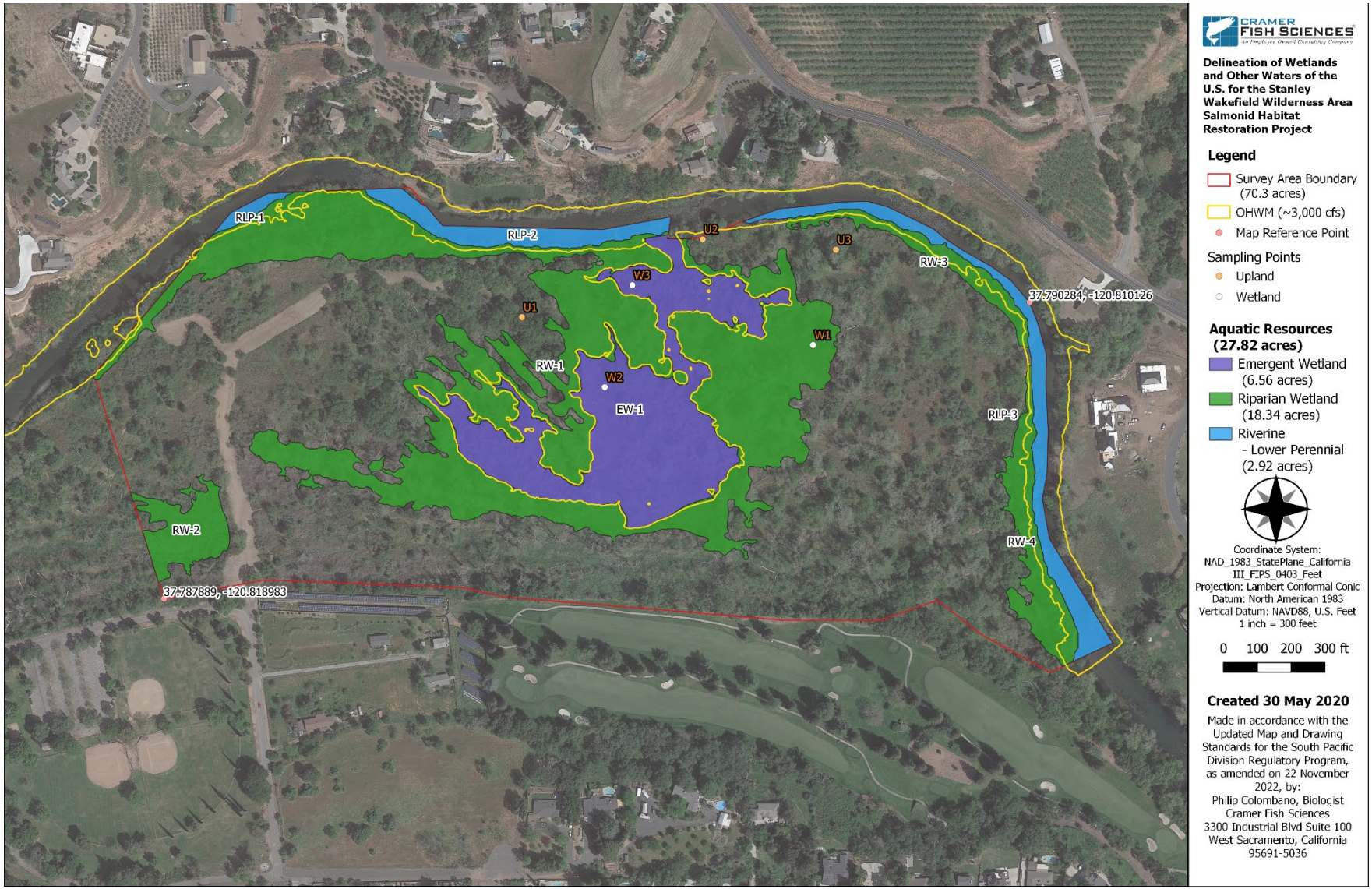

Figure 5. Delineation of wetlands and other waters of the U.S. for the Proposed Action.

4.4.3 DISCUSSION

4.4.3.1 No Action Alternative

Under the No-Action Alternative, there would be **no impact** to biological resources as Proposed Action restoration activities would not occur.

4.4.3.2 Proposed Action

a) Special-status and non-listed species and their habitats that may be affected either directly or indirectly by Proposed Action implementation include CCV Steelhead, Hardhead, Snowy Egret, Swainson's Hawk, Yellow-breasted Chat, Western Pond Turtle, VELB, Western Mastiff Bat, and Western Red Bat. These potentially affected species and their habitats are described in further detail in the following sections.

4.4.3.2.1 Valley Elderberry Longhorn Beetle

Proposed Action construction activities (e.g., excavation and grading) could result in the loss of VELB and disturbance or removal of elderberry shrubs. Direct effects to VELB include removal or transportation of elderberry shrubs within 20 ft of construction activities. There are 718 elderberry shrubs with stem diameter greater than 1 inch at ground level present within the Action Area (Figure 6). Of these, 555 may be avoided with the standard 100-foot buffer zone prescribed by USFWS (Table 10; USFWS 1999). The remaining shrubs will be avoided with a 20-foot buffer and monitored or transplanted and mitigation plantings will occur at USFWS prescribed ratios, discussed in greater detail below.

To avoid VELB mortality from crushing by heavy equipment during construction activities, the Proposed Action would implement **Mitigation Measure BIO-1** requiring all shrubs to be avoided with a 20-foot buffer be clearly marked prior to construction using construction stanchions and/or flagging, and intrusion into the prescribed 20-foot buffer zone around the dripline will be avoided. Elderberry shrubs to be protected will be clearly marked to protect them from accidental disturbance or damage from construction activities that would occur in proximity to the shrubs or during vehicle travel along dirt access roads. **Mitigation Measure BIO-1** will require a biologist to monitor shrubs and their 20-foot buffer to ensure that no unauthorized take of VELB occurs. A total of 52 shrubs will be protected by a 20-foot buffer (Table 10).

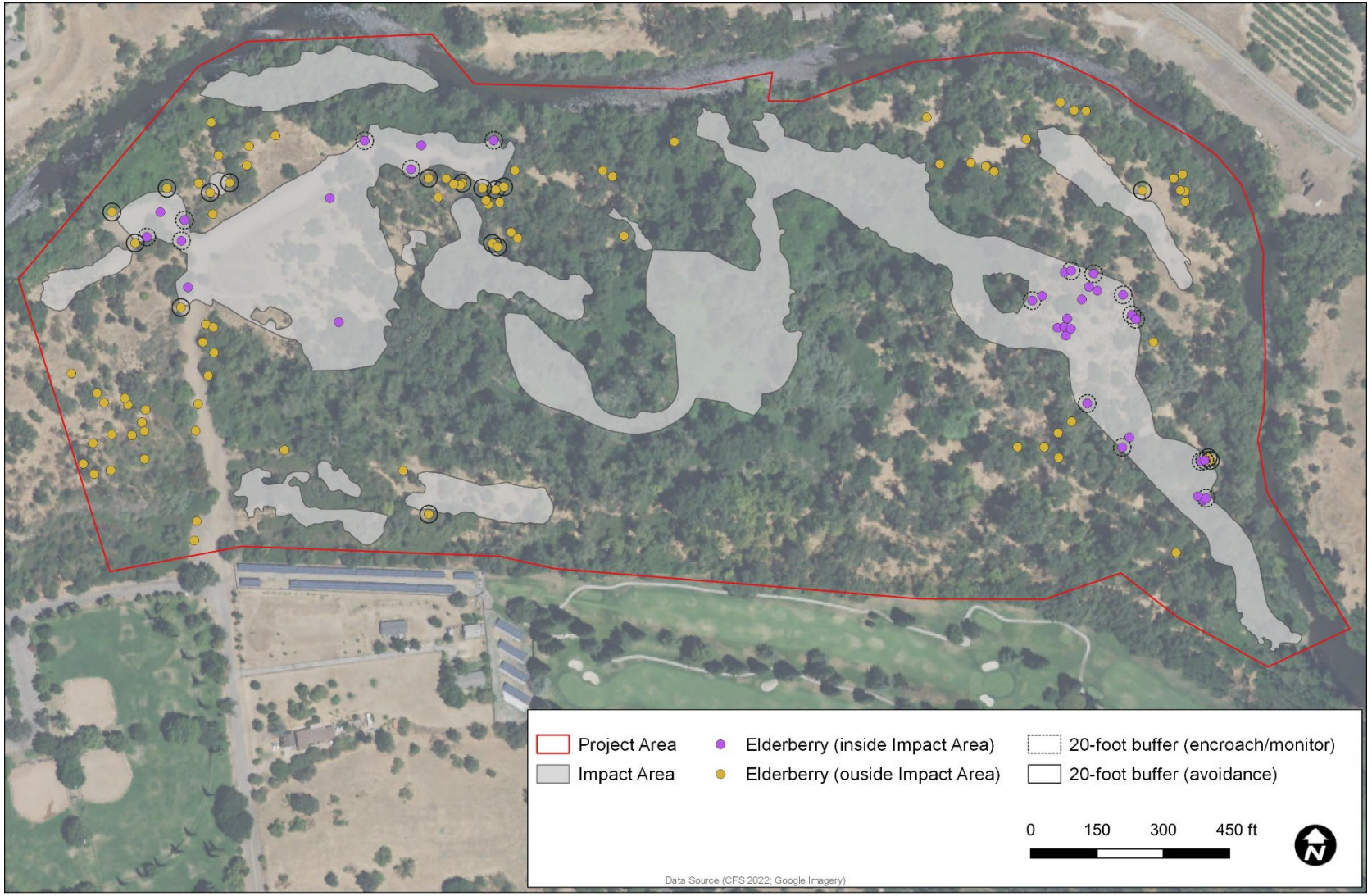

Figure 6. Elderberry distribution within Action Area and anticipated impacts.

Table 10. Summary of elderberry impacts due to Proposed Action construction activities.

Impact Type	Number of elderberries	Proposed Mitigation Planting Ratio
No impact	555	--
20 ft buffer (outside Impact Area)	52	--
20 ft buffer (inside Impact Area); field fit and monitor in place	61	3:1, only if mortality is observed in year following construction
Transplant	40	3:1
Total	**718**	

Mitigation Measure BIO-1: Adaptive Construction Approach to Protect Elderberry Plants and Mitigate for Loss

To avoid direct mortality to VELB from crushing by heavy equipment or through destruction of their elderberry shrub habitat during construction, a qualified biologist shall clearly mark elderberry plants prior to construction and intrusion into the prescribed 20-foot buffer zone shall be avoided, as possible. The 20-foot buffer shall be inspected weekly during ground disturbing activities and monthly after ground-disturbing activities until the project is complete or until the fences are removed. The qualified biologist will be responsible for ensuring that the contractor maintains construction stanchion and flagging around elderberry shrubs in the Project footprint. Biological inspection reports shall be provided to the lead agency and USFWS.

Fifty-two of the elderberry shrubs will be avoided with a 20-foot buffer. However, it is anticipated that up to 40 elderberries may need to be moved to a new location due to grading required to create floodplain features, and an additional 61 shrubs may experience encroachment into the 20-foot buffer during field fitting. If shrubs are transplanted, elderberry mitigation plantings will occur at a 3:1 ratio for each transplanted plant, for a total of up to 120 mitigation plantings. If shrubs are encroached but left in place, they will be monitored during years one, two and three and any shrubs that doe not survive will be replaced at a 3:1 ratio. This field-fitting and monitor in place approach has been approved by USFWS during Section 7 consultation for other restoration projects on the Stanislaus and Yuba rivers, and in these project locations all of the elderberries that were encroached survived during the post-construction monitoring period. The transplant and mitigation planting locations will be selected based on the modeled ability to support elderberry plants, based on elevations where elderberry bushes are currently present on site and proximity to existing riparian vegetation. Additionally, each transplanted shrub will be planted in a location that ensures that its dripline will be at least 20 ft from the grading footprint to minimize disturbance.

Mitigation Measure BIO-2. Transplant Unavoidable Elderberry Plants to Suitable Locations and Monitor Survival

Elderberries that cannot be avoided using a 20-foot buffer will either be retained in their location and monitored in place for survival or be transplanted to a suitable location during project construction. Elderberry mitigation plantings will occur at a 3:1 ratio for each transplanted plant, and for each elderberry left in place that does not survive encroachment into its 20-foot buffer zone. The shurbs and plantings will be monitored in years one, two, and three with a target minimum survival rate of at least 60%. If necessary, replacement plants will be added to the restoration area to maintain survival above 60%.

Although the Proposed Action is specifically designed to increase salmonid rearing habitat, it is expected to continue to support an ecosystem where elderberry shrubs will thrive. The Proposed Action is likely to benefit VELB; however, adverse effects may occur during Proposed Action construction activities. With implementation of minimization measures during Proposed Action construction, these adverse effects will be limited. The Proposed Action is ultimately expected to enhance VELB by increasing the total area of suitable riparian habitat available for elderberry plant recruitment and establishment and by creating a riparian overstory that will enhance dispersal for the species.

Dust

During Proposed Action construction, vehicle travel on roads adjacent to elderberry shrubs could result in airborne dust settling on shrubs. Ground-disturbing activities and an increase in frequency of vehicles driving on roads have the potential to increase the amount of dust in the action area, decreasing shrub suitability as hosts for VELB. However, the Proposed Action will implement **Mitigation Measure AQ-1** (see Section 4.3, *Air Quality*) requiring dust reduction measures during transport of materials. In addition, Talley et al. (2006) found that low levels of dust did not affect VELB presence either directly or indirectly through altered elderberry condition. With implementation of minimization measures during Proposed Action construction, the Proposed Action is not expected to have adverse effects on VELB.

Vegetation Removal

The Proposed Action includes removal of native trees and riparian shrubs to create the planned habitat features of the Proposed Action. Removal of vegetation can reduce connectivity between elderberry shrubs and adjacent habitat, increasing dispersal distance for VELB. The removal of vegetation can result in a fragmented habitat structure, resulting in separation of individuals or colonization of adjacent habitat (USFWS 2006c). The Proposed Project will implement **Mitigation Measure BIO-3** to protect native trees and compensate for the removal of riparian shrubs and trees (Appendix B).

Mitigation Measure BIO-3. Protect and Compensate for Native Trees.

When possible, native trees, such as Fremont Cottonwood, willows, and alder, with a diameter at breast height (dbh) of 6 in (15.2 cm) or greater shall be protected with 30-ft (9.1-m), 10-ft (3-m), and 10-ft (3-m) buffers, respectively. Native trees shall be marked with flagging if close to the work area to prevent disturbance. To compensate for the removal of riparian shrubs and trees during Proposed Project implementation, the plans shall identify tree and shrub species to be planted, how, where, and when they would be planted, and measures to be taken to ensure a minimum performance criterion of 70% survival of planted trees. Irrigation shall not be used, as the improvements in diversion efficiency are expected to promote survival and growth of native riparian species. The tree plantings shall be based on native tree species compensated for in the following manner:

• Oaks having a dbh of 3 – 5 in (7.6 – 12.7 cm) shall be replaced in-kind, at a ratio of 3:1, and planted during the winter dormancy period in the nearest suitable location to the area where they were removed. Oaks with a dbh of greater than 5 in shall be replaced in-kind at a ratio of 5:1.

• Riparian trees (i.e., willow, cottonwood, poplar, alder, ash, etc.) and shrubs shall be replaced in-kind within the Action Area, at a ratio of 3:1, and planted in the nearest suitable location to the area where they were removed.

With implementation of minimization measures during Proposed Action construction, the Proposed Action is not expected to have adverse effects on VELB. Upon completion, the Proposed Action is expected to improve vegetation conditions within the action area increasing the quantity and quality of riparian habitat.

It is expected that the Proposed Action impacts to VELB and its habitat would be **less than significant with mitigation**. Upon completion, the Proposed Action is expected to have beneficial effects for VELB through the enhancement and creation of riparian habitat areas that support recruitment of elderberry shrubs and other native riparian vegetation.

4.4.3.2.2 Special Status Fish

The Proposed Action has the potential to result in direct and indirect effects to special-status fish species, or their habitat, through water quality effects and direct impacts on riparian vegetation. There is no expectation or need for construction activities to occur within the Stanislaus River, either directly or indirectly, aside from the upstream and downstream channel connections.

Water Quality

No in-water work is anticipated, as seasonal floodplain and side channels will be constructed during the low flow period. However, the impacts of sedimentation and turbidity due to runoff from the construction area during rain events on fish species are potentially adverse. However, the Proposed Action would include preparation and implementation of a SWPPP in compliance with the State Water Resources Control Board's General Permit for Discharges of Storm Water Associated with Construction Activity. The amount

of sediment generated by construction would be minimized by erosion and sediment control measures associated with the SWPPP that are designed to minimize erosion and sediment entering the channel. During the period following construction, before vegetation is fully established, there is some potential for indirect effects on water quality via erosion of Proposed Action features (e.g., inset floodplain benches and slopes) and associated increases in sediment loading and sedimentation. However, all Proposed Action features with exposed fine sediment would be treated as prescribed in the SWPPP and design plans to prevent erosion and sedimentation. The impacts of sedimentation and turbidity from construction on fish species are potentially significant. However, with implementation of **Mitigation Measure WQ-1** (see Section 4.10, *Hydrology and Water Quality*), the Proposed Action's sedimentation and turbidity impacts on special status fish species and their habitat would be **less than significant with mitigation**.

During construction activities, the potential exists for spills or leakage of toxic substances that could enter the Stanislaus River. Refueling, operation, and storage of construction equipment and materials could result in accidental spills of pollutants (e.g., fuels, lubricants, concrete, sealants, and oil). High concentrations of contaminants can cause adverse direct (sublethal to lethal) and indirect effects on fish. Direct effects include mortality from exposure or increased susceptibility to disease that reduces the overall health and survival of the exposed fish. The severity of these effects depends on the contaminant, the concentration, duration of exposure, and sensitivity of the affected life stage. A potential indirect effect of contamination is reduced prey availability; invertebrate prey survival could be reduced following exposure, therefore making food less available for fish. Fish consuming infected prey may also absorb toxins directly.

For special status fishes, potentially significant direct and indirect effects of reduced water quality during construction would be addressed by avoiding construction during times when fish are most likely to be present, utilization of vegetable-based lubricants and hydraulic fluids in equipment operated in the wet channel, and by implementing the construction housekeeping measures described in the SWPPP (**Mitigation Measure WQ-1)**. These measures include provisions to control erosion and sedimentation, as well as a Spill Prevention and Response Plan to avoid, and if necessary, clean up accidental releases of hazardous materials. The construction contractor would be responsible for complying with all conditions of these commitments. Implementation of the measures discussed above and **Mitigation Measure WQ-2** (see Section 4.10, *Hydrology and Water Quality*), the direct and indirect impacts of contaminants on special status fish species would be **less than significant with mitigation**.

Physical Habitat Modification

Construction activities would modify bank habitat by lowering elevations at the inlet and outlet of the side channel features. To the maximum extent practicable, existing riparian habitat would be retained and disturbance would be minimized. Removal of riparian trees would be mitigated for in-kind following **Mitigation Measure BIO-3**. Following construction, all disturbed or exposed soils would be stabilized and/or planted with native woody and herbaceous vegetation to control erosion and offset any loss of vegetation. Some short-term loss of mature riparian vegetation may occur during construction. There will be short-term reduction in riparian habitat resulting from tree removal but in the long-term there will be an

increase in riparian habitat from mitigation planting. Overall, the Proposed Action is expected to provide increased rearing habitat, complexity, and cover for salmonids in the Action Area.

Overall, completion of the Proposed Action is expected to provide higher quality and quantity of habitat for juvenile salmonids. Although some short-term disturbance may occur, these effects would be minimized through implementing **Mitigation Measure WQ-1** and therefore impacts on special status fish species would be **less than significant**. Indirect and long-term effects on salmonids and their habitat would be beneficial.

Critical Habitat and Essential Fish Habitat

No in-water construction work is expected for the Proposed Action. However, Proposed Action construction may have minimal short term effects on the Critical Habitat Physical and Biological Features (PBFs) of freshwater rearing habitat and freshwater migration corridors and the EFH Habitat Areas of Particular Concern (HAPC) of floodplain habitats and migration corridors due to the removal of some riparian trees and shrubs. These habitats may also be impacted by temporary increases to turbidity and suspended sediment as well as release of contaminants during rain events; however, these impacts are expected to be localized, minor, and short term. Implementation of a SWPPP with a spill prevention and response plan (**Mitigation Measure WQ-1**), construction BMPs, and performing work in proximity to the main river channel outside of critical periods for special status species (**Mitigation Measure BIO-4)** would result in a **less than significant with mitigation** impact to critical habitat and EFH.

Long-term direct effects on designated critical habitat and EFH are beneficial, including increased salmonid rearing habitat and increased native riparian vegetation. In summary, the Proposed Action may have short-term impacts on special-status fish species and their habitats. However, with implementation of the mitigation measures described above these impacts are expected to be **less than significant with mitigation**.

4.4.3.2.3 Special Status Birds

Upslope trees and riparian habitat within and adjacent to the Action Area provide suitable nesting habitat and may be used by Swainson's Hawk, Yellow-breasted Chat, and other raptors and migratory birds. As mentioned above, an active Snowy Egret breeding colony has been documented in the Action Area (Figure 2). Additionally, the Stanislaus River corridor provides suitable foraging habitat for these bird species.

Proposed Action construction activities may overlap with the breeding season for raptors and migratory birds (1 February – 31 August), resulting in the potential for adverse impacts. The potential impacts include removal of nesting, roosting, and foraging habitat and disturbance from construction equipment, including noise, and human presence during construction activities. These adverse impacts are potentially significant. However, implementation of **Mitigation Measure BIO-4** would reduce impacts to special status birds to **less than significant**. Implementation of **Mitigation Measure BIO-5** would ensure that Proposed Action activities comply with the MBTA and California Fish and Game Code.

Mitigation Measure BIO-4: Conduct Sensitive Species Surveys Prior to Construction During Critical Periods

Pre-construction surveys will be performed in the Action Area no more than 10 days prior to start of construction for species which have critical periods overlapping with the dry-groundwork window (16 April to 31 October) which may be impacted by the Proposed Action to verify the presence or absence of special-status species. If special status or sensitive species are identified within the area which may be impacted by Proposed Action activities, then buffers will be established and/or CDFW and USFWS will be consulted. Nesting birds and raptors are protected under the MBTA and California Fish and Game Code, and trees and shrubs within the Action Area likely provide nesting habitat for songbirds and raptors. If tree removal is unavoidable, it will occur during the non-breeding season (mid-September). A minimum no disturbance buffer will be delineated around active nests (note, size of buffer depends on species encountered) until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.

Surveys for active bird nests and rookeries will be performed using qualified biologists no more than 10 days prior to the start of disturbance activities. A minimum no-disturbance buffer of 250 ft around active nests of non-listed bird species; a 500-ft no-disturbance buffer around migratory bird species; and a half mile buffer for nest of listed species and fully protected species will be established until breeding season is over or young have fledged. If such a buffer cannot be accomplished, CDFW will be consulted.

If sensitive wildlife species or active nest or den sites are found within the construction area, the biologist shall have the authority to stop construction activities and establish a non-disturbance buffer until it is determined that the animal would not be harmed. If the potential to harm sensitive wildlife or an active nest/den site remains, the non-disturbance buffer is to remain, and the biologist shall contact CDFW for authorization before work resumes.

Mitigation Measure BIO 5: Nesting Raptor and Bird Avoidance and Minimization

To the extent feasible, Proposed Action activities shall be scheduled to avoid the nesting bird season. For Proposed Action activities expected to occur during the nesting season of raptors (16 April to 31 August) and migratory birds, a qualified biologist shall conduct a pre-construction survey no more than 10 days prior to the start of construction to determine if active nests are present on or within 500 feet of the Action Area. If no active nests are identified during the pre-construction survey, no further mitigation is necessary. If active nests are found on or within 500 feet of the Action Area, the following buffers shall be established until breeding season is over or young have fledged to ensure that Proposed Action activities comply with the MBTA and California Fish and Game Code:

- a minimum no-disturbance buffer of 250 feet around active nests of birds protected under the MBTA (including Snowy Egret and Yellow-breasted Chat); and

- a 500-foot or greater no-disturbance buffer around active nests of raptors protected under the MBTA, and a half-mile buffer for Swainson's Hawk

- Wildlife surveys would be performed before construction activities to determine if there are nesting sites on or nearby the site (**Mitigation Measure BIO-4**). If nesting activity is confirmed, a no-disturbance buffer would be created around the nest, as appropriate for the species. CDFW would also be contacted to discuss implementation changes and/or additional avoidance measures. With these measures in place, the impact is expected to be **less than significant with mitigation.**

After completion of the Proposed Action, vegetation impacted by Proposed Action construction would regenerate. Areas along the floodplain within the Action Area are anticipated to support dense emergent vegetation thus providing suitable habitat for migratory bird species. Since Proposed Action construction would be temporary, habitat in the Action area would return to pre-Proposed Action conditions and considered a beneficial impact for bird species and their habitat.

4.4.3.2.4 Western Pond Turtle

The Stanislaus River provides suitable aquatic habitat for the Western Pond Turtle. Western Pond Turtle may use the aquatic habitat present within the Action Area in the Stanislaus River. However, Western Pond Turtle individuals have not been observed in the site during pre-Proposed Action snorkel surveys (CFS unpublished data). The Proposed Action construction activities have the potential to cause harassment, injury, or mortality to the Western Pond Turtle if present. This would be a potentially significant impact. Implementation of **Mitigation Measure BIO-6** would avoid and/or minimize the potential for impacts to Western Pond Turtle.

Mitigation Measure BIO-6: Surveys and Avoidance for Western Pond Turtle

Within 10 days prior to ground disturbing activities, a qualified biologist shall conduct a pre-activity survey to identify Western Pond Turtle individuals or nests within proposed work areas during the egg-laying season (March-August). If any western pond turtle is found within the Action Area, the activities in the vicinity shall cease until they have moved outside of the Action Area of their own volition. If a western pond turtle nest is found, the biologist shall flag the site, maintain an appropriate no-disturbance buffer, and determine if Proposed Action activities can avoid affecting the nest.

Therefore, the effects of the Proposed Action on Western Pond Turtle would be **less than significant with mitigation.**

4.4.3.2.5 Special Status Mammals

Trees and riparian vegetation in the Action Area may provide roosting and foraging habitat for bat species including Western Mastiff Bat and Western Red Bat. Proposed Action construction activities (16 April – 31 October) would overlap with the bat breeding season (1 April – 15 August), resulting in the potential for adverse impacts. The potential adverse impacts include removal of roosting habitat and disturbance from construction equipment, including noise and light, and human presence during construction activities. It is not anticipated that any trees that could potentially be used by bats for roosting would be removed as the Proposed Action would make all effort to avoid removing large riparian trees. However, disturbance of roosting special status bats could be a potentially significant impact.

Since the Proposed Action would result in an increase in riparian habitat, it would result in long-term benefits to this species. To prevent impacts to roosting bats, bat surveys would be conducted prior to Proposed Action initiation and, if roosting bats are observed, a minimum 300 ft (91.4 m) buffer of roosting bats, maternity roosts or winter hibernacula until all young bats have fledged (**Mitigation Measure BIO-7**). With these measures in place, the expected impact would be **less than significant with mitigation.**

> **Mitigation Measure BIO-7: Monitor for Bats to Prevent Impacts**
>
> Before any ground disturbing activities, a qualified biologist shall survey for the presence of associated habitat types for the bat species of concern. If bats are present, the biologist shall apply a minimum 300 ft (91.4 m) no-disturbance buffer around roosting bats, maternity roosts or winter hibernacula until all young bats have fledged. If suitable habitat is present, evening emergence surveys shall be conducted during the appropriate seasonal period of bat activity to determine the presence of bats.

4.4.3.2.6 Special Status Plants

Ten special status plant species were identified as having the potential to occur within the Action Area (Table 7). None of these plant species were observed within the action area during pre-Proposed Action vegetation surveys (Vaghti 2022). If any of these species are found, resource agency biologists (CDFW, USFWS) would be contacted to develop appropriate avoidance and conservation measures to avoid adverse effects on special status species and associated habitats. **No impacts** to special status plant species are expected to result from grading and excavation activities or to provide access routes for heavy equipment to the site.

b) As described in Section 3.3, *Proposed Action Design*, the Proposed Action would create and enhance ecologically important floodplain and side channel habitat for juvenile salmonids. Although the Proposed Action would result in a net gain of these habitat communities, construction activities would cause the temporary modification of habitat potentially used by native species. Construction of the habitat features (e.g., side channels and wetland complex) would include excavation and grading of the floodplain and vegetation removal, resulting in the potential loss or degradation of sensitive natural communities.

The Proposed Action construction activities would have temporary impacts which are potentially significant on these sensitive natural communities. Implementation of **Mitigation Measure BIO-3** would reduce impacts to sensitive natural communities to **less than significant**. Overall, implementation of the Proposed Action is expected to improve quality and quantity of riparian vegetation. Therefore, adverse impacts to sensitive natural communities would be **less than significant with mitigation**.

c) Implementation of the Proposed Action would result in floodplain and riparian restoration within the Stanislaus River, to improve habitat for salmonids and provide ancillary benefits to other native fish. Implementation of the Proposed Action would require access, use of heavy machinery, and the excavation and placement of fill material within and adjacent to jurisdictional waters. Implementation of the Proposed Action of would have permanent and temporary impacts to Wetlands and Waters of the U.S. to create the side channels and wetland complex (Table 11). There would be permanent impacts to 3.78 acres of Emergent Wetland and 0.002 acres of Riverine-Lower Perennial through grading/excavation. There would be permanent conversion of 0.57 acres of Riparian Wetland and 0.06 acres of Emergent Wetland through fill placement. There would be permanent change of 2.72 acres of Riparian Wetland to Seasonal Channel through grading/excavation. There would be temporary impacts to 3.83 acres of Riparian Wetland through temporary access road creation and vegetation removal. There would be temporary impacts to 0.43 acres of Emergent Wetland through vegetation removal. A total of 3.03 acres of new Seasonal Channel would be created through grading/excavation (Table 11).

The Proposed Action would have permanent impacts to Wetlands and Waters of the U.S. as well as some temporary impacts. However, implementation of the Proposed Action would result in a net gain in 2.4 acres of Waters of the U.S. Overall, implementation of the Proposed Action would result in the restoration of aquatic critical habitat and EFH within the Stanislaus River. Therefore, the impact on jurisdictional Waters of the U.S. would be less than significant.

Table 11. The temporary impacts, permanent conversion, and new acres with implementation of the Proposed Action for the aquatic resource types found within the Action Area.

Aquatic Resource Type	Area (Acre)	Temporary Impact – Access and Vegetation Removal (Acre)	Permanent Impact – Fill (Acre)	Permanent Impact – Grading/Excavation (Acre)	Permanent Change to Seasonal Channel (Acre)	New Seasonal Channel (Acre)
Riverine – Lower Perennial	2.91	--	--	0.002	--	
Emergent Wetland	6.56	0.43	0.06	3.78	--	
Riparian Wetland	18.33	3.83	0.57	--	2.72	3.03
Total:	**27.80**	**4.26**	**0.63**	**3.78**	**2.72**	**3.03**

d) The Stanislaus River and the adjacent floodplain and riparian areas within the Action Area serve as a migration corridor for wildlife. Likewise, the river serves as a migratory corridor for resident and anadromous fish. There is a documented Snowy Egret colony that utilizes the Action Area as a nursery site during the nesting bird season.

The Proposed Action would not construct any features (e.g., fences, roads, physical barriers) that would prevent wildlife movement through the Action Area. However, Proposed Action construction activities (16 April to 31 October) would overlap with the breeding season for migratory birds (1 February – 31 August), resulting in the potential for adverse impacts. The potential impacts include removal of habitat and disturbance from construction equipment, including noise, and human presence during construction activities. These adverse impacts are potentially significant. However, implementation of **Mitigation Measure BIO-4** would reduce impacts to special status birds to **less than significant**. Implementation of **Mitigation Measure BIO-5** would ensure that Proposed Action activities comply with the MBTA and California Fish and Game Code.

Overall, wildlife may experience some temporary disturbance to movement corridors and nursery sites from the restoration activities but would be able to move through the Action Area outside of working hours. Implementation of the Proposed Action would have long term beneficial impacts on riparian habitat and in-stream habitat for special status fish species. Therefore, adverse impacts to wildlife or fish movement or wildlife migration corridors would be **less than significant with mitigation**.

e) Stanislaus County does not have a tree protection ordinance. Therefore, there would be **no impact**. Implementation of the Proposed Action would have long term benefits for quality and quantity of riparian vegetation within the Action Area.

f) The Proposed Action does not include any area that is covered by an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, there would be **no impact**.

4.5 CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Compliance with Section 106 of the NHPA of 1966 (16 United State Code [USC] § 470f [2008]) is required, whereby any federal undertaking must "take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register." The implementing regulations for Section 106 are found under 36 CFR § 800, as amended (2001). Cultural resources may also be considered separately under the National Environmental Protection Act (42 USC) Section 4321-4327, whereby federal agencies are required to consider potential environmental impacts and appropriate mitigation measures for Proposed Actions with federal involvement. Also, impacts to cultural resources are considered if the resource is "significant" or "important" or "unique archaeological resource" under the provisions of CEQA Sections 15064.5 and 15126.4.

4.5.1 EXISTING CONDITIONS

A record search was conducted by the Central California Information Center of the California Historical Resources Information System at California State University, Stanislaus on May 2, 2022 (Records Search File 12176N) The purpose of the record search was to determine whether any portion of the Project Area of Potential Effects (APE) had been previously surveyed for cultural resources and to identify the presence of any previously recorded cultural resources within the APE, as well as within a 0.25-mile buffer. The record search did not identify any previous cultural resources studies or previously recorded cultural resources within the APE. Four previous studies have been conducted at the far limits of the buffer, but no cultural resources are known to exist within 0.25 mile of the APE. Historic General Land Office maps from 1853 and 1874, as provided by the record search, indicate that the Project area had been divided into 40-acre parcels, but that no development had occurred. A map of Stanislaus County from 1906 also indicated that the area had not changed.

An email request was made to the Native American Heritage Commission (NAHC) on 3 May 2022, to review its files for the presence of recorded sacred sites on the Project site. The NAHC responded on 22 June 2022, stating that no significant resources are located in the vicinity of the Project area as a result of a search of their files. The NAHC also provided a list of nine individuals who represented tribes with a traditional and cultural affiliation with the project area. Project notification letters, dated 2 September 2022, were sent to the nine representatives identified by the NAHC. Follow-up emails were sent on 27 September 2022. No responses were received.

A pedestrian survey was conducted of the proposed Project APE on 27 April 2022, by an experienced archaeologist under the direction of an archaeologist who meets the U.S. Secretary of Interior's professional standards in archaeology. The transects were generally walked east to west with an approximate 15-meter spacing, when possible. Special attention was paid to the staging area, fill placement areas, excavation areas, and access routes. The unevenness of the ground and dense vegetation did not always allow for maintaining strict transect lines. An existing wetland in the center of the APE was not accessible due to impenetrable vegetation. No archaeological resources were identified during the course of the survey.

4.5.2 DISCUSSION

No Action Alternative

Under the No-Action Alternative, there would be **no impact** to cultural resources.

Proposed Action

a) As part of the preparation for the Proposed Project, a cultural resource study was conducted by Horizon Water and Environment (HWE 2022). Compliance with Section 106 of the NHPA of 1966 (16 United State Code [USC] § 470f [2008]) is required, whereby any federal undertaking must "take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register." The implementing regulations for Section 106 are found under 36 Code of Federal Regulations (CFR) § 800, as amended (2001). Cultural resources may also be considered separately under the National Environmental Protection Act (42 USC) Section 4321-4327, whereby federal agencies are required to consider potential environmental impacts and appropriate mitigation measures for projects with federal involvement. Also, impacts to cultural resources are considered if the resource is "significant" or "important" or "unique archaeological resource" under the provisions of CEQA Sections 15064.5 and 15126.4.

No known historic properties would be affected by the Proposed Project and no historical resources, as defined by CEQA, would be impacted by the Proposed Project (HWE 2022). No human built architectural resources would be impacted. However, if any objects of cultural significance are unearthed during the construction process, work would be halted until a qualified archeologist can assess the significance of the new find (see **Mitigation Measure CR-1**). If human remains are unearthed during the construction process, the Proposed Project team would comply with the California Health and Safety Code Section 7050.5, which

states that no further disturbance shall occur until the County Coroner has investigated the situation following the PRC Section 5097.98. With this environmental commitment (EC) in place, the Proposed Project is expected to have a less than significant impact on historical resources.

b) No cultural resources considered to be historic properties or historical resources were recorded in the Action Area as a result of the records search and field survey (HWE 2022). However, the Proposed Project's construction activities would include grading and excavation. Subsurface cultural objects could be unearthed during the grading and excavation activities which is a potentially significant impact. If any objects with potential cultural significance are unearthed during the construction process, work would be halted within the vicinity of the inadvertent discovery until a qualified archeologist (and Native American representative if the find is potentially pre-historic) can assess the significance of the new find (see **Mitigation Measure CR-1**) and prescribe measures to reduce potential impacts to be less than significant. The final disposition of archaeological, historical, and paleontological resources recovered on State lands under the jurisdiction of the State Lands Commission must be approved by the Commission.

c) No known unique paleontological resources, sites, or unique geological features are present within the Action Area. Therefore, no impact is expected.

d) No potential burial grounds were determined to be present in the Area of Potential Effects during the records search and field survey. Construction activities for the Project would include excavation and grading which have the potential to unearth subsurface human remains which is a potentially significant impact. If human remains are unearthed during the construction process, work would be halted within the vicinity of the human remains, the Coroner contacted, and **Mitigation Measure CR-1** would be implemented. This would reduce potential impacts to a less than significant level. The Proposed Project would comply with the California Health and Safety Code Section 7050.5, which states that no further disturbance shall occur until the County Coroner has investigated the situation following the PRC Section 5097.98.

Mitigation Measure CR-1: Inadvertent Discoveries of Objects of Cultural Significance

If archaeological components are encountered during ground-disturbing activities, all ground disturbing work at the find location and 100-foot buffer placed around the area until a qualified archaeologist can assess the significance of the finding and provide (if needed) avoidance and/or data recovery plan.

Pursuant to California Health and Safety Code §7050.5, if human remains are encountered, all ground-disturbing work must cease in the vicinity of the discovery, and the County Coroner shall be contacted. The respectful treatment and disposition of remains and associated grave offerings shall be in accordance with PRC §5097.98. The Proposed Action owner is responsible for implementation PRC §5097.98 and coordination with the most likely descendant (MLD) identified

by the Native American Heritage Commission. PRC §5097.98 also outlines next steps should the landowner and MLD not reach an agreement to the final disposition of the remains.

4.6 ENERGY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

4.6.1 DISCUSSION

No Action Alternative

No energy would be consumed under the No-Action Alternative. Therefore, there would be **no impact.**

Proposed Action

a) Energy consumption during Proposed Action construction would be minimal and restricted to that required for operating heavy machinery, including fossil fuels necessary for completion of the Proposed Action. Heavy machinery and additional equipment used during the Proposed Action would be subject to state and federal regulations that require heavy machinery to operate under certain performance standards for air quality and greenhouse gas (GHG) emissions, and therefore would not include wasteful or unnecessary consumption of energy resources. Table 4and Table 5 in Section 4.3, *Air Quality*, of this document provide additional detail regarding equipment utilization and expected emissions. The impact of the Proposed Action on energy resources is expected to be **less than significant.**

b) The Proposed Action would not interfere with a state or local plan for renewable energy or energy efficiency. There would be **no impact**.

4.7 GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii. Strong seismic ground shaking?	☐	☐	☐	☒
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv. Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☒	☐	☐

4.7.1 EXISTING CONDITIONS

REGIONAL AND SITE GEOLOGY

The Action Area is located in the northern portion of the San Joaquin Valley, within the Great Valley geomorphic province of central California. The province extends from the southeast to the northwest and bounded between the Coast Range to the west and Sierra Nevada to the east. The Sierra Nevada foothills transitions to the west into the Great Valley geomorphic province. The Great Valley consists of deep marine basins filled with large volumes of alluvial plain sediments eroded during the Jurassic to Quaternary periods from the eastern Sierra Nevada Range and western Coast Range. From Knights Ferry west towards Oakdale, Tertiary sedimentary formations were deposited along the Stanislaus River.

The Action Area is located on a relict river terrace and bar along the left bank of the Stanislaus River. The northern portion of the Action Area consists of fine sand and silt with some clay, sand, and gravel deposited by the Stanislaus River (NRCS 2022). The right bank of the Stanislaus River is confined and steep. The northern and eastern portion of the Action Area is comprised of dragline scars due to historic mining. Elevations within the Action Area range from approximately 90 to 150 feet above mean sea level.

SOILS

According to the U.S. Department of Agriculture (USDA) National Resources Conservation Service (NRCS) online Soil Survey of Stanislaus County, California, the dominant soil type mapped within the survey area is riverwash (NRCS 2022). The riverwash soil type consists of recent depositions of gravel, sand, and silt alluvium along major rivers and streams. Gravel bars comprise the majority of these areas.

FAULTS AND SEISMICITY

The Action Area is located in the CV of California, which is an area distant from known, active faults and generally would experience relatively low seismic activity. No active faults or Earthquake Fault Zones are located within or adjacent to the Action Area (CDC 2022a). The nearest active fault is the Greenville Fault which is located approximately 44 miles east of the Action Area (CDC 2022a).

LIQUEFACTION

Liquefaction susceptibility occurs where saturated sandy or silty soils become unstable during strong seismic shaking. During an earthquake, these sediments can take on characteristics similar to liquid, potentially causing damage to overlying structures. Based on the lack of published data regarding liquefaction in Stanislaus County and the soil types within the Action Area, liquefaction susceptibility is considered low.

PALEONTOGOLICAL RESOURCES

Paleontological resources are defined as fossilized remains, imprints, or traces of prehistoric organisms (e.g., invertebrates, vertebrates, and plants) found within sedimentary rock formations. According to the

University of California (Berkeley) Museum of Paleontology (UCMP) online database, 237 recorded collections were found within Stanislaus County (UCMP 2022).

4.7.2 DISCUSSION

No Action Alternative

Under the No Action Alternative, there would be no adverse impacts to geology or soils as no restoration activities would occur within the Action Area. Therefore, there would be **no impact**.

Proposed Action

a i) The Proposed Action is not located within an Alquist-Priolo Fault Zone and the nearest active fault is the Greenville Fault, which is located about 44 miles east of the Action Area. The Proposed Action is located in an area of relatively low seismic risk and would not be affected by risk associated with seismic rupture expose people or structures to seismic risks of an earthquake. Therefore, there would be **no impact.**

a ii) As described above, the Proposed Action is located in an area of relatively low seismic risk and would not affect strong seismic ground shaking relative to baseline conditions. Therefore, there would be **no impact.**

a iii) Proposed Action activities would occur in the Stanislaus River floodplain, underlain by of gravel, sand, and silt alluvium which are potentially vulnerable to liquefaction. However, liquefaction susceptibility is considered low in the Action Area and the Proposed Action is located in an area of relatively low seismic risk. Additionally, the Proposed Action would not involve construction of new structures that would expose people to adverse effects associated with seismic activity. Therefore, potential seismic-related hazards including liquefaction and ground failure would be **less than significant.**

a iv) Topography in the Action Area is relatively flat, with gradually steeper slopes along the southern portion of the Action Area. The Proposed Action is located in an area of relatively low seismic risk; however, landslide susceptibility is rated moderate to high risk within southern portion of the Action Area (CDC 2022b). Exposed and eroded slopes may have greater potential for seismic induced landslides under saturated soil conditions. Proposed Action activities conducted adjacent to the Stanislaus River may expose channel banks or loosen soils; however, portions of the floodplain would be lowered and would create planting surfaces that would support native riparian and wetland vegetation communities. Recruitment of native riparian and wetland vegetation would stabilize channel banks and are expected to result in a beneficial effect. Therefore, this impact would be **less than significant**.

b) Proposed Action activities, (e.g., site preparation, construction of habitat features, and vegetation removal) would expose surface soil materials to rainfall, potentially resulting in the removal and transport of these materials to the Stanislaus River. Eroded material or contaminants entering the waterway could be potentially significant. A SWPPP will be prepared for the Proposed Action as required to obtain a Storm

Water Construction General Permit from the CVRWQCB, as the Proposed Action is subject to the water quality standards under the CVRWQCB (see **Mitigation Measure WQ-1**). The SWPPP contains BMPs to minimize impacts to surface water quality from erosion or contaminants. The construction contractor would be required to implement the erosion and sediment control BMPs in the SWPPP to minimize erosion related impacts. Mitigation Measures required in Section 4.10, *Hydrology and Water Quality*, address erosion and sediment control.

Overall, side slopes will be planted with suitable native vegetation, stabilizing the constructed channels, along the eastern and northeaster portions of the Action Area, would reduce sediment load to the Stanislaus River. The long-term effects of the Proposed Action on drainage patterns would be beneficial.

Proposed Action activities would be temporary and with implementation of SWPPP BMPs and **Mitigation Measure WQ-1**, the Proposed Action would not result in substantial soil erosion or the loss of topsoil during construction. Therefore, this impact would be **less than significant with mitigation**.

c) As describe above, the Action Area is relatively flat with gradually steeper slopes along the southern portion of the Action Area, and the Proposed Action would not increase the potential for off-site landslides. Additionally, the probability of soil liquefaction in the Action Area is low, thus having a low potential for lateral spreading. Upon completion of the Proposed Action construction activities, the Action Area will be planted with suitable native vegetation, stabilizing channel banks and floodplain that would reduce sediment load to the Stanislaus River. The long-term effects of the Proposed Action on drainage patterns would be beneficial. Therefore, the Proposed Action would result in a **less than significant** impact.

d) Expansive soils are predominantly clay material that are susceptible to shrinkage and expansion during variable water conditions (e.g., saturation and evaporation). The Action Area is comprised of riverwash that consists of recent depositions of gravel, sand, and silt alluvium along major rivers and streams, which have a low shrink-swell potential. Therefore, there would be **no impact.**

e) The Proposed Action would not involve the use of septic tanks or alternative wastewater systems. Therefore, there would be **no impact.**

f) No paleontological resources have been discovered in or within proximity to the Action Area. Proposed Action activities would include excavation of floodplain alluvial material to create habitat features (e.g., side channels and wetland complex) at a maximum excavation depth of 10 feet. It is unlikely that these activities would encounter paleontological resources due to the excavation depth of 10 ft and previously disturbed state of the Action Area. However, if paleontological resources are inadvertently discovered during Proposed Action construction activities (e.g., excavation and grading) have the potential to destroy a unique paleontological resource or site. Therefore, this impact would be **potentially significant**.

Implementation of **Mitigation Measure CR-1** (see Section 4.5, *Cultural Resources*), would reduce potential impacts to paleontological resources. Therefore, potential impacts to paleontological resources would be **less than significant with mitigation.**

4.8 GREENHOUSE GAS EMISSIONS

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Greenhouse gases are gases which trap heat in the atmosphere by allowing sunlight to enter the atmosphere while trapping a portion of the exiting infrared radiation, which increases air temperature. Global climate change, particularly increases in global temperature, has been linked to the increasing concentration of GHGs in the atmosphere primarily as a result of anthropogenic combustion of fossil fuels. The primary GHGs are carbon dioxide (CO_2), methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, perfluorocarbons, and water vapor. Carbon dioxide is the reference gas for climate change with GHG emissions typically quantified and reported as CO_{2e} for standardization.

Climate change impacts in California are predicted to include increasing average air temperature, greater temperature extremes, more precipitation falling as rain rather than snow, more extreme variability in precipitation, and sea level rise.

4.8.1 DISCUSSION

No Action Alternative

Greenhouse gases would not be affected under the No-Action Alternative. Therefore, there would be **no impact**.

Proposed Action

a, b) The Proposed Action would emit GHGs from the heavy equipment used for the restoration activities. The total amount of CO_{2e} estimated to be produced by the Proposed Action's restoration activities is 289.4 metric tons (319 tons). However, the implementation of the Proposed Action also has the potential to store a significant amount of carbon through an increase in the quality and quantity of riparian vegetation (Matzek

et al. 2015; Gorte 2009), salmon (Merz and Moyle 2006), and macroinvertebrate production (Duffy and Kahara 2011). Over the life of the Proposed Action, we predict a substantial amount of carbon would be sequestered in tree production alone through increased natural recruitment of riparian vegetation (Sellheim et al. 2016b).

Valley Air has not established a significance threshold for GHG emissions but when estimated Proposed Action GHG emissions (289.4 metric tons of CO_{2e}) are compared to the SMAQMD significance threshold of 1,100 metric tpy (1,213 tons) of CO_{2e} the threshold is not exceeded. The Proposed Action's GHG emissions would not exceed the significance criteria (for the SMAQMD surrogate) and a substantial amount of carbon sequestration is predicted as a result of Proposed Action implementation; therefore, the Proposed Action's emissions of GHG would be **less than significant**.

4.9 HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☒	☐	☐

Materials and waste are considered hazardous if they are poisonous, ignitable, corrosive, or reactive. California law (Health and Safety Code 6.95, Section 25501(o)) defines “hazardous material” as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant

present or potential hazard to human health and safety or to the environment. Soils having concentrations of contaminants that are higher than acceptable levels as a result of past spills or leaks must be handled and disposed as hazardous waste during excavation, transportation, and disposal. The characteristics that would cause soil to be classified as hazardous waste are found in the California Code of Regulations, Title 22, Section 66261.20-24.

The California Environmental Protection Agency's (CalEPA) Cortese List is used to comply with CEQA requirements in providing information about the location of hazardous materials release sites (CalEPA 2022). The Cortese List data resources were searched to determine if any hazardous waste facilities or sites are located within or near the Action Area. The Cortese List data resources are the following: list of hazardous waste and substance sites from the Department of Toxic Substances Control (DTSC) EnviroStor database, list of leaking underground storage tank sites from the Water Board geo tracker database, list of solid waste disposal sites identified by Water Board with waste constituents above hazardous waste levels outside the waste management unit, list of active Cease and Desist Orders and Cleanup and Abatement Orders from the Water Board, and list of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code as identified by DTSC.

4.9.1 EXISTING CONDITIONS

EXISTING HAZARDS AND HAZARDOUS MATERIAL SITES

The Cortese List data resources were searched in August 2022 with no open hazardous materials cleanup sites are located on or within 0.5 miles of the Action Area (DTSC 2022, SWRCB 2022). The nearest hazardous material site, Eaton Road Disposal Site (50490012) is located along Eaton Road, approximately 0.9 miles northeast of the Action Area. The DTSC identified potential contaminants of lead. The site was screened and covered in August 1992 (DTSC 2022)

SCHOOLS

The nearest school is the Oakdale Charter High, which is located approximately 1.5 miles southwest of the Action Area.

AIRPORTS

There are no public airports or private airstrips within two miles of the Action Area. The Oakdale Municipal Airport is the nearest public airport, approximately 2.1 miles southeast of the Action Area. Therefore, the Action Area is not subject to the Stanislaus County Airport Land Use Compatibility Plan (ALUCP) for the Oakdale Municipal Airport (Stanislaus County 2016).

EMERGENCY RESPONSE AND EVACUATION

The Stanislaus County Emergency Operations Plan (EOP) identifies state route (SR) 108/120 as a major evacuation route in the event of an emergency (Stanislaus County 2021).

WILDLAND FIRE HAZARDS

The Action Area is designated as Non-Wildland/Non-Urban and Moderate Fire Hazard Severity Zone (FHSZ) within the Local Responsibility Area (LRA) (CAL FIRE 2007). The Moderate FHSZ is located along the Stanislaus River corridor within the northern portion of the Action Area and the Non-Wildland/Non-Urban FHSZ is located within the rest of the Action Area. The Oakdale Fire Protection District is responsible for wildfire emergencies in the Action Area.

4.9.2 DISCUSSION

No Action Alternative

Hazards and hazardous materials would not be affected under the No-Action Alternative. Therefore, there would be **no impact**.

Proposed Action

a) During Proposed Action construction, heavy equipment and vehicles would involve the use of potentially hazardous substances including diesel, gasoline, oil, grease, hydraulic fluid, and solvents. Accidental spills or improper use, storage, transport, or disposal of these hazardous materials could result in a public hazard or the transport of hazardous materials into the river, riparian areas, wetlands, or other sensitive areas.

Hazardous substances or contaminants entering the waterway could be potentially significant. A SWPPP will be prepared for the Proposed Action as required to obtain a Storm Water Construction General Permit from the CVRWQCB, as the Proposed Action is subject to the water quality standards under the CVRWQCB (see **Mitigation Measure WQ-1**). The SWPPP contains BMPs to minimize impacts to surface water quality from erosion or contaminants. The construction contractor would be required to implement the erosion and sediment control BMPs in the SWPPP to minimize erosion related impacts. Mitigation Measures required in Section 4.10, *Hydrology and Water Quality*, address erosion and sediment control.

With implementation of SWPPP BMPs and **Mitigation Measure WQ-1**, the Proposed Action would not result in significant risks to the environment, public, or construction workers involving the use of potentially hazardous substances. Therefore, this impact would be **less than significant with mitigation**.

b) As described above, Proposed Action activities would involve the use of potentially hazardous substances including diesel, gasoline, oil, grease, hydraulic fluid, and solvents. However, with implementation of SWPPP BMPs and **Mitigation Measure WQ-1**, the Proposed Action would not result in significant risks to the environment, public, or construction workers involving the use of potentially hazardous substances. Therefore, this impact would be **less than significant with mitigation**.

c) As describe in Section 3.9.1, the Action Area is not within one-quarter mile of an existing or proposed school. In addition, emissions resulting from the Proposed Action would be limited to diesel and gasoline engine exhaust and fugitive dust. The Proposed Action construction would occur outside in a rural area such

that all diesel and gasoline engine exhaust is expected to dissipate rapidly and not reach concentrations that are hazardous to public health. Fugitive dust would be controlled through periodic wetting of access roads and work areas as necessary. Therefore, the Proposed Action would have **no impact**.

d) The Action Area is not located on or within 0.5 mile of a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would not create a significant hazard to the public or the environment. Therefore, the Proposed Action would have **no impact**.

e) There are no public airports or private airstrips near the Action Area. The Action Area is not located within an ALUCP or within two miles of a public airport or private airstrip. The Oakdale Municipal Airport is the nearest public airport, approximately 2.1 miles southeast of the Action Area. Therefore, the Proposed Action would have **no impact**.

f) In Stanislaus County, SR 108/120 is identified as a major evacuation route in the event of an emergency. Traffic created implementing the Proposed Action would include the mobilization and demobilization of heavy equipment (rubber-tired front-end loaders, excavators, articulated haulers, dozers, etc.) for the construction season (15 June to 15 November) it would take to complete the Proposed Action. Once the heavy equipment is onsite, it would travel within the Action Area using access roads and be stored at the staging area. Additional traffic on public roads during Proposed Action implementation would be limited to daily trips for personnel, service, and supply vehicles.

No sediment or vegetation debris would be imported or exported from the Action Area, resulting in limited driving of heavy trucks on public roads. Construction activities would be conducted and managed to not interfere with emergency response or evacuation plans. The impact on emergency response or evacuation plans would be **less than significant.**

g) Section 4.20, *Wildfire*, of this document provide additional detail wildland fire hazards in the Action Area. While the Action Area is not located within a designated High FHSZ, Proposed Action construction activities are a potential source of wildfire ignition. The use of mechanized construction equipment and temporary onsite storage of diesel fuels and other hazardous materials could pose and increased fire risk.

Short-term impacts associated with wildfire during Proposed Action activities would result in a potentially significant impact. However, implementation of **Mitigation Measure HAZ-1** would reduce the impact of the Proposed Action on wildfire risk is **less than significant**.

Mitigation Measure HAZ-1: Reduce Potential Impacts from Wildfire Risk

During Proposed Action construction, any dry vegetation present on the staging areas or temporary access roads would be cleared prior to being used by vehicles or heavy equipment. Fire extinguishers would be present onsite in vehicles to quickly put out any vegetation that ignites as a result of a spark from heavy equipment.

4.10 HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☒	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. result in substantial erosion or siltation on- or off-site;	☐	☒	☐	☐
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv. impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

The Regional Water Quality Control Board and the California Department of Health Services regulate water quality levels and maximum contaminant levels for primary drinking water supplies. State water quality standards are more stringent than the federal standards. Although no in-water work is anticipated from the Proposed Action, there is the potential for surface runoff during construction. Therefore, the following potential water quality impacts have been identified as part of the Proposed Action:

- exceedance of state water quality objectives for any given parameters;
- discharge of oils, grease, or any other material that would result in a film on the water or objects in the water;
- alteration of the suspended sediment load and suspended sediment discharge rate that causes a nuisance or adversely affects beneficial uses; and
- changes in turbidity that cause a nuisance or adversely affect beneficial uses.

4.10.1 EXISTING CONDITIONS

WATERSHED AND SURFACE WATER HYDROLOGY

The Action Area is located in northeastern Stanislaus County adjacent to the Stanislaus River within the Upper Stanislaus River watershed. The Stanislaus River is one of three major tributaries to the San Joaquin River. Its watershed is approximately 1,197 square miles (766,025 acres) (CWIP 2022). The Stanislaus River flows southwest from its headwaters in the Sierra Nevada Mountains to its confluence with the San Joaquin River near the southern end of the Sacramento-San Joaquin Delta in California's CV. The confluence of the Stanislaus and San Joaquin rivers occurs at about RM 75 on the San Joaquin River. The average unimpaired basin runoff is approximately 1.2 million acre-feet, which is approximately 21 percent of the total for the San Joaquin River basin (CFS 2009). Like many rivers in California, the natural hydrologic processes within the Stanislaus River have been disrupted by the presence of dams. Goodwin Dam, located on the Stanislaus River at RM 58.4 lies upstream of the Action Area and serves as the upstream migration barrier to anadromous fish (CFS 2009).

GROUNDWATER HYDROLOGY

The Stanislaus River serves as the boundary between the San Joaquin Valley – Eastern San Joaquin Groundwater Basin and the San Joaquin Valley – Modesto Groundwater Basin. The Stanislaus and Tuolumne Rivers Groundwater Basin Association (STRGBA) manages groundwater in these basins through the Integrated Regional Groundwater Management Plan for the Modesto Subbasin (Bookman-Edmonston

2005). The Modesto Subbasin lies between the Stanislaus River to the north and Tuolumne River to the south and extends from the Sierra Nevada Foothills west towards the confluence of the Stanislaus and San Joaquin Rivers. Groundwater flows to the southwest, following the underlain transition of basement rock and sedimentary units.

The groundwater levels in the Modesto Subbasin have declined nearly 15 feet from 1970 through 2000, as a result of irrigation management practices and urban development (Bookman-Edmonston 2005); however, groundwater levels have been shown to be relatively stable. Modesto and OIDs are the primary contributors to the groundwater recharge from deep percolation of canal seepage and irrigation water (DWR 2004)

WATER QUALITY

The lower Stanislaus River provides water for agricultural uses, municipal and domestic supply, recreation, and fish and wildlife habitat and water quality is therefore a concern in many areas of the county where it has been degraded through contamination. In the lower Stanislaus River, water quality data have been collected primarily through U.S. Geological Survey (USGS) National Ambient Water Quality Assessment (NAWQA) Cycle I activities (1991–2001). Surface water quality in the lower Stanislaus River is characterized by relatively low agricultural pesticide concentrations (Dubrovsky et al. 1998). More recent evaluations have detected the herbicides pendimethalin and trifluralin and the insecticide bifenthrin in the lower Stanislaus River (Hladik et al. 2009). Nitrate concentrations in the San Joaquin River have been increasing over the past 40 years, but concentrations are still well below the drinking-water standard (10 mg/L). Measured ammonia concentrations have been generally low in the lower Stanislaus River (Dubrovsky et al. 1998).

4.10.2 DISCUSSION

No Action Alternative

There would be no changes to existing water quality under the No Action Alternative. Hydrologic processes would continue as they are now and available habitat for salmonids would continue to degrade as the channel continues to be disconnected from the natural floodplain. Native riparian vegetation recruitment and floodplain function in relation to juvenile salmonid habitat would continue to be degraded. Stanislaus River water resources and hydrology within the site would not change. There would be **no impact**.

Proposed Action

a) Proposed Action activities include the use of heavy machinery adjacent to the Stanislaus River resulting in the potential to affect water quality in the Action Area. Proposed Action's construction activities may temporarily increase or contribute to the amount of suspended sediment in the Stanislaus River. No in-stream construction activities are expected to occur; however, actions likely to temporarily impact turbidity include the use of heavy machinery adjacent to the Stanislaus River. The highest potential for erosion would occur during the excavation and grading at the inlet and outlet of the side channels and wetland connection

to the Stanislaus River. These activities could cause or lead to erosion or siltation due to the transportation of loose soil downstream. Additionally, erosion could occur as these channel segments adjust to changes in flow. Turbidity associated with Proposed Action construction activities are not anticipated to exceed criteria established by the Regional Water Quality Control Board in its Clean Water Act §401 Water Quality Certification. Where feasible, a silt curtain or other turbidity control would be installed at the inlet and outlet of the new channel features to capture floating material or sediment mobilized during construction activity to minimize water quality impacts.

To minimize construction related water quality impacts, the Proposed Action's proponents would obtain and implement a SWPPP prepared in accordance with NPDES. All access and staging areas would be treated with erosion control measures at the end of each construction season. Erosion control measures may include erosion control fabric, coir logs, hydroseeding, and hay or straw spreading. At the end of the Proposed Action, native riparian vegetation would be planted in select locations including locations disturbed by the construction activities. The contractor would be required to follow all construction BMPs in the SWPPP to minimize water quality impacts. The Proposed Action must comply with the water quality and waste discharge requirements of the CVRWQCB, which would be outlined in the Section 401 Water Quality Certification for the Proposed Action. Complying with water quality standards and implementing **Mitigation Measure WQ-1** would reduce water quality impacts to **less than significant**.

Mitigation Measure WQ-1 – Monitor Water Quality and Prevent Impacts

During construction that will occur adjacent to the Stanislaus River main channel, turbidity and total suspended solids shall be monitored with intermittent grab samples from the river, and construction curtailed if turbidity exceeds criteria established by the Regional Water Quality Control Board in its Clean Water Act §401 Water Quality Certification for the Proposed Action. Specifically, sampling shall be performed immediately upstream from the Action Area and approximately 300 feet downstream of the active work area during construction.

Activities shall not cause in surface waters:

- turbidity to exceed 2 nephelometric turbidity units (NTU's) where natural turbidity is less than 2 NTU;
- where natural turbidity is between 1 and 5 NTUs, increases exceeding 1 NTU;
- where natural turbidity is between 5 and 50 NTUs, increase exceeding 20 percent;
- where natural turbidity is between 50 and 100 NTUs, increases exceeding 10 NTUs;
- where natural turbidity is greater than 100 NTUs, increase exceeding 10 percent.

Activities shall not cause settleable material to exceed 0.1 ml/L in surface waters as measured in surface waters downstream from the Action Area. Activities shall not cause pH to be depressed below 6.5 nor raised above 8.5 as measured in surface waters downstream from the Action Area.

The Proposed Action shall not discharge petroleum products into surface water. The Central Valley Water Board shall be notified immediately of any spill of petroleum products.

Sediment fencing shall be used along the river corridor to capture floating materials or sediments mobilized during construction activities and prevent water quality impacts. Stream bank impacts shall be isolated and minimized to reduce bank sloughing. Banks shall be stabilized with revegetation following Proposed Action activities, as appropriate.

A SWPPP shall be developed as part of the BMPs. All pertinent staff shall be trained on and familiarized with these plans. Copies of the plans and appropriate spill prevention equipment referenced in them shall be made available onsite and staff shall be trained in its use. Spill prevention kits shall be in close proximity to construction areas, and workers tined in their proper use.

b) The Proposed Action would not utilize groundwater supplies or affect groundwater resources as part of construction or operation. As described in Section 3.3, *Proposed Action Design*, a goal of the restoration design is to improve river–floodplain connectivity through the creation of the side channels and wetland connection to the Stanislaus River. As a result, effects on groundwater recharge would be considered beneficial by providing pervious space for floodwaters to recharge groundwater flows. Additionally, land within and adjacent to the Action Area would continue to provide sufficient groundwater infiltration and recharge. As a result, the Proposed Action will not interfere substantially with groundwater recharge or impede sustainable groundwater management of the basin. Therefore, impacts would be temporary in duration and would be **less than significant.**

c i) Implementation of the Proposed Action would result in a short-term increase in soil erosion during construction activities, including the use of heavy machinery adjacent to the Stanislaus River. The highest potential for erosion would occur during the excavation and grading at the inlet and outlet of the side channels and wetland connection to the Stanislaus River. These activities could cause or lead to erosion or siltation due to the transportation of loose soil downstream. Additionally, erosion could occur as these channel segments adjust to changes in flow. However, compliance with water quality standards and implementing **Mitigation Measure WQ-1** would reduce water quality impacts to **less than significant**

Proposed Action activities would restore habitat to improve river–floodplain connectivity, thus reducing sediment transport and restore ecologically functional floodplain habitat to the Stanislaus River. Overall, Proposed Action activities would be temporary and would not be significant with implementation of **Mitigation Measure WQ-1** and the long-term effects of the Proposed Action on drainage patterns would be beneficial.

c ii) The Proposed Action would not substantially increase the rate or amount of surface runoff. Construction of the habitat features (e.g., side channels and wetland complex) would lower portions of the floodplain to increase inundation and duration and create planting areas that would support native riparian

and wetland vegetation communities. Floodplain elevations and habitat features would be designed to result in complete drainage and would not create or contribute to runoff water.

Overall, Proposed Action activities would be temporary the long-term effects of the Proposed Action on drainage patterns would be beneficial. Therefore, impacts would be temporary in duration and would be **less than significant.**

c iii) The Proposed Action would not create impervious surfaces that would increase runoff. A goal of the restoration design is to increase river–floodplain connectivity and restore ecologically functional floodplain habitat from the creation of the side channels and wetland connection to the Stanislaus River. As such, the Proposed Action would improve streamflow and function of the drainage patters within the Action Area.

The heavy equipment and vehicles used for Proposed Action construction would use potentially hazardous substances, which could potentially lead to accidental release of such substances into the Stanislaus River. Oil and grease used in equipment would be vegetable based, or another material that does not affect beneficial uses. All equipment working adjacent to the stream corridor would be inspected daily for fuel, lubrication, and coolant leaks and for leak potentials. All equipment would be free of fuel, lubrication, and coolant leaks before working. Implementation of **Mitigation Measure WQ-2** would require the use of biodegradable lubricants and hydraulic fluids.

> **Mitigation Measure WQ-2: Use Clean Equipment and Biodegradable Lubricants**
>
> All equipment shall be clean and use biodegradable lubricants and hydraulic fluids. All equipment working within the stream channel shall be inspected daily for fuel, lubrication, and coolant leaks; and, for leak potentials (e.g. cracked hoses, loose filling caps, stripped drain plugs). Vehicles shall be fueled and lubricated in a designated staging area located outside the stream channel and banks. Construction specifications shall require that any equipment used in or near the river is properly cleaned to prevent any hazardous materials from entering the river, and containment material shall be available onsite in case of an accident. Spill prevention kits shall be located close to construction areas, with workers trained in its use. Contracted construction managers shall regularly monitor construction personnel to ensure environmental compliance.

Additionally, a Spill Prevention and Response Plan (**Mitigation Measure WQ-1**) would be prepared for the Proposed Action and spill prevention kits would be kept close to construction areas and workers would be trained in their use. With implementation of **Mitigation Measure WQ-1** and **Mitigation Measure WQ-2,** the potential for accidental release of hazardous materials and would not result in substantial discharges of polluted runoff. There, this impact would be **less than significant.**

c iv) Implementation of the Proposed Action would require the use of heavy equipment to create habitat features (e.g., side channels and wetland complex) that would temporarily alter the existing drainage patterns through vegetation removal, thus impeding or redirecting flood flows.

A goal of the restoration design is to improve river–floodplain connectivity and restore ecologically functional floodplain habitat through the creation of the side channels and wetland connection to the Stanislaus River. Portions of the floodplain would be lowered to create habitat features resulting in increased duration of inundation that function under a variety of flow conditions present on the Stanislaus River. Frequent inundation of the floodplain and side channel habitats created by the Proposed Action would support recruitment and survival of vegetation within the Action Area. Riparian trees and other wetland plants are expected to colonize newly created floodplain and secondary channels. Floodplain elevations are designed to result in complete drainage of the lowered floodplain area as seasonal flows recede. These characteristics are expected to result in a substantial direct beneficial effect to native fishes and overall productivity of the river-floodplain system in this portion of the Stanislaus River. Therefore, impacts would be temporary in duration and would be **less than significant.**

d) The Action Area is located approximately 92 miles east of the California coastline and would not be affected by flood hazard, seiche, or tsunami that would result in release of pollutants. Therefore, there would be **no impact.**

e) The Proposed Action would not conflict with or obstruct a water quality control plan or sustainable groundwater management plan, including the San Joaquin River Basin Water Quality Control Plan or the Modesto Subbasin Groundwater Sustainability Plan. Therefore, the impacts of the Proposed Action on the implementation of a water quality control plan or sustainable groundwater management plan would be **less than significant.**

4.11 LAND USE AND PLANNING

Will the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

4.11.1 EXISITING CONDITIONS

According to the *Stanislaus County General Plan*, land within the Action Area is designated as Residential – Low Density (Stanislaus County 2015). The western portion of the Action Area is designated as Park according to the *Oakdale 2030 General Plan* (City of Oakdale 2013).

4.11.2 DISCUSSION

No Action Alternative

Land use and planning would not be affected under the No-Action Alternative. Therefore, there would be **no impact**.

Proposed Action

a) The Action Area is located in unincorporated Stanislaus County and is not within an established community. The Proposed Action would take place within the Wilderness Area along the immediate Stanislaus River channel corridor and access road and would not physically divide an established community. Therefore, there would be **no impact.**

b) The Proposed Action does not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Proposed Action (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. The Proposed Action would not have an adverse impact on land use and planning. Additionally, the Proposed Action is expected to have long-term benefits preserve and improve resources

along the Stanislaus River corridor, which is consistent with the *Oakdale 2030 General Plan* (City of Oakdale 2013). Therefore, there would be **no impact.**

4.12 MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

4.12.1 EXISTING CONDITIONS

Stanislaus County contain a wide variety of mineral resources including clay, sand and gravel, stone, mercury, manganese, and gold (DOC 1993). Sand, gravel, and clay, particularly along the Stanislaus River, are the predominant mineral resources within Stanislaus County. The California Department of Conservation, California Geological Survey, have mapped mineral deposits as Mineral Resources Zones (MRZs) that include the following (CGS 2018):

- MRZ-1: Areas where available geologic information indicates that little likelihood exists for the presence of significant concrete aggregate resource;
- MRZ-2: Areas where geologic information indicates the presence of significant concrete aggregate resources, except where noted as Construction Aggregate;
- MRZ-3: Areas containing known or inferred concrete aggregate resources of undetermined mineral resource significance; and
- MRZ-4: Areas where available geologic information is inadequate to assign to any other mineral resource zone category.

The Action Area is mapped as MRZ-2; however, no known mineral resource recovery sites have been identified in the Action Area.

4.12.2 DISCUSSION

No Action Alternative

Mineral resources would not be affected under the No-Action Alternative. Therefore, there would be **no impact**.

Proposed Action

a-b) No known mineral resource recovery sites have been identified within the Action Area and the Proposed Action does not result in the loss of availability of a known mineral resource classified MRZ-2 that would be of value to the region and the residents of the state.

The Proposed Action would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. The Proposed Action would not have an adverse impact on mineral resources for the reasons stated above. Therefore, there would be **no impact.**

4.13 NOISE

Would the project result in:	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

The Proposed Action would create a temporary increase in noise levels, as material is removed then processed, transported, and placed within the Action Area.

4.13.1. DISCUSSION

No Action Alternative

Existing noise levels would not be affected under the No-Action Alternative. Therefore, there would **be no impact.**

Proposed Action

a) The Proposed Project would operate construction equipment (e.g., bulldozers, excavators, and articulated haulers, etc.) in the Action Area as part of construction. The construction equipment would generate noise during their operation. The types of construction equipment used for the Proposed Project would typically

generate noise levels ~75 decibels above the reference noise at a distance of 50 ft (15.2 m). Construction equipment would be properly equipped and maintained to reduce noise levels. The Proposed Project would not expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance (75 decibels maximum for Industry; Stanislaus County General Plan 2015), or applicable standards of other agencies. Vibration would increase during operation of construction equipment, but no construction equipment would be used that is known to cause excessive vibration levels (impact and vibratory pile drivers, vibratory rollers, large bulldozers, hydraulic breakers, and jackhammers). All changes in noise and vibration levels would occur in a mostly rural residential area. The impact is still considered potentially significant because there would be increases in noise levels at the Action Area. The impact would be mitigated to a less than significant level with implementation of **Mitigation Measure NOISE-1**.

Mitigation Measure NOISE-1 - Reduce Impacts from Noise.

To mitigate noise related impacts, the Project shall require all contractors to comply with the following operational parameters:

- Restrict construction activities to time periods between 7:00 am and 5:00 pm when there is the least potential for disturbance;
- Install and maintain sound-reducing equipment and muffled exhaust on all construction equipment.

b) The Project would support a temporary increase in noise levels, as sediment is excavated to create Project restoration features and excavated sediment is transported and placed in designated upland fill locations. These noise levels would be higher than the current ambient noise levels in the area but would be temporary in nature and not excessive. The maximum noise levels allowed by agricultural/industrial activity in the Stanislaus County General Plan are 75 decibels. The Proposed Project may create noise at or near this level for a temporary time period (up to four months). The Proposed Project would have a limited and temporary impact on noise levels in the immediate area, so the impact of noise is expected to be less than significant.

c) There is not a public airport or private airstrip within two miles of the Action Area. The nearest airport or airstrip is the Oakdale Airport, approximately 2.2 miles from the Project. The Proposed Project would have no impact on air traffic or airport activity.

4.14 POPULATION AND HOUSING

Would the project:	Potentially Significant Impact	Potentially Significant Unless Mitigated	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

4.14.1 DISCUSSION

No Action Alternative

Populations and housing would not be affected under the No-Action Alternative. Therefore, there would be **no impact**.

Proposed Action

a, b) The Proposed Action would not involve any activities that would directly increase population growth, resulting in housing or attract a new development. Therefore, the Proposed Action does not have a direct or indirect effect on substantial population growth. Implementation of the Proposed Action does not displace housing or residents or cause the construction of replacement housing in another location. Therefore, the Proposed Action would have **no impact.**

4.15 PUBLIC SERVICES

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	☐	☒	☐	☐
ii. Police protection?	☐	☐	☐	☒
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

4.15.1 EXISTING CONDITIONS

FIRE PROTECTION

The City Fire Department, at 325 East G Street, provides fire protection to the Action Area, which is approximately 3.5 miles southwest of the Action Area. The station would be the first response team in the event of a fire emergency in the Action Area.

POLICE PROTECTION

The City Police Department, at 245 North 2nd Avenue, provides fire protection to the Action Area, which is approximately 3.5 miles southwest of the Action Area. The station would be the first response team in the event of an emergency in the Action Area.

PARKS

The Action Area is located within the Wilderness Area, a recreational facility owned by the City. There are several developed regional and city parks within or directly adjacent to the Action Area that provide recreational opportunities in proximity to the Proposed Action, and are discussed in Section 4.16, *Recreation*.

SCHOOLS AND OTHER PUBLIC FACILITIES

There are no schools located within 0.25 miles of the Action Area. The closes school is Oakdale Charter High, which is 2.5 miles southwest of the Action Area.

4.15.2 DISCUSSION

No Action Alternative

Public services would not be affected under the No-Action Alternative. Therefore, there would be **no impact.**

Proposed Action

a i) As discussed in Section 4.9, *Hazards and Hazardous Materials*, Proposed Action activities are a potential source of wildfire ignition. However, increase in local traffic would be minor and temporary due to the Proposed Action and is not anticipated to have a significant impact on emergency access in vicinity of the Action Area. Additionally, the Proposed Action would not alter the existing emergency access. Implementation of **Mitigation Measure HAZ-1** would reduce the potential for wildfire risk associated with Proposed Action activities. Therefore, this impact would be **less than significant with mitigation.**

ii, iii, v, iv) As discussed in Section 4.14, *Population and Housing*, the Proposed Action would not increase population resulting in an increase demand for schools, public facilities, parks, and other services in vicinity of the Action Area. Therefore, there would be **no impact.**

4.16 RECREATION

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☒	☐	☐

4.16.1 EXISTING CONDITIONS

There are several developed regional and city parks within or directly adjacent to the Action Area that provide recreational opportunities in proximity to the Proposed Action. The Action Area is located within the Wilderness Area, a recreational facility owned by the City. Currently, public access to the Action Area is available at the intersection of North Stearns Road and Kerr Park Drive and by boats floating downstream on the Stanislaus River. Regional and city parks within or directly adjacent to the Action Area are described in detail below:

Kerr Park

Kerr Park, owned by the City, is located immediately south of the Action Area and is accessible from North Stearns Road and Kerr Park Drive. The park contains a baseball field, basketball court, picnic area, parking lot, and restroom facilities.

Valley Oak Recreation Area

The Valley Oak Recreation Area is located at 10386 Rodden Road, approximately 0.2 mile upstream of the Action Area. The Valley Oak Recreation Area is a campground with recreational opportunities that include hiking, picnicking, and river access for boating and fishing.

4.16.2 DISCUSSION

No Action Alternative

The recreational opportunities and public safety concerns would not be affected under the No-Action Alternative.

Proposed Action

a) The Proposed Action is a salmon habitat restoration project and does not include or require the expansion of recreational facilities. Although the Proposed Action would require the temporary closure of the Wilderness Area, parks and other recreational facilities would not see an increased use of these existing parks. Therefore, the would be **less than significant.**

b) Proposed Action construction activities would include operation of heavy equipment (e.g., rubber-tired front-end loaders, excavators, articulated haulers, dozers, etc.) in the Wilderness Area within the Action Area. There is a potentially significant impact on public safety to pedestrians in proximity to the Action Area and to persons floating down the Stanislaus River in proximity to where heavy equipment is being operated near the river.

The peak recreational use by river floaters is on weekends and holidays during the summer. Construction activities would not typically occur on weekends or holidays and only occur during the week during normal working hours (7 am to 5 pm) when most people are working as well thereby reducing the potential for interaction between floaters and heavy equipment.

However, implementation of **Mitigation Measure REC-1** would reduce the impact of the Proposed Action on recreational opportunities to **less than significant**.

> **Mitigation Measure REC-1: Public Safety**
>
> During Proposed Action construction, signs will be posted at the start of the access road and along the perimeter of the Action Area to inform the public about the potential hazards created by heavy equipment and how to safely avoid the work zone. A highly visible warning sign shall be placed on the bank approximately 100 feet upstream of construction activity, informing any individuals floating down the river about the construction activity and directing them to a safe path to avoid construction activity.

4.17 TRANSPORTATION

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☐	☒
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☒	☐

4.17.1 EXISTING CONDITIONS

State Route (SR) 108/120 provides regional access to the Action Area. From SR 108/120, the Action Area would be accessed from a dirt road at the intersection of North Stearns Road and Kerr Park Drive. Proposed Action personnel and heavy machinery would access the Action Area via existing roads and would occur between 15 June to 15 November. Equipment used for transporting water for dust control and Proposed Action personnel would access the Action Area daily.

4.17.2 DISCUSSION

No Action Alternative

Transportation would not be affected under the No-Action Alternative. Therefore, there would be **no impact.**

Proposed Action

a) The Proposed Action would cause a minor, temporary increase in traffic volume as a result of daily commutes by workers to the Action Area during the construction season 15 June to 15 November and occasional supply deliveries. A few days of additional traffic would occur at the beginning and end of each construction season during transport of heavy equipment to the Action Area during annual mobilization and demobilization. Individual drivers may experience minor delays if they are travelling behind a truck transporting heavy equipment along public roads. The Proposed Action's temporary traffic would primarily center on SR 108/120 and North Stearns Road. All worker vehicles would be parked, and heavy equipment would be stored in staging areas where there would be sufficient room for all the vehicles and equipment; the Proposed Action would not displace any existing parking. Therefore, the Proposed Action would have a **less than significant** impact.

b) The Action Area is in an isolated area with only limited local traffic and no public transportation. As described above, the Proposed Action would result in a few days of additional traffic at the beginning and end of each traffic season. Therefore, the Proposed Action would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) and **no impact** would occur.

c) The Proposed Action would not introduce unsafe design features or incompatible uses into the area. The Proposed Action is confined to the Wilderness Area and includes expanding the existing emergent wetland and enhancing the connection to the Stanislaus River, and creating a side channel along both the eastern portion of the Action Area and on the riverside terrace. Overall, the Proposed Action would not change design features of adjacent roadways. Therefore, this impact would be **no impact.**

d) Increase in local traffic would be minor and temporary due to the Proposed Action and is not anticipated to have a significant impact on emergency access in vicinity of the Action Area. Additionally, the Proposed Action would not alter the existing emergency access. Therefore, this impact would be **less than significant.**

4.18 TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in the local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	☐	☐	☒
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☒

4.18.1 EXISTING CONDITIONS

An email request was made to the NAHC on 3 May 2022, to review its files for the presence of recorded sacred sites on the Project site. The NAHC responded on 22 June 2022, stating that no significant resources are located in the vicinity of the Project area as a result of a search of their files. The NAHC also provided a list of nine individuals who represented tribes with a traditional and cultural affiliation with the project area.

Project notification letters, dated 2 September 2022, were sent to the nine representatives identified by the NAHC. Follow-up emails were sent on 27 September 2022. No responses were received.

4.18.2 DISCUSSION

No Action Alternative

Tribal cultural resources would not be affected under the No-Action Alternative. Therefore, there would be **no impact**.

Proposed Action

a i-ii) No listed or eligible tribal cultural resources defined in PRCs Section 5020.1(k) and 5024.1 (c) were recorded in the Action Area from the records search and field survey. However, the Proposed Action construction activities would include grading and excavation. Subsurface tribal cultural objects could be unearthed during the grading and excavation activities, which is a potentially significant impact. If any objects with potential tribal cultural significance are unearthed during the construction process, work would be halted within the vicinity of the inadvertent discovery until a qualified archeologist (and Native American representative if the find is potentially pre-historic) can assess the significance of the new find (**Mitigation Measure CR-1,** see Section 4.5, *Cultural Resources*) and prescribe measures to reduce potential impacts to be **less than significant**. The final disposition of tribal cultural resources recovered on State lands under the jurisdiction of the State Lands Commission must be approved by the Commission.

4.19 UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☒
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

4.19.1 DISCUSSION

No Action Alternative

Utilities and service systems would not be affected under the No-Action Alternative. Therefore, there would be **no impact**.

Proposed Action

a-c) Proposed Action activities include construction of salmon rearing habitat features within the Action Area. The Proposed Action does not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Water for dust control would be used during Proposed Action construction activities and would be supplied by water trucks provided by the contractor. Therefore, the Proposed Action will have **no impact.**

d, e) As discussed in Sections above, the Proposed Action would not increase population or alter land use that would generate solid waste. Proposed Action activities include excavation of material and vegetation from within the Action Area. Excavated material (e.g., gravel and vegetation debris) would occur and remain within the Action Area and any tree or vegetation removed due to Proposed Action actions would remain on site.

Overall, solid waste generated by the Proposed Action will be very limited in volume and would comply with federal, state, and local regulations related to solid waste. Therefore, this impact would be **less than significant.**

4.20 WILDFIRE

	Potentially Significant Impact	Potentially Significant Unless Mitigated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☒	☐	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

4.20.1 EXISTING CONDITIONS

The Action Area is located in the Wilderness Area along the Stanislaus River. Topography in the Action Area varies, and is characterized by the wetland depression in the center of the Action Area. The eastern portion of the site is relatively lower in elevation, with high elevations along the eastern side of the access road. The Action Area is dominated by riparian trees and vegetation with Himalayan blackberry stands within the understory throughout most of the Action Area. Other land uses surrounding the Action Area include private residences, recreational areas, and a private golf course.

WILDFIRE HAZARD ZONES

The Action Area is designated as Non-Wildland/Non-Urban and Moderate FHSZ within the LRA (CAL FIRE 2007). Therefore, Oakdale Fire Protection District is responsible for wildfire emergencies in the Action Area (Stanislaus County 2015).

The Moderate FHSZ is located along the Stanislaus River corridor within the northern portion of the Action Area and the Non-Wildland/Non-Urban FHSZ is located within the rest of the Action Area.

4.20.2 DISCUSSION

No Action Alternative

Wildfire risk would not be affected under the No-Action Alternative. Therefore, there would be **no impact.**

Proposed Action

a) Construction traffic would include the mobilization and demobilization of heavy machinery. Once the heavy equipment is onsite, it would travel within the Action Area using the existing access road and be stored at the staging area. The Proposed Action use of SR 108/120 would be limited to daily trips for personnel, service, and supply vehicles. Construction activities would be conducted and managed to not interfere with emergency response or evacuation plans. Therefore, this impact would be **less than significant.**

b) The Action Area is designated as Non-Wildland/Non-Urban and Moderate FHSZ within the LRA (CAL FIRE 2007). Proposed Action construction activities are a potential source of wildfire ignition. The majority of vegetation within the Action Area is riparian vegetation which are relatively moist areas with green vegetation resulting in a low ignition risk. If riparian areas do ignite, then the wildfire usually spreads slowly as an under burn due to the relatively moist, green vegetation.

Additionally, Proposed Action activities would occur within the Stanislaus River floodplain adjacent uplands. The Stanislaus River serves as a natural fuel break. Short-term impacts associated with wildland fire during Proposed Action activities would result in a **potentially significant impact**. However, implementation of **Mitigation Measure HAZ-1** would reduce the impact of the Proposed Action on wildfire risk to **less than significant with mitigation**.

c) The Proposed Action would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. There would be **no impact.**

d) The Proposed Action would not result in increased drainage or runoff that could contribute to landslide or flooding impacts exposing people or structures to significant risks. The Proposed Action would result in habitat restoration along the Stanislaus River floodplain that would increase the frequency of inundation in this area and would be considered a beneficial impact compared to existing conditions. Therefore, impacts would be **less than significant**.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☒
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☐	☒
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

4.21.1 DISCUSSION

The Proposed Action does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. In contrast, the Proposed Action is designed to enhance fish and wildlife species by recovering a functional river landscape. Mitigation measures have been included to reduce all potential Proposed Action impacts to less than significant. The Proposed Action would result in short-term impacts from construction related activities. The cumulative impacts from the Proposed Action are less than significant. The impacts of the Proposed Action would improve the environmental conditions in the area by recovering functioning rearing habitat.

4.22 CONCLUSION

There is a potentially significant impact from Proposed Action implementation on aesthetics, air quality, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, public services, recreation, transportation, utilities and service systems, and wildfire. Therefore, the Proposed Action includes measures to mitigate these potential impacts. These mitigation measures are outlined in **Appendix B**. These measures would be followed throughout Proposed Action implementation and would reduce any potential impacts to **less than significant**.

There would be temporary and minor adverse effects that would occur within the construction area; however, the overall improvement to the environment would outweigh these effects. The Proposed Action would not contribute to the accumulation of impacts in the watershed. However, cumulative actions to improve stream habitats in the watershed are expected to provide long-term benefits to associated vegetation, wildlife, and fish. Because vegetation communities and wildlife habitats within the Stanislaus River watershed have been substantially modified to suit human land uses and would likely continue to be modified as human populations increase, cumulative benefits from proposed actions over time may be partially offset with new adverse impacts in the watershed.

Other related activities aimed at salmonid production, enhancement, restoration, and mitigation are being planned and implemented for the Stanislaus River system and CV under directives of the CVPIA. The magnitude of cumulative effects under all current and proposed salmonid habitat improvement actions is undetermined at this time.

Together, this Proposed Action and the reasonably foreseeable projects and actions would improve environmental quality in the long term. Therefore, **no cumulatively considerable contributions to significant cumulative impacts to the environment are expected** if the Proposed Action is implemented.

5.1 RELATED ACTIVITIES

RESTORATION ACTIVITIES IN THE STANISLAUS RIVER

The Proposed Action is one of several projects in the Stanislaus River aimed at restoring ecosystem processes within the watershed. Taken together, these projects are expected to enhance salmonid habitat within the Stanislaus River and contribute to the increase in natural production and population size for imperiled salmonids.

SPAWNING GRAVEL AUGMENTATION

Since 1994, gravel augmentation has been used to rehabilitate the natural gravel delivery process impeded by dam construction and enhance spawning grounds for Chinook Salmon and CCV steelhead in the Stanislaus River. The Knight's Ferry Gravel Replenishment Project was completed in 1999 by CMC and cost $667,887 funded by CALFED (CMC 2002). The project added 13,000 tons of gravel to 18 spawning riffles in the lower Stanislaus River from Goodwin Dam to the City. In recent years, USBR and USFWS have placed gravel in Goodwin Canyon and Knight's Ferry with funds from the CVPIA. The Lover's Leap Restoration Project was completed in late summer of 2007 by KDH Environmental and was funded by AFRP and the Delta Fish Agreement. Approximately 18,000 tons of spawning gravel and 7,000 tons of large cobble were used to create or enhance 33 riffles for this project (KDH 2008). Total project cost was ~$1.1 million.

OFF-CHANNEL REARING HABITAT

To date, a floodplain restoration project was completed on the lower Stanislaus River at Honolulu Bar (RM ~49.5) to enhance salmonid rearing habitat. The Mohler Tract restoration converted agricultural land which occasionally floods, into natural riparian habitat through planting of native species. A planned levee breach at the upstream end of the property which would have allowed water to flow through the property during flood events was not implemented. As a result, the habitat floods from downstream during flood control flows. Public statements from the town of Ripon prevented the final step in the restoration process of removing the levee. In 2011, side channels were enhanced on private property adjacent to Lancaster Road at RM ~47.9, just downstream from the USACE's Buttonbush Park on the Stanislaus River to seasonally flood on an annual basis as a means to enhance salmonid rearing habitat. Juvenile Chinook Salmon, CCV steelhead and other native fishes have been documented using the side channel during the rearing season (CFS unpublished data). Buttonbush Park was restored in 2017 to reclaim floodplain and side channel habitat of a perched floodplain and improve spawning habitat in the main channel, while in 2018 additional off-channel rearing and main channel spawning habitat were restored on private property along Rodden Road near the town of Oakdale.

6 CONSULTATION AND COORDINATION

The USFWS is the lead federal agency under NEPA, and the City is the lead state agency under CEQA. CFS is responsible for the development of the proposal, design, permitting, outreach, and implementation of the Proposed Action with the guidance of USFWS. CFS prepared the EA/IS on behalf of the two lead agencies, which assessed the impacts of the Proposed Action as required by CEQA and NEPA. This environmental document was reviewed by the lead agencies prior to public release, by other appropriate regulatory agencies, and will be available for public review and comment.

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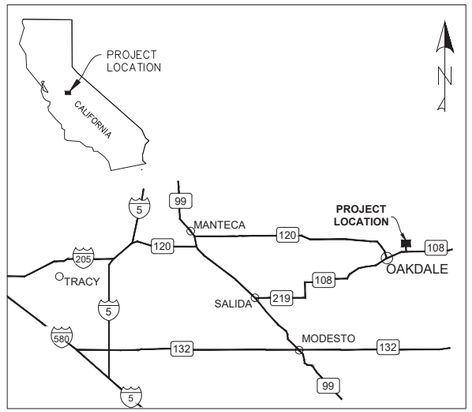
Appendix A. 100% Design Plans

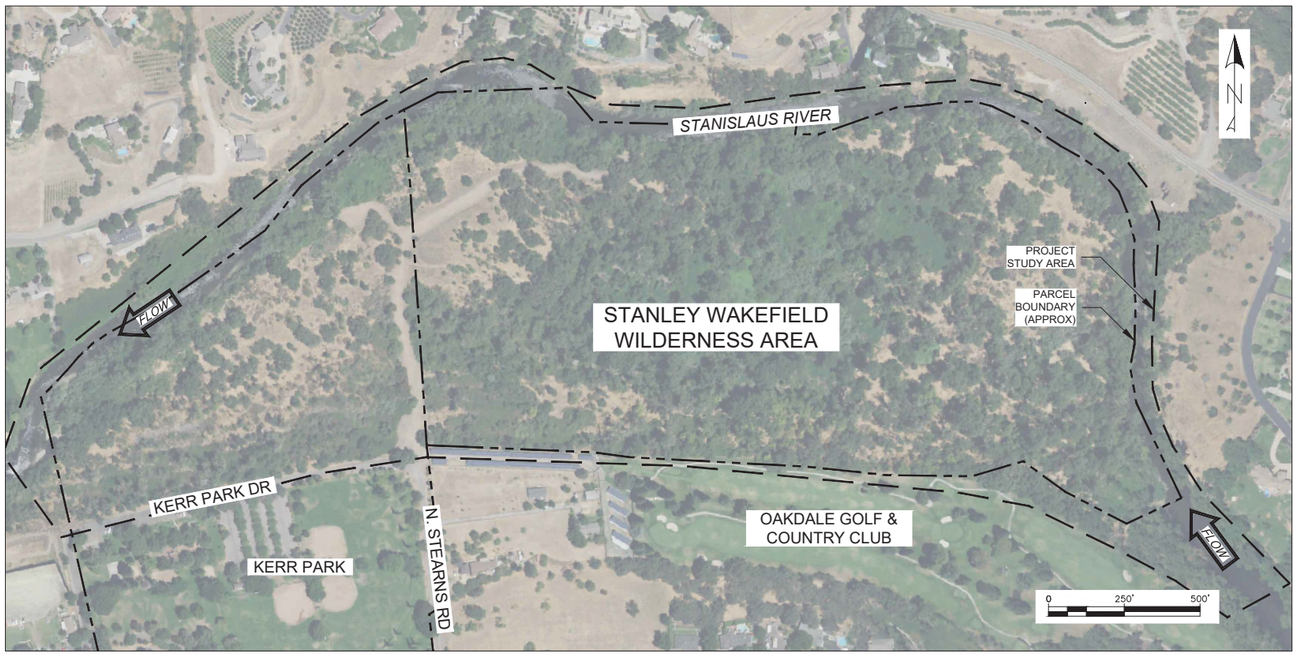
STANISLAUS RIVER SALMONID HABITAT RESTORATION PROJECT at the STANLEY WAKEFIELD WILDERNESS AREA

CITY OF OAKDALE & CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE



VICINITY MAP

NTS



LOCATION MAP

1" = 250'

SHEET INDEX

SHEET	DWG #	TITLE
1	G-01	TITLE SHEET
2	G-02	GENERAL NOTES, ABBREVIATIONS, & LEGEND
3	G-03	EXISTING SITE PLAN & ACCESS
4	G-04	LAYOUT & CONTROL PLAN
5	G-05	LAYOUT & CONTROL TABLES
6	G-06	VEGETATION REMOVAL PLAN
7	C-01	SITE GRADING PLAN
8	C-02	CHANNEL PROFILES
9	C-03	GRADING PLAN-TERRACE SIDE CHANNEL & FILL AREAS
10	C-04	GRADING PLAN-WETLAND CHANNEL & FILL AREAS
11	C-05	GRADING PLAN-EASTERN SIDE CHANNEL
12	C-06	EASTERN SIDE CHANNEL GRADING SECTIONS-1
13	C-07	EASTERN SIDE CHANNEL GRADING SECTIONS-2
14	C-08	WETLAND CHANNEL GRADING SECTIONS-1
15	C-09	WETLAND CHANNEL GRADING SECTIONS-2
16	C-10	TERRACE SIDE CHANNEL GRADING SECTIONS
17	C-11	CONNECTOR CHANNEL GRADING SECTIONS
18	C-12	GRADING PLAN & SECTIONS-FILL AREAS
19	C-13	WOOD STRUCTURES TYPICAL DETAILS
20	C-14	REVEGETATION PLAN

VERIFY SCALE
0 1
BAR LENGTH IS ONE INCH IN ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY.

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STANISLAUS RIVER SALMONID HABITAT RESTORATION PROJECT at the STANLEY WAKEFIELD WILDERNESS AREA
OAKDALE, CALIFORNIA

TITLE SHEET

REGISTERED PROFESSIONAL ENGINEER
PHILIP L. LUEDKE
66113
EXP. 6/30/22
CIVIL
STATE OF CALIFORNIA

CITY OF OAKDALE & CALIFORNIA DEPARTMENT OF FISH & WILDLIFE

DRAWN	PLL
CHECKED	RAB
IN CHARGE	PLL
DATE	08/31/2021
SCALE	AS SHOWN

G-01

SHEET 1 OF 20

G-01 TITLE.DWG 8/27/2021 12:39 PM

DEFINITIONS

PROJECT SPONSOR:	CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, FISHERIES RESTORATION GRANT PROGRAM (P184041)
PROPERTY OWNER:	CITY OF OAKDALE, CALIFORNIA
PROPERTY LOCATION:	NORTH SIDE OF STEARNS ROAD, ADJACENT TO KERR PARK (840 N STEARNS RD, OAKDALE, CA 95361)
DESIGN CONSULTANT & ENGINEER:	CRAMER FISH SCIENCES (CFS)
OWNER'S REPRESENTATIVE	TO BE IDENTIFIED BY THE OWNER TO COORDINATE DIRECTLY WITH CONTRACTOR AND DESIGN CONSULTANT DURING CONSTRUCTION.

ABBREVIATIONS

APPROX	APPROXIMATE
BM	BENCHMARK
℄	CENTERLINE
CP	CONTROL POINT
DBH	DIAMETER AT BREAST HEIGHT
DIA	DIAMETER
EL	ELEVATION
EX	EXISTING
EG	EXISTING GRADE
FG	FINISH GRADE
FT	FEET, FOOT
HORIZ	HORIZONTAL
MAX	MAXIMUM
MIN	MINIMUM
NTS	NOT TO SCALE
PIP	PROTECT IN PLACE
SHT	SHEET
STA	STATION
TYP	TYPICAL
VAR	VARIES
VERT	VERTICAL
VIF	VARIFY IN FIELD
W/	WITH
W/O	WITHOUT
2:1	SLOPE (HORIZONTAL: VERTICAL)

VEGETATION

AH	ASH
AR	ARUNDO
AL	ALDER
BW	BLACK WALNUT
CW	COTTONWOOD
EB	ELDERBERRY BUSH
OK	OAK
OO	OSAGE ORANGE
WL	WILLOW

LEGEND

- CONSTRUCTION ACCESS
- EX GRADE CONTOUR
- EX GRADE (PROFILE & SECTION)
- FINISH GRADE CONTOUR - MAJOR
- FINISH GRADE CONTOUR - MINOR
- FINISH GRADE (PROFILE & SECTION)
- GRADING LIMIT
- GRADING LIMIT - FILL PLACEMENT
- PARCEL BOUNDARY (APPROX)
- EX GROUND
- STAGING AREA
- NATIVE GRASS PLANTING
- UPLAND TREE PLANTING
- RIPARIAN TREE PLANTING
- NATIVE GRASS AND UPLAND TREE PLANTING
- NON-NATIVE VEGETATION REMOVAL
- 0.10% FG SLOPE
- FLOW FLOW DIRECTION
- BM1 SURVEY BENCHMARK
- CW TREE
- EB ELDERBERRY BUSH

GENERAL NOTES

GENERAL

1. THE PURPOSE OF THE PROJECT IS TO EXCAVATE MATERIAL TO CREATE AND ENHANCE RIPARIAN AND FLOODPLAIN AREAS ADJACENT TO THE STANISLAUS RIVER TO PROVIDE ADDITIONAL REARING HABITAT SUITABLE FOR JUVENILE SALMONID SPECIES PRESENT IN THE RIVER.
2. CONTRACTOR SHALL BE AWARE THAT PROTECTED FISH AND WILDLIFE SPECIES MAY BE PRESENT DURING THE CONSTRUCTION PERIOD. CONTRACTOR SHALL BE FULLY AWARE OF AND UNDERSTAND ALL ENVIRONMENTAL PROTECTION REQUIREMENTS SET FORTH IN THE ENVIRONMENTAL PERMITS.
3. WORK WILL BE REQUIRED ADJACENT TO AND WITHIN THE WETTED AREA OF THE STANISLAUS RIVER. FLOWS MAY N THE RIVER FLUCTUATE LARGELY BASED ON RELEASES FROM DAMS UPSTREAM OF THE PROJECT SITE. THE CONTRACTOR SHALL BE AWARE OF AND MONITOR FLOWS IN THE RIVER DURING THE CONSTRUCTION PERIOD AND COORDINATE WITH OWNER'S REPRESENTATIVE TO CONFIRM APPROPRIATE PERIODS OF WORK ADJACENT TO THE RIVER.
4. THE STANISLAUS RIVER MAIN CHANNEL SHALL NOT BE UTILIZED AS A CORRIDOR FOR MOVEMENT OF CONSTRUCTION EQUIPMENT, NOR SHOULD ANY WATER BE TAKEN FROM THE RIVER FOR USE IN ANY CONSTRUCTION ACTIVITIES.
5. CONTRACTOR SHOULD BE AWARE THAT THE STANISLAUS RIVER IS UTILIZED BY THE PUBLIC FOR RECREATIONAL ACTIVITIES DURING THE EXPECTED CONSTRUCTION PERIOD. CONTRACTOR SHALL SECURE THE SITE TO PROTECT THE SAFETY OF THE PUBLIC AS WELL AS THE CONSTRUCTION AREA.
6. ALL EQUIPMENT SHALL BE CLEAN AND USE BIODEGRADABLE, VEGETABLE-BASED LUBRICANTS AND HYDRAULIC FLUIDS.
7. ALL WORK SHALL CONFORM TO THE "STANDARD SPECIFICATIONS OF THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION," MOST RECENT EDITION (HEREINAFTER REFERRED TO AS STANDARD SPECS), EXCEPT AS MODIFIED IN THE DRAWINGS OR THE TECHNICAL SPECIFICATIONS, OR AS DESCRIBED IN WRITING BY THE OWNER'S REPRESENTATIVE.
8. WORK HOURS SHALL BE MONDAY THROUGH FRIDAY 7:00AM TO 5:00 PM.

ACCESS AND MOBILIZATION

9. SITE ACCESS IS FROM CA HIGHWAY 108/120 THEN N. STEARNS ROAD & KERR PARK ROAD. THIS IS THE ONLY ACCESS ROUTE TO THE PROJECT SITE. NOTE THAT THIS ROUTE PASSES RESIDENTIAL COMMUNITIES, OAKDALE GOLF & COUNTRY CLUB AND KERR PARK.
10. CONTRACTOR SHALL COORDINATE WITH THE PROPERTY OWNER (CITY OF OAKDALE) REGARDING ACCESS THROUGH THE LOCKED GATE AND EXTENTS OF STAGING AREA PRIOR TO MOBILIZATION TO THE SITE.
11. ALL TRAFFIC CONTROL, IF REQUIRED, SHALL CONFORM TO THE LATEST EDITION OF THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. A TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL PRIOR TO MOBILIZATION.

TOPOGRAPHY

12. EXISTING SITE TOPOGRAPHY IS BASED ON SURVEYS CONDUCTED BY CRAMER FISH SCIENCES USING RTK-GPS, ECHO SOUNDER AND DRONE SURVEY EQUIPMENT (NOVEMBER 2019) AS WELL AS AN USBR LIDAR AND BATHYMETRIC DATASET FROM 2008.
13. THE COORDINATE SYSTEM IS NORTH AMERICAN DATUM OF 1983, CALIFORNIA STATE PLANE ZONE III, US FOOT. THE VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), FEET.
14. BENCHMARKS WERE ESTABLISHED AT THE TIME OF THE CFS NOVEMBER 2019 SURVEY AND ARE SHOWN ON THE D FOR REFERENCE.
15. AERIAL IMAGERY SHOWN REFLECTS THE SITE CONDITIONS AT THE TIME OF THE FLIGHT AND IS SHOWN FOR REFERENCE ONLY. SOURCE NATIONAL AGRICULTURE IMAGERY PROGRAM (NAIP, 2018).
16. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SURVEY CONTROL NEEDED TO LAYOUT AND COMPLETE THE WORK. SURVEY CONTROL POINTS ARE SHOWN ON THE DRAWINGS.

EARTHWORK & EXCAVATION

17. CONTRACTOR SHALL STAGE THE WORK TO SO THAT CONNECTIONS TO THE RIVER ARE NOT MADE PRIOR TO COMPLETION OF THE MAJORITY OF GRADING AND FILL PLACEMENT WITHIN THE SITE.
18. CONTRACTOR SHALL BE AWARE OF AND CONFIRM ALL DIMENSIONS AND GRADES SHOWN ON THE DRAWINGS PRIOR TO COMMENCING ANY WORK. CONTRACTOR TO RECTIFY ANY DISCREPANCIES WITH OWNER OR OWNER'S REPRESENTATIVE PRIOR TO COMMENCING WORK.
19. EXCAVATION OF MATERIAL FROM THE PROJECT SITE SHALL BE LIMITED TO THAT NEEDED TO COMPLETE THE WORK TO THE LINES AND GRADES SHOWN ON THE DRAWINGS. THIS INCLUDES SOILS AND VEGETATION.
20. SOILS AT THE SITE ARE KNOWN TO CONSIST PRIMARILY OF SANDS AND SILTY SAND. A GEOTECHNICAL SOILS ANALYSIS IS INCLUDED WITH THE SPECIFICATIONS FOR REFERENCE.
21. CONTRACTOR SHALL ANTICIPATE FIELD ADJUSTMENTS FOR DESIGN ELEMENTS INCLUDING GRADING CONNECTIONS, GRADING TO AVOID EXISTING VEGETATION, PLACEMENT OF WOOD STRUCTURES AND FILL PLACEMENT. CONTRACTOR WILL WORK WITH OWNER'S REPRESENTATIVE TO IDENTIFY SPECIFIC LOCATIONS AND EXTENT OF FIELD FITTING DURING CONSTRUCTION.
22. EXCAVATED MATERIALS TO REMAIN ONSITE AND PLACED AND GRADED AS SHOWN ON THE DRAWINGS. AN EXCEPTION TO THIS IS THE REMOVAL OF NON-NATIVE VEGETATION WHICH WILL BE DISPOSED OF OFFSITE IN A LEGAL MANNER.
23. TREES TO BE REMOVED ARE INDICATED ON THE DRAWINGS AND SHALL BE FLAGGED BY CONTRACTOR FOR REVIEW BY OWNER'S REPRESENTATIVE PRIOR TO REMOVAL. TREE REMOVAL REQUIRES SPECIAL CARE TO PRESERVE THE ROOTWAD OF THE TREES FOR REUSE ELSEWHERE ON THE SITE AS SHOWN ON THE DRAWINGS.
24. ELDERBERRY BUSHES ARE LOCATED THROUGHOUT THE PROJECT SITE. ALL ELDERBERRY BUSHES AND CONSTRUCTION BUFFER (TYPICALLY 100 FEET) ARE TO BE FLAGGED FOR REVIEW BY OWNER'S REPRESENTATIVE. SEE ENVIRONMENTAL PERMITS FOR PROTECTION MEASURES AT LOCATIONS WHERE THE 100-FOOT BUFFER CAN NOT BE MET.
25. THE CONTRACTOR SHALL CEASE WORK AND IMMEDIATELY NOTIFY THE OWNER OR OWNER'S REPRESENTATIVE IF ANY CULTURAL RESOURCES ARE ENCOUNTERED DURING THE WORK.
26. THE OWNER IS NOT AWARE OF ANY ITEMS BURIED WITHIN THE SITE THAT WOULD REQUIRE SPECIAL EQUIPMENT FOR REMOVAL, SPECIAL HANDLING OR DISPOSAL OFFSITE (WITH EXCEPTION OF THE NON-NATIVE VEGETATION TO BE REMOVED).

ENVIRONMENTAL PROTECTION

27. CONTRACTOR SHALL PERFORM ALL WORK IN A MANNER THAT COMPLIES WITH ALL PERMITS AND IS PROTECTIVE OF THE ENVIRONMENT, INCLUDING AIR AND WATER QUALITY, FISH AND WILDLIFE, VEGETATION, AND HUMAN HEALTH. PERMITTING WILL BE COMPLETED IN A SUBSEQUENT PHASE OF THE PROJECT AND SOME MODIFICATIONS MAY BE REQUIRED TO WHAT IS SHOWN HEREIN TO MEET REGULATORY REQUIREMENTS.
28. CONTRACTOR SHALL UTILIZE APPROPRIATE BEST MANAGEMENT PRACTICES TO PREVENT WIND- OR WATER-BORNE EROSION, AND SEDIMENT LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
29. PERMITS ARE EXPECTED TO INCLUDE GUIDANCE AND RESTRICTIONS ON CONSTRUCTION METHODS, TIMING AND DURATION OF EARTHWORK AND PROTECTION OF VEGETATION AND WILDLIFE. THE CONTRACTOR SHALL COMPLY WITH ALL WATER QUALITY PROTECTION, EROSION AND SEDIMENT CONTROL AND WILDLIFE AND HABITAT PROTECTION MEASURES. A LIST OF ANTICIPATED ENVIRONMENTAL PERMITS THAT WILL BE REQUIRED IS INCLUDED IN THE SPECIFICATIONS.
30. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL ADDITIONAL PERMITS REQUIRED TO COMPLETE THE WORK.
31. PRIOR TO MOBILIZING TO THE SITE, THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR IMPLEMENTING BEST MANAGEMENT PRACTICES (BMP) TO COMPLY WITH THE NPDES GENERAL PERMIT FOR THE CONSTRUCTION ACTIVITIES.
32. THE CONTRACTOR SHALL NOT DEVIATE FROM THE APPROVED SWPPP UNLESS A REVISED PLAN HAS BEN APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE. FAILURE TO ADHERE TO AN APPROVED PLAN THAT DEMONSTRATES CONFORMANCE WITH THE PROVISIONS OF THE CONTRACT SHALL BE CAUSE FOR REJECTION OF THE CONTRACTOR'S REQUEST FOR PAYMENT UNTIL THE PLAN HAS BE BROUGHT INTO CONFORMANCE.
33. ALL INSTREAM WORK WILL BE LIMITED TO THE PERIOD OF JULY 15TH THROUGH OCTOBER 31ST.

EARTHWORK QUANTITIES

EXCAVATION LOCATION	CUT VOLUME (CY)
WETLAND CHANNEL	4,580
EASTERN SIDE CHANNEL	43,610
HIGH FLOW OUTLET	530
TERRACE CHANNEL	6,140
TOTAL	54,860

FILL PLACEMENT AREAS	FILL VOLUME (CY)
AREA 1	38,620
AREA 2	9,690
AREA 3	760
AREA 4	70
AREA 5	90
AREA 6	70
AREA 7	2,370
AREA 8	5,810
AREA 9	1,990
TOTAL	59,470

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STANISLAUS RIVER
SALMONID HABITAT
RESTORATION PROJECT
at the STANLEY WAKEFIELD
WILDERNESS AREA
OAKDALE, CALIFORNIA

GENERAL NOTES, ABBREVIATIONS & LEGEND

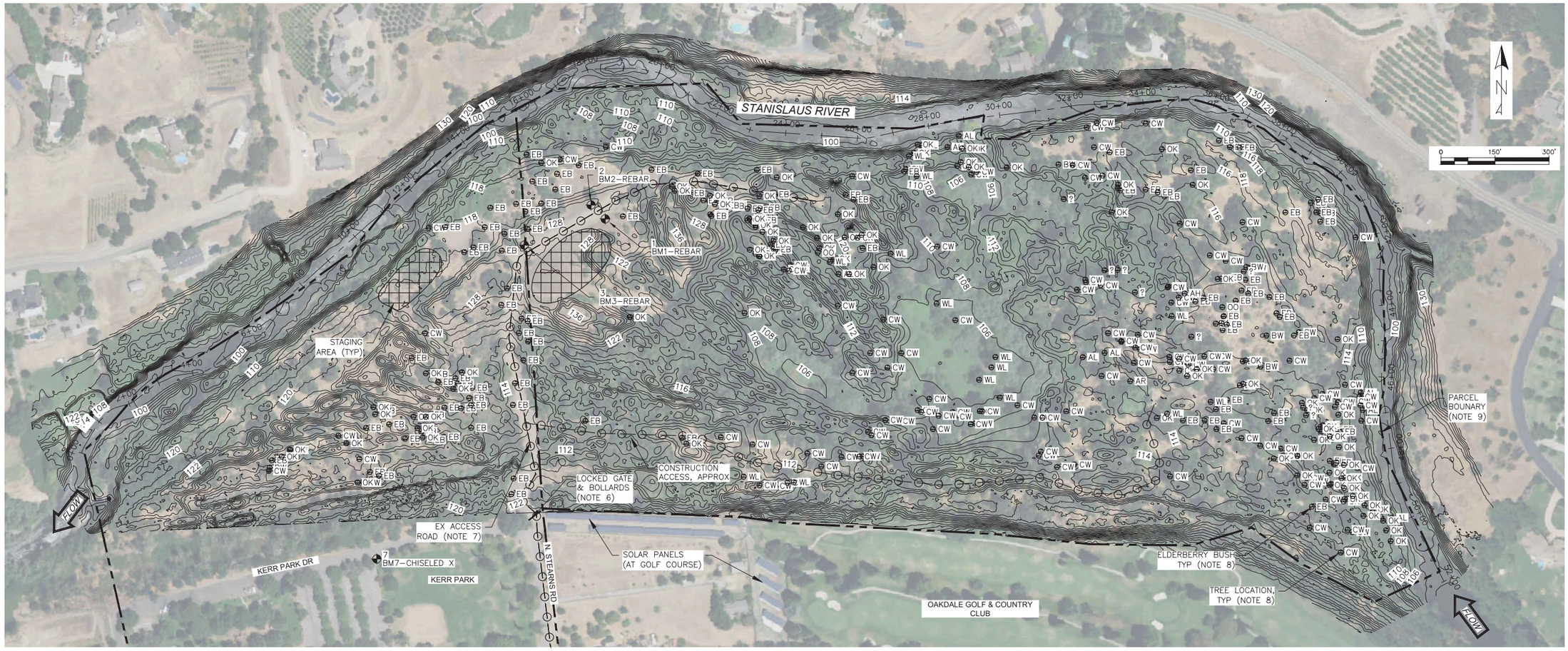
REGISTERED PROFESSIONAL ENGINEER
PHILIP L. LUECHINGER
66113
EXP. 6/30/22
CIVIL
STATE OF CALIFORNIA

CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

DRAWN	PLL
CHECKED	RAB
IN CHARGE	PLL
DATE	08/31/2021
SCALE	N/A

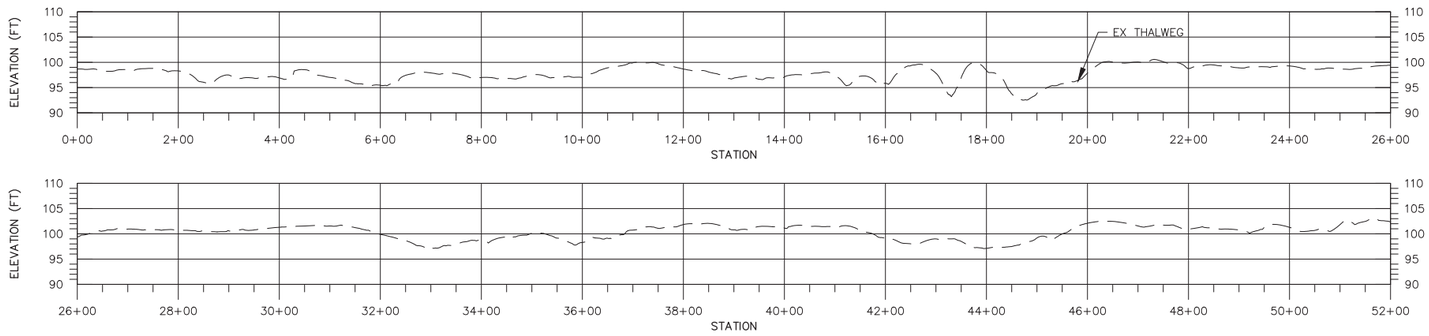
G-02

SHEET 2 OF 20



EXISTING SITE CONDITIONS

PLAN VIEW — SCALE 1" = 150'



STANISLAUS RIVER

THALWEG PROFILE — HORIZ SCALE 1" = 150' / VERT SCALE 1" = 15'

NOTES:

1. EXISTING SITE TOPOGRAPHY BASED ON SURVEYS CONDUCTED BY CRAMER FISH SCIENCES USING RTK-GPS, ECHO SOUNDER AND DRONE SURVEY EQUIPMENT (NOVEMBER 2019) AS WELL AS AN USBR LIDAR AND BATHYMETRIC DATASET FROM 2008.
2. THE COORDINATE SYSTEM IS NORTH AMERICAN DATUM OF 1983, CALIFORNIA STATE PLANE ZONE III. THE VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
3. BENCHMARKS WERE ESTABLISHED AT THE TIME OF THE CFS 2019 SURVEY.
4. TOPOGRAPHY IS SHOWN WITH 2-FT CONTOUR INTERVAL FOR CLARITY.
5. AERIAL IMAGERY SHOWN REFLECTS THE SITE CONDITIONS AT THE TIME OF THE FLIGHT AND IS SHOWN FOR REFERENCE ONLY. SOURCE NATIONAL AGRICULTURE IMAGERY PROGRAM (NAIP, 2018).
6. THE GATE AND LOCK ARE PROPERTY OF THE CITY OF OAKDALE. CONTRACTOR WILL COORDINATE WITH CITY STAFF FOR ACCESS.
7. EXISTING DIRT ACCESS ROAD IS UNEVEN AND WILL REQUIRE IMPROVEMENT FOR CONSTRUCTION ACCESS.
8. THE LOCATION OF TREES AND ELDERBERRY BUSHES ARE APPROXIMATE BASED ON GPS SURVEY CONDUCTED BY CRAMER FISH SCIENCES APRIL 2020 AND MARCH 2021.
9. PARCEL BOUNDARIES SHOWN ARE APPROXIMATE AND SHOWN FOR REFERENCE ONLY. SOURCE: STANISLAUS COUNTY (2020).

VERIFY SCALE
0 1
BAR LENGTH IS ONE INCH IN ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY.

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STANISLAUS RIVER
SALMONID HABITAT
RESTORATION PROJECT
at the STANLEY WAKEFIELD
WILDERNESS AREA
OAKDALE, CALIFORNIA

EXISTING SITE PLAN & ACCESS

REGISTERED PROFESSIONAL ENGINEER
PHILIP L. LUEGNING
66113
EXP. 6/30/22
CIVIL
STATE OF CALIFORNIA

CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

DRAWN	PLL
CHECKED	RAB
IN CHARGE	PLL
DATE	08/31/2021
SCALE	1" = 150'

G-03

SHEET 3 OF 20

G-03 EX COND.DWG 8/27/2021 12:40 PM

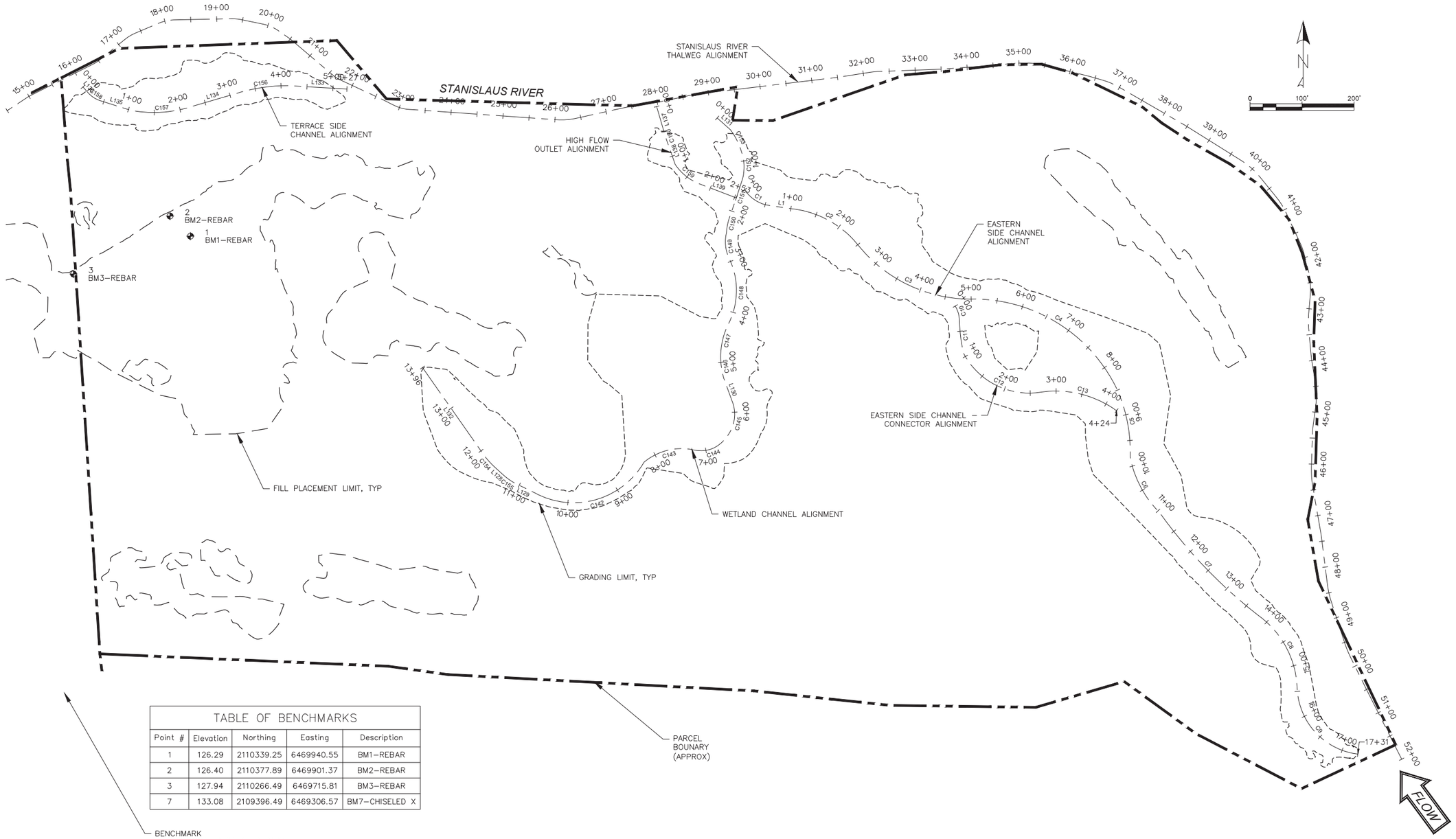

TABLE OF BENCHMARKS				
Point #	Elevation	Northing	Easting	Description
1	126.29	2110339.25	6469940.55	BM1-REBAR
2	126.40	2110377.89	6469901.37	BM2-REBAR
3	127.94	2110266.49	6469715.81	BM3-REBAR
7	133.08	2109396.49	6469306.57	BM7-CHISELED X

BENCHMARK
BM7 IS LOCATED IN KERR PARK.
SEE SHEET G-03.

NOTES:

1. BENCHMARKS WERE ESTABLISHED BY CFS AT THE TIME OF THE 2019 SURVEY.
2. ALIGNMENT PROFILES ARE SHOWN ON SHEET C-02.

LAYOUT & CONTROL
PLAN VIEW — SCALE: 1" = 100'

VERIFY SCALE
0 1
BAR LENGTH IS ONE INCH IN ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY.

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STANISLAUS RIVER
SALMONID HABITAT
RESTORATION PROJECT
at the STANLEY WAKEFIELD
WILDERNESS AREA
OAKDALE, CALIFORNIA

LAYOUT & CONTROL PLAN

REGISTERED PROFESSIONAL ENGINEER
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CIVIL
STATE OF CALIFORNIA

CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

DRAWN	PLL
CHECKED	RAB
IN CHARGE	PLL
DATE	08/31/2021
SCALE	1" = 100'

G-04
SHEET 4 OF 20

G-04-05 SURVEY CONTROL.DWG 8/27/2021 12:40 PM

EASTERN SIDE CHANNEL

LINE SEGMENT	START STA	END STA	LENGTH	LINE/ CHORD DIRECTION	START NORTHING	START EASTING
C1	0+00.00	0+59.89	59.89	S58° 10' 10.88"E	2110428.52	6471005.54
L1	0+59.89	1+00.14	40.25	S81° 35' 15.24"E	2110397.91	6471054.85
C2	1+00.14	2+46.88	146.75	S62° 10' 21.02"E	2110392.02	6471094.66
C3	2+46.88	4+96.06	249.18	S63° 39' 01.90"E	2110325.23	6471221.21
C4	4+96.06	8+47.32	351.26	S58° 41' 57.65"E	2110218.31	6471437.08
C5	8+47.32	9+81.34	134.02	S11° 09' 49.16"E	2110045.72	6471720.93
C6	9+81.34	11+04.10	122.76	S27° 41' 38.73"E	2109915.38	6471746.65
C7	11+04.10	13+78.52	274.42	S43° 46' 56.07"E	2109808.35	6471802.83
C8	13+78.52	15+45.02	166.50	S28° 03' 13.92"E	2109610.91	6471992.05
C9	15+45.02	17+31.00	185.98	S42° 54' 11.10"E	2109469.17	6472067.58

EASTERN SIDE CHANNEL – CONNECTOR

LINE SEGMENT	START STA	END STA	LENGTH	LINE/ CHORD DIRECTION	START NORTHING	START EASTING
C10	0+00.00	0+25.95	25.95	S17° 42' 41.24"E	2110204.98	6471410.50
C11	0+25.95	0+92.44	66.49	S6° 45' 21.56"E	2110180.48	6471418.33
C12	0+92.44	2+75.27	182.83	S64° 08' 49.25"E	2110114.55	6471426.14
C13	2+75.27	4+24.20	148.93	S75° 31' 19.26"E	2110040.17	6471579.65

WETLAND CHANNEL

LINE SEGMENT	START STA	END STA	LENGTH	LINE/ CHORD DIRECTION	START NORTHING	START EASTING
L131	0+00.00	0+34.20	34.20	S48° 12' 59.77"E	2110566.44	6470952.95
C153	0+34.20	0+79.79	45.60	S27° 00' 09.75"E	2110543.65	6470978.45
C152	0+79.79	1+34.81	55.02	S2° 46' 05.26"E	2110503.23	6470999.05
C151	1+34.81	2+03.70	68.89	S18° 32' 56.61"W	2110449.14	6471001.66
C150	2+03.70	2+43.20	39.50	S13° 15' 56.68"W	2110383.83	6470979.75
C149	2+43.20	2+96.94	53.74	S7° 20' 59.88"E	2110345.58	6470970.73
C148	2+96.94	4+25.99	129.05	S1° 42' 10.44"W	2110293.46	6470977.45
C147	4+25.99	4+86.69	60.70	S13° 32' 41.25"W	2110168.79	6470973.75
C146	4+86.69	5+31.43	44.74	S7° 45' 36.51"E	2110110.23	6470959.64
L130	5+31.43	5+85.31	53.88	S20° 01' 07.65"E	2110066.08	6470965.66
C145	5+85.31	6+54.95	69.64	S13° 24' 21.10"W	2110015.46	6470984.10
C144	6+54.95	7+21.51	66.56	S69° 06' 30.78"W	2109950.51	6470968.62
C143	7+21.51	8+25.07	103.56	S76° 42' 51.55"W	2109928.07	6470909.83
C142	8+25.07	10+66.21	241.14	S74° 09' 09.58"W	2109905.09	6470812.53
L129	10+66.21	11+06.96	40.75	N63° 59' 10.55"W	2109845.59	6470602.90
C155	11+06.96	11+33.36	26.40	N56° 02' 48.10"W	2109863.46	6470566.28
L128	11+33.36	11+56.19	22.83	N48° 06' 25.65"W	2109878.16	6470544.45
C154	11+56.19	11+94.51	38.32	N41° 33' 53.53"W	2109893.40	6470527.46
L132	11+94.51	13+95.66	201.15	N35° 01' 21.42"W	2109922.01	6470502.09

TERRACE SIDE CHANNEL

LINE SEGMENT	START STA	END STA	LENGTH	LINE/ CHORD DIRECTION	START NORTHING	START EASTING
L136	0+00.00	0+15.62	15.62	S41° 53' 32.64"E	2110626.04	6469734.00
C158	0+15.62	0+42.42	26.80	S56° 47' 41.05"E	2110614.42	6469744.43
L135	0+42.42	1+03.89	61.47	S72° 24' 27.76"E	2110599.91	6469766.60
C157	1+03.89	2+26.49	122.60	N86° 13' 29.24"E	2110581.33	6469825.20
L134	2+26.49	3+09.81	83.32	N73° 39' 24.08"E	2110589.31	6469946.17
C156	3+09.81	4+14.41	104.60	N81° 17' 00.01"E	2110612.75	6470026.13
L133	4+14.41	5+26.86	112.45	S86° 40' 17.20"E	2110628.54	6470129.10

HIGH FLOW OUTLET

LINE SEGMENT	START STA	END STA	LENGTH	LINE/ CHORD DIRECTION	START NORTHING	START EASTING
L137	0+00.00	0+56.17	56.17	S16° 16' 39.25"E	2110588.38	6470836.62
C160	0+56.17	0+66.78	10.61	S17° 47' 52.01"E	2110534.46	6470852.36
L138	0+66.78	1+16.98	50.19	S19° 19' 04.77"E	2110524.36	6470855.60
C159	1+16.98	1+76.01	59.03	S50° 55' 28.84"E	2110476.99	6470872.21
L139	1+76.01	2+53.46	77.45	S69° 10' 40.80"E	2110440.31	6470917.38

VERIFY SCALE
0 1
BAR LENGTH IS ONE INCH IN ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY.

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STANISLAUS RIVER
SALMONID HABITAT
RESTORATION PROJECT
at the STANLEY WAKEFIELD
WILDERNESS AREA
OAKDALE, CALIFORNIA

LAYOUT & CONTROL TABLES

REGISTERED PROFESSIONAL ENGINEER
PHILIP L. LUECKING
66113
EXP. 6/30/22
CIVIL
STATE OF CALIFORNIA

CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

DRAWN	PLL
CHECKED	RAB
IN CHARGE	PLL
DATE	08/31/2021
SCALE	N/A

G-05
SHEET 5 OF 20

G-04-05 SURVEY CONTROL.DWG 8/27/2021 12:40 PM

VEGETATION KEY

AL	ALDER
AR	ARUNDO
BW	BLACK WALNUT
CW	COTTONWOOD
EB	ELDERBERRY BUSH
OO	OSAGE ORANGE
OK	OAK
WL	WILLOW

NOTES:

1. ALL TREES REMOVED SHALL BE SALVAGED FOR REUSE ONSITE FOR THE WOOD STRUCTURES.
2. SPECIAL HANDLING OF TREES TO MAINTAIN ROOTWAD WILL BE REQUIRED.
3. CONTRACTOR SHALL FLAG TREES FOR REMOVAL & IDENTIFY WHICH TREES WILL BE USED FOR THE WOOD STRUCTURES FOR REVIEW BY OWNER'S REPRESENTATIVE.
4. REMOVAL OF NON–NATIVE VEGETATION SHALL OCCUR PRIOR TO GRADING ACTIVITIES. NON–NATIVE VEGETATION FOR REMOVAL IS PRIMARILY HIMALAYAN BLACKBERRY BUT ALSO INCLUDES TREE OF HEAVEN & ARUNDO. NON–NATIVE VEGETATION SHALL BE DISPOSED OF OFF–SITE IN A LEGAL MANNER. THE USE OF HERBICIDES AND/OR BURNING ARE PROHIBITED.

VEGETATION REMOVAL

PLAN VIEW SCALE 1" = 150'

VERIFY SCALE
0 1
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STANISLAUS RIVER
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VEGETATION
REMOVAL PLAN

REGISTERED PROFESSIONAL ENGINEER
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CIVIL
STATE OF CALIFORNIA

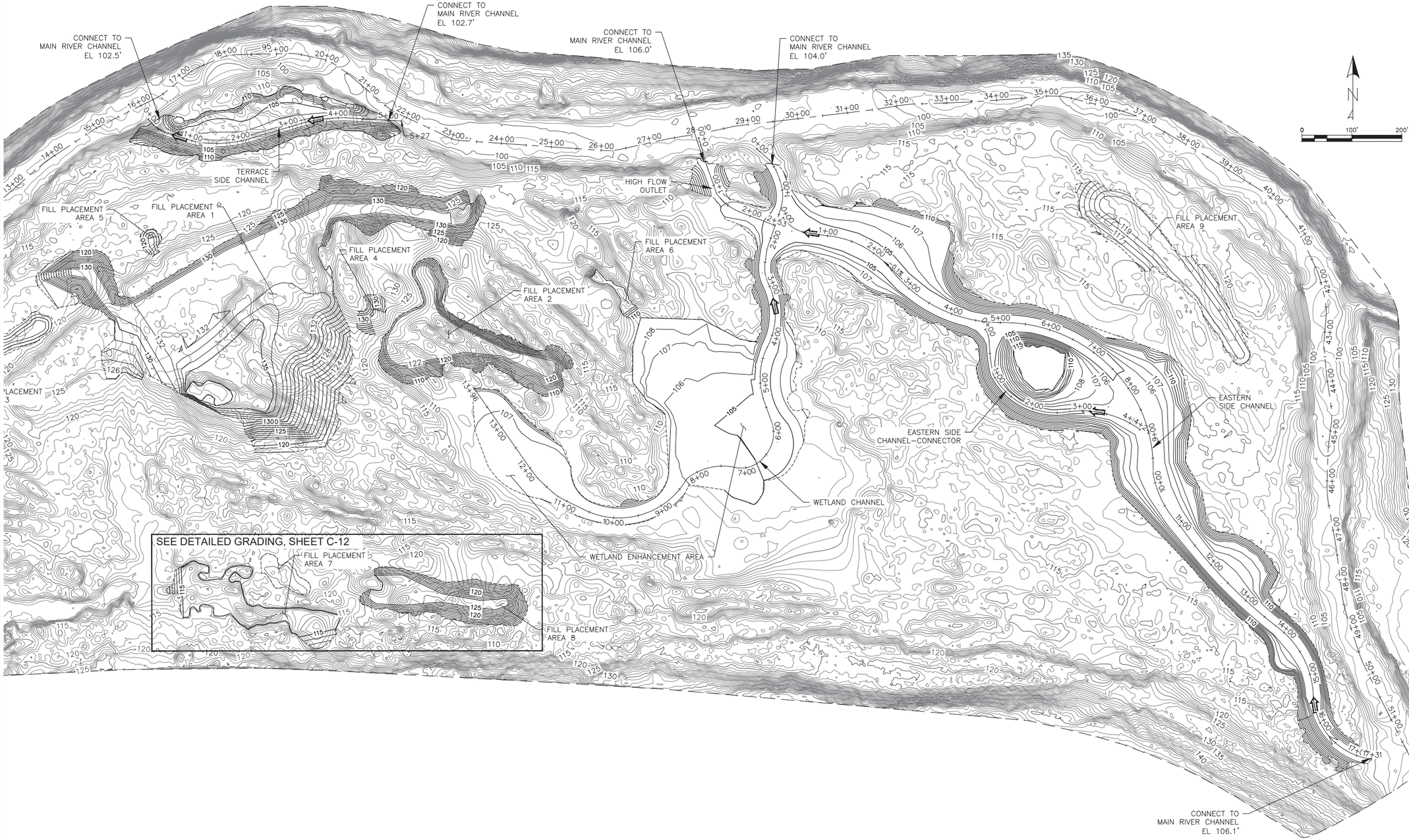
CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

DRAWN	JGS
CHECKED	PLL
IN CHARGE	PLL
DATE	08/31/2021
SCALE	1" = 150'

G-06

SHEET 6 OF 20

G-06 VEG REMOVAL.DWG 8/27/2021 12:40 PM



NOTES:

1. GRADE TO CREATE SMOOTH TRANSITIONS BETWEEN FINISH GRADE AND EXISTING GRADE.
2. CHANNEL PROFILES ARE SHOWN ON SHEET C–02.
3. GRADING SECTIONS ARE SHOWN ON SHEETS C–06 TO C–11.

SITE GRADING PLAN

PLAN VIEW SCALE: 1" = 100'

VERIFY SCALE
0 1
BAR LENGTH IS ONE INCH IN ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY.

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STANISLAUS RIVER
SALMONID HABITAT
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at the STANLEY WAKEFIELD
WILDERNESS AREA

OAKDALE, CALIFORNIA

SITE
GRADING PLAN

REGISTERED PROFESSIONAL ENGINEER
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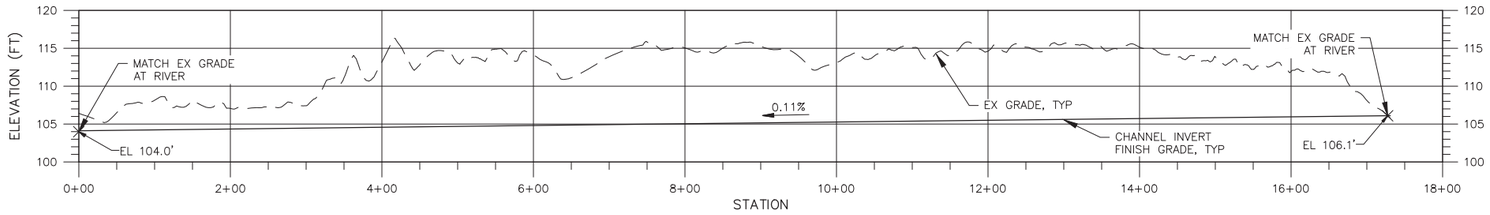
EXP. 6/30/22
CIVIL
STATE OF CALIFORNIA

CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

DRAWN	JGS
CHECKED	PLL
IN CHARGE	PLL
DATE	08/31/2021
SCALE	1" = 100'

C-01
SHEET 7 OF 20

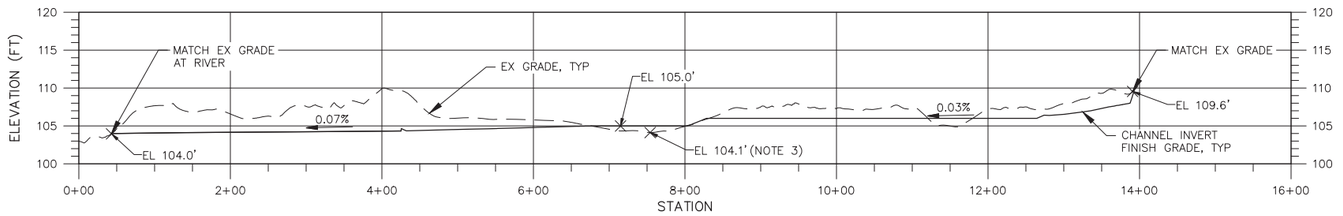
C-01_02_06-11 GRADING.DWG 8/27/2021 12:41 PM



EASTERN SIDE CHANNEL

PROFILE

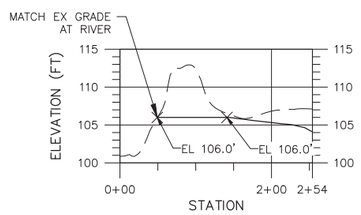
HORIZ SCALE: 1" = 100'
VERT SCALE 1" = 10'



WETLAND CHANNEL

PROFILE

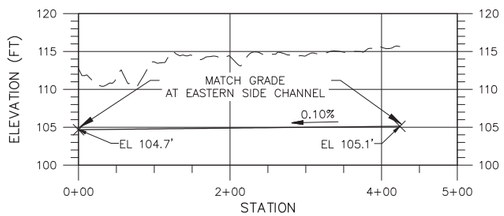
HORIZ SCALE: 1" = 100'
VERT SCALE 1" = 10'



HIGH FLOW OUTLET

PROFILE

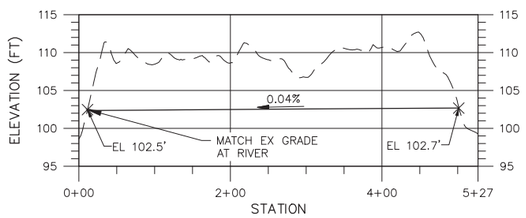
HORIZ SCALE: 1" = 100'
VERT SCALE 1" = 10'



EASTERN SIDE CHANNEL - CONNECTOR

PROFILE

HORIZ SCALE: 1" = 100'
VERT SCALE 1" = 10'



TERRACE SIDE CHANNEL

PROFILE

HORIZ SCALE: 1" = 100'
VERT SCALE 1" = 10'

NOTES:

1. GRADE TO CREATE SMOOTH TRANSITIONS BETWEEN FINISH GRADE AND EXISTING GRADE.
2. PROFILES ARE SHOWN WITH 10X VERTICAL EXAGGERATION.
3. TOPOGRAPHIC LOW AREAS ARE PRESENT IN THE WETLAND AREA THAT MAY BE LOWER THAN THE DESIGN GRADE SHOWN ON PROFILES AND SECTIONS. MINOR GRADING ADJUSTMENTS MAY BE NECESSARY TO ENSURE THESE LOCATIONS ARE GRADED TO DRAIN.

VERIFY SCALE
0 1
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STANISLAUS RIVER
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CHANNEL PROFILES

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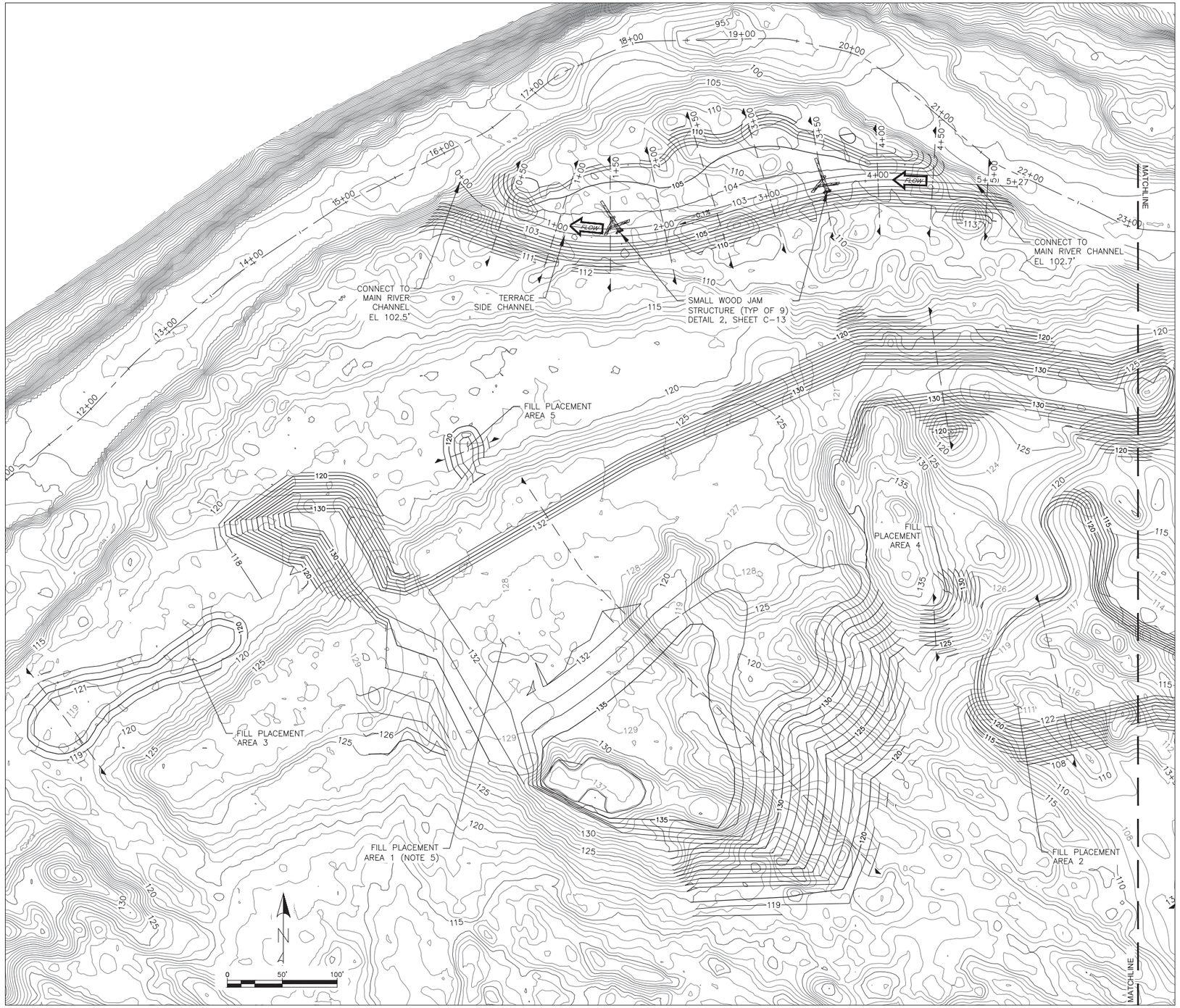
CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

DRAWN	JGS
CHECKED	PLL
IN CHARGE	PLL
DATE	08/31/2021
SCALE	AS SHOWN

C-02

SHEET 8 OF 20

C-01_02_06-11 GRADING.DWG 8/27/2021 12:41 PM



NOTES:

1. GRADE TO CREATE SMOOTH TRANSITIONS BETWEEN FINISH GRADE AND EXISTING GRADE.
2. FILL PLACEMENT AREAS MAY ADJUSTED DURING CONSTRUCTION BASED ON COORDINATION WITH OWNER'S REPRESENTATIVE TO LIMIT FILL PLACED AROUND EXISTING TREES TO REMAIN AND TO PLACE SOME MATERIAL IN ISOLATED LOW AREAS NOT IDENTIFIED ON THE PLANS.
3. CHANNEL PROFILES ARE SHOWN ON SHEET C-02.
4. GRADING SECTIONS ARE SHOWN ON SHEETS C-06 TO C-12.
5. FILL SHALL NOT BE PLACED ABOVE ELEVATION 132 FT AT FILL PLACEMENT AREA 1 WITHOUT APPROVAL FROM OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL PLACE MATERIAL IN ALL OTHER FILL PLACEMENT AREAS PRIOR TO PLACING ABOVE THIS ELEVATION.

GRADING PLAN - TERRACE SIDE CHANNEL & FILL PLACEMENT AREAS

PLAN VIEW

SCALE: 1" = 50'

VERIFY SCALE
0 1
BAR LENGTH IS ONE INCH IN ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY.

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OAKDALE, CALIFORNIA

GRADING PLAN TERRACE SIDE CHANNEL & FILL AREAS

REGISTERED PROFESSIONAL ENGINEER
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STATE OF CALIFORNIA

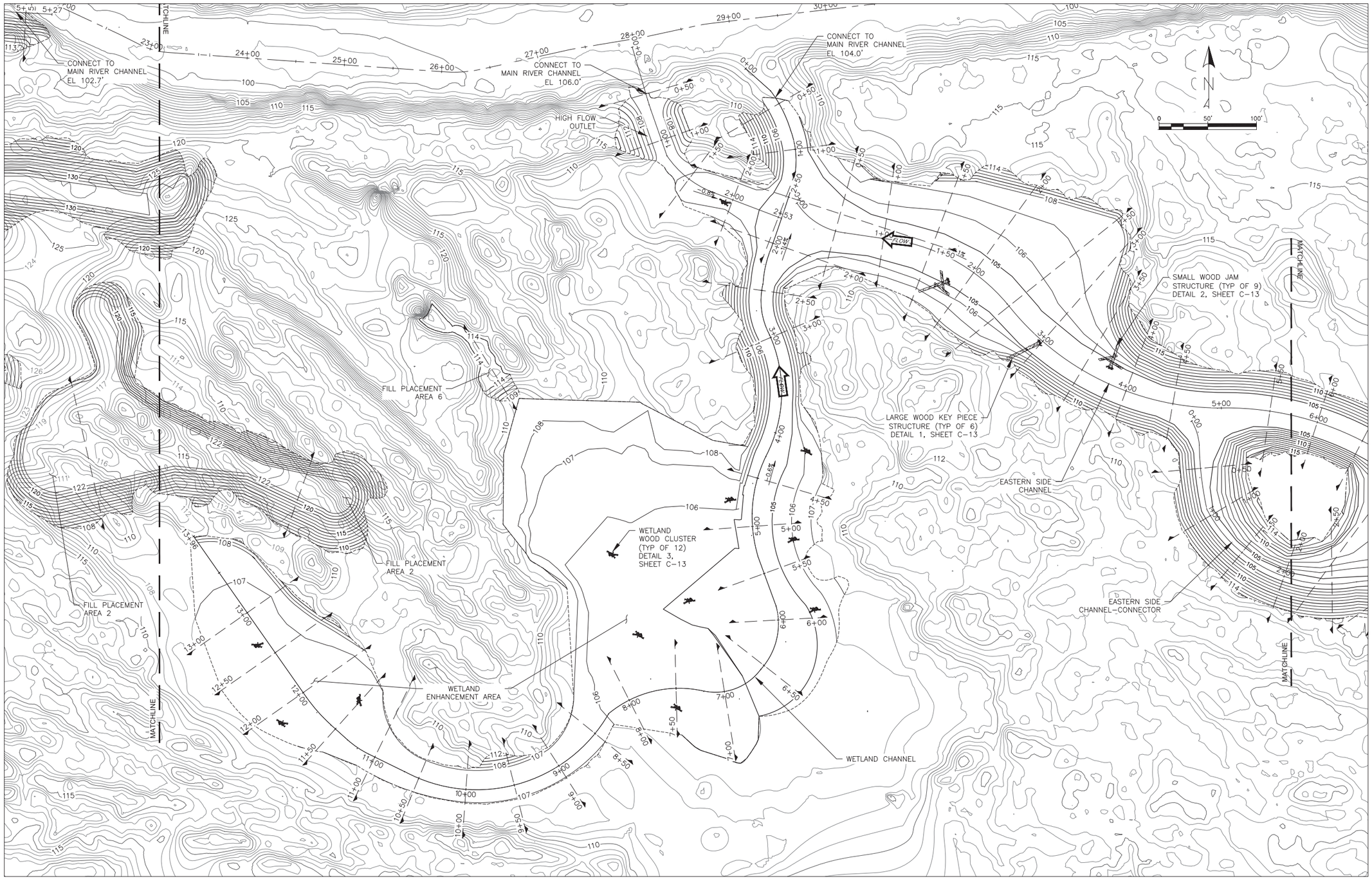
CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

DRAWN	JGS
CHECKED	PLL
IN CHARGE	PLL
DATE	08/31/2021
SCALE	1" = 50'

C-03

SHEET 9 OF 20

C-03-05 GRAD-DETL.DWG 8/27/2021 12:42 PM



NOTES:

1. GRADE TO CREATE SMOOTH TRANSITIONS BETWEEN FINISH GRADE AND EXISTING GRADE.
2. FILL PLACEMENT AREAS MAY ADJUSTED DURING CONSTRUCTION BASED ON COORDINATION WITH OWNER'S REPRESENTATIVE TO LIMIT FILL PLACED AROUND EXISTING TREES TO REMAIN AND TO PLACE SOME MATERIAL IN ISOLATED LOW AREAS NOT IDENTIFIED ON THE PLANS.
3. CHANNEL PROFILES ARE SHOWN ON SHEET C-02.
4. GRADING SECTIONS ARE SHOWN ON SHEETS C-06 TO C-12.

GRADING PLAN - WETLAND CHANNEL & FILL PLACEMENT AREAS

PLAN VIEW

SCALE: 1" = 50'

VERIFY SCALE
0 1
BAR LENGTH IS ONE INCH IN ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY.

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OAKDALE, CALIFORNIA

GRADING PLAN WETLAND CHANNEL & FILL AREAS

REGISTERED PROFESSIONAL ENGINEER
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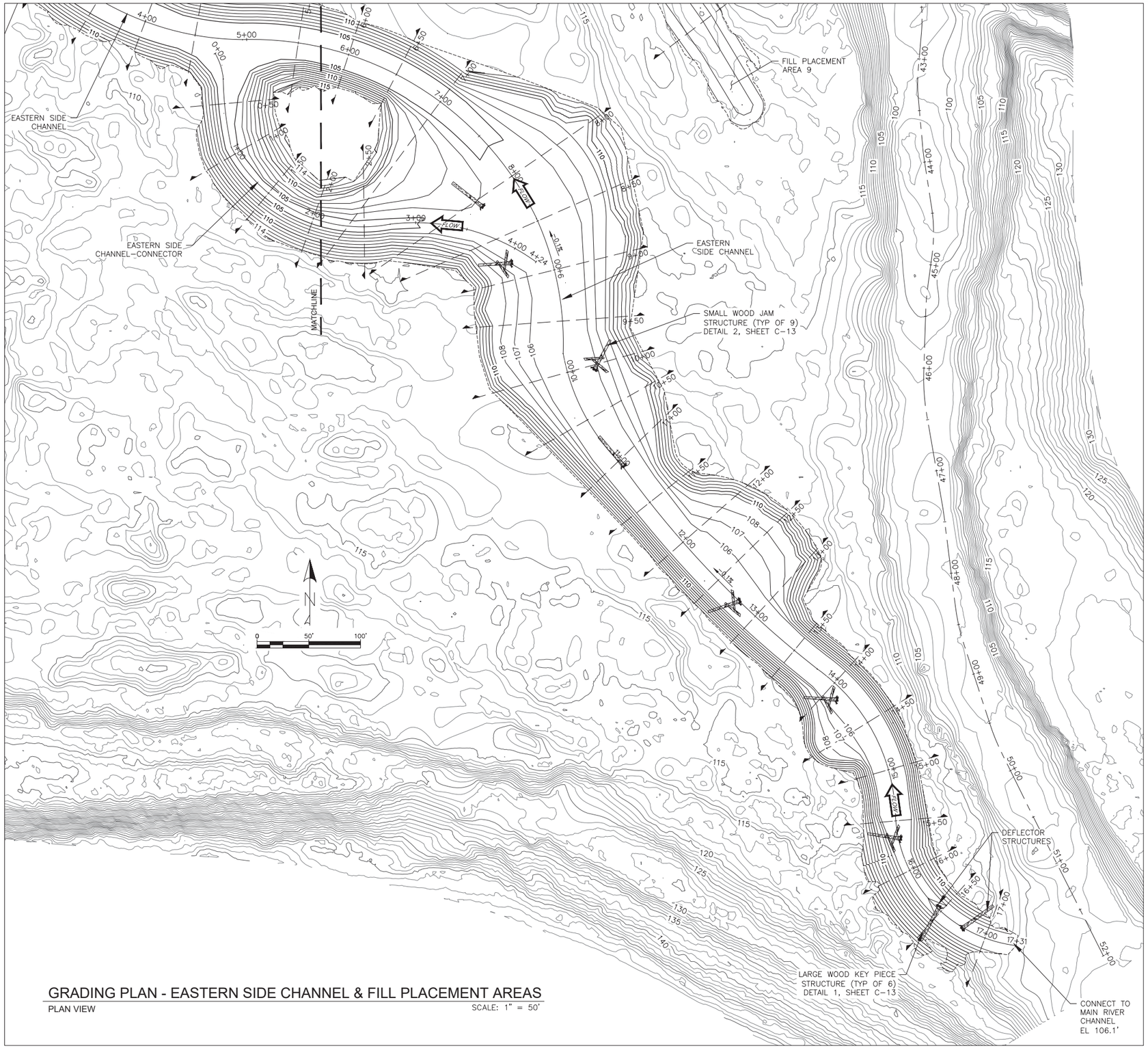
CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

DRAWN	JGS
CHECKED	PLL
IN CHARGE	PLL
DATE	08/31/2021
SCALE	1" = 50'

C-04

SHEET 10 OF 20

C-03-05 GRAD-DETL.DWG 8/27/2021 12:42 PM



GRADING PLAN - EASTERN SIDE CHANNEL & FILL PLACEMENT AREAS

PLAN VIEW SCALE: 1" = 50'

NOTES:

1. GRADE TO CREATE SMOOTH TRANSITIONS BETWEEN FINISH GRADE AND EXISTING GRADE.
2. FILL PLACEMENT AREAS MAY ADJUSTED DURING CONSTRUCTION BASED ON COORDINATION WITH OWNER'S REPRESENTATIVE TO LIMIT FILL PLACED AROUND EXISTING TREES TO REMAIN AND TO PLACE SOME MATERIAL IN ISOLATED LOW AREAS NOT IDENTIFIED ON THE PLANS.
3. CHANNEL PROFILES ARE SHOWN ON SHEET C–02.
4. GRADING SECTIONS ARE SHOWN ON SHEETS C–06 TO C–12.

VERIFY SCALE
0 1
BAR LENGTH IS ONE INCH IN ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY.

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STANISLAUS RIVER
SALMONID HABITAT
RESTORATION PROJECT
at the STANLEY WAKEFIELD
WILDERNESS AREA
OAKDALE, CALIFORNIA

GRADING PLAN
EASTERN
SIDE CHANNEL

REGISTERED PROFESSIONAL ENGINEER
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66113
EXP. 6/30/22
CIVIL
STATE OF CALIFORNIA

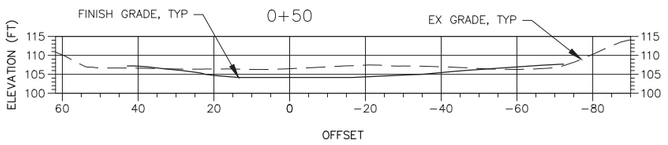
CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

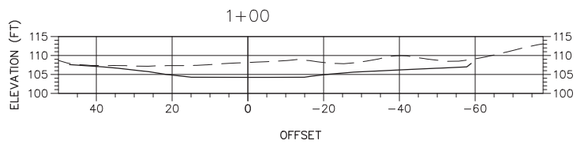
DRAWN	JGS
CHECKED	PLL
IN CHARGE	PLL
DATE	08/31/2021
SCALE	1" = 50'

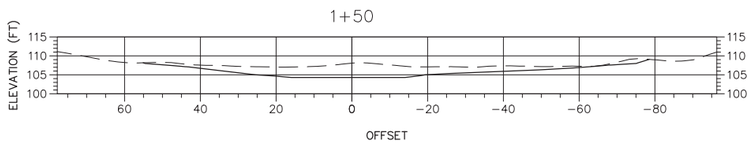
C-05

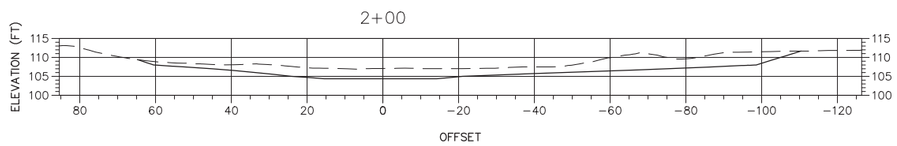
SHEET 11 OF 20

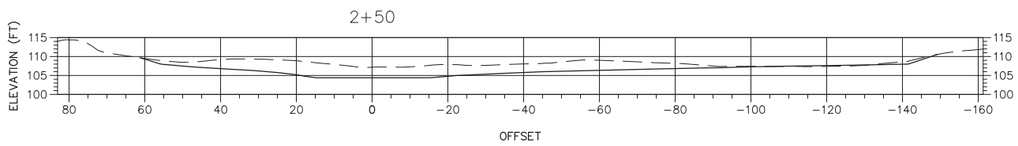
C–03–05 GRAD–DETL.DWG 8/27/2021 12:43 PM

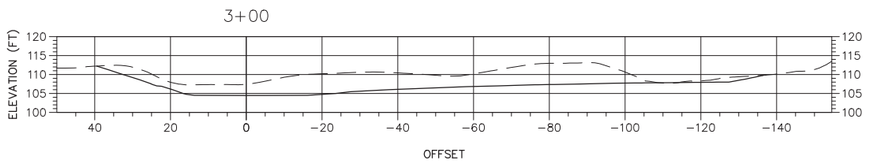


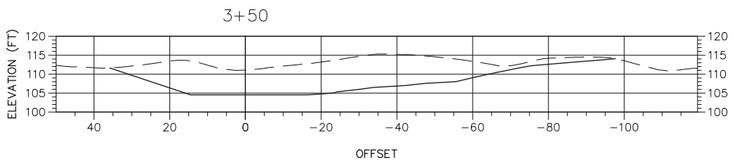


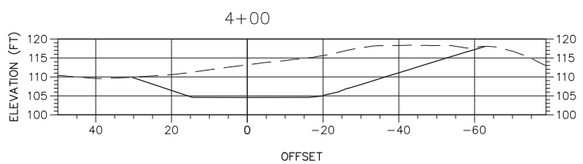


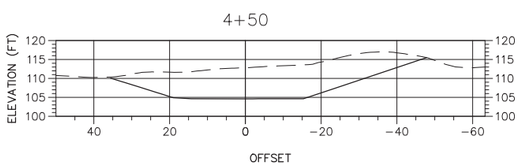


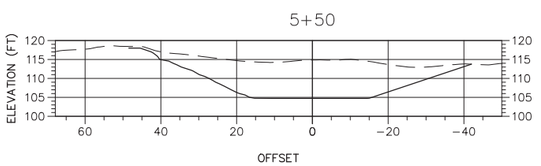


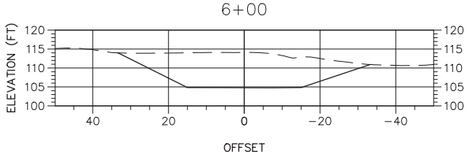


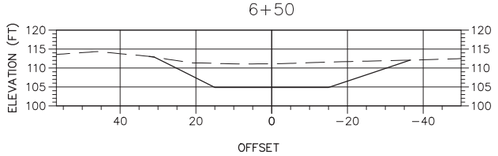


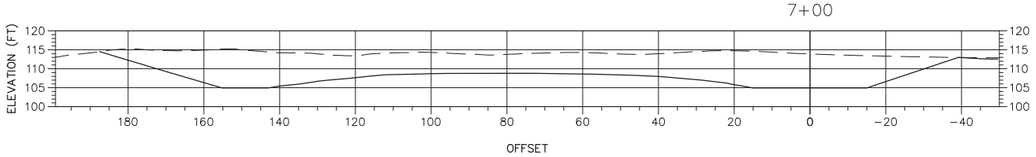


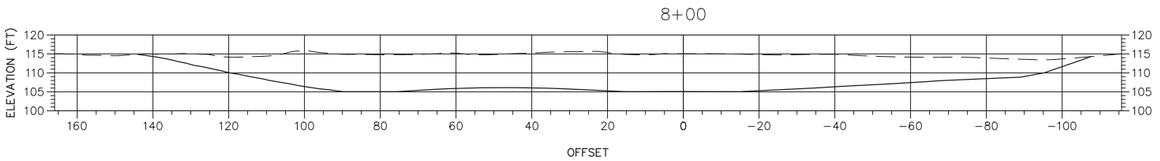


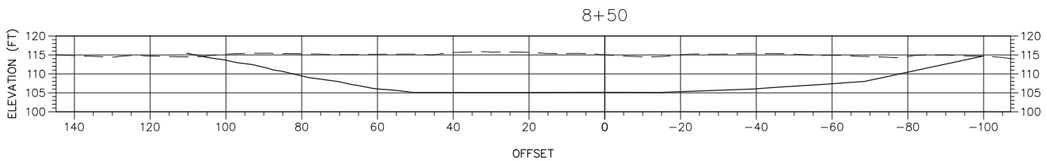


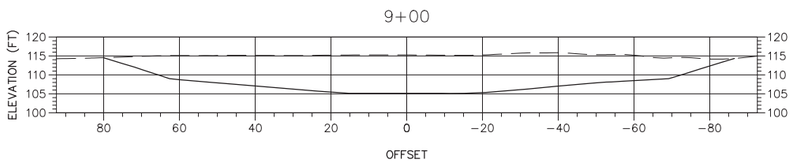












NOTES:

1. GRADE TO CREATE SMOOTH TRANSITIONS BETWEEN FINISH GRADE AND EXISTING GRADE.
2. SECTIONS ARE SHOWN WITHOUT VERTICAL EXAGGERATION.
3. SIDE SLOPES AND DIMENSIONS VARY ALONG LENGTH OF GRADED CHANNELS.

EASTERN SIDE CHANNEL
SECTIONS

SCALE: 1" = 20'

VERIFY SCALE
0 1
BAR LENGTH IS ONE INCH IN ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY.

CRAMER FISH SCIENCES
An Employee Owned Consulting Company
3300 Industrial Blvd., Suite 100
West Sacramento, CA 95691
888.224.1221

STANISLAUS RIVER
SALMONID HABITAT
RESTORATION PROJECT
at the STANLEY WAKEFIELD
WILDERNESS AREA
OAKDALE, CALIFORNIA

EASTERN SIDE CHANNEL GRADING SECTIONS - 1

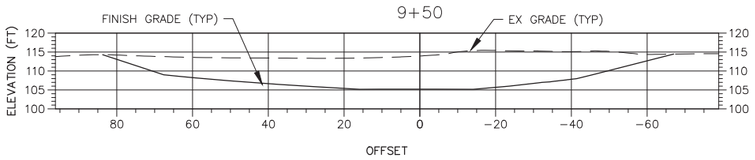
REGISTERED PROFESSIONAL ENGINEER
PHILIP L. LUECKING
66113
EXP. 6/30/22
CIVIL
STATE OF CALIFORNIA

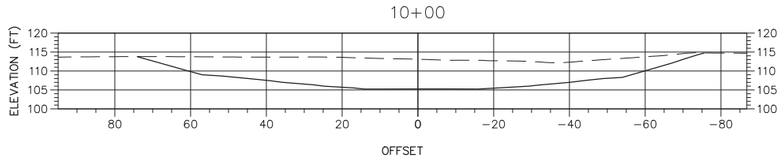
CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

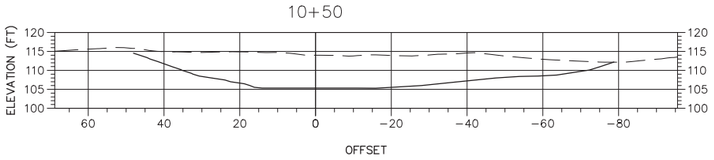
DRAWN	JGS
CHECKED	PLL
IN CHARGE	PLL
DATE	08/31/2021
SCALE	1" = 20'

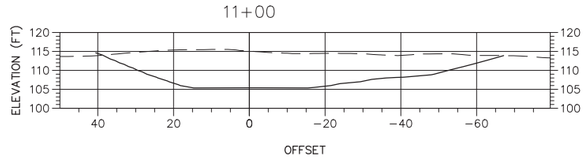
C-06
SHEET 12 OF 20

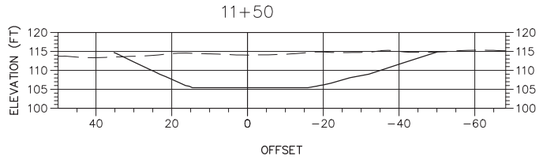
C-01_02_06-11 GRADING.DWG 8/27/2021 12:44 PM

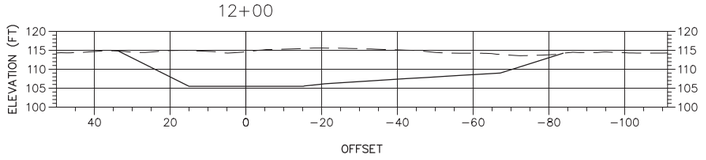


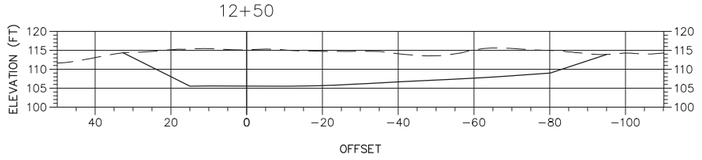


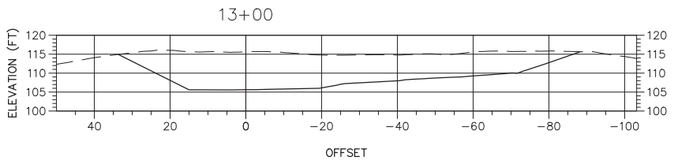


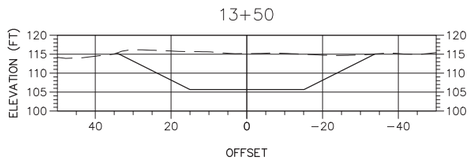


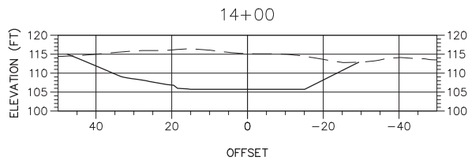


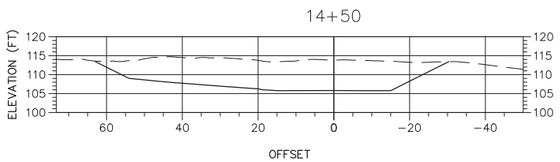


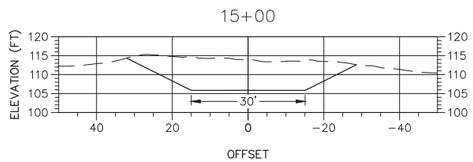


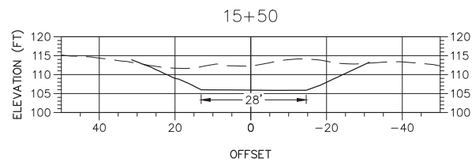


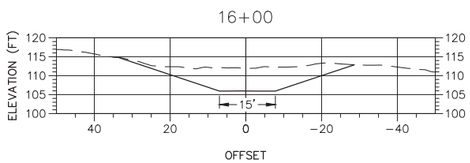


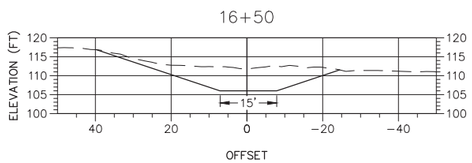


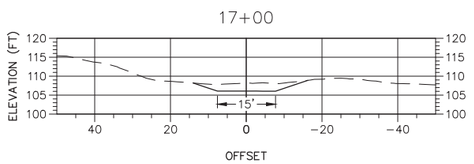












NOTES:

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2. SECTIONS ARE SHOWN WITHOUT VERTICAL EXAGGERATION.
3. SIDE SLOPES AND DIMENSIONS VARY ALONG LENGTH OF GRADED CHANNELS.
4. MAXIMUM BOTTOM WIDTH DIMENSIONS ARE SHOWN FOR STA 15+00 TO 17+00.

EASTERN SIDE CHANNEL

SECTIONS

SCALE: 1" = 20'

VERIFY SCALE
0 1
BAR LENGTH IS ONE INCH IN ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY.

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STANISLAUS RIVER
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RESTORATION PROJECT
at the STANLEY WAKEFIELD
WILDERNESS AREA

OAKDALE, CALIFORNIA

EASTERN
SIDE CHANNEL
GRADING
SECTIONS - 2

REGISTERED PROFESSIONAL ENGINEER
PHILIP L. LUECHINGER
66113
EXP. 6/30/22
CIVIL
STATE OF CALIFORNIA

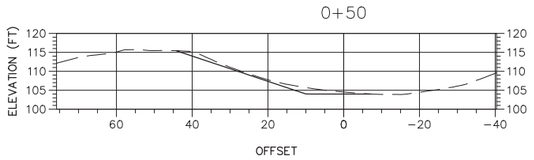
CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

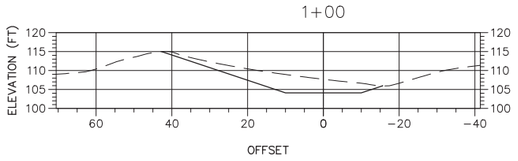
DRAWN	JGS
CHECKED	PLL
IN CHARGE	PLL
DATE	08/31/2021
SCALE	1" = 20'

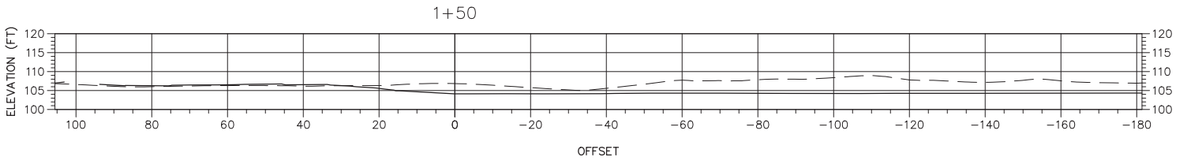
C-07

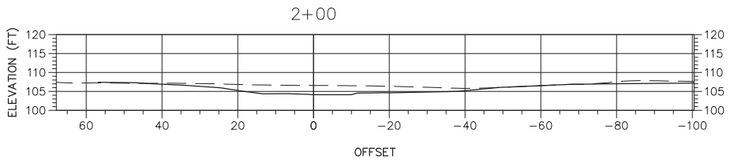
SHEET 13 OF 20

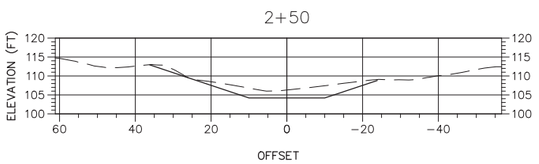
C-01_02_06-11 GRADING.DWG 8/27/2021 12:44 PM

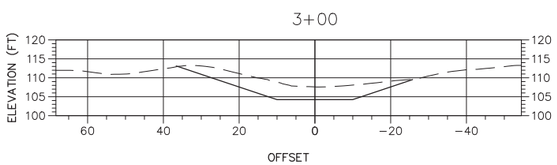


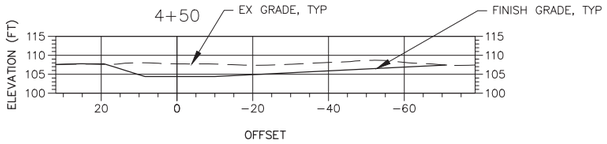


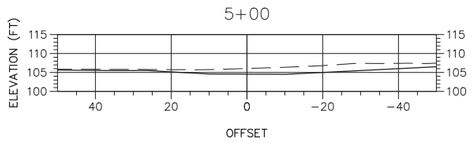


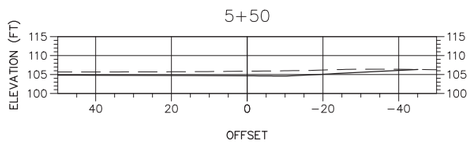


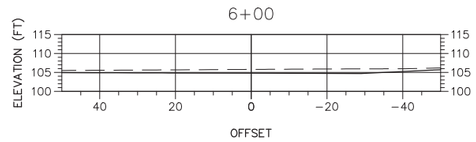


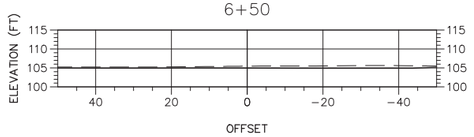


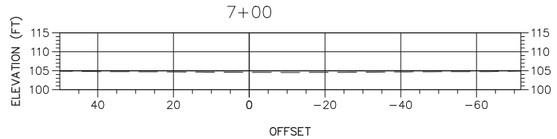












NOTES:

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2. SECTIONS ARE SHOWN WITHOUT VERTICAL EXAGGERATION.
3. SIDE SLOPES AND DIMENSIONS VARY ALONG LENGTH OF GRADED CHANNELS.
4. TOPOGRAPHIC LOW AREAS ARE PRESENT IN THE WETLAND AREA THAT MAY BE LOWER THAN THE DESIGN GRADE SHOWN ON PROFILES AND SECTIONS. MINOR GRADING ADJUSTMENTS MAY BE NECESSARY TO ENSURE THESE LOCATIONS ARE GRADED TO DRAIN.

WETLAND CHANNEL

SECTIONS

SCALE: 1" = 20'

VERIFY SCALE
0 1
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RESTORATION PROJECT
at the STANLEY WAKEFIELD
WILDERNESS AREA

OAKDALE, CALIFORNIA

WETLAND CHANNEL GRADING SECTIONS - 1

REGISTERED PROFESSIONAL ENGINEER
PHILIP L. LUECKING
66113
EXP. 6/30/22
CIVIL
STATE OF CALIFORNIA

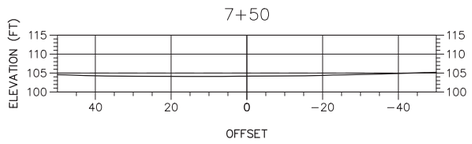
CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

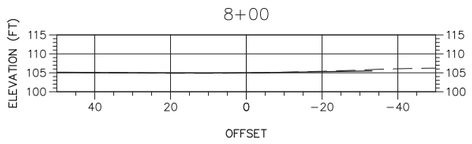
DRAWN	JGS
CHECKED	PLL
IN CHARGE	PLL
DATE	08/31/2021
SCALE	1" = 20'

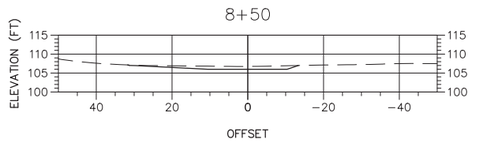
C-08

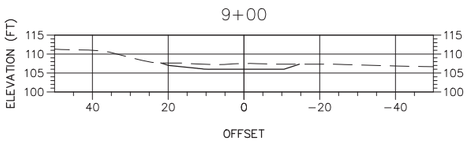
SHEET 14 OF 20

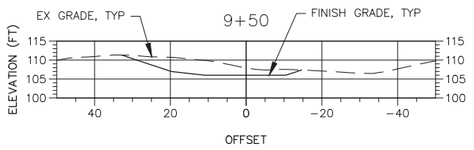
C-01_02_06-11 GRADING.DWG 8/27/2021 12:44 PM

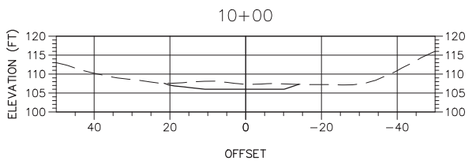


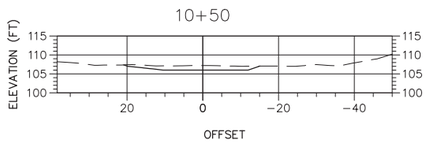


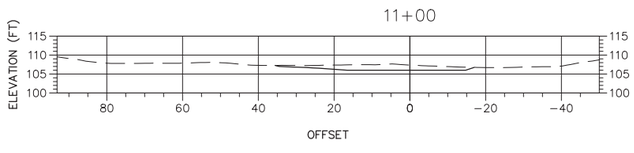


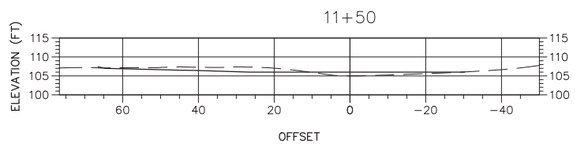


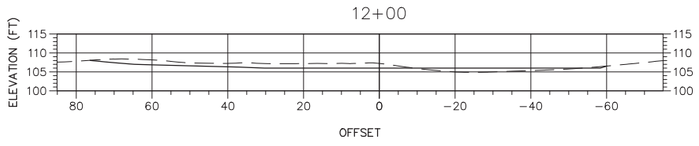


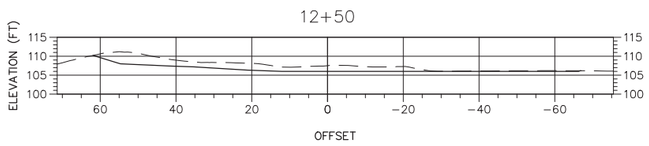


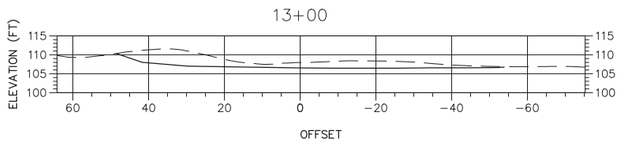












NOTES:

1. GRADE TO CREATE SMOOTH TRANSITIONS BETWEEN FINISH GRADE AND EXISTING GRADE.
2. SECTIONS ARE SHOWN WITHOUT VERTICAL EXAGGERATION.
3. SIDE SLOPES AND DIMENSIONS VARY ALONG LENGTH OF GRADED CHANNELS.
4. TOPOGRAPHIC LOW AREAS ARE PRESENT IN THE WETLAND AREA THAT MAY BE LOWER THAN THE DESIGN GRADE SHOWN ON PROFILES AND SECTIONS. MINOR GRADING ADJUSTMENTS MAY BE NECESSARY TO ENSURE THESE LOCATIONS ARE GRADED TO DRAIN.

WETLAND CHANNEL

SECTIONS

SCALE: 1" = 20'

VERIFY SCALE
0 1
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WILDERNESS AREA
OAKDALE, CALIFORNIA

WETLAND CHANNEL GRADING SECTIONS - 2

REGISTERED PROFESSIONAL ENGINEER
PHILIP L. LUECKING
66113
EXP. 6/30/22
CIVIL
STATE OF CALIFORNIA

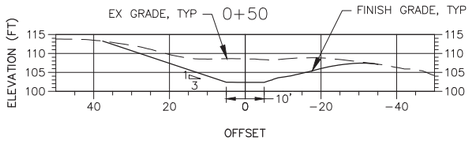
CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

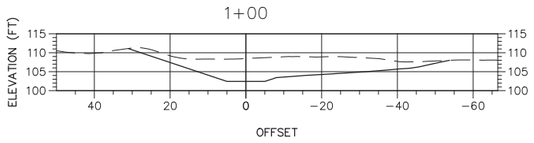
DRAWN	JGS
CHECKED	PLL
IN CHARGE	PLL
DATE	08/31/2021
SCALE	1" = 20'

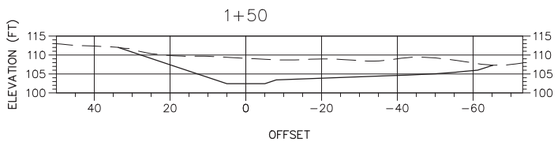
C-09

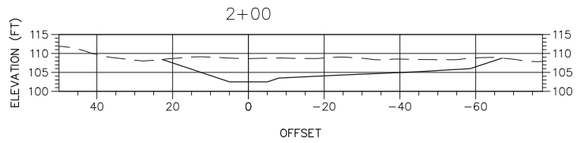
SHEET 15 OF 20

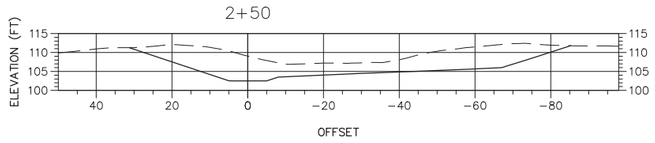
C-01_02_06-11 GRADING.DWG 8/27/2021 12:44 PM

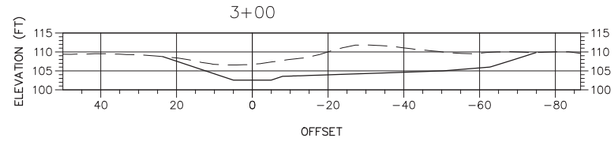


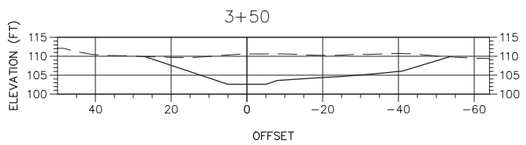


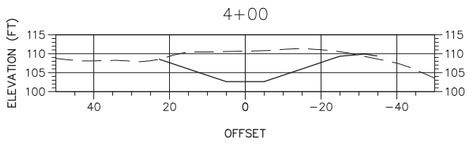


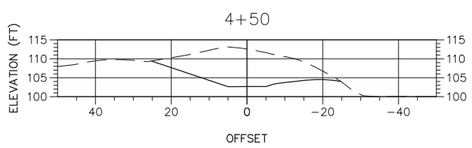


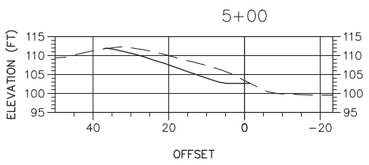












TERRACE SIDE CHANNEL

SECTIONS

SCALE: 1" = 20'

NOTES:

1. GRADE TO CREATE SMOOTH TRANSITIONS BETWEEN FINISH GRADE AND EXISTING GRADE.
2. SECTIONS ARE SHOWN WITHOUT VERTICAL EXAGGERATION.
3. SIDE SLOPES AND DIMENSIONS VARY ALONG LENGTH OF GRADED CHANNELS.

VERIFY SCALE
0 1
BAR LENGTH IS ONE INCH IN ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY.

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STANISLAUS RIVER
SALMONID HABITAT
RESTORATION PROJECT
at the STANLEY WAKEFIELD
WILDERNESS AREA
OAKDALE, CALIFORNIA

TERRACE SIDE CHANNEL GRADING SECTIONS

REGISTERED PROFESSIONAL ENGINEER
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CIVIL
STATE OF CALIFORNIA

CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

DRAWN	JGS
CHECKED	PLL
IN CHARGE	PLL
DATE	08/31/2021
SCALE	1" = 20'

C-10

SHEET 16 OF 20

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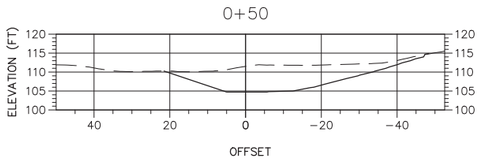
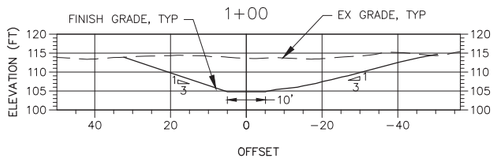
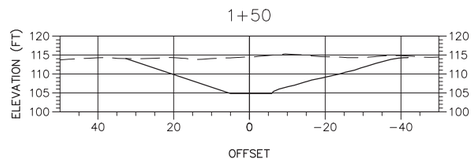
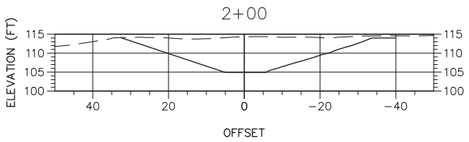
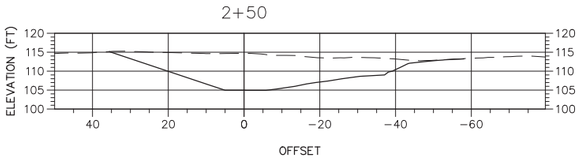






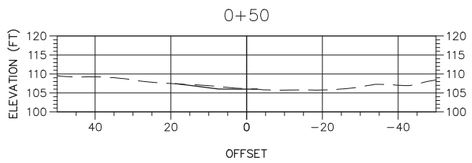


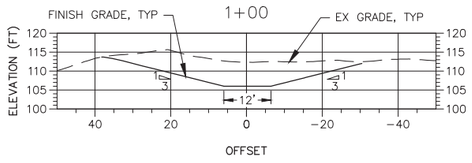


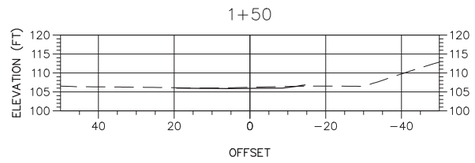
EASTERN SIDE CHANNEL - CONNECTOR

SECTIONS

SCALE: 1" = 20'







HIGH FLOW OUTLET

SECTIONS

SCALE: 1" = 20'

NOTES:

1. GRADE TO CREATE SMOOTH TRANSITIONS BETWEEN FINISH GRADE AND EXISTING GRADE.
2. SECTIONS ARE SHOWN WITHOUT VERTICAL EXAGGERATION.
3. SIDE SLOPES AND DIMENSIONS VARY ALONG LENGTH OF GRADED CHANNELS.

VERIFY SCALE
0 1
BAR LENGTH IS ONE INCH IN ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY.

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STANISLAUS RIVER
SALMONID HABITAT
RESTORATION PROJECT
at the STANLEY WAKEFIELD
WILDERNESS AREA
OAKDALE, CALIFORNIA

CONNECTOR CHANNEL GRADING SECTIONS

REGISTERED PROFESSIONAL ENGINEER
PHILIP L. LUECHINGER
66113
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CIVIL
STATE OF CALIFORNIA

CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

DRAWN	JGS
CHECKED	PLL
IN CHARGE	PLL
DATE	08/31/2021
SCALE	1" = 20'

C-11

SHEET 17 OF 20

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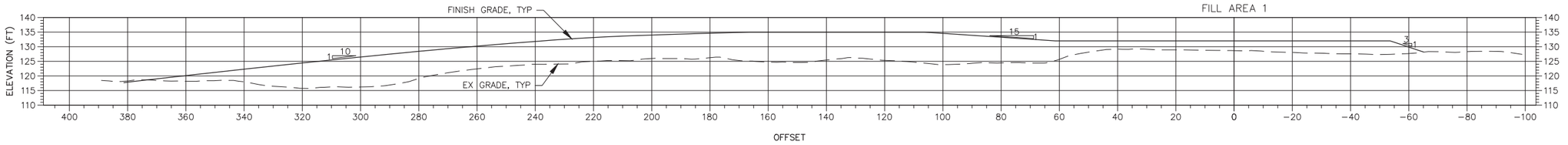
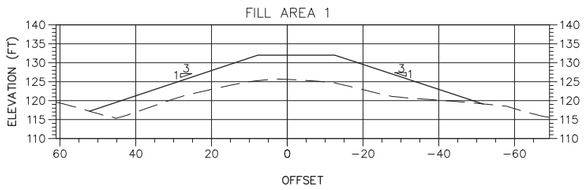
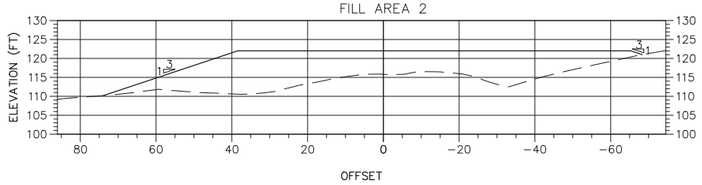
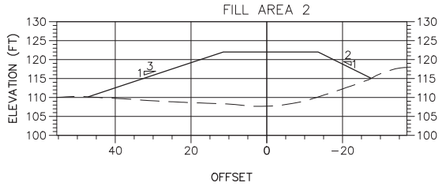
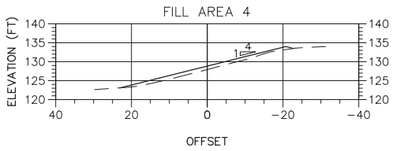
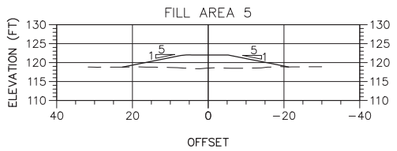


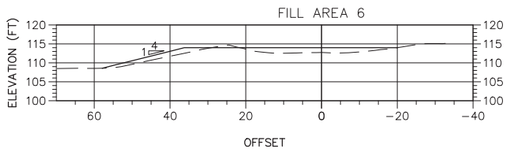


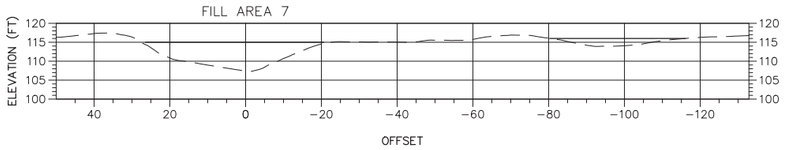


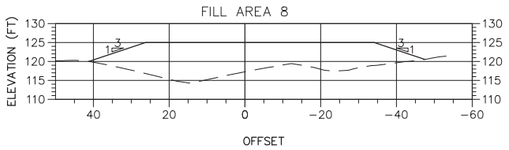


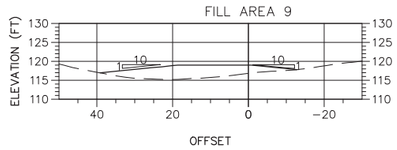






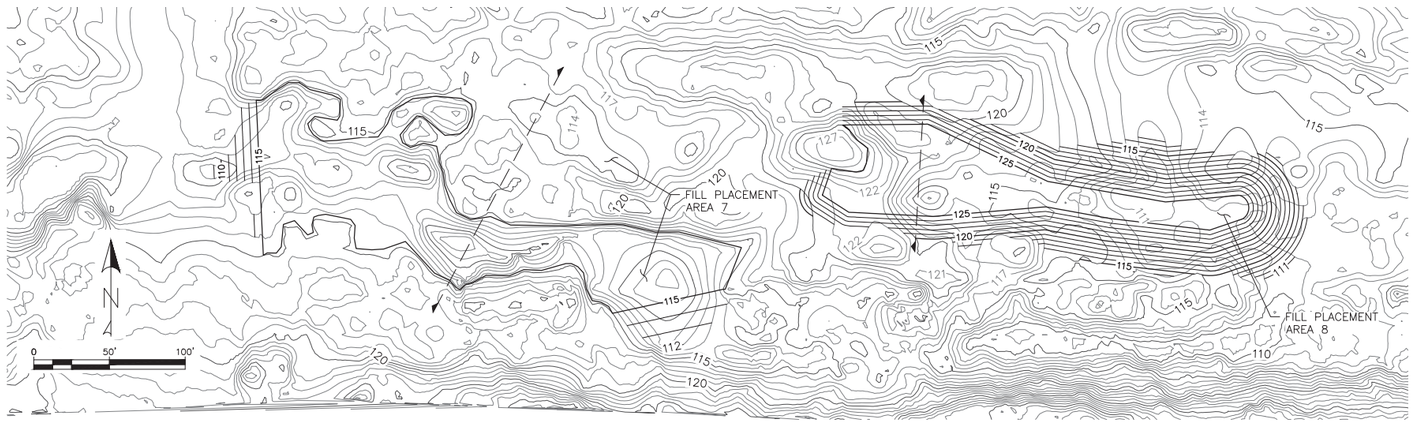






FILL PLACEMENT AREAS

SECTIONS — SCALE: 1" = 20'

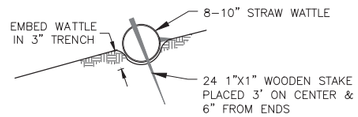


GRADING PLAN - FILL PLACEMENT AREA 7 & 8

PLAN VIEW — SCALE: 1" = 50'

NOTES:

1. GRADE TO CREATE SMOOTH TRANSITIONS BETWEEN FINISH GRADE AND EXISTING GRADE.
2. FILL PLACEMENT AREAS MAY ADJUSTED DURING CONSTRUCTION BASED ON COORDINATION WITH OWNER'S REPRESENTATIVE TO LIMIT FILL PLACED AROUND EXISTING TREES TO REMAIN AND TO PLACE SOME MATERIAL IN ISOLATED LOW AREAS NOT IDENTIFIED ON THE PLANS.
3. GRADING SECTIONS ARE SHOWN ON SHEETS C-06 TO C-12.
4. TYPICAL SLOPES ARE SHOWN FOR REFERENCE BUT CONTRACTOR SHALL ENDEAVOR TO CREATE A NON-UNIFORM GRADED SLOPE AT FILL PLACEMENT SITES.



WATTLE INSTALLATION NOTES

1. PLACE WATTLES ALONG LEVEL CONTOUR AT A MAXIMUM INTERVAL OF 20 FT.
2. EXCAVATE TRENCH AS SHOWN TO PLACE WATTLES.
3. OVERLAP ENDS OF ADJACENT WATTLES BY A MINIMUM OF 1 FOOT.
4. DRIVE STAKES THROUGH MIDDLE OF WATTLE & PERPENDICULAR TO SLOPE SUCH THAT NO MORE THAN 2-3" IS EXPOSED ABOVE WATTLE.

STRAW WATTLE

TYPICAL DETAIL — NOT TO SCALE

VERIFY SCALE
0 1
BAR LENGTH IS ONE INCH IN ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY.

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STANISLAUS RIVER
SALMONID HABITAT
RESTORATION PROJECT
at the STANLEY WAKEFIELD
WILDERNESS AREA
OAKDALE, CALIFORNIA

GRADING PLAN & SECTIONS - FILL AREAS

REGISTERED PROFESSIONAL ENGINEER
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CIVIL
STATE OF CALIFORNIA

CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

DRAWN	JGS
CHECKED	PLL
IN CHARGE	PLL
DATE	08/31/2021
SCALE	AS SHOWN

C-12

SHEET 18 OF 20

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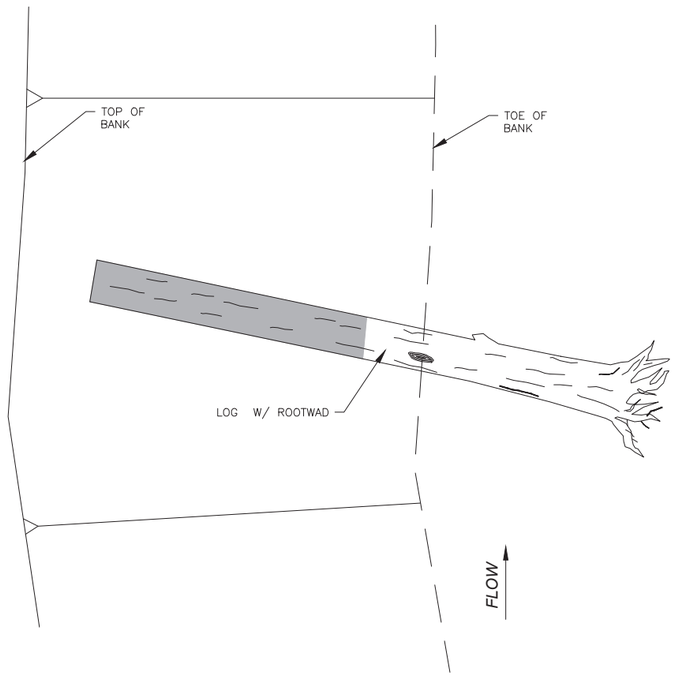
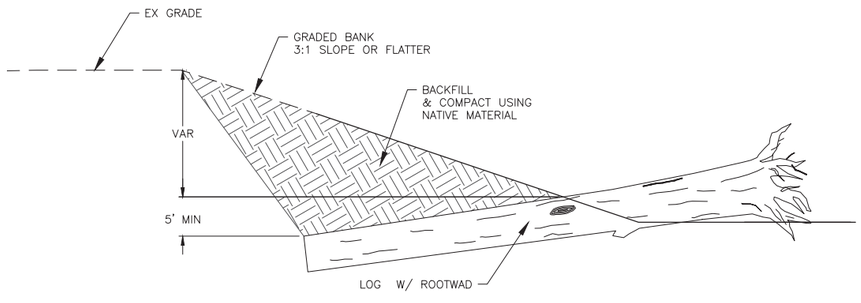


PLAN VIEW

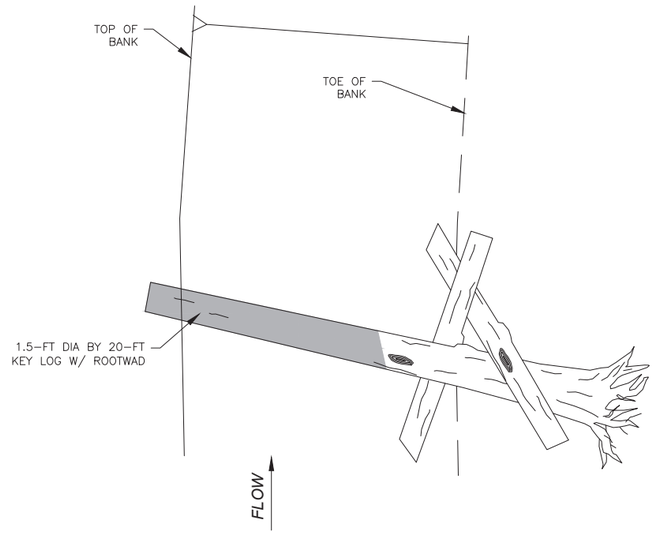


KEY PIECE STRUCTURES NEAR EASTERN SIDE CHANNEL INLET (STA 16+50 AND 17+00) SHALL BE 2–FT DIA BY 30 FT & SPAN ~50% OF THE CHANNEL WIDTH.

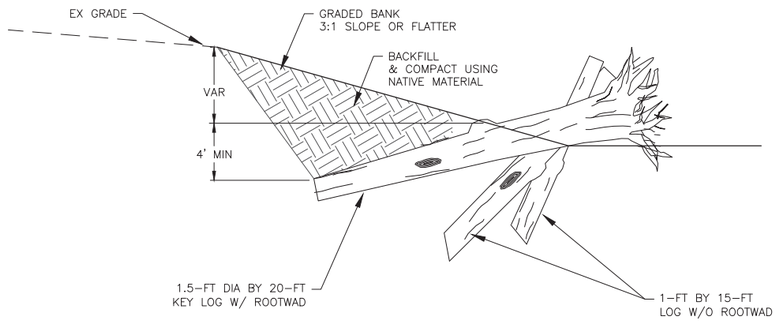
ALL OTHER KEY PIECE STRUCTURES SHALL BE 1.5–FT DIA BY 25 FT & SPAN ~25% OF THE CHANNEL WIDTH.

SECTION VIEW

1 LARGE WOOD KEY PIECE STRUCTURE
TYPICAL DETAILS NOT TO SCALE

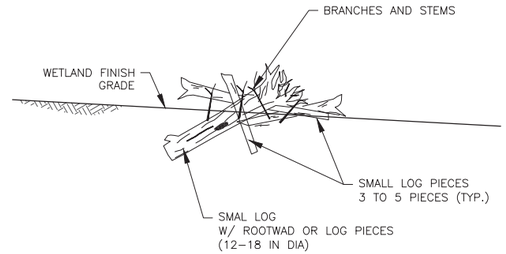


PLAN VIEW



SECTION VIEW

2 SMALL WOOD JAM STRUCTURE
TYPICAL DETAILS NOT TO SCALE



3 WETLAND WOOD CLUSTER
TYPICAL DETAILS NOT TO SCALE

NOTES:

1. ALL LOGS AND WOOD SHALL BE SALVAGED FROM TREES REMOVED ONSITE WITHIN THE GRADING LIMITS.
2. CONTRACTOR SHALL PREPARE WOOD STRUCTURE AND DIMENSIONS WILL VARY BASED ON ACTUAL CONDITION AND SIZE OF WOOD AVAILABLE.
3. DIRECT FELLING OF TREES IS AN OPTION FOR SOME LOCATIONS WITH APPROVAL FROM OWNER'S REPRESENTATIVE.
4. SPECIAL HANDLING OF TREES TO MAINTAIN ROOTWAD WILL BE REQUIRED.
5. WILLOW AND ALDER TREES REMOVED SHALL ONLY BE USED FOR THE WETLAND CLUSTER STRUCTURES WITHIN THE WETLAND AREA. ALL OTHER SPECIES MAY BE USED FOR ANY STRUCTURE AND LOCATION.

VERIFY SCALE
0 1
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STANISLAUS RIVER
SALMONID HABITAT
RESTORATION PROJECT
at the STANLEY WAKEFIELD
WILDERNESS AREA
OAKDALE, CALIFORNIA

WOOD STRUCTURES TYPICAL DETAILS

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EXP. 6/30/22
CIVIL
STATE OF CALIFORNIA

CITY OF OAKDALE
& CALIFORNIA
DEPARTMENT OF
FISH & WILDLIFE

DRAWN	PLL
CHECKED	RAB
IN CHARGE	PLL
DATE	08/31/2021
SCALE	NTS

C-13
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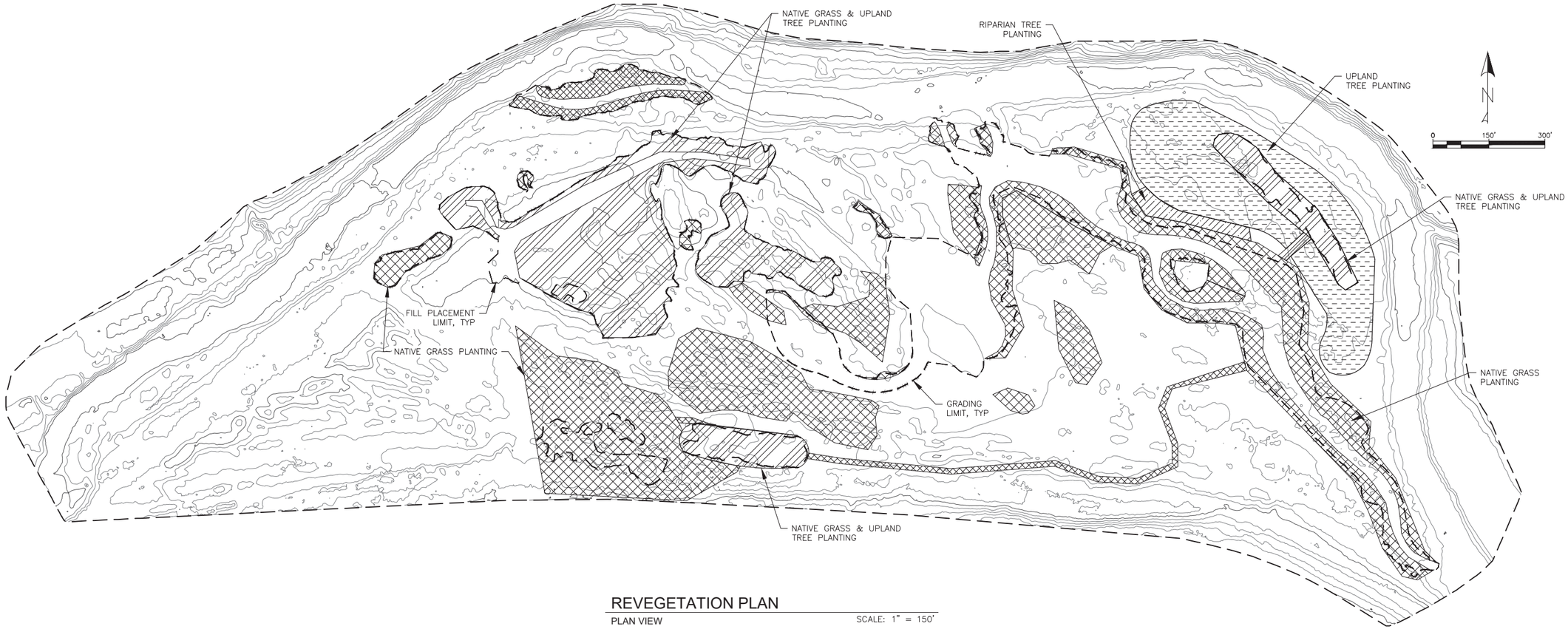


REVEGETATION PLAN

PLAN VIEW — SCALE: 1" = 150'

NOTES:

1. LEAVE 30 FT BUFFER FOR ANY EXISTING COTTONWOOD TREES AND 10 FT BUFFER FOR ANY OTHER EXISTING TREES IN REPLANTING AREAS.
2. TREE PLANTING QUANTITIES BASED ON A REPLACEMENT RATIO OF 10:1 FOR ELDERBERRY, REPLACEMENT RATIO OF 5:1 FOR OAK, AND REPLACEMENT RATIO OF 3:1 FOR ALL OTHER TREES REMOVED FROM GRADING AREAS.
3. LIVE STAKES TO BE INSTALLED IN GROUPS OF THREE STAKES WITH SPACING BETWEEN GROUPS AS SHOWN IN THE TABLE.

EROSION CONTROL SEED MIX TABLE

COMMON NAME	SPECIES	LBS/ACRE	ACRES	ESTIMATED LBS
Blue Wildrye	*Elymus glacus*	10.0	20	200
Creeping Wildrye	*Elymus triticoides*	2.0	20	40
Slender Wheetgrass	*Elymus trachycaulus ssp. trachycaulus*	8.0	20	160
Meadow Barley	*Hardeum brachyantherum*	6.0	20	120
Gum Plant	*Grindelia camporum*	1.0	20	20
California Brome	*Bromus carinatus*	2.0	20	40
Three Weeks Fescue	*Festuca microstachys*	2.0	20	40
	PLS lbs	31.0		

POLLINATOR SEED MIX TABLE

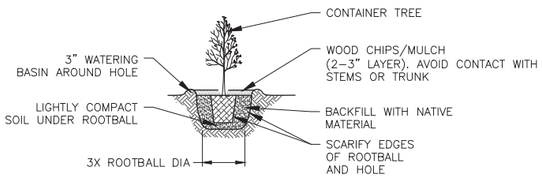
COMMON NAME	SPECIES	LBS/ACRE	ACRES	ESTIMATED LBS
Elegant Clarkia	*Clarkia unguiculata*	0.5	20	10
Fort Miller Clarkia	*Clarkia williionsonii*	0.3	20	6
California Poppy	*Eschscholzia californica*	0.7	20	14
Gum Plant	*Grindelia camporum*	0.7	20	14
Bolander's Sunflower	*Helianthus bolanderii*	0.7	20	14
Arroyo Lupine	*Lupinus succulentus*	3.6	20	72
Yarrow	*Achillea millifolium*	0.1	20	2
Phacelia	*Phacelia californica*	0.6	20	12
Great Valley Phacelia	*Phacelia ciliata*	1.3	20	26

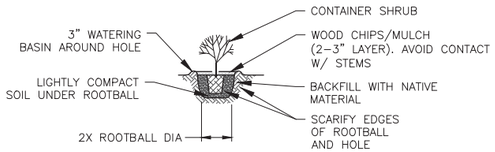
NATIVE GRASS PLANTING (13.5 ACRES)

UPLAND TREE PLANTING (3.7 ACRES)

RIPARIAN TREE PLANTING (0.3 ACRES)

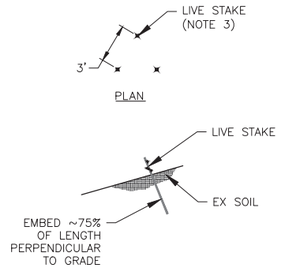
NATIVE GRASS AND UPLAND TREE PLANTING (6.4 ACRES)





CONTAINER PLANTINGS

TYPICAL DETAIL — NOT TO SCALE



LIVE STAKE PLANTING

TYPICAL DETAIL — NOT TO SCALE

VERIFY SCALE
0 1
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STANISLAUS RIVER SALMONID HABITAT RESTORATION PROJECT at the STANLEY WAKEFIELD WILDERNESS AREA

OAKDALE, CALIFORNIA

REVEGETATION PLAN

REGISTERED PROFESSIONAL ENGINEER PHILIP L. LUEKING 66113 EXP. 6/30/22 CIVIL STATE OF CALIFORNIA

CITY OF OAKDALE & CALIFORNIA DEPARTMENT OF FISH & WILDLIFE

DRAWN	JGS
CHECKED	PLL
IN CHARGE	PLL
DATE	08/31/2021
SCALE	1" = 150'

C-14

SHEET 20 OF 20

C-14 REVEGETATION PLAN.DWG 8/27/2021 12:47 PM

Appendix B. Mitigation Monitoring and Reporting Plan

MITIGATION MONITORING AND REPORT PROGRAM

STANISLAUS RIVER SALMONID HABITAT RESTORATION PROJECT AT STANLEY WAKEFIELD WILDERNESS AREA MITIGATED NEGATIVE DECLARATION

This Mitigation Monitoring and Reporting Program (MMRP) was prepared in accordance with Section 15097 of the California Environmental Quality Act (CEQA) Guidelines. Section 15097 requires that a lead agency establish a program to report on or monitor measures adopted as part of the environmental review process to mitigate or avoid significant effects on the environment. The MMRP for the Stanislaus River Salmonid Habitat Restoration Project at Stanley Wakefield Wilderness Area is presented here as Table 1.

This MMRP is designed to ensure that the mitigation measures necessary to reduce significant impacts identified in the Project Initial Study and Proposed Mitigated Negative Declaration (IS/MND) are implemented. The components of the MMRP Table 1 are listed below:

Mitigation Measures: The mitigation measures are taken verbatim from the Project IS/MND.

Timing/Milestone: Identifies a schedule for conducting each mitigation action.

Responsible Entity: Identifies the entity responsible for implementing specific mitigation measures.

Mitigation Action: Identifies the specific action or actions that must be completed to implement the mitigation measure.

Monitoring and Enforcement Responsibility: Identifies the department/agency, consultant, or other entity responsible for overseeing that mitigation occurs.

Check off Date/Initials: To be filled out when individual mitigation is complete.

MITIGATION MONITORING AND REPORTING PROGRAM: UPPER ROSE BAR SALMONID SPAWNING HABITAT RESTORATION PROJECT					
Mitigation Measure(s)	Timing/ Milestone	Responsible Entity	Mitigation Action	Monitoring and Enforcement Responsibility	Check off Date/Initials
Air Quality					
AQ-1. Reduce Dust and Air Quality Impacts. The following dust reduction measures shall be implemented during transport of materials from the borrow areas (islands) where sediment will be removed to berm construction location and secondary channels where filling is planned to occur to reduce construction-related emissions: • wet materials to limit visible dust emissions using water; • provide at least 6 in (15.2 cm) of freeboard space from the top of the container; or, • cover the container. The following dust reduction measure shall be implemented during material transport to reduce construction-related emissions: • limit or promptly remove any of mud or dirt on construction equipment and vehicles at the end of each workday, or once every 24 hours. The following measure shall be implemented to ensure that emissions meet current air quality standards:	During restoration activities (Ongoing)	Project Applicant/ Contractor	Implement specified mitigation measures	Project Applicant/ Contractor	

• the off-road work fleet average at a minimum must meet the current California Air Resources Control Board standards, including the use of Tier 4 emission standards of at least 0.4 g/hp-hr Nitrogen Oxides (NOx).					
Biological Resources					
BIO-1: Adaptive Construction Approach to Protect Elderberry Plants and Mitigate for Loss To avoid direct mortality to VELB from crushing by heavy equipment or through destruction of their elderberry shrub habitat during construction, a qualified biologist shall clearly mark elderberry plants prior to construction and intrusion into the prescribed 20-foot buffer zone shall be avoided, as possible. The 20-foot buffer shall be inspected weekly during ground disturbing activities and monthly after ground-disturbing activities until the project is complete or until the fences are removed. The qualified biologist will be responsible for ensuring that the contractor maintains construction stanchion and flagging around elderberry shrubs in the Project footprint. Biological inspection reports shall be provided to the lead agency and USFWS.	Prior to restoration activities	Project Applicant/ Contractor	Implement specified mitigation measures	Project Applicant/ Contractor	
BIO-2. Transplant Unavoidable Elderberry Plants to Suitable Locations and Monitor Survival Elderberries that cannot be avoided using a 20-foot buffer will either be retained in their location and monitored in place for survival or be transplanted to a	Prior to, during and after restoration activities (Ongoing)	Project Applicant/ Contractor	Use qualified QSP and implement measures	Project Applicant/ Contractor	

suitable location during project construction. Elderberry mitigation plantings will occur at a 3:1 ratio for each transplanted plant, and for each elderberry left in place that does not survive encroachment into its 20-foot buffer zone. The shurbs and plantings will be monitored in years one, two, and three with a target minimum survival rate of at least 60%. If necessary, replacement plants will be added to the restoration area to maintain survival above 60%.					
BIO-3. Protect and Compensate for Native Trees. When possible, native trees, such as Fremont Cottonwood, willows, and alder, with a dbh of 6 in (15.2 cm) or greater shall be protected with 30-ft (9.1-m), 10-ft (3-m), and 10-ft (3-m) buffers, respectively. Native trees shall be marked with flagging if close to the work area to prevent disturbance. To compensate for the removal of riparian shrubs and trees during Proposed Project implementation, the plans shall identify tree and shrub species to be planted, how, where, and when they would be planted, and measures to be taken to ensure a minimum performance criterion of 70% survival of planted trees. Irrigation shall not be used, as the improvements in diversion efficiency are expected to promote survival and growth of native riparian species. The tree plantings shall be based on native tree species compensated for in the following manner: • Oaks having a dbh of 3 – 5 in (7.6 – 12.7 cm) shall be replaced in-kind, at a ratio of 3:1, and planted during the winter dormancy period in the nearest suitable location to the area where they	Prior to restoration activities	Project Applicant/ Contractor	Implement mitigation measures specified in ISRAP	Project Applicant/ Contractor	

were removed. Oaks with a dbh of greater than 5 in shall be replaced in-kind at a ratio of 5:1. • Riparian trees (i.e., willow, cottonwood, poplar, alder, ash, etc.) and shrubs shall be replaced in-kind within the Action Area, at a ratio of 3:1, and planted in the nearest suitable location to the area where they were removed.					
BIO-4: Conduct Sensitive Species Surveys Prior to Construction During Critical Periods Pre-construction surveys will be performed in the Action Area no more than 10 days prior to start of construction for species which have critical periods overlapping with the dry-groundwork window (16 April to 31 October) which may be impacted by the Proposed Action to verify the presence or absence of special-status species. If special status or sensitive species are identified within the area which may be impacted by Proposed Action activities, then buffers will be established and/or CDFW and USFWS will be consulted. Nesting birds and raptors are protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code, and trees and shrubs within the Action Area likely provide nesting habitat for songbirds and raptors. If tree removal is unavoidable, it will occur during the non-breeding season (mid-September). A minimum no disturbance buffer will be delineated around active nests (note, size of buffer depends on species encountered) until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.	During restoration activities (Ongoing)	Project Applicant/ Contractor	Implement specified mitigation measures	Project Applicant/ Contractor	

Surveys for active bird nests and rookeries will be performed using qualified biologists no more than 10 days prior to the start of disturbance activities. A minimum no-disturbance buffer of 250 ft around active nests of non-listed bird species; a 500-ft no-disturbance buffer around migratory bird species; and a half mile buffer for nest of listed species and fully protected species will be established until breeding season is over or young have fledged. If such a buffer cannot be accomplished, CDFW will be consulted. If sensitive wildlife species or active nest or den sites are found within the construction area, the biologist shall have the authority to stop construction activities and establish a non-disturbance buffer until it is determined that the animal would not be harmed. If the potential to harm sensitive wildlife or an active nest/den site remains, the non-disturbance buffer is to remain, and the biologist shall contact CDFW for authorization before work resumes.					
BIO 5: Nesting Raptor and Bird Avoidance and Minimization To the extent feasible, Proposed Action activities shall be scheduled to avoid the nesting bird season. For Proposed Action activities expected to occur during the nesting season of raptors (16 April to 31 August) and migratory birds, a qualified biologist shall conduct a pre-construction survey no more than 10 days prior to the start of construction to determine if active nests are present on or within 500 feet of the Action Area. If no active nests are identified during the pre-construction	Prior to initiation of restoration activities	Project Applicant/ Contractor	Implement specified mitigation measures	Project Applicant/ Contractor	

survey, no further mitigation is necessary. If active nests are found on or within 500 feet of the Action Area, the following buffers shall be established until breeding season is over or young have fledged to ensure that Proposed Action activities comply with the MBTA and California Fish and Game Code: • a minimum no-disturbance buffer of 250 feet around active nests of birds protected under the MBTA (including Snowy Egret and Yellow-breasted Chat); and • a 500-foot or greater no-disturbance buffer around active nests of raptors protected under the MBTA, and a half-mile buffer for Swainson's Hawk • Wildlife surveys would be performed before construction activities to determine if there are nesting sites on or nearby the site (**Mitigation Measure BIO-4**). If nesting activity is confirmed, a no-disturbance buffer would be created around the nest, as appropriate for the species. CDFW would also be contacted to discuss implementation changes and/or additional avoidance measures. With these measures in place, the impact is expected to be **less than significant with mitigation.**					

Mitigation Measure BIO-6: Surveys and Avoidance for Western Pond Turtle Within 10 days prior to ground disturbing activities, a qualified biologist shall conduct a pre-activity survey to identify Western Pond Turtle individuals or nests within proposed work areas during the egg-laying season (March-August). If any western pond turtle is found within the Action Area, the activities in the vicinity shall cease until they have moved outside of the Action Area of their own volition. If a western pond turtle nest is found, the biologist shall flag the site, maintain an appropriate no-disturbance buffer, and determine if Proposed Action activities can avoid affecting the nest.	Prior to and during restoration activities	Project Applicant/ Contractor	Implement specified mitigation measures	Project Applicant/ Contractor	
Mitigation Measure BIO-7: Monitor for Bats to Prevent Impacts Before any ground disturbing activities, a qualified biologist shall survey for the presence of associated habitat types for the bat species of concern. If bats are present, the biologist shall apply a minimum 300 ft (91.4 m) no-disturbance buffer around roosting bats, maternity roosts or winter hibernacula until all young bats have fledged. If suitable habitat is present, evening emergence surveys shall be conducted during the appropriate seasonal period of bat activity to determine the presence of bats.	Prior to and during restoration activities	Project Applicant/ Contractor	If necessary, implement specified mitigation measures	Project Applicant/ Contractor	

Cultural Resources					
Mitigation Measure CR-1: Inadvertent Discoveries of Objects of Cultural Significance If archaeological components are encountered during ground-disturbing activities, all ground disturbing work at the find location and 100-foot buffer placed around the area until a qualified archaeologist can assess the significance of the finding and provide (if needed) avoidance and/or data recovery plan. Pursuant to California Health and Safety Code §7050.5, if human remains are encountered, all ground-disturbing work must cease in the vicinity of the discovery, and the County Coroner shall be contacted. The respectful treatment and disposition of remains and associated grave offerings shall be in accordance with Public Resource Code (PRC) §5097.98. The Proposed Action owner is responsible for implementation PRC §5097.98 and coordination with the likely descendant (MLD) identified by the Native American Heritage Commission. PRC §5097.98 also outlines next steps should the landowner and MLD not reach an agreement to the final disposition of the remains.	During restoration activities (Ongoing)	Project Applicant/ Contractor	Implement specified mitigation measures	Project Applicant/ Contractor	

Hazards and Hazardous Materials					
Mitigation Measure HAZ-1: Reduce Potential Impacts from Wildfire Risk During Proposed Action construction, any dry vegetation present on the staging areas or temporary access roads would be cleared prior to being used by vehicles or heavy equipment. Fire extinguishers would be present onsite in vehicles to quickly put out any vegetation that ignites as a result of a spark from heavy equipment.	Prior to and during restoration activities	Project Applicant/ Contractor	If necessary, implement specified mitigation measures	Project Applicant/ Contractor	
Water Quality					
Mitigation Measure WQ-1 – Monitor Water Quality and Prevent Impacts During construction that will occur adjacent to the Stanislaus River main channel, turbidity and total suspended solids shall be monitored with intermittent grab samples from the river, and construction curtailed if turbidity exceeds criteria established by the Regional Water Quality Control Board in its Clean Water Act §401 Water Quality Certification for the Proposed Action. Specifically, sampling shall be performed immediately upstream from the Action Area and approximately 300 feet downstream of the active work area during construction. Activities shall not cause in surface waters: • turbidity to exceed 2 NTU's where natural turbidity is less than 2 NTU;	Prior to and during restoration activities	Project Applicant/ Contractor	If necessary, implement specified mitigation measures	Project Applicant/ Contractor	

• where natural turbidity is between 1 and 5 NTUs, increases exceeding 1 NTU; • where natural turbidity is between 5 and 50 NTUs, increase exceeding 20 percent; • where natural turbidity is between 50 and 100 NTUs, increases exceeding 10 NTUs; • where natural turbidity is greater than 100 NTUs, increase exceeding 10 percent. Activities shall not cause settleable material to exceed 0.1 ml/L in surface waters as measured in surface waters downstream from the Action Area. Activities shall not cause pH to be depressed below 6.5 nor raised above 8.5 as measured in surface waters downstream from the Action Area. The Proposed Action shall not discharge petroleum products into surface water. The Central Valley Water Board shall be notified immediately of any spill of petroleum products. Sediment fencing shall be used along the river corridor to capture floating materials or sediments mobilized during construction activities and prevent water quality impacts. Stream bank impacts shall be isolated and minimized to reduce bank sloughing. Banks shall be stabilized with					

revegetation following Proposed Action activities, as appropriate. A SWPPP shall be developed as part of the BMPs. All pertinent staff shall be trained on and familiarized with these plans. Copies of the plans and appropriate spill prevention equipment referenced in them shall be made available onsite and staff shall be trained in its use. Spill prevention kits shall be in close proximity to construction areas, and workers tined in their proper use.					
Mitigation Measure WQ-2: Use Clean Equipment and Biodegradable Lubricants All equipment shall be clean and use biodegradable lubricants and hydraulic fluids. All equipment working within the stream channel shall be inspected daily for fuel, lubrication, and coolant leaks; and, for leak potentials (e.g. cracked hoses, loose filling caps, stripped drain plugs). Vehicles shall be fueled and lubricated in a designated staging area located outside the stream channel and banks. Construction specifications shall require that any equipment used in or near the river is properly cleaned to prevent any hazardous materials from entering the river, and containment material shall be available onsite in case of an accident. Spill prevention kits shall be located close to construction areas, with workers trained in its use. Contracted construction managers shall regularly monitor construction personnel to ensure environmental compliance.	Prior to and during restoration activities	Project Applicant/ Contractor	If necessary, implement specified mitigation measures	Project Applicant/ Contractor	

Noise					
NOISE-1 - Reduce Impacts from Noise. To mitigate noise related impacts, the Project shall require all contractors to comply with the following operational parameters: • Restrict construction activities to time periods between 7:00 am and 5:00 pm when there is the least potential for disturbance; • Install and maintain sound-reducing equipment and muffled exhaust on all construction equipment.	Prior to and during restoration activities	Project Applicant/ Contractor	If necessary, implement specified mitigation measures	Project Applicant/ Contractor	
Recreation					
Mitigation Measure REC-1: Public Safety During Proposed Action construction, signs will be posted at the start of the access road and along the perimeter of the Action Area to inform the public about the potential hazards created by heavy equipment and how to safely avoid the work zone. A highly visible warning sign shall be placed on the bank approximately 100 feet upstream of construction activity, informing any individuals floating down the river about the construction activity and directing them to a safe path to avoid construction activity.	Prior to and during restoration activities	Project Applicant/ Contractor	If necessary, implement specified mitigation measures	Project Applicant/ Contractor	