

RD 2035/WOODLAND DAVIS CLEAN WATER AGENCY JOINT INTAKE AND FISH SCREEN

Draft Initial Study/Environmental Assessment

Reclamation District 2035
United States Bureau of Reclamation

May 2012



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TABLE OF CONTENTS

RD 2035/WDCWA Joint Intake and Fish Screen Draft Initial Study/Environmental Assessment

	<u>Page</u>
1. Purpose and Need	1-1
1.1 Introduction	1-1
1.2 Background	1-2
1.3 Purpose and Need	1-5
1.4 Project Objectives	1-5
1.5 Anticipated Regulatory Requirements and Permits for the Project	1-6
1.6 Scope and Organization	1-7
2. Description of Proposed Project/Action	2-1
2.1 Background	2-1
2.2 No Action Alternative	2-2
2.3 Proposed Project/Action	2-2
3. Environmental Setting / Affected Environment	3.1-1
3.1 Land Use and Agriculture	3.1-1
3.2 Aesthetic Resources	3.2-1
3.3 Air Quality and Climate Change	3.3-1
3.4 Noise and Vibration	3.4-1
3.5 Geology, Soils, and Seismicity	3.5-1
3.6 Hydrology and Water Quality	3.6-1
3.7 Biological Resources	3.7-1
3.8 Cultural Resources	3.8-1
3.9 Transportation and Traffic	3.9-1
3.10 Hazards and Hazardous Materials	3.10-1
3.11 Recreation	3.11-1
3.12 Socioeconomics and Environmental Justice	3.12-1
3.13 Public Services and Utilities	3.13-1
3.14 Cumulative Effects	3.14-1
3.15 Growth Inducing Effects	3.15-1
4. Report Preparation	4-1
5. Bibliography	
6. References	6-1

Appendices

- A. CEQA Initial Study Checklist
- B. Fish Rescue Plan

List of Figures

1-1	Regional Location	1-3
1-2	Project Location	1-4
2-1	Proposed Project/Action Site Plan	2-5
2-2	Proposed Project/Action Facilities Layout	2-6
2-3	Proposed Project/Action Architectural Rendering	2-7
2-4	Potential Spoils Disposal Areas	2-12
3.6-1	Existing Mean Monthly Sacramento River Flow at the Proposed Point of Diversion	3.6-2
3.6-2	Flow Exceedance Curve at the Proposed Point of Diversion	3.6-3
3.6-3	Sacramento River Annual Flow at Proposed Point of Diversion	3.6-3
3.7-1	Project Site Habitats	3.7-3
3.7-2	Elderberry Shrub Locations	3.7-19
3.7-3	Giant Garter Snake Habitat	3.7-23
3.14-1	Cumulative Exceedance Curves for Sacramento River, Comparison of Future Conditions with-and without- Project	3.14-8

List of Tables

1-1	Anticipated Regulatory Requirements And Permits For Project Implementation	1-6
3.1-1	Land Use and Agricultural Goals and Policies of Yolo County	3.1-3
3.2-1	Scenic Resource Management Objectives of Yolo County	3.2-3
3.3-1	Air Quality Data Summary (2008–2010) for the Project Area	3.3-4
3.3-2	State and National Criteria Air Pollutant Standards, Effects, and Sources	3.3-7
3.3-3	Yolo County Attainment Status	3.3-8
3.3-4	General Conformity Thresholds	3.3-9
3.3-5	List of Recommended Actions by Sector	3.3-15
3.3-6	Summary of YSAQMD Significance Thresholds	3.3-18
3.3-7	Air Quality Objectives of Yolo County	3.3-19
3.3-8	Construction Emissions Estimates	3.3-22
3.4-1	Existing Noise Environment	3.4-2
3.4-2	Noise Goals and Policies of Yolo County	3.4-4
3.4-3	Typical Construction Noise Levels	3.4-6
3.4-4	Typical Noise Levels from Construction Equipment	3.4-6
3.4-5	Vibration Source Levels for Construction Equipment (from Measured Data.(7,8,9,10))	3.4-9
3.5-1	Active and Potentially Active Faults within 70 Miles of the Project Area	3.5-3
3.5-2	Seismic and Geologic Hazards Goals and Policies of Yolo County	3.5-7
3.6-1	Surface Water-Related Objectives of Yolo County	3.6-8
3.7-1	Species with Potential to Occur in the Project Area	3.7-7
3.7-2	Description of Sacramento River Essential Fish Habitat	3.7-27
3.7-3	Fish Management Plan Concerns in Project Area	3.7-27
3.7-4	Presence of Salmonid Fish Species in Vicinity of Proposed Intake	3.7-33
3.7-5	Summary of GGS Impacts	3.7-42
3.9-1	Existing Traffic Volumes on Area Roadways	3.9-1
3.9-2	Transportation Policies of Yolo County	3.9-3
3.10-1	Hazardous Materials and Safety Policies of Yolo County	3.10-3
3.11-1	Recreation Policies of Yolo County	3.11-2

3.12-1	Demographic Data	3.12-1
3.13-1	Public Services and Utilities Goals and Policies of Yolo County	3.13-3
3.14-1	Projects Which May Contribute to Cumulative Effects	3.14-2

List of Acronyms and Abbreviations

AADT	Average Annual Daily Traffic
AB	Assembly Bill
AF/yr	acre-feet per year
AFSP	Anadromous Fish Screen Program
AG	Agricultural (designation)
APE	Area of Potential Effect
APS	alternative planning strategy
ARB	California Air Resources Board
ASCE	American Society of Civil Engineers
BMP	Best Management Practices
CAAQS	California Ambient Air Quality Standards
Cal/EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CBC	California Building Code
CCAA	California Clean Air Act
CCAR	California Climate Action Registry
CCE	Proposed as a candidate species under the California Endangered Species Act
CCR	California Code of Regulations
CDFG	California Department of Fish and Game, or DFG
CE	Listed as “endangered” under the California Endangered Species Act
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
	Comprehensive Environmental Response Compensation and Liability Act
CERCLA	
CESA	California Endangered Species Act
CFP	California Department of Fish and Game designated “fully protected”
CFR	Code of Federal Regulations
cfs	cubic feet per second
CHP	California Highway Patrol
CIWMB	California Integrated Waste Management Board
CNDDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	CO ₂ equivalents

Corps	U.S. Army Corps of Engineers
Cortese List	Cal/EPA Cortese List Data Resources
CPG	Conaway Preservation Group
CPUC	California Public Utilities Commission
CSC	California Department of Fish and Game designated “species of special concern”
CT	Listed as “threatened” under the California Endangered Species Act
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
dB	decibel
dBA	A-weighted decibel
Delta	Sacramento-San Joaquin Delta
DFG	California Department of Fish and Game, or CDFG
DNL	Day-Night Noise Level, also L_{dn}
DOT	US Department of Transportation
DPM	diesel particulate matter
DPS	Distinct Population Segment
DTSC	Department of Toxic Substances Control
DWWSP	Davis Woodland Water Supply Project
EFH	essential fish habitat
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
FCAA	Federal Clean Air Act
FCAAA	Federal Clean Air Act Amendments
FD	Delisted (federal)
FE	Listed as “endangered” under the federal Endangered Species Act (federal)
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FIP	Federal Implementation Plan
FMP	Fishery Management Plan
FPD	Proposed delisted (federal)
fps	feet per second
FR	Federal Register
FSC	NMFS designated “species of concern” (federal)
FT	Listed as “threatened” under the federal Endangered Species Act (federal)
GGs	giant garter snake
GHG	greenhouse gas
GWh	gigawatt hour

HAP	Hazardous Air Pollutants
HCP	Habitat Conservation Plan
I-5	Interstate 5
I-80	Interstate 80
IBC	International Building Code
ICS	Incident Command System
IS/EA	Initial Study/Environmental Assessment
ITA	Indian Trust Assets
L_{dn}	Day-Night Noise Level, also DNL
LEA	Local Enforcement Agency
L_{eq}	average energy over time
List 1B	Plants rare, threatened, or endangered in California and elsewhere (CNPS)
List 2	Plants rare, threatened, or endangered in California, but more common elsewhere (CNPS)
List 3	Plants about which more information is needed (CNPS)
LOS	level of service
LRDP	UC Davis Long Range Development Plan
LUST	Leaking Underground Storage Tank
M&I	municipal and industrial
MAF	million acre-feet
$\mu g/\mu^3$	micrograms per cubic meter
mgd	million gallons per day
mm	millimeter
MMT	million metric tons
MMT	Modified Mercalli
MPO	metropolitan planning organizations
MSL	mean sea level
Mw	magnitude
N_2O	nitrous oxide
NAAs	Non-Attainment Areas
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
Natomas Mutual	Natomas Central Mutual Water Company
NCC	Natomas Cross Canal
NCCP	Natural Communities Conservation Plan
NEPA	National Environmental Policy Act
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NIH	National Institutes of Health
NLIP	Natomas Levee Improvement Program
NMFS	National Marine Fisheries Service
NO	nitric oxide

NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OHWM	ordinary high water mark
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyls
PCWA	Placer County Water Agency
PG&E	Pacific Gas & Electric Company
PGCC	Pleasant Grove Creek Canal
PM ₁₀	particulate matter that is 10 microns or less in diameter
PM _{2.5}	particulate matter that is 2.5 microns or less in diameter
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
RCRA	Resource Conservation and Recovery Act
Reclamation	US Bureau of Reclamation, or USBR
RHA	Rivers and Harbors Act
RMS	root mean square
ROG	reactive organic gas
RWQCB	Regional Water Resources Control Board
SACOG	Sacramento Area Council of Governments
SAFCA	Sacramento Area Flood Control Agency
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SCS	sustainable communities strategy
SEMS	Standardized Emergency Management System
sf	square feet
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO ₂	sulfur dioxide
SR	State Route
SRWRS	Sacramento River Water Reliability Study
SSWD	Sacramento Suburban Water District
SVAB	Sacramento Valley Air Basin
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board

TAC	Toxic Air Contaminants
TAF	thousand acre-feet
TAF/yr	thousand acre-feet per year
UBC	Uniform Building Code
UC Davis	University of California Davis
USBR	US Bureau of Reclamation, or Reclamation
USFWS	United States Fish and Wildlife Service
Vdb	Decibel notation commonly used to measure RMS
VELB	valley elderberry longhorn beetle
VMT	vehicle miles traveled
WAPA	Western Area Power Administration
WDCWA	Woodland-Davis Clean Water Agency
WDR	waste discharge requirements
YCCL	Yolo County Central Landfill
YSAQMD	Yolo-Solano Air Quality Management District

SECTION 1

Purpose and Need

1.1 Introduction

The United States Department of Interior (DOI) Bureau of Reclamation (Reclamation) and the United States Fish and Wildlife Service (USFWS) jointly manage the Anadromous Fish Screen Program (AFSP). The AFSP was established in 1994 to help meet the fish restoration objectives required in the Central Valley Project Improvement Act (CVPIA) Section 3406 (b)(21). The AFSP has provided cost share funding for several fish screen construction projects in California. Fish screens are designed to protect juvenile anadromous fish from water diversion entrainment along the Sacramento and San Joaquin rivers, their tributaries, and the Sacramento-San Joaquin Delta.

In accordance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) this Initial Study/Environmental Assessment (IS/EA) discloses potential environmental impacts of replacing Reclamation District 2035's (RD 2035 or District) existing 400 cubic feet per second (cfs) unscreened Sacramento River intake with a new joint intake facility equipped with a positive barrier fish screen. For the purposes of CEQA, the joint intake project is the Proposed Project; for the purposes of NEPA, it is the Proposed Action. The joint intake project is referred to as the Proposed Project/Action throughout this document. Additional information on specific project facilities and components is included in Section 2.

This document was prepared as a joint CEQA/NEPA document because the Proposed Project/Action is a discretionary project of a local lead agency with federal involvement. RD 2035 is the local lead agency under CEQA and would construct, own, and operate the new intake facility with the Woodland-Davis Clean Water Agency (WDCWA), which is a responsible agency under CEQA. Reclamation is the federal lead agency under NEPA, because design and construction of the Proposed Project/Action involves federal funds through the AFSP. A list of other state and federal agencies that may have discretionary approval over the proposed project is provided in Section 1.4.

This IS/EA is a public document that analyzes the environmental impacts of the Proposed Project/Action, presents feasible measures to reduce or avoid potential environmental impacts, and evaluates alternatives to the project. It complies with environmental requirements established by both CEQA and NEPA. This IS/EA serves as an informational document to be used in the decision-making process and does not recommend either approval or denial of the Proposed Project/Action.

1.2 Background

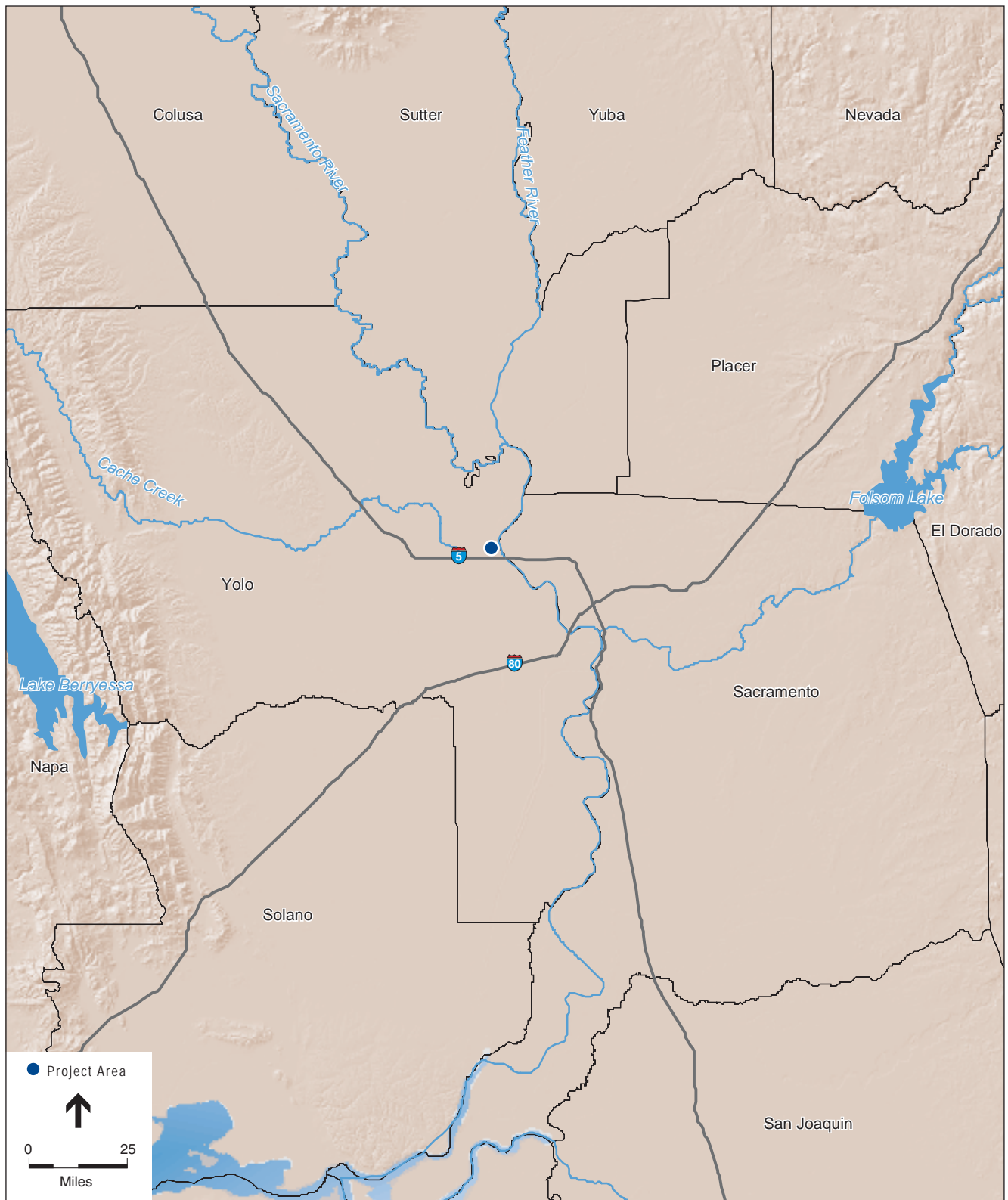
Reclamation District 2035

RD 2035 was formed in 1919 to provide flood protection, drainage, and irrigation water to Conaway Ranch (a.k.a. Conaway Preservation Group (CPG)) and other adjoining lands in eastern Yolo County. As shown on **Figure 1-1** and **Figure 1-2**, RD 2035 is located in eastern Yolo County, adjacent to the Sacramento River. The District encompasses approximately 20,000 acres east of the City of Woodland, including land in the Yolo Bypass.

RD 2035 pumps Sacramento River water for agricultural irrigation through an existing 400 cfs intake and pump station built in 1919. The pump station is located on the west bank of the Sacramento River, immediately upstream from the Interstate 5 (I-5) Vietnam Veterans Bridge. The existing diversion is one of the largest unscreened intakes remaining on the Sacramento River north of the Sacramento-San Joaquin Delta. CPG has appropriative water rights with 1919 and 1947 priorities, and a Central Valley Project (CVP) water right settlement contract with Reclamation. This water supply irrigates approximately 17,000 acres of CPG farmland, growing crops such as rice, corn, alfalfa, wheat, tomatoes, safflower, and other annual crops.

Natural populations of Chinook salmon and steelhead have declined over the years, leading to their listing under state and federal Endangered Species Acts. Winter-run Chinook salmon was listed as a federal endangered species in 1994 and reaffirmed on June 28, 2005 (70 Federal Register (FR) 37160). On August 18, 1997, steelhead within the Central California Coast were listed as a federally threatened species and that listing was reaffirmed on January 5, 2006 (71 FR 834). Fall- and late fall-run Chinook salmon were listed as a species of concern on April 15, 2004 (69 FR 19975). Spring-run Chinook salmon were listed as a threatened species in 1999 and that listing was reaffirmed on June 28, 2005 (70 FR 37160). In addition to salmonid species, the North American green sturgeon was listed as a threatened species under the federal Endangered Species Act (FESA) on April 7, 2006 and reaffirmed on June 2, 2010 (75 FR 30714).

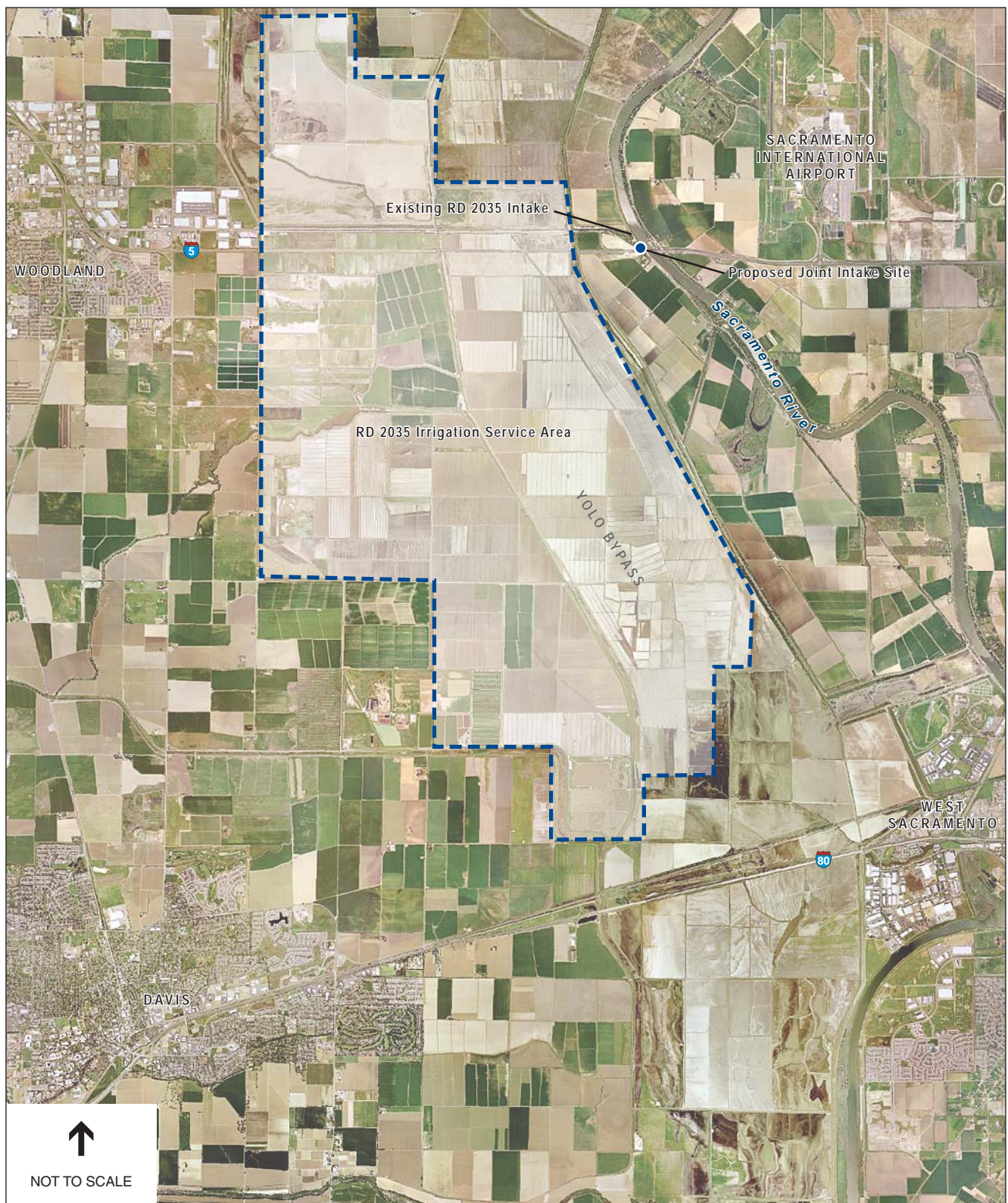
The declines of Chinook salmon and steelhead populations in the Sacramento River system have been caused by factors such as inadequate flows, unscreened diversions, inadequate passage at diversion dams, agricultural return drains, poor water quality, reduced spawning gravel, and illegal harvest. Unscreened diversions have been particularly detrimental to winter-run Chinook salmon. Water diversions entrain emigrating juvenile salmon and create flow changes near pump stations that confuse adult salmon during migration. As a result of these declines, federal and state fish agencies are working with water districts and agencies, as well as individual landowners, to minimize or eliminate entrainment of these fish species through the construction of modern, state-of-the-art fish screens on their diversions. The Proposed Project/Action is one such project, and would provide for improved conditions for the Sacramento River fisheries resource if constructed.



SOURCE: ESRI, 2005; and ESA, 2009

Reclamation District 2035 Joint Intake Project . 207705

Figure 1-1
Regional Location



SOURCE: GlobeXplorer, 2006; and ESA, 2009

Reclamation District 2035 Joint Intake Project . 207705

Figure 1-2
Project Location

Davis Woodland Water Supply Project

In 2007, the cities of Davis and Woodland certified the Environmental Impact Report (EIR) for the Davis Woodland Water Supply Project (DWWSP). The DWWSP includes a Sacramento River intake structure, transmission pipelines and a new water treatment plant to provide a new surface water supply to the cities and the University of California, Davis (UC Davis). The DWWSP EIR identified three alternative Sacramento River intake locations. The EIR identified the preferred intake location as the joint use of RD 2035's new diversion facility.

On October 16, 2007, the City of Davis, as acting CEQA lead agency, adopted Resolution No. 07-168, Series 2007, which certified the final EIR, adopted CEQA findings, a statement of overriding considerations and a mitigation monitoring and reporting program, and approved the DWWSP. On November 6, 2007, the City of Woodland, acting as a CEQA responsible agency, adopted Resolution No. 4878, which adopted CEQA findings and the mitigation monitoring and reporting program and approved the DWWSP. In 2009, the WDCWA was formed to construct, operate, and maintain the DWWSP. WDCWA approved an addendum to the 2007 DWWSP EIR on April 21, 2011 (Resolution No. 2011-03). This addendum addresses recent changes in the regulatory setting for Delta water and aquatic resources, includes updated CALSIM II modeling, as well as minor refinements to an element of the DWWSP involving the proposed water transfer from CPG to the DWWSP.

The replacement of RD 2035's existing unscreened intake and the DWWSP are separate, independent projects. However, RD 2035 and WDCWA have identified an opportunity for consolidating their intakes into one joint use intake facility. The project proponents anticipate that a consolidated intake may reduce potential impacts to juvenile and adult Chinook salmon, steelhead, sturgeon, and all other fish inhabiting the Sacramento River by decreasing the number of intakes diverting from the river. For the purposes of this document, the scope of the Proposed Project/Action is limited to those actions within the local and federal lead agencies' control. These actions include replacing RD 2035's existing 400 cfs unscreened intake on the Sacramento River with a new 400 cfs positive-barrier fish screen intake facility that would serve as a joint intake for RD 2035 and WDCWA.

1.3 Purpose and Need

Under NEPA, the federal purpose of the Proposed Project/Action is to screen an existing 400 cfs unscreened diversion owned by RD 2035 with a state-of-the-art fish screen that meets current National Marine Fisheries Service (NMFS) and California Department of Fish and Game (CDFG) fish screen design criteria. The new intake would accommodate WDCWA pumping facilities to be separately funded by the WDCWA. The Proposed Project/Action is needed to minimize diversion impacts to outmigrating anadromous fish on the Sacramento River without impairing the ability of RD 2035 to divert water consistent with CPG's existing water rights.

1.4 Project Objectives

Under CEQA, RD 2035 has three primary project objectives for the Proposed Project/Action:

1. To construct a new screened intake facility that meets current NMFS and CDFG fish screen design criteria;
2. To protect CPG's existing water rights and ensure that RD 2035 can maintain a reliable long-term supply to its service area even if the listed species are present in the vicinity of the intake facility; and
3. Construct an intake for RD 2035 that allows for joint use by the WDCWA in conjunction with implementation of the DWWSWP.

1.5 Anticipated Regulatory Requirements and Permits for the Project

The permits and approvals that may be required for the Proposed Project/Action, as well as the regulatory agencies that may rely on this document and the aforementioned permits and/or approvals for consideration, are identified in **Table 1-1**. Some state and federal agencies will use this document for compliance with NEPA and CEQA, to the extent applicable, to issue necessary federal and state permits and approvals.

**TABLE 1-1
ANTICIPATED REGULATORY REQUIREMENTS AND PERMITS
FOR PROJECT IMPLEMENTATION**

Agency	Type of Approval
Federal Agencies	
U.S. Bureau of Reclamation	NEPA Lead Agency, Funding Approval
U.S. Army Corps of Engineers	NEPA Lead Agency Clean Water Act Section 404 Permit Rivers & Harbors Act Section 10 Permit Federal Endangered Species Act compliance (Section 7)
U.S. Fish and Wildlife Service	Federal Endangered Species Act compliance (Section 7)
National Marine Fisheries Service	Federal Endangered Species Act compliance (Section 7)
U.S. Coast Guard	Aids to Navigation Permit
State Agencies	
Reclamation District 2035	CEQA Lead Agency, Project Approval
California Department of Fish & Game	State Endangered Species Act compliance Section 1601 Streambed Alteration Agreement
Central Valley Flood Protection Board	Encroachment Permit
Central Valley Regional Water Quality Control Board	National Pollutant Discharge Elimination System General Construction Storm Water Permit (Section 402) Clean Water Act Section 401 Water Quality Certification General Order for Dewatering and Other Low Threat Discharge to Surface Waters Permit
State Historic Preservation Office	National Historic Preservation Act Section 106
State Water Resources Control Board	Petition to Change Point of Discharge
Local/Other Agencies	
Yolo/Solano Air Quality Management District	Authority to Construct Permit to Operate
Woodland Davis Clean Water Agency	Joint Intake Agreement, Local Share Funding Agreement
Reclamation District(s) 2035, 827, 785, 537, 1600	Encroachment Permit

1.6 Scope and Organization

This IS/EA describes the affected environment, identifies and discloses potential environmental impacts of the Proposed Project/Action and alternatives, and describes mitigation measures to avoid, minimize, or compensate for potentially significant impacts. Section 2 describes the Proposed Project/Action. Section 3 describes the resources that would be affected by implementation of the Proposed Project/Action, including the environmental setting, impacts, and mitigation measures to reduce these impacts. Section 4 describes the consultation that has taken place to date with the responsible, cooperating, and other agencies and any applicable regulations.

The CEQA Initial Study Checklist for the Proposed Project/Action is provided as Appendix A. The checklist summarizes the level of significance of potential impacts associated with the Proposed Project as required by CEQA.

This IS/EA is being circulated for review and comment by the public and other interested parties, agencies, and organizations for a 30-day review period. During the review period copies of the IS/EA will be available for review at Reclamation offices and at the City of Woodland Main Library during normal business hours.

U.S. Bureau of Reclamation

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Woodland Public Library

250 First Street
Woodland, CA 95695
Phone: 530-661-5980

SECTION 2

Description of Proposed Project/Action

2.1 Background

As stated in Section 1, Reclamation District 2035 (RD 2035 or District) existing unscreened 400 cubic feet per second (cfs) intake is one of the largest unscreened Sacramento River Diversions remaining along the Sacramento River north of the Sacramento-San Joaquin Delta. Water from the intake is diverted under County Road 117 into a channel that feeds into the RD 2035 water supply system. The supply system serves agricultural and other users within the RD 2035 service area.

RD 2035 or District began planning the fish screen project in 2000. The District prepared a feasibility report that evaluated a full range of alternatives to be considered (West Yost Associates, 2000). The report presented details on numerous alternatives and various configurations for consideration as alternatives. The District determined a flat-plate screen would provide the best configuration for the development, operation, and maintenance of a new, screened Sacramento River diversion.

In September 2009, the Cities of Woodland and Davis established the Woodland-Davis Clean Water Agency (WDCWA), a joint powers authority, to implement and oversee the Davis Woodland Water Supply Project (DWWSP). The DWWSP would provide the cities of Woodland and Davis a higher quality, more reliable water supply. The DWWSP was approved in 2007, following the certification and adoption of a Final Environmental Impact Report (FEIR) that analyzed the construction of a Sacramento River intake, water treatment plant, and related infrastructure. The preferred intake alternative in the 2007 DWWSP FEIR identifies joint use of RD 2035's proposed diversion facility.

Under the Proposed Project/Action, Reclamation proposes to provide cost share funding for the design and construction of RD 2035's new intake and fish screen through the Anadromous Fish Screen Program (AFSP). None of these funds would be used for the construction of DWWSP facilities. While the proposed joint intake facility would be constructed to accommodate the DWWSP, WDCWA would be responsible for funding project elements related to the DWWSP. Reclamation does not have a federal action related to the DWWSP and the federal scope of the Proposed Project/Action is limited to the construction footprint of the proposed intake and fish screen. Construction of the two projects (RD 2035 Fish Screen Project and DWWSP) would occur concurrently, thereby resulting in less environmental impacts and cost savings.

Reclamation would be responsible for administering all AFSP funds. Therefore, Reclamation is the federal lead agency and is preparing this Environmental Assessment (EA) to comply with the National Environmental Policy Act (NEPA). RD 2035 is the local Lead Agency responsible for

compliance with the California Environmental Quality Act (CEQA), while the WDCWA is a responsible agency. RD 2035 and Reclamation have been coordinating with the United States Army Corps of Engineers (USACE or Corps), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Services (NMFS), and the California Department of Fish and Game (DFG) throughout development of this IS/EA and the biological assessment (BA).

2.2 No Action Alternative

Under the No Action Alternative, the new intake, pump station, and fish screen facility for RD 2035 would not be constructed. The proposed fish screen would not be installed and the existing unscreened 400 cubic feet per second (cfs) intake system would continue to operate. While terrestrial habitats would remain undisturbed, migrating salmon, steelhead, and other native fish species would continue to be at risk from the existing unscreened intake structure. Joint use with the WDCWA would also not occur, and the WDCWA would likely pursue the construction of a separate new stand alone surface water intake on the Sacramento River at an alternative location.

2.3 Proposed Project/Action

The proposed facility would have the same maximum pumping capacity as the existing intake (400 cfs). To accommodate joint use with the WDCWA, the new facility would include space for pumps to serve the DWWSP. Under the proposed facility, RD 2035 would continue to pump up to 400 cfs for agricultural uses and WDCWA would pump up to 100 cfs for municipal uses. The total combined facility flow would not exceed the 400 cfs design capacity of the intake and pump station and will be controlled through a programmable logic controller (PLC). Reclamation's AFSP would provide up to 50 percent cost share funding for the design and construction of the proposed RD 2035 facility. As stated previously, funding of DWWSP intake facilities, specifically the dedicated WDCWA pumps and other related electrical and mechanical equipment, would be the sole responsibility of the WDCWA. While WDCWA may provide a local funding match for the cost share component of the AFSP funding, no federal funding will be used for construction of DWWSP facilities.

The Proposed Project/Action would allow RD 2035 to continue to divert water for agricultural irrigation in the future while reducing diversion impacts on fisheries. The fish screen would comply with DFG and NMFS fish screen design criteria and would include the following design features (DFG, 2000; NMFS, 1997):

- **Streams and Rivers.** The screen face shall be parallel to the flow and adjacent to the bank line with the screen at the annual low flow water's edge. The bank line shall be shaped to match the screen structure, minimizing eddies in front, upstream, and downstream of the screen.
- **Approach Velocity.** The approach velocity shall be uniformly distributed across the face of the screen, and shall not exceed 0.33 feet per second (fps) for continually cleaned screens.
- **Cleaning.** Fish screens shall be continually cleaned with a cleaning cycle that can be completed at five-minute intervals or less.
- **Screen Openings.** Screen openings would be horizontal and 1.75 millimeter (mm) wide.

- **Screen Area.** The actual wetted screen area, excluding area affected by structural components, required at the minimum stream stage is calculated by dividing the maximum diverted flow by the allowable approach velocity.
- **Screen Construction.** Screens would be constructed of stainless steel wedge or profile wire and stainless steel support bars and framing.
- **Porosity.** The screen surface would have a minimum open area of 40 percent.

The following section discusses the Proposed Project/Action characteristics and additional construction considerations that would be incorporated into the Proposed Project/Action (also shown in **Figure 2-1** and **Figure 2-2**).

Proposed Project/Action Characteristics

The Proposed Project/Action would construct a joint use screened intake that replaces RD 2035's presently unscreened intake while maintaining a maximum total intake flow capacity of 400 cfs (same as the existing intake facility). RD 2035 and WDCWA pumps would be located separately on an in-river intake and pump station facility, and would pump water over the levee through piping located above the 100-year flood elevation. Water diverted by RD 2035 would pass through flow meters and be routed to the existing RD 2035 main distribution canal for further delivery. Water diverted by WDCWA would pass through separate flow meters prior to conveyance to the DWWSP raw water transmission pipelines. Details of the proposed joint use facilities and operations are described below. It is anticipated that construction of the proposed joint use intake would take approximately 32-months.

Construction activities would comply with the requirements set by the Central Valley Regional Water Quality Control Board (CVRWQCB) to minimize construction-related impacts to water quality. In addition, silt screens and/or silt fences would be used where construction activities could possibly cause sediment to enter the river. All water-side construction activities, with the exception of riprap installation, would be confined within a sheet-pile cofferdam, which would be put in place and removed at times during the "dry" season from April 15 to October 15, although this season may be extended to November 1 with NMFS and DFG approval. The sheet-pile cofferdam would likely remain in place through the "wet" season and be removed the following "dry" season. Each of the main components is discussed below.

Intake Structure and Cleaning System

The intake facility will include a 400 cfs capacity fish screen that will be constructed of a stainless steel wedge-wire screens with a 1.75 mm slot size and a minimum 40-percent open area. At the design flow of 400 cfs, the approach velocity is 0.33 fps, requiring a minimum screen area of 1,212 square feet (sf). The screen panels will be designed to provide approximately 1,330 sf of screened area (10 screen panels, each 9 feet 8 ½ inches high by 13 feet 9 ½ inches wide). This area will be fully submerged at the design full capacity minimum water surface elevation. The fish screens will be fitted with a brush cleaning system with a single brush assembly. The brush assembly will have two approximately 10-foot-long brushes spanning the height of the screen. The brushes will be mounted on a vertical truss system consisting of 4-inch-diameter and 6-inch-diameter steel tubes, which will be hung below the upper trolley mechanism. The time for completing a cleaning cycle will be

approximately 3 minutes. In addition, log booms will be installed to prevent floating debris from damaging the screens on the brush cleaning system. The fish screens would include a system of mated porosity baffle plates to equalize the approach velocities across the fish screens and would be designed to provide effective temporary isolation of individual fish screens. The fish screens would be mounted on the face of the intake and removed using fixed jib cranes and divers.

Both the fish screens and the screen cleaning system have been designed to meet current DFG and NMFS requirements. The fish screening system has been designed to meet all agency fish screening requirements at the maximum project flow rate when river levels are between the 90 percent and the 10 percent exceedance elevations, 5.4 feet and 25.8 feet, respectively. Maximum project flow rates will be appropriately reduced when the river level is below the 90 percent exceedance level.

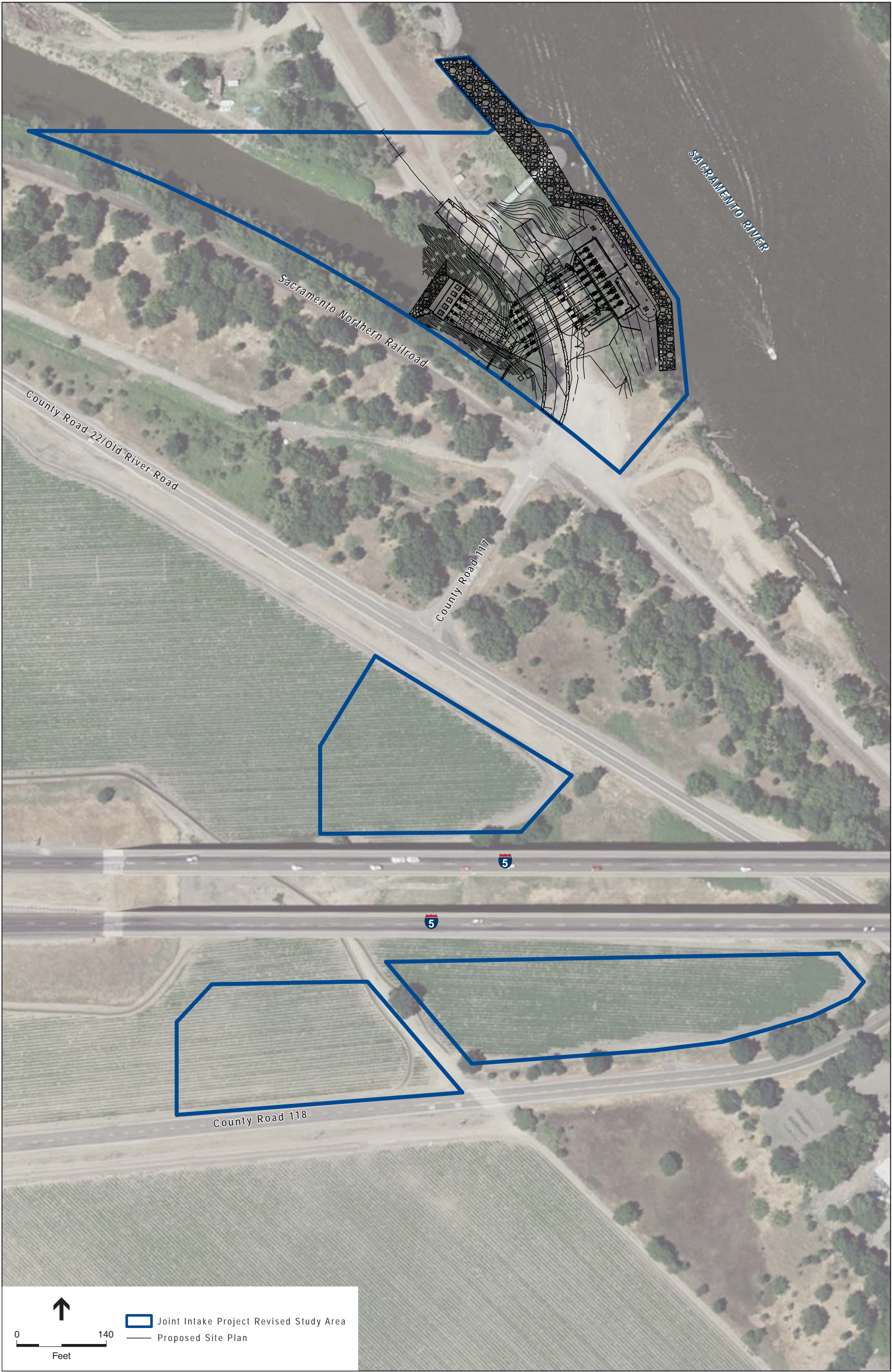
Additional design modifications to the intake structure and fish screen design will occur in consultation with NMFS and DFG and may include refinements to fish screen operations, maintenance, and include design refinements to reduce predation opportunities to fish species and include areas for fish refugia. Any design refinements would be done in consultation with NMFS and DFG and comply with the respective design criteria of each agency.

RD 2035 Pumping Station

The pump station building will be constructed with a split-face concrete block with a flat roof and 42-inch parapet walls. A rendering of the Proposed Project/Action, including the pump station, is shown in **Figure 2-3**. Support for the pump station building will be tied to the intake pile system. A lockable room will be provided in the pump station for electrical and instrumentation equipment. Administrative facilities as well as an incinerator-type toilet and hand sink will be constructed for on-site facility operations. To provide water for the hand sink, as well as water for site landscaping, a water well may be constructed on the landside of the levee or filtered raw water could be used.

The pump station will house the RD 2035 and WDCWA pumps (WDCWA joint use facilities are described below). RD 2035 will have five 80 cfs capacity vertical pumps. Power supply for RD 2035 pumps will be provided through a contract with the Western Area Power Administration (WAPA) via Pacific Gas & Electric Company (PG&E) equipment. Initial consultation with PG&E has indicated that power supply for the project can be adequately served by PG&E without the construction of a new substation or new power lines (Jones, 2011). Power for WDCWA facilities will be provided by PG&E.

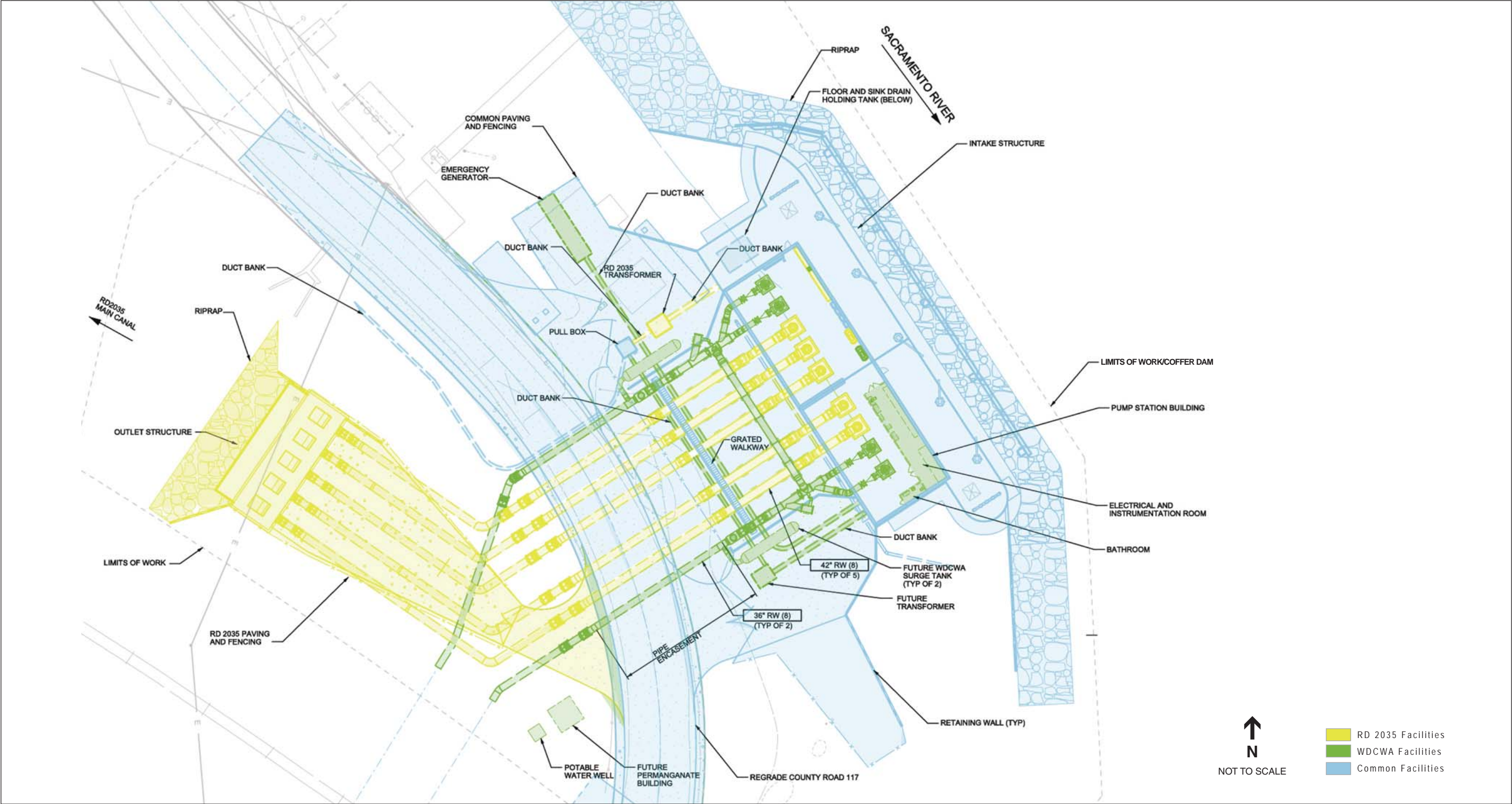
Ventilation blowers will be provided for summer cooling of the pump station and space heaters will be provided for maintaining a minimum temperature to prevent equipment damage and pipe freezing in winter. It is anticipated that WDCWA main pump drives will require air conditioning. A radio tower with separate receivers for RD 2035 and WDCWA Supervisory Control and Data Acquisition (SCADA) equipment will be provided for communication with the RD 2035 office and the WDCWA water treatment plant, respectively.



SOURCE: ESRI, 2011; MWH, 2011; and ESA, 2012

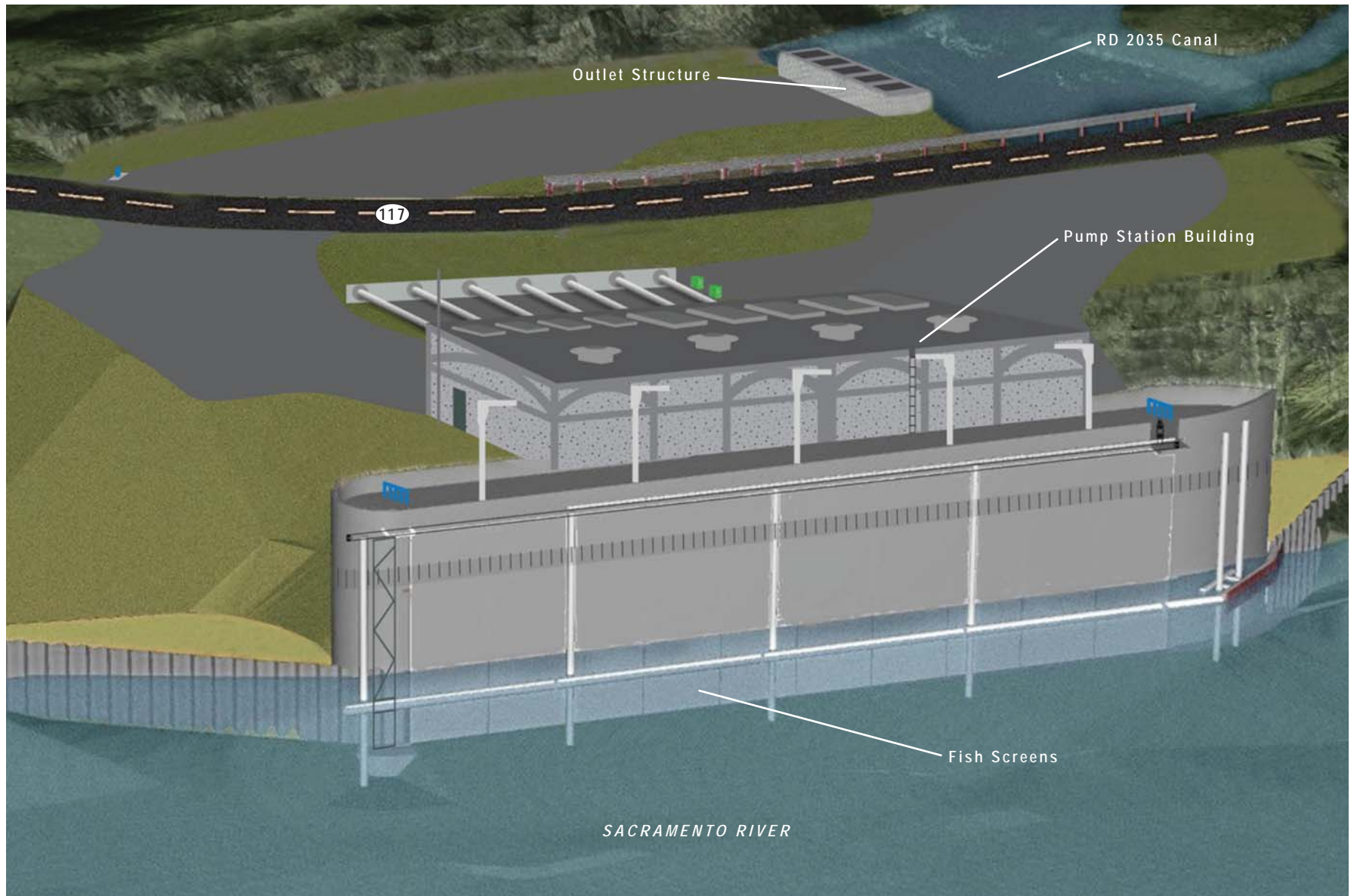
Reclamation District 2035 Joint Intake Project . 207705

Figure 2-1
Proposed Site Plan



SOURCE: MWH, 2011; and ESA, 2011

Reclamation District 2035 Joint Intake Project . 207705
Figure 2-2
Proposed Project/Action Facilities Layout



SOURCE: MWH, 2011; and ESA, 2011

Reclamation District 2035 Joint Intake Project . 207705

Figure 2-3
Proposed Project/Action Architectural Rendering

WDCWA Joint Use Facilities

When used to full capacity, the DWWSP would divert a total of up to 45,000 acre feet per year (AF/yr) from the joint intake facility, with a not to exceed 30-day average diversion rate of 80.1 cfs and an instantaneous diversion rate of 100 cfs, as stipulated by the water right permit obtained on April 14, 2011 by the WDCWA (SWRCB Water Right Permit 20281). Ultimately, the amount of water diverted for the DWWSP would be limited to the water rights held by the WDCWA and water transfers or water-rights assignments for use during periods when surface water diversions from the Sacramento River under the WDCWA's water right permit will be prohibited by SWRCB Standard Permit Term 91. Funding of facilities that would serve the DWWSP will be the sole responsibility of the WDCWA. The joint intake's total capacity would be the same as the existing RD 2035 intake (400 cfs).

To accommodate the joint use of the Proposed Project/Action by RD 2305 and WDCWA, the design and construction of the RD 2035 intake would include space within the pump station for installation of pumps to serve only the DWWSP. WDCWA will have four 20.6 cfs capacity vertical pumps with power supplied directly from PG&E. A 1.25 megawatt emergency generator will be included to provide backup power for WDCWA pumps and required common facilities, such as lights and the fish screen cleaning and sediment control systems.

RD 2035 would be able to pump up to 400 cfs for agricultural uses, and the WDCWA would be able to pump up to 100 cfs for municipal uses, provided that the total combined facility flow would not exceed the 400 cfs design capacity of the intake. Details specific to the DWWSP are in the 2007 DWWSP Final EIR, certified October 16, 2007 and the DWWSP EIR Addendum, adopted on April 21, 2011.

Discharge Pipelines and Appurtenant Facilities

RD 2035 Outlet Facilities

RD 2035 discharge piping will include five 42-inch-diameter steel discharge pipelines and the outlet structure to the existing RD 2035 main canal for irrigation. The pipelines will exit the pump station above grade and continue above grade to a concrete wall where they will go below grade and be concrete encased to pass under County Road 117. Each pipe will include a flowmeter to measure the volume of water diverted for RD 2035. The pipelines will pass under the road, with the underside of their encasement at the Sacramento River levee 100-year flood elevation, and continue sloping downward to the outlet structure where they will reduce to a 36-inch-diameter and exit into the outlet structure to the RD 2035 main canal. The top deck of the outlet structure will be set at the Federal Emergency Management Agency (FEMA) 100-year flood elevation.

WDCWA Outlet Facilities

The WDCWA facilities will include two 36-inch-diameter discharge pipelines as well as a crossover pipe connecting the two pipelines. The discharge from two of the WDCWA pumps will be routed to each of the two 36-inch discharge pipelines. A 36-inch-diameter pipe, with an isolation valve, will connect the two discharge pipelines to provide system operational and

maintenance flexibility. Surge tanks will be provided for each of the two discharge pipelines. The discharge pipelines will be constructed to a point just south of the Sierra Northern Railroad tracks where they would eventually tie in to the proposed WDCWA raw water pipelines that will feed the proposed WDCWA water treatment plant near the City of Woodland. Space adjacent to the discharge pipelines has been reserved for a future chemical feed building. It is anticipated that permanganate or other oxidant may be fed to the pipelines from this location to provide manganese and/or invasive species (e.g., zebra mussels, quagga mussels, etc.) control.

County Road 117 Modifications

The CVFPB requirement that pump station discharge pipelines cross the levee no lower than the 100-year flood elevation will require County Road 117 to be raised and modified. A concrete encasement of at least 8 inches thick will be required above and below the pipes as they cross the levee and roadway. The roadway will be raised and regraded to accommodate the pipes' crossing. The roadway will also be widened to meet current Yolo County Public Works standards. A traffic control plan, consistent with the California Department of Transportation Traffic manual and approved by Yolo County, would be implemented.

Demolition of Existing Facilities

Facilities to be demolished for the project will include the existing intake facility, the caretaker house and associated facilities, and the existing electrical substation. The existing intake will be demolished after the new intake is fully operational. The in-river concrete structure and all appurtenances will be demolished and the rectangular concrete discharge conduit through the levee will be excavated, demolished, and removed along with the outlet structure.

The caretaker house will be demolished early in the construction project to provide a contractor staging and laydown area. Demolition will include several additional small structures as well as a septic system and water well. The existing PG&E electrical substation will be demolished after the existing pump station is fully operational. The existing older transformers may contain polychlorinated biphenyls (PCBs) and will require appropriate hazardous waste disposal procedures.

Specific Construction Considerations

Driving Sheet Piles and Structural Piles

Approximately 500 linear feet of sheet-pile would be installed to create a "coffer dam" to enable dewatering of the work site, protect the workers, and avoid direct impacts on the active channel of the Sacramento River. In addition, approximately 150 linear feet of sheet piles would be driven upstream and downstream of the structure to act as "training walls" for river flow. The pile driving for the water intake structure would be done through impact and/or vibration techniques and would take approximately 9 months. Once the cofferdam is in place, the river channel within the cofferdam would be excavated several feet below the existing river bottom elevation. Excavated materials would be transported to an appropriate off-site disposal location (see discussion below). After the foundation of the intake structure has been excavated, structural support/friction H piles or drilled piles would be constructed in the river bottom inside the cofferdam. Tremie seal concrete (concrete placed under water) would be placed inside of the cofferdam to seal the bottom of the cofferdam and

reduce river inflow to the cofferdam. Shoring would be installed to stabilize the enclosed sheet pile area and the cofferdam would be dewatered using low-flow submersible pumps with screened intakes.

After stabilization of the area within the cofferdam and placement of structural piles within the cofferdam to provide structural support for the intake structure, the intake structures would be formed and concrete poured. Mechanical equipment, including pumps and fish screens, would then be installed.

The sheet piles on the screen side (i.e., water side) of the screened intake structure would then be cut off at elevation -5.0 feet mean sea level (MSL). The other cofferdam sheet piles would remain in place. Riprap would be placed around the intake structure with cranes to prevent scour. Prior to placement of the riprap material, removal of native material would be required using an excavator and appropriate silt barrier. Excavated material would be placed in trucks and disposed off site. The area in between the sheet-pile and shore would then be backfilled to elevation 10.0 and slope up at a maximum of 3 horizontal to 1 vertical (3:1) to the intake structure access road or the deck of the “heel” of the intake structure, which would be at elevation 37.4. The 3:1 slope would be vegetated to prevent erosion. There would be a chain link fence along the roadway side of the Intake structure and a locked gate at the entry to the structure.

A Fish Rescue and Salvage Plan would be implemented prior to cofferdam dewatering, which would minimize potential construction-related effects to species present in the project area (Appendix B).

Dewatering Construction Area

The work area within the cofferdam would be dewatered on a continuous basis. The water pumped during the dewatering operation would be filtered and ultimately discharged into the existing canal for use as irrigation water.

Excavation and Materials Staging

Approximately 3,200 cubic yards of material would be excavated from the intake area. The excavated material and other construction equipment would be stored on- and off-site in one or a combination of the potential spoils and construction staging areas shown in **Figure 2-4**. Approximately 2,000 cubic yards of additional fill material would be imported to the intake structure site. This would require approximately 800 truck trips to stockpile the excavated material and another 400 truck trips to backfill the intake structure with stockpiled and imported material. A sediment fence would be installed along the river bank parallel to the haul road to prevent sediment from entering the river in the event of infrequent late season or early summer rains. All haul roads would be watered during construction to prevent the accumulation of dust along the river bank.

Steel materials for the coffer dam and foundation construction will require an area approximately 50 feet by 200 feet for storage, in close proximity to the work and within reach of a crane or pile-driving rig. The area south of the project site along County Road 117 near the Elkhorn Boat Club easement will likely be used for staging the sheet pile and foundation pile materials. The project field offices will likely be located close to the site for ease of access to the work. Piping and equipment for the Proposed Project/Action will require an area approximately 70 feet by 600 feet for storage. These materials will likely be stored in secured areas to the west of the project site using available RD 2035 areas.

Rip rap materials for construction will likely be delivered to the site and installed in place on an as-needed basis. A supply of riprap materials may be needed on site at all times to use for slope protection in case of emergency situations. These materials will likely be stored in areas west of the project using the available RD 2035 easement.

Soil material spoils from excavation activities will require additional area to store and process. The volume of spoils from the pump station excavation is estimated to be approximately 3,200 cubic yards of loose material. Soil processing during dry weather will likely require a minimum area of 1.5 acres to spread and condition materials. During In-River Season 1, spoils will likely be delivered in 10-wheel dump trucks and stored in large stockpiles during the winter seasons. During dry weather seasons, the spoils will likely be spread with dozers and disked periodically with tractors. When processed, the materials will likely be hauled to the project site in 10-wheel dump trucks during backfill operations in In-River Season 2.

The location options identified in **Figure 2-4** are likely to be used as separate spoils and equipment locations. Each of the proposed locations is estimated to be needed for up to 2 years from the start of pump station excavation to the completion of pump station backfill.

Concrete Construction

Approximately 3,000 cubic yards of concrete would be required for the intake and screen structures. This would require approximately 340 truck trips in and out of the project area. As discussed above, an approved traffic control plan would be in place.

Geotechnical Considerations

Several geotechnical investigations of the project site have been completed, the most recent in 2011 and was an update to a report prepared in 2010 to accommodate for project changes associated with WDCWA's joint use of the intake (Taber Consultants, 2010; 2011). It is anticipated that additional surveying and geotechnical work will be completed leading up to the final design of the Proposed Project/Action.

River Bank Restoration

The last activity would be to install appropriate filter material, riprap, and revegetation to help protect the river bank from erosion.

Structural Standards

All Proposed Project/Action structures will be designed in accordance with the following Structural Design Criteria:

- 2010 California Building Code (2010 CBC) (based on the 2009 International Building Code)
- American Society of Civil Engineers (ASCE) 7-05 - Minimum Design Loads for Buildings and Other Structures
- Where the design references listed below are used, the 2010 CBC modifications to those standards shall apply. Additionally, the ASCE 7-05 modifications to the standards shall apply, unless specifically stated otherwise in the 2010 CBC.



SOURCE: ESRI, 2011; MWH, 2011; and ESA, 2012

Reclamation District 2035 Joint Intake Project . 207705

Figure 2-4
Potential Spoils Disposal Areas

SECTION 3

Affected Environment and Environmental Consequences

This section describes the affected environment and environmental consequences of implementing the RD 2035/WDCWA Joint Intake Project. For each resource, construction and operational activities that could cause adverse environmental impacts directly or indirectly are identified along with mitigation measures to minimize identified significant adverse impacts. Council on Environmental Quality (CEQ) regulations (40 CFR Part 1500), allow federal agencies to focus their National Environmental Policy Act (NEPA) analysis on those resources that could be affected and to omit discussion of resource areas that clearly would not be affected by the Proposed Project/Action. Because this is a Joint NEPA / California Environmental Quality Act (CEQA) Document, the topical resource areas from the CEQA Guidelines Appendix G Initial Study Checklist are used as a basis for the analysis where applicable. It should be noted that Appendix G CEQA significance thresholds are not being applied as NEPA significance thresholds. The CEQA Initial Study Checklist prepared for the Proposed Project/Action is included as Appendix A.

3.1 Land Use and Agriculture

3.1.1 Affected Environment

Project Location

The Proposed Project/Action is located on the west bank of the Sacramento River levee, approximately one half mile north of the Interstate 5 (I-5) river crossing and directly adjacent to the existing RD 2035 intake in unincorporated Yolo County. The nearest urban area is the City of Woodland, located approximately five miles west of the project site.

Existing Land Uses

The project area consists primarily of rural and agricultural lands in unincorporated Yolo County. The major urban uses in the immediate vicinity of the project site include County Road 117, the Sacramento River Levee, the existing RD 2035 intake and irrigation canal, railroad tracks owned and operated by the Sierra Northern Railway, and the I-5 Vietnam Veterans Memorial Bridge south of the project site. There is one existing rural residential house located approximately one quarter mile north of the project site and several residences across the river on the east side of the levee. The project site itself is located on the west bank of the existing Sacramento River levee/streambank east of County Road 117 and contains the existing RD 2035 agricultural water intake and ancillary

intake support structures. The project site and the immediate surroundings are designated as Commercial General by the Yolo County General plan, consistent with the Elkhorn Specific Plan, however the project site, and lands adjacent to the project site, serve existing agricultural uses. The project site does not contain any agricultural lands, including prime farmland or lands under a Williamson Act Contract. However lands adjacent to the project site may contain prime farmland or be under Williamson Act Contracts (Yolo County, 2009).

3.1.2 Regulatory Framework

State

Williamson Act

California's Land Conservation Act of 1965 is designed to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses. The Act creates an arrangement whereby private landowners contract with counties and cities to voluntarily restrict their land to agricultural and compatible open-space uses. The vehicle for these agreements is a rolling term 10-year contract (i.e., unless either party files a "notice of nonrenewal," the contract is automatically renewed for an additional year). In return, restricted parcels are assessed for property tax purposes at a rate consistent with their actual use, rather than potential market value. There are no lands subject to Williamson Act contracts that would be affected as the result of implementing the Proposed Project/Action (Yolo County, 2009).

Local

Yolo County General Plan

The Proposed Project/Action is located entirely within the unincorporated area of eastern Yolo County. The project site is designated as Agricultural (AG). The 2030 Countywide General Plan includes a list of policies relevant to the proposed project. The primary purpose of the policies set forth in the Land Use and Community Character Element and the Agriculture and Economic Development Element is to refine the County's goals and objectives related to land use development and agricultural activity. Policies that are applicable to the Proposed Project/Action are listed below in **Table 3.1-1**.

Elkhorn Specific Plan

The Yolo County General Plan update identifies approximately 348 acres of new commercial and industrial development for the Elkhorn Specific Plan Area, which encompasses an area surrounding the project site. The Elkhorn Specific Plan Area is viewed by the County as having several key factors that would allow the area opportunities for economic development including frontage on the Sacramento River, access via an interchange to I-5, proximity to the Sacramento International Airport and three cities. Development of the Elkhorn Specific Plan has not been initiated and will require site specific environmental review before its adoption. Development of the specific plan is scheduled for completion by 2015 (Yolo County, 2009).

**TABLE 3.1-1
LAND USE AND AGRICULTURAL GOALS AND POLICIES OF YOLO COUNTY**

Number	Goals and Policies
Agriculture and Economic Development Element	
AG-1	<u>Preservation of Agriculture.</u> Preserve and defend agriculture as fundamental to the identity of Yolo County.
AG-1.2	Maintain parcel sizes outside of the community growth boundaries large enough to sustain viable agriculture and discourage conversion to non-agricultural home sites.
AG-1.6	Continue to mitigate at a ratio of no less than 1:1 the conversion of farm land and/or the conversion of land designated or zoned for agriculture, to other uses.
AG-1.8	See Policy LU-2.1 regarding agricultural buffers.
Land Use and Community Character Element	
LU-1	<u>Range and Balance of Land Uses.</u> Maintain an appropriate range necessary for a diverse, healthy and sustainable society.
LU-2	<u>Agricultural Preservation.</u> Preserve farm land and expand opportunities for related business and infrastructure to ensure a strong local agricultural economy. See the Agriculture and Economic Development Element for a more comprehensive treatment of this issue.)
LU-2.1	The intent of this policy is to protect existing farm operations from impacts related to the encroachment of urban uses. The expertise of the County Agricultural Commissioner shall be used in applying this policy. Urban development shall bear the primary burden of this policy. Ensure that development will not have a significant adverse effect on the economic viability or constrain the lawful practices of adjoining or nearby agricultural operations, except for land within the Sphere of Influence (SOI) around a city or within the growth boundary of an unincorporated community. New urban (non-agricultural) development should be setback a minimum of 300 feet from adjoining agricultural land where possible, but special circumstances can be considered by the decision-making body. Except as noted below where no buffer is required, in no case shall the buffer be reduced to less than 100 feet. The buffer area shall generally be designated Open Space (OS), but may also be designated Public and Quasi-Public (PQ) or Parks and Recreation (PR) based on applicable circumstances. Agricultural buffers are not required for planned urban growth elsewhere within a growth boundary because the agricultural-urban interface will be temporary until full build-out occurs. (DEIR MM AG-4)
LU-2.4	Vigorously conserve, preserve, and enhance the productivity of the agricultural lands in areas outside of adopted community growth boundaries and outside of city SOIs.

SOURCE: Yolo County, 2009.

Yolo County Natural Heritage Program

The Yolo Natural Heritage Program is a county-wide Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) for the 653,820 acre planning area. The Yolo Natural Heritage Program will conserve the natural open space and agricultural landscapes that provide habitat for many special status and at-risk species found within the habitats and natural communities in the County. The Yolo Natural Heritage Program will describe the measures that will be undertaken to conserve important biological resources, obtain permits for urban growth and public infrastructure projects, and continue Yolo County's rich agricultural heritage.

The NCCP/HCP is currently undergoing development and review by participating parties, including DFG, USFWS, Yolo County, and the cities of Davis and Woodland. The finalized plan would describe biological conservation and other measures that local agencies would perform, and would include a series of studies and surveys outlined by the Report of Independent Science Advisors (Spencer et al., 2006). This report stipulates that the NCCP/HCP for Yolo County should include the biological goals, geographic area, plan duration, species to be addressed, and actions to be permitted.

Biological goals would include specific goals that address: (1) sustaining and restoring species and habitats that are necessary to maintain continued viability of biological communities impacted by human changes to the landscape; and (2) conserving, restoring, protecting, and enhancing natural communities.

Because the NCCP/HCP is still under development, including the definition of the HCP/NCCP plan area boundaries, has not yet been finalized or adopted, it is uncertain whether the Proposed Project/Action would conflict with the conservation goals or policies outlined within the forthcoming NCCP/HCP. Potential impacts related to the NCCP/HCP are discussed further in Section 3.7 – Biological Resources.

3.1.3 Environmental Consequences

Significance Criteria

This analysis of land use and agriculture evaluates the potential effects of the Proposed Project/Action on the existing land use and agricultural resources within or adjacent to the Proposed Project/Action Area. Significance criteria for this analysis are based on Appendix G of the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Appendix G).

Effects are considered significant if an alternative would result in any of the following:

- physically divide an established community or
- conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (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; or conflict with applicable HCPs or NCCPs.
- 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.
- Conflict with existing zoning for agricultural use, or a Williamson Act contract.
- 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)).
- Result in the loss of forest land or conversion of forest land to non-forest use.
- 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.

Impact Evaluation

Resources Not Considered in Detail

Implementation of the Proposed Project/Action would not directly or indirectly physically divide an established community as there are no established communities in the project area. In addition, implementation of the Proposed Project/Action would not directly or indirectly result in impacts to forest land, timberland, or timberland production or lands under Williamson Act contracts as these resources are not present in the project area. Therefore, no impact would occur and these resource areas are not discussed further within this section.

No Project/Action Alternative

Under the No Project/Action Alternative, RD 2035 would not construct a new screened joint intake. RD 2035 would continue to use its existing unscreened diversion and this would have no affect on land use plans or policies. As a result impacts to land use and planning would remain unchanged from existing conditions.

Proposed Project/Action Alternative

Impact 3.1-1: Consistency and compatibility with existing land use and zoning plans and policies (Less than Significant)

Construction and Operations Impacts

The Proposed Project/Action is located on the west bank of the Sacramento River Levee an area comprised primarily of agricultural uses but designated as Commercial General by the Yolo County General, Plan Elkhorn Specific Plan. Construction and operation of the joint intake structure would not conflict with the Yolo County General Plan policies or goals related to agricultural uses because the joint intake would be located on the existing intake site and not directly impact agricultural land. In addition, the Proposed Project/Action would continue to serve existing agricultural uses adjacent to the project site. Furthermore, the Proposed Project/Action would not interfere with planned commercial or industrial uses associated with the Elkhorn Specific Plan because these uses are not anticipated to be developed during project construction. Because the joint intake represents the replacement of an existing use, it is assumed that the development of the Elkhorn Specific Plan would accommodate this use as the plan is developed. As a result, construction of the Proposed Project/Action would not conflict with or be incompatible with existing land use and zoning plans and policies.

Mitigation: None required.

Impact 3.1-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural uses (Less than Significant)***Construction Impacts***

Construction of the Proposed Project/Action would involve construction both within the Sacramento River and onshore, both in areas where no existing agricultural uses are present. Permanent project facilities in the river would occupy less than one acre. Construction staging areas could be located on prime agricultural land adjacent to the site; however, these disturbances would be temporary in duration and not result in the permanent conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural uses.

Project Operations Impacts

Operation of the Proposed Project/Action would result in the continued diversion of water to support existing agricultural irrigation and would not result in new impacts to agricultural lands on or off the project site. Project operations would be consistent with the existing RD 2035 intake and would serve existing agricultural uses. As a result, project operations would not result in the permanent conversion of Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or a Williamson Act contract to non-agricultural uses.

Mitigation: None required.

3.2 Aesthetic Resources

3.2.1 Affected Environment

Existing Visual Character

The Proposed Project/Action area is visible from a number of nearby uses and public roads, including I-5 and County Road 117. The assessment of existing visual character and quality is organized according to the following general descriptive categories: site location; landform and landscape color; presence of unique scenic features or vistas, and land use. The project area is rural in character with agricultural land uses composing the visual environment. There are no significant topographic features in the area that restrict views; with only local features including levees, and roadway/railroad embankments limiting local view from specific locations.

The reach of the Sacramento River where the Proposed Project/Action is located has been substantially altered from its natural condition. Earthen levees have been constructed on both sides of the river to contain flood flows and prevent channel migration. Local paved roadways and bridges have been constructed on these levees to provide access along the river to nearby properties and communities. As a result, vegetation along the river has been substantially modified. However, several native species have become reestablished, providing a partial tree canopy interspersed with low-lying shrubs and grasses.

The west side of the Sacramento River levee in the vicinity of the project site is primarily undeveloped and supports a dense canopy of mixed riparian plant species, including a dense understory that obstructs views to and from the river and also includes some urban features including the existing RD 2035 intake site. Across the river on the eastside of the levee, the area is occupied by several residences located within and atop the levee banks. These residences can view the intake site to varying degrees depending on the amount of trees and landscaping that obscure the visibility of the river and west shoreline. The closest residence is located approximately one quarter mile north from the proposed joint intake site. The existing RD 2035 intake is visible from this location and other residences located on the eastern bank of the Sacramento River in Sacramento County.

Within the vicinity of the proposed intake site, an existing marina and on-water improvements, the I-5 Vietnam Veteran's Memorial Bridge and the existing RD 2035 intake facility have further altered the natural character of the river area. The presence of moorings, boats, fueling facilities, security and safety lighting, as well as residential development contribute to creating a human-made visual environment in the project area. Nearby, the approximately 60-foot high I-5 bridge crossing over the Sacramento River dominates the southern skyline.

Unique Visual Features or Scenic Vistas

The project area is typical of the Sacramento Valley with agricultural land uses composing the predominant visual landscape. The Sacramento River corridor provides a unique visual feature in the Valley by introducing a linear water feature bordered by a combination of elevated levees

and/or tree canopy that demarcates the river boundary. While no state scenic highways or vistas have been designated along the river, there are numerous locations that maintain high visual quality by providing a unique combination of water/vegetative elements that contrast with the surrounding landscape.

Sensitive Viewers

Viewer response to change is a function of viewer sensitivity, duration of exposure, and degree of visual change. Sensitivity depends on the expectations and awareness of the viewer. Residential and recreational viewers are presumed to be more sensitive than other groups who may be working or commuting in the area. As exposure time increases, the perception of visual change in the landscape also increases.

Potentially sensitive viewers of the project area include residents located on the eastside of the Sacramento River. These residents would have an unobstructed view of the proposed facilities, and would be subject to the visual changes associated with the installation of the larger replacement joint intake structure.

Recreational boaters are considered to be sensitive viewers. While their primary activities involve recreational pursuits such as angling, water skiing, or cruising, they are a group of recreationists likely to be sensitive to the visual change associated with installing a larger joint intake structure on the river. However, this group is expected to be less sensitive to visual change provided their recreational activities are not adversely affected or restricted.

3.2.2 Regulatory Framework

State

California Scenic Highway Program

California's Scenic Highway Program was created in 1963 to preserve and protect scenic highway corridors from change which would diminish the aesthetic value of lands adjacent to highways. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. These highways are identified in Section 263 of the Streets and Highways Code.

There are no highways within Yolo County that have been officially designated within the California Scenic Highway System. The nearest eligible state scenic highway is a 25.3-mile section of State Route 16 that extends from the State Route 20 intersection to Capay (California Department of Transportation, 2011). The Yolo County General Plan designates State Route 128 from Winters to Lake Berryessa, and State Route 16 through the Capay Valley as scenic highways (Yolo County, 2009). The project area is not visible from either of these designated highways.

Local

Yolo County General Plan

Table 3.2-1 summarizes the planning goals and/or policies for managing and protecting scenic and other aesthetic resources of the County.

**TABLE 3.2-1
SCENIC RESOURCE MANAGEMENT OBJECTIVES OF YOLO COUNTY**

Number	Policies
CO-1.1	Expand and enhance an integrated network of open space to support recreation, natural resources, historic and tribal resources, habitat, water management, aesthetics, and other beneficial uses.
CC-1.2	Preserve and enhance the rural landscape as an important scenic feature of the County.
CC-1.3	Protect the rural night sky as an important scenic feature to the greatest feasible extent where lighting is needed.
CC-1.5	Significant site features, such as trees, water courses, rock outcroppings, historic structures and scenic views shall be used to guide site planning and design in new development. Where possible, these features shall become focal points of the development.
CC-1.12	Preserve and enhance the scenic quality of the County's rural roadway system. Prohibit projects and activities that would obscure, detract from, or negatively affect the quality of views from designated scenic roadways or scenic highways.
CC-1.15	The following features shall be protected and preserved along designated scenic roadways and routes, except where there are health and safety concerns: <ul style="list-style-type: none"> • Trees and other natural or unique vegetation • Landforms and natural or unique features • Views and vistas • Historic structures (where feasible), including buildings, bridges and signs
CC-1.16	The following features shall be stringently regulated along designated scenic roadways and routes with the intent of preserving and protecting the scenic qualities of the roadway or route: <ul style="list-style-type: none"> • Signage • Architectural design of adjoining structures • Construction, repair and maintenance operations • Landscaping • Litter control • Water quality • Power poles, towers, above-ground wire lines, wind power and solar power devices and antennae
CC-1.17	Existing trees and vegetation and natural landforms along scenic roadways and routes shall be retained to the greatest feasible extent. Landscaping shall be required to enhance scenic qualities and/or screen unsightly views and shall emphasize the use of native plants and habitat restoration to the extent possible. Removal of trees, particularly those with scenic and/or historic value, shall be generally prohibited along the roadway or route.
CC-1.18	Electric towers, solar power facilities, wind power facilities, communication transmission facilities and/or above ground lines shall be avoided along scenic roadways and routes, to the maximum feasible extent.
CC-1.19	Unscreened outdoor storage of industrial and commercial parts and materials, salvage or junk, dismantled vehicles, used or new vehicle sales or, building materials for sale and similar materials, uses and things along designated scenic roadways and routes shall be prohibited.

SOURCE: Yolo County, 2009

3.2.3 Environmental Consequences

Significance Criteria

This analysis of aesthetic resources evaluates the potential effects of the Proposed Project/Action on the existing aesthetic resources within or adjacent to the Proposed Project/Action Area.

Significance criteria for this analysis are based on Appendix G of the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Appendix G).

Effects are considered significant if an alternative would result in any of the following:

- Have a substantial adverse effect on a scenic vista
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway
- Substantially degrade the existing visual character or quality of the site and its surroundings
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area

Impact Evaluation

Resources Not Considered in Detail

The following discussion of environmental impacts is limited to those potential impacts that could result in some level of potentially significant environmental change, as defined by CEQA. Implementation of the Proposed Project/Action would not directly or indirectly have a substantial adverse effect on a scenic vista (bullet 1 above) or substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway because these resources are not designated for the project area. Therefore, no impact would occur under any of these categories and are not discussed further within this section.

No Project/Action Alternative

Under the No Project/Action Alternative, RD 2035 would not construct a new screened joint intake. RD 2035 would continue to use its existing, unscreened diversion and would not result in a change to visual resources, therefore no impact would occur.

Proposed Project/Action Alternative

Impact 3.2-1: The project could degrade the existing visual character or quality of the site and its surroundings. (Less than Significant with Mitigation)

Construction and Operations Impacts

While the natural visual character of the project area and the Sacramento River have been modified and somewhat degraded by the presence of marinas, residential dwellings, discarded rip-rap and other refuse, private boat ramps, pole-mounted utilities, roads and highways, and the existing

intake, the views of the Sacramento River are a unique visual resource to local sensitive viewers (residents and recreational boaters) who are located within the vicinity of the intake facility site.

While the construction and operation of the joint intake structure represents the replacement of an existing facility, the proposed joint intake would differ in scale and design from the existing intake, and the overall viewer response to the project area with the new structure could be significantly changed. Ultimately, the new intake facility would represent a substantially larger structure when compared to the existing intake, visible from both banks of the Sacramento River, residential dwellings along the river, and recreationists on the river.

It should be noted that the DWWSP EIR identified a significant and unavoidable aesthetics and visual resources impact concerning the construction and operation of each intake alternative analyzed in the EIR, which included the proposed joint intake. This conclusion was based primarily on the other non-joint use intake alternatives which individually would represent new river intakes in areas where no existing urban features are present. While the proposed joint use intake would differ in scale and design from the existing intake, the Proposed Project/Action is the replacement of an existing urban feature on the Sacramento River. Implementation of the following mitigation measures would reduce impact related to aesthetics and visual resources to a less-than-significant level.

Mitigation Measures

Measure 3.2-1a: The design of the diversion/intake facility including the choice of color and materials, shall seek to reduce the visual contrast of the facility. Bright reflective materials and colors shall be avoided.

Measure 3.2-1b: A landscaping plan that utilizes native vegetation to shield the new intake/diversion facility from adjacent properties, the Sacramento River, and nearby residences to the extent feasible, will be prepared.

Impact Significance After Mitigation: Implementation of Mitigation Measure 3.2-1a and Mitigation Measure 3.2-1b would reduce significant impacts associated with degrading the visual character of the project area by providing reduced visual contrast through the use of neutral and non-reflective architectural coatings and through the use of landscape screening. Therefore, impacts to degrading the visual character of the project area would be reduced to less than significant.

Impact 3.2-2: The Project would create a new source of substantial light or glare that would adversely affect nighttime views in the area. (Less than Significant with Mitigation)

Construction and Operations Impacts

The proposed joint intake facility would result in an increase in nighttime lighting for navigational safety and security during construction and result in more operational lighting because of the increased size of the intake structure when compared to existing conditions. The lighting would introduce an increased source of light in a primarily natural (unlit) setting. The

lighting would be visible from residences along the eastside of the Sacramento River, nearby marinas, and people recreating on the waterway. Implementation of measures identified below would limit the effect of proposed new lighting on sensitive receptors.

Mitigation Measure

Measure 3.2-3: Outdoor light sources shall be properly shielded and installed to prevent light trespass onto adjacent properties. Flood or spot lamps installed for purposes other than waterway navigation shall be directed downward when the source is visible from any offsite residential property or public roadway. To the extent that security levels would be maintained, automatic lighting shall be employed to reduce non-critical light emissions.

Impact Significance After Mitigation: Less than Significant.

3.3 Air Quality and Climate Change

3.3.1 Affected Environment

General Climate and Meteorology

The project site is located in unincorporated Yolo County in the southern portion of the Sacramento Valley Air Basin (SVAB), which is bounded by the North Coast Range on the west and the Northern Sierra Nevada Mountains on the east. Hot dry summers and mild rainy winters characterize the Mediterranean climate of the Sacramento Valley. During the year the temperature may range from 20 to 115 degrees Fahrenheit with summer highs usually in the 90s and winter lows occasionally below freezing. Average annual rainfall is about 20 inches, and the rainy season generally occurs from November through March. The prevailing wind is from the south, primarily because of ocean breezes through the Carquinez Strait, although during winter the marine breezes diminish and winds from the north occur more frequently.

The mountains surrounding the SVAB create a barrier to airflow, which leads to the entrapment of air pollutants when meteorological conditions are unfavorable for transport and dilution. Poor air movement occurs most frequently in fall and winter when high-pressure cells are present over the project area and meteorological conditions are stable. The lack of surface winds during these periods, combined with the reduced vertical flow caused by less surface heating, reduces the influx of air and results in the concentration of pollutants. Surface concentrations of air pollutant emissions are highest when these conditions occur in combination with agricultural burning activities or temperature inversions, which hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground.

May through October is ozone season in the SVAB and is characterized by poor air movement in the mornings and the arrival of the Delta sea breeze from the southwest in the afternoons. In addition, longer daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between reactive organic gas (ROG) and nitrogen oxides (NO_x), which in turn result in ozone formation. Typically, the Delta breeze transports air pollutants northward out of the SVAB; however, during approximately half of the time, from July through September, a phenomenon known as the Schultz Eddy prevents this from occurring. The Schultz Eddy phenomenon causes the wind pattern to shift southward, blowing air pollutants back into the SVAB. This phenomenon exacerbates the concentration of air pollutant emissions in the air basin and contributes to violations of the ambient air quality standards.

Existing Air Quality in the Project Vicinity

Criteria Air Pollutants

The pollutants described in this section are called “criteria” air pollutants because standards have been established for each of them to meet specific public health and welfare criteria set forth in the Federal Clean Air Act (FCAA). California has adopted more stringent ambient air quality standards than federally standards for the criteria air pollutants (referred to as State Ambient Air Quality

Standards, or state standards) and has adopted air quality standards for some pollutants for which there is no corresponding national standard.

Ozone

Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include ROG and NO_x. The time period required for ozone formation allows the reacting compounds to spread over a large area, producing a regional pollution problem. Ozone problems are the cumulative result of regional development patterns rather than the result of a few significant emission sources. On-road and off-road motor vehicles are the major source of ozone within the Yolo-Solano Air Quality Management District (YSAQMD) (YSAQMD, 2007).

Once formed, ozone remains in the atmosphere for one or two days. Ozone is then eliminated through chemical reaction with plants (reacts with chemicals on the leaves of plants), rainout (attaches to water droplets as they fall to earth) and washout (absorbed by water molecules in clouds and later falls to earth with rain).

Carbon Monoxide

Ambient carbon monoxide (CO) concentrations normally are considered a local effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic. Wind speed and atmospheric mixing also influence carbon monoxide concentrations. Under inversion conditions, CO concentrations may be distributed more uniformly over an area, out to some distance from vehicular sources.

When inhaled at high concentrations, CO combines with hemoglobin in blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, as well as for fetuses. Existing controls and programs have caused dramatic declines in CO concentrations in California. Carbon monoxide concentrations are expected to continue declining as older more polluting vehicles retire from the mix of vehicles on the road network. The YSAQMD does not identify CO as a pollutant of concern since there have been no recorded violations of the federal or state ambient air quality standards at YSAQMD monitoring stations (YSAQMD, 2007).

Suspended Particulate Matter (PM₁₀ and PM_{2.5})

PM₁₀ and PM_{2.5} consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. (A micron is one-millionth of a meter). PM₁₀ and PM_{2.5} represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Some sources of particulate matter, such as wood burning in fireplaces, demolition, and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates)

can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates also can damage materials and reduce visibility. Large dust particles (diameter greater than 10 microns) settle out rapidly and are easily filtered by human breathing passages. This large dust is of more concern as a soiling nuisance rather than a health hazard. The remaining fraction, PM_{10} and $PM_{2.5}$, are a health concern particularly at levels above the federal and state ambient air quality standards. $PM_{2.5}$ (including diesel exhaust particles) is thought to have greater effects on health, because these particles are so small and thus, are able to penetrate to the deepest parts of the lungs. Scientific studies have suggested links between fine particulate matter and numerous health problems including asthma, bronchitis, acute and chronic respiratory symptoms such as shortness of breath and painful breathing. Recent studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. Children are more susceptible to the health risks of PM_{10} and $PM_{2.5}$ because their immune and respiratory systems are still developing.

Mortality studies since the 1990s have shown a statistically significant direct association between mortality (premature deaths) and daily concentrations of particulate matter in the air. Despite important gaps in scientific knowledge and continued reasons for some skepticism, a comprehensive evaluation of the research findings provides persuasive evidence that exposure to fine particulate air pollution has adverse effects on cardiopulmonary health (Dockery and Pope, 2006). The California Air Resources Board (ARB) has estimated that achieving the ambient air quality standards for PM_{10} could reduce premature mortality rates by 6,500 cases per year (ARB, 2002).

Nitrogen Dioxide

Nitrogen Dioxide (NO_2) is a reddish brown gas that is a by-product of combustion processes. NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Automobiles and industrial operations are the main sources of NO_2 which is an air quality concern because it acts a respiratory irritant and is a precursor of ozone. NO_2 is a major component of the group of gaseous nitrogen compounds, commonly referred to as NO_x , which are produced by fuel combustion in motor vehicles, industrial stationary sources (such as industrial activities), ships, aircraft, and rail transit. Typically, NO_x emitted from fuel combustion are in the form of nitric oxide (NO) and NO_2 . NO is often converted to NO_2 when it reacts with ozone or undergoes photochemical reactions in the atmosphere. Therefore, emissions of NO_2 from combustion sources are typically evaluated based on the amount of NO_x emitted from the source.

Sulfur Dioxide

Sulfur Dioxide (SO_2) is a combustion product of sulfur or sulfur-containing fuels such as coal and diesel. SO_2 is also a precursor to the formation of atmospheric sulfate, particulate matter and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain. Concentration rather than duration of exposure is an important determinant of respiratory effects. Exposure to high SO_2 concentrations may result in edema of the lungs or glottis and respiratory paralysis.

Lead

Ambient lead concentrations meet both the federal and state standards in the project area. Lead has a range of adverse neurotoxin health effects, and was formerly released into the atmosphere primarily via leaded gasoline products. The phase-out of leaded gasoline in California resulted in decreasing levels of atmospheric lead. The project would not introduce any new sources of lead emissions; consequently, lead emissions are not required to be quantified and are not further evaluated in this analysis.

Criteria Pollutant Monitoring Station Data

The YSAQMD monitoring stations in the vicinity of the project area are located in Davis on the UC Davis campus and in the City of Woodland on Gibson Road. Data collected at these stations are considered to be generally representative of air quality of the project area, especially for regional pollutants such as ozone and PM₁₀. **Table 3.3-1** summarizes the concentrations of ozone, PM₁₀, and PM_{2.5} from 2007 through 2009 and compares the ambient air pollutant concentrations with applicable federal and state air quality standards.

**TABLE 3.3-1
AIR QUALITY DATA SUMMARY (2008–2010) FOR THE PROJECT AREA**

Pollutant	Monitoring Data by Year			
	Standard ^a	2008	2009	2010
Ozone: Woodland-Gibson Road				
Maximum concentration 1-hour (ppm) ^b	0.09	0.100	0.093	0.087
Number of days state standard exceeded 1-hour		4	0	0
Maximum concentration 8-hour (ppm) ^b		0.088	0.082	0.069
Number of days state standard exceeded 8-Hour	0.070	12	11	0
Number of days national standard exceeded 8-Hour	0.075	4	3	0
Ozone: Davis-UC Davis				
Maximum concentration 1-hour (ppm) ^b	0.09	0.112	0.092	0.094
Number of days state standard exceeded 1-hour		4	0	0
Maximum concentration 8-hour (ppm) ^b		0.099	0.082	0.073
Number of days state standard exceeded 8-Hour	0.070	10	7	3
Number of days national standard exceeded 8-Hour	0.075	5	1	0
Particulate Matter (PM ₁₀): Woodland-Gibson Road				
Maximum concentration state measurement (µg/m ³) ^b		183.3	64.0	87.4
Est. days over state standard ^c	50	48.9	12.2	6.5
Maximum concentration national measurement (µg/m ³) ^b		181.1	64.6	87.4
Est. days over national standard ^c	150	6.1	0	0
Particulate Matter (PM _{2.5}): Woodland-Gibson Road				
Maximum concentration national measurement (µg/m ³) ^b		41.9	27.6	26.7
Est. days national standard exceeded ^c	35	NA	0	0
State annual average (µg/m ³) ^b	12	9.7	NA	NA

a Generally, state standards and national standards are not to be exceeded more than once per year.

b ppm = parts per million; µg/m³ = micrograms per cubic meter.

c PM10 and PM2.5 is not measured every day of the year. Number of estimated days over the standard is based on 365 days per year.

NA = Not Available. Values in **Bold** exceed the respective air quality standard.

SOURCE: California Air Resources Board (ARB), 2011. *Summaries of Air Quality Data, 2008-2010*;
<http://www.arb.ca.gov/adam/select8/sc8start.php>

Toxic Air Contaminants (TACS)

Non-criteria air pollutants or TACs are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer-causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, diesel engines, dry cleaners, industrial operations, and painting operations. TACs are regulated separately from the criteria air pollutants at both federal and state levels.

Greenhouse Gases

Gases that trap heat in the atmosphere are called greenhouse gases (GHGs). The accumulation of GHGs in the atmosphere has been linked to global climate change. Global climate change is a change in the average weather on earth that can be measured by wind patterns, storms, precipitation, and temperature. Although there is disagreement as to the speed of global warming and the extent of the impacts attributable to human activities, most agree that there is a link between increased emission of GHGs and long-term increases in global temperature. What GHGs have in common is that they allow sunlight to enter the atmosphere, but they also trap a portion of the outward-bound infrared radiation and warm up the air. The process is similar to the effect greenhouses have in raising their internal temperature, hence the name GHGs. Both natural processes and human activities emit GHGs.

The accumulation of GHGs in the atmosphere regulates the earth's temperature; however, emissions from human activities such as electricity production and use of motor vehicles have elevated the concentration of GHGs in the atmosphere. This accumulation of GHGs has contributed to an increase in the temperature of the earth's atmosphere and contributed to global climate change. The principal GHGs are carbon dioxide (CO₂), methane, nitrous oxide (N₂O), sulfur hexafluoride, perfluorocarbons, hydrofluorocarbons, and water vapor. CO₂ is the reference gas for climate change. To account for the warming potential of GHGs, and to combine emissions of gases with differing properties, GHG emissions are typically quantified and reported as CO₂ equivalents (CO₂e).

Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood, and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great.

Sensitive Receptors

Some receptors are considered more sensitive than others to air pollutants. Reasons for greater sensitivity include pre-existing health problems, proximity to emissions source, or duration of exposure to air pollutants. Schools, hospitals and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people and the infirm are more susceptible to respiratory infections and other air quality-related health problems than the

general public. Residential areas are also sensitive to poor air quality because people usually stay home for extended periods of time.

The project site has existing single-family residences located approximately 500 feet directly across the river, , along Garden Highway, which would be exposed to project-generated air pollutant emissions during construction and operation of the joint intake facilities.

3.3.2 Regulatory Framework

Federal

The FCAA requires the U.S. Environmental Protection Agency (EPA) to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. National standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, respirable particulate matter (less than PM₁₀), and lead. **Table 3.3-2** presents current national and state ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant.

Pursuant to the 1990 Federal Clean Air Act Amendments (FCAA), the EPA classifies air basins (or portions thereof) as “in attainment” or “nonattainment” for each criteria air pollutant, based on whether or not the NAAQS had been achieved. **Table 3.3-3** shows the current attainment status of the project area.

The FCAA required each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The FCAA added requirements for states containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The EPA has responsibility to review all state SIPs to determine if they conform to the mandates of the FCAA and will achieve air quality goals when implemented. If the EPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan (FIP) for the nonattainment area and may impose additional control measures. Failure to submit an approvable SIP or to implement the plan within mandated timeframes can result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

TABLE 3.3-2
STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour	0.09 ppm	---	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NO _x) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
	8 hours	0.07 ppm	0.075 ppm		
Carbon Monoxide	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
Nitrogen Dioxide	1 hour	0.18 ppm	0.100 ppb	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Avg.	0.030 ppm	0.053 ppb		
Sulfur Dioxide	1 hour	0.25 ppm	75 ppb	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	---	0.5 ppm		
	24 hours	0.04 ppm	---		
	Annual Avg.	---	---		
Respirable Particulate Matter (PM₁₀)	24 hours	50 µg/m ³	150 µg/m ³	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Avg.	20 µg/m ³	---		
Fine Particulate Matter (PM_{2.5})	24 hours	---	35 µg/m ³	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO _x , sulfur oxides, and organics.
	Annual Avg.	12 µg/m ³	15 µg/m ³		
Lead	Monthly Ave.	1.5 µg/m ³	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	---	1.5 µg/m ³		
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)	Geothermal Power Plants, Petroleum Production and refining
Sulfates	24 hour	25 µg/m ³	No National Standard	Breathing difficulties, aggravates asthma, reduced visibility	Produced by the reaction in the air of SO ₂ .
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, discourages tourism.	See PM _{2.5} .

ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter.

SOURCE: California Air Resources Board (ARB), 2010a. *Ambient Air Quality Standards*, available at <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf> Standards last updated September 8, 2010. California Air Resources Board, 2009. *ARB Fact Sheet: Air Pollution Sources, Effects and Control*, <http://www.arb.ca.gov/research/health/fs/fs2/fs2.htm>, page last reviewed December 2009.

**TABLE 3.3-3
YOLO COUNTY ATTAINMENT STATUS**

Criteria Pollutant ¹	Designation/Classification ^{1,2}	
	Federal Standards	State Standards
Ozone – one hour	No Federal Standard	Nonattainment/Serious
Ozone – eight hour	Nonattainment/Severe	Nonattainment
PM ₁₀	Unclassified	Nonattainment
PM _{2.5}	Nonattainment	Unclassified
CO	Unclassified/Attainment	Attainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified	Attainment
Lead (particulate)	Unclassified/Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-Reducing Particles	No Federal Standard	Unclassified

¹ TACs are regulated separately from criteria pollutants on both the state and federal levels.
² "Unclassified" is used as the designation for any area that cannot be classified, on the basis of available information, as meeting or not meeting the national or state air quality standard for the specified pollutant.

SOURCE: California Air Resources Board (ARB), 2010b. *Area Designation Maps*,
<http://www.arb.ca.gov/desig/adm/adm.htm>, page updated September 7, 2010.

Toxic Air Contaminants

Regulation of TACs, termed Hazardous Air Pollutants (HAPs) under federal regulations, is achieved through federal, State and local controls on individual sources. The 1977 Clean Air Act Amendments required the EPA to identify National Emission Standards for Hazardous Air Pollutants (NESHAPs) to protect public health and welfare. These substances include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. There is uncertainty in the precise degree of hazard.

Greenhouse Gases

The U.S. Supreme Court ruled on April 2, 2007, that CO₂ is an air pollutant as defined under the FCAA and that the EPA has the authority to regulate emissions of GHGs. However, at the time this IS/EA was written, no federal regulations or policies regarding GHG emissions were applicable to the Proposed Project/Action.

Federal General Conformity Rule

Federal projects are subject to either the Transportation Conformity Rule (40 CFR, Part 51, Subpart T), which applies to federal highway and transit projects, or the General Conformity Rule (40 CFR, Part 51, Subpart W), which applies to all other federal projects. The General Conformity Rule implements Section 176(c) of the federal Clean Air Act, which requires that a federal agency ensure conformity with an approved SIP for those air emissions that would be generated by an agency action. Conformity determinations for Federal actions are required for each pollutant where the total of direct and indirect emissions in a nonattainment or maintenance area caused by a Federal

action would equal or exceed any of the rates identified in **Table 3.3-4**. Because the Proposed Project/Action is located in an area that is serious non-attainment for ozone the conformity determination requirements do apply to the Proposed Project/Action.

**TABLE 3.3-4
GENERAL CONFORMITY THRESHOLDS**

Criteria Pollutant	Tons/Year
Ozone (VOC's or NOX):	
<i>Serious NAA's</i>	50
<i>Severe NAA's</i>	25
<i>Extreme NAA's</i>	10
VOC	50
NOX	100
Carbon monoxide	100
SO2 or NO2	100
PM-10:	
<i>Moderate NAA's</i>	100
<i>Serious NAA's</i>	70
Lead:	25
SOURCE: 40 CFR Ch. I (7-1-05 Edition) § 93.15	

State Regulations

The ARB manages air quality, regulates mobile emissions sources, and oversees the activities of county Air Pollution Control Districts and regional Air Quality Management Districts. ARB establishes state ambient air quality standards and vehicle emissions standards.

California has adopted ambient standards that are more stringent than the federal standards for the criteria air pollutants. These are shown in **Table 3.3-2**. Under the California Clean Air Act (CCAA), patterned after the FCAA, areas have been designated as in attainment or nonattainment with respect to the state standards. **Table 3.3-3** summarizes the attainment status with California standards for the Yolo County area.

Toxic Air Contaminants

A total of 243 substances have been designated as TACs under California law; they include the 189 (federal) HAPs adopted in accordance with Assembly Bill (AB) 2728. The Air Toxics “Hot Spots” Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; AB 2588 does not regulate air toxics emissions. Toxic air contaminant emissions from individual facilities are quantified and prioritized. The YSAQMD implements AB 2588 and is responsible for prioritizing facilities that emit air toxics. Depending on the risk levels, emitting facilities are required to implement varying levels of risk reduction measures. The Proposed Project/Action does not include developing any facilities that may be categorized as “High-priority,” which are required to perform a health risk assessment.

In August of 1998, ARB identified particulate emissions from diesel-fueled engines (diesel particulate matter, or DPM) as TACs. ARB subsequently developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (ARB, 2000). The document represents proposals to reduce diesel particulate emissions, with the goal of reducing emissions and associated health risks by 75 percent in 2010 and by 85 percent in 2020. The program aims to require the use of state-of-the-art catalyzed diesel particulate filters and ultra low sulfur diesel fuel on diesel-fueled engines.

ARB recently published the *Air Quality and Land Use Handbook: A Community Health Perspective* (ARB, 2005). The primary goal in developing the handbook was to provide information that will help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution. The handbook highlights recent studies that have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities. The health risk is greatly reduced with distance. For that reason, ARB provides some general recommendations aimed at keeping appropriate distances between sources of air pollution and sensitive land uses, such as residences.

Greenhouse Gases

Various statewide and local initiatives to reduce California's contribution to GHG emissions have raised awareness that even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is occurring, and that there is a real potential for severe adverse environmental, social, and economic effects in the long term. Every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change; therefore, global cooperation will be required to reduce the rate of GHG emissions enough to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Assembly Bill 1493

In 2002, then-Governor Gray Davis signed AB 1493 (Chapter 200, Statutes of 2002, amending Section 42823 of the California Health and Safety Code and adding Section 43018.5 to the code). AB 1493 required the California ARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks and other vehicles determined by ARB to be vehicles whose primary use is noncommercial personal transportation in the State."

To meet the requirements of AB 1493, ARB approved amendments to the California Code of Regulations (CCR) in 2004 by adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR Section 1900, 1961) and adoption of Section 1961.1 (13 CCR Section 1961.1) require automobile manufacturers, beginning with the 2009 model year, to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily for the transportation of persons). Emissions limits are reduced further for each model year through 2016.

In December 2004, a group of car dealerships, automobile manufacturers, and trade groups representing automobile manufacturers filed suit against ARB to prevent enforcement of 13 CCR Sections 1900 and 1961, as amended by AB 1493 and 13 CCR 1961.1 (*Central Valley Chrysler-Jeep et al. v. Catherine E. Witherspoon, in Her Official Capacity as Executive Director of the California Air Resources Board, et al.* [456 F.Supp.2d 1150, 1172 [E.D. Cal. 2006]]). The suit in the U.S. District Court for the Eastern District of California contended that California's implementation of regulations that, in effect, regulate vehicle fuel economy violates various federal laws, regulations, and policies.

In January 2007, the judge hearing the case accepted a request from the California Attorney General's office that the trial be postponed until a decision is reached by the U.S. Supreme Court on a separate case addressing GHGs. In the Supreme Court case, *Massachusetts, et al., v. Environmental Protection Agency, et al.*, the primary issue in question was whether the FCAA authorizes EPA to regulate CO₂e. EPA contended that the FCAA does not authorize regulation of CO₂ emissions, whereas Massachusetts and 10 other states, including California, sued EPA to begin regulating CO₂. As mentioned above, the U.S. Supreme Court ruled on April 2, 2007, that GHGs are "air pollutants" as defined under the FCAA and that EPA is granted authority to regulate CO₂ (*Massachusetts v. U.S. Environmental Protection Agency* [2007] 549 U.S. 05-1120).

On December 12, 2007, the U.S. District Court for the eastern District Court rejected the automakers' claim by finding that if California receives appropriate authorization from EPA (the last remaining factor in enforcing the standard), these regulations would be consistent with and have the force of federal law. This authorization to implement more stringent standards in California was requested in the form of a FCAA Section 209(b) waiver in 2005. Since that time, EPA has failed to act in granting California authorization to implement the standards. Governor Schwarzenegger and Attorney General Edmund G. Brown Jr. filed suit against EPA for the delay. EPA denied California's request for the waiver to implement AB 1493 in late December 2007. The State of California has filed suit against EPA for its decision to deny the FCAA waiver.

Executive Order S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the snowpack in the Sierra Nevada, exacerbate California's air quality problems, and potentially cause a rise in sea level. To address those concerns, the executive order established total GHG emission targets. Specifically, emissions must be reduced to the 2000 level by 2010, to the 1990 level by 2020, and to 80% below the 1990 level by 2050.

The executive order directed the secretary of the California Environmental Protection Agency (Cal/EPA) to coordinate a multiagency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and California Legislature describing the progress made toward the emissions targets, the impacts of global climate change on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the secretary of Cal/EPA created the California Climate Action Team, made up of members from various state agencies and commissions. The team released its first report in March 2006.

The report proposed to achieve the targets by building on the voluntary actions of California businesses, local governments, and communities and through state incentive and regulatory programs.

Assembly Bill 32, California Global Warming Solutions Act of 2006

In September 2006, Governor Schwarzenegger signed AB 32, the California Global Warming Solutions Act of 2006 (Chapter 488, Statutes of 2006; California Health and Safety Code Sections 38500–38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32. AB 32 requires ARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

In December 2007, ARB approved the 2020 emission limit of 427 million metric tons of CO₂e of GHGs. The 2020 target of 427 million metric tons of CO₂e requires the reduction of 169 million metric tons of CO₂e, or approximately 30 percent, from the state's projected 2020 emissions of 596 million metric tons of CO₂e (business-as-usual).

Also in December 2007, ARB adopted mandatory reporting and verification regulations pursuant to AB 32. The regulations became effective January 1, 2009, with the first reports covering 2008 emissions. The mandatory reporting regulations require reporting for certain types of facilities that make up the bulk of the stationary source emissions in California. Currently, the regulation language identifies major facilities as those that generate more than 25,000 metric tons/year of CO₂e. Cement plants, oil refineries, electric-generating facilities/providers, cogeneration facilities, and hydrogen plants and other stationary combustion sources that emit more than 25,000 metric tons/year CO₂e, make up 94 percent of the point source CO₂e emissions in California (ARB, 2007).

California Climate Action Registry

The California Climate Action Registry (CCAR) was established in 2001 by Senate Bill (SB) 1771 and SB 527 (Chapter 1018, Statutes of 2000, and Chapter 769, Statutes of 2001, respectively) as a nonprofit voluntary registry for GHG emissions. The purpose of the CCAR is to help companies and organizations with operations in the state to establish GHG emissions baselines against which any future GHG emissions reduction requirements may be applied. CCAR has developed a general protocol (CCAR, 2009) and additional industry-specific protocols that provide guidance on how to inventory GHG emissions for participation in the registry.

Senate Bill 1368

SB 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007. SB 1368 also required California Energy Commission (CEC) to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle natural gas-fired plant. Furthermore, the legislation states that all electricity provided to California, including imported electricity, must be generated by plants that meet the standards set by CPUC and CEC.

Executive Order S-1-07

Executive Order S-1-07, which was signed by Governor Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, generating more than 40% of statewide emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in California by at least 10% by 2020. This order also directs ARB to determine whether this Low Carbon Fuel Standard could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

Senate Bill 97

SB 97, signed August 2007 (Chapter 185, Statutes of 2007; Public Resources Code Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the Governor's Office of Planning and Research (OPR), which is part of the state Resources Agency, to prepare, develop, and transmit to ARB guidelines for the feasible mitigation of GHG emissions (or the effects of GHG emissions), as required by CEQA, by July 1, 2009. On December 31, 2009, the Natural Resources Agency delivered its rulemaking package to the Office of Administrative Law for their review pursuant to the Administrative Procedure Act. The adopted guidelines became effective on March 18, 2010.

Senate Bills 1078 and 107 and Executive Order S-14-08

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20% of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008 Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Energy Standard to 33% renewable power by 2020.

Senate Bill 375

SB 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires metropolitan planning organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPOs regional transportation plan. ARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every 8 years but can be updated every 4 years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also

charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects will not be eligible for funding programmed after January 1, 2012.

This law also extends the minimum time period for the regional housing needs allocation cycle from 5 years to 8 years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with regional transportation plans (and associated SCS or APS). However, new provisions of CEQA would incentivize (through streamlining and other provisions) qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

Climate Change Scoping Plan

On December 11, 2008 ARB adopted its *Climate Change Scoping Plan* (Scoping Plan), which functions as a roadmap of ARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations (ARB, 2008). The Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- improved emissions standards for light-duty vehicles (estimated reductions of 31.7 million metric tons [MMT] CO₂e),
- the Low-Carbon Fuel Standard (15.0 MMT CO₂e),
- energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO₂e), and
- a renewable portfolio standard for electricity production (21.3 MMT CO₂e).

ARB has not yet determined what amount of GHG emissions reductions it recommends from local government land use decisions; however, the Scoping Plan does state that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. ARB further acknowledges that decisions on how land is used will have large effects on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The Scoping Plan states that the ultimate assignment to local government operations is to be determined (ARB, 2008).

With regard to local land use planning, the Scoping Plan expects a reduction of approximately 5.0 MMT CO₂e from local land use changes associated with implementation of SB 375, discussed above. Also noteworthy is the fact that the Scoping Plan does not include any direct discussion about GHG emissions generated by construction activity.

The *Climate Change Scoping Plan* also includes recommended measures that were developed to reduce GHG emissions from key sources and activities while improving public health, promoting a cleaner environment, preserving our natural resources, and ensuring that the impacts of the reductions are equitable and do not disproportionately impact low-income and minority communities.

These measures, shown below in **Table 3.3-5** by sector, also put the state on a path to meet the long-term 2050 goal of reducing California's GHG emissions to 80 percent below 1990 levels.

**TABLE 3.3-5
LIST OF RECOMMENDED ACTIONS BY SECTOR**

Measure No.	Measure Description	GHG Reductions (Annual Million Metric Tons CO ₂ e)
Transportation		
T-1	Pavley I and II – Light Duty Vehicle Greenhouse Gas Standards	31.7
T-2	Low Carbon Fuel Standard (Discrete Early Action)	15
T-3 ¹	Regional Transportation-Related Greenhouse Gas Targets	5
T-4	Vehicle Efficiency Measures	4.5
T-5	Ship Electrification at Ports (Discrete Early Action)	0.2
T-6	Goods Movement Efficiency Measures. • Ship Electrification at Ports • System-Wide Efficiency Improvements	3.5
T-7	Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)	0.93
T-8	Medium- and Heavy-Duty Vehicle Hybridization	0.5
T-9	High Speed Rail	1
Electricity and Natural Gas		
E-1	Energy Efficiency (32,000 GWh of Reduced Demand) • Increased Utility Energy Efficiency Programs • More Stringent Building & Appliance Standards Additional Efficiency and Conservation Programs	15.2
E-2	Increase Combined Heat and Power Use by 30,000 GWh (Net reductions include avoided transmission line loss)	6.7
E-3	Renewables Portfolio Standard (33% by 2020)	21.3
E-4	Million Solar Roofs (including California Solar Initiative, New Solar Homes Partnership and solar programs of publicly owned utilities) • Target of 3000 MW Total Installation by 2020	2.1
CR-1	Energy Efficiency (800 Million Therms Reduced Consumptions) • Utility Energy Efficiency Programs • Building and Appliance Standards • Additional Efficiency and Conservation Programs	4.3
CR-2	Solar Water Heating (AB 1470 goal)	0.1
Green Buildings		
GB-1	Green Buildings	26
Water		
W-1	Water Use Efficiency	1.4†
W-2	Water Recycling	0.3†
W-3	Water System Energy Efficiency	2.0†
W-4	Reuse Urban Runoff	0.2†
W-5	Increase Renewable Energy Production	0.9†
W-6	Public Goods Charge (Water)	TBD†
Industry		
I-1	Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	TBD
I-2	Oil and Gas Extraction GHG Emission Reduction	0.2
I-3	GHG Leak Reduction from Oil and Gas Transmission	0.9
I-4	Refinery Flare Recovery Process Improvements	0.3
I-5	Removal of Methane Exemption from Existing Refinery Regulations	0.01

**TABLE 3.3-5
LIST OF RECOMMENDED ACTIONS BY SECTOR**

Measure No.	Measure Description	GHG Reductions (Annual Million Metric Tons CO ₂ e)
Recycling and Waste Management		
RW-1	Landfill Methane Control (Discrete Early Action)	1
RW-2	Additional Reductions in Landfill Methane <ul style="list-style-type: none"> • Increase the Efficiency of Landfill Methane Capture 	TBD†
RW-3	High Recycling/Zero Waste <ul style="list-style-type: none"> • Commercial Recycling • Increase Production and Markets for Compost • Anaerobic Digestion • Extended Producer Responsibility • Environmentally Preferable Purchasing 	9†
Forests		
F-1	Sustainable Forest Target	5
High Global Warming Potential (GWP) Gases		
H-1	Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Services (Discrete Early Action)	0.26
H-2	SF ₆ Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)	0.3
H-3	Reduction of Perfluorocarbons in Semiconductor Manufacturing (Discrete Early Action)	0.15
H-4	Limit High GWP Use in Consumer Products Discrete Early Action (Adopted June 2008)	0.25
H-5	High GWP Reductions from Mobile Sources <ul style="list-style-type: none"> • Low GWP Refrigerants for New Motor Vehicle Air Conditioning Systems • Air Conditioner Refrigerant Leak Test During Vehicle Smog Check • Refrigerant Recovery from Decommissioned Refrigerated Shipping Containers • Enforcement of Federal Ban on Refrigerant Release during Servicing or Dismantling of Motor Vehicle Air Conditioning Systems 	3.3
H-6	High GWP Reductions from Stationary Sources <ul style="list-style-type: none"> • High GWP Stationary Equipment Refrigerant Management Program: <ul style="list-style-type: none"> – Refrigerant Tracking/Reporting/Repair Deposit Program – Specifications for Commercial and Industrial Refrigeration Systems • Foam Recovery and Destruction Program • SF Leak Reduction and Recycling in Electrical Applications • Alternative Suppressants in Fire Protection Systems • Residential Refrigeration Early Retirement Program 	10.9
H-7	Mitigation Fee on High GWP Gases	5
Agriculture		
A-1	Methane Capture at Large Dairies	1.0†

1 This is not the SB 375 regional target. ARB will establish regional targets for each MPO region following the input of the regional targets advisory committee and a consultation process with MPO's and other stakeholders per SB 375

† GHG emission reduction estimates are not included in calculating the total reductions needed to meet the 2020 target
GWh = gigawatt hour

SOURCE: ARB, 2008

Attributing Greenhouse Gas Emissions and Land Use Linkages

Land use decisions and development projects are not recorded as an independent emissions sector in the state's GHG inventory. Rather, land use development projects draw from multiple emissions sectors (e.g., transportation, electricity, and waste). In other words, direct and indirect GHG emissions that are generated on-site or off-site, respectively, can be attributed to the operation of a land use development project. The people who would reside in and the visitors to a development would

drive vehicles and generate GHGs that are accounted for in the transportation sector. Electricity consumed at buildings within a project site would indirectly cause GHGs to be emitted at a utility provider. These stationary-source GHG emissions associated with the operation of the utility would be closely controlled and regulated under AB 32 and SB 1368.

Transportation-related GHG emissions are a function of two parameters: emissions control technology and vehicle miles traveled (VMT). AB 1493 and Executive Order S-1-07 address emissions control technology, but not VMT. Since 1990, VMT per capita in California has been increasing at a faster rate than the state's population. Consequently, GHG emissions from increased VMT have outpaced the emissions reductions associated with improved vehicle emissions controls. SB 375, through its linkages of land use and transportation funding, addresses the need and provides incentive for VMT reductions.

California Air Pollution Control Officers Association

In January 2008, the California Air Pollution Control Officers Association (CAPCOA) issued a "white paper" on evaluating and addressing GHGs under CEQA (CAPCOA, 2008). This resource guide was prepared to support local governments as they develop their programs and policies around climate change issues. The paper is not a guidance document. It is not intended to dictate or direct how any agency chooses to address GHG emissions. Rather, it is intended to provide a common platform of information about key elements of CEQA as they pertain to GHG, including an analysis of different approaches to setting significance thresholds.

The paper notes that for a variety of reasons local agencies may decide not to have a CEQA threshold. Local agencies may also decide to assess projects on a case-by-case basis when the projects come forward. The paper also discusses a range of GHG emission thresholds that could be used. The range of thresholds discussed includes a GHG threshold of zero and several non-zero thresholds. Non-zero thresholds include percentage reductions for new projects that would allow the state to meet its goals for GHG emissions reductions by 2020 and perhaps 2050. These would be determined by a comparison of new emissions versus business as usual emissions and the reductions required would be approximately 30 percent to achieve 2020 goals and 90 percent (effectively immediately) to achieve the more aggressive 2050 goals. These goals could be varied to apply differently to a new project, by economic sector, or by region in the state.

Other non-zero thresholds discussed in the paper include:

- 900 metric tons/year CO₂e (a market capture approach);
- 10,000 metric tons/year CO₂e (potential ARB mandatory reporting level with Cap and Trade);
- 25,000 metric tons/year CO₂e (the ARB mandatory reporting level for the statewide emissions inventory);
- 40,000 to 50,000 metric tons/year CO₂e (regulated emissions inventory capture – using percentages equivalent to those used in air districts for criteria air pollutants);
- Projects of statewide importance (9,000 metric tons/year CO₂e for residential, 13,000 metric tons/year CO₂e for office project, and 41,000 metric tons/year CO₂e for retail projects); and
- Unit-based thresholds and efficiency-based thresholds that were not quantified in the report.

Local

Yolo-Solano Air Quality Management District (YSAQMD)

The YSAQMD is the primary local agency responsible for protecting human health and property from the harmful effects of air pollution for all of Yolo County and northeastern Solano County. The YSAQMD was established in 1971 by a joint powers agreement between the Yolo County and Solano County Board of Supervisors. The YSAQMD's jurisdiction includes roughly 1,500 square miles and includes the cities of Davis, Woodland, and the majority of the UC Davis Campus.

The YSAQMD adopted the *Triennial Assessment and Plan Update* (YSAQMD, 2010) and establishes and enforces air pollution control rules and regulations in order to attain and maintain all state and federal ambient air quality standards. The YSAQMD regulates, permits, and inspects stationary sources of air pollution. Among these sources are industrial facilities, gasoline stations, auto body shops, and dry cleaners.

While the State is responsible for emission standards and controlling tailpipe emissions from motor vehicles, the YSAQMD is required to regulate agricultural burning and industrial emissions, implement transportation control measures and recommend mitigation measures for new growth and development designed to reduce the number of cars on the road, and promote the use of cleaner fuels.

Table 3.3-6 shows the project-level thresholds of significance as established by the YSAQMD for PM₁₀, CO, and the precursors to ozone (ROG), and NO_x. The thresholds apply to both construction and operational impacts.

**TABLE 3.3-6
SUMMARY OF YSAQMD SIGNIFICANCE
THRESHOLDS**

Criteria Pollutants	YSAQMD Thresholds of Significance
ROG	10 tons/year
NO _x	10 tons/year
PM10	80 lbs/day
CO	Violation of a state ambient air quality standard for CO
YSAQMD, 2007	

County of Yolo 2030 Countywide General Plan

The *County of Yolo 2030 Countywide General Plan Conservation and Open Space Element* (Yolo County, 2009) contains air quality and climate change goals and supportive policies. Goals and policies that may be applicable to the Project are listed in **Table 3.3-7** below:

**TABLE 3.3-7
AIR QUALITY OBJECTIVES OF YOLO COUNTY**

Number	Goals and Policies
CO-6	<u>Air Quality</u> . Improve air quality to reduce the health impacts caused by harmful emissions.
CO-6.1	Improve air quality through land use planning decisions.
CO-6.2	Support local and regional air quality improvement efforts.
CO-6.6	Encourage implementation of YSAQMD Best Management Practices, such as those listed below, to reduce emissions and control dust during construction activities: <ul style="list-style-type: none"> • Water all active construction areas at least twice daily. • Haul trucks shall maintain at least two feet of freeboard. • Cover all trucks hauling soil, sand, and other loose materials. • Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut-and-fill operations and hydroseed area. • Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days). • Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land. • Plant vegetative ground cover in disturbed areas as soon as possible. • Cover inactive storage piles. • Sweep streets if visible soil material is carried out from the construction site. • Treat accesses to a distance of 100 feet from the paved road with a 6 to 12 inch layer of wood chips or mulch. • Treat accesses to a distance of 100 feet from the paved road with a 6-inch layer of gravel.
CO-8	<u>Climate Change</u> . Reduce GHG emissions and plan for adaptation to the future consequences of global climate change.
CO-8.1	Assess current GHG emission levels and adopt strategies based on scientific analysis to reduce global climate change impacts.
CO-8.2	Use the development review process to achieve measurable reductions in greenhouse gas emissions.
CO-8.3	Prepare appropriate strategies to adapt to climate change based on sound scientific understanding of the potential impacts.
CO-8.4	Encourage all businesses to take the following actions, where feasible: replace high mileage fleet vehicles with hybrid and/or alternative fuel vehicles; increase the energy efficiency of facilities; transition toward the use of renewable energy instead of non-renewable energy sources; adopt purchasing practices that promote emissions reductions and reusable materials; and increase recycling.
CO-8.5	Promote GHG emission reductions by supporting carbon efficient farming methods (e.g. methane capture systems, no-till farming, crop rotation, cover cropping); installation of renewable energy technologies; protection of grasslands, open space, oak woodlands, riparian forest and farmlands from conversion to other uses; and development of energy-efficient structures.
CO-8.6	Undertake an integrated and comprehensive approach to planning for climate change by collaborating with international, national, State, regional, and local organizations and entities.
CO-8.9	Work with local, regional, State, and Federal jurisdictions, as well as private and non-profit organizations, to develop a regional greenhouse gas emissions inventory and emissions reduction plan.

SOURCE: Yolo County, 2009

3.3.3 Environmental Consequences

Significance Criteria

This analysis of air quality and climate change evaluates the potential effects of the Proposed Project/Action on the existing air quality and climate change within or adjacent to the Proposed

Project/Action Area. Significance criteria for this analysis are based on Appendix G of the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Appendix G).

Effects are considered significant if an alternative would result in any of the following:

- Conflict with or obstruct implementation of the applicable air quality plan?
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
- 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?
- Expose sensitive receptors to substantial pollutant concentrations?
- Create objectionable odors affecting a substantial number of people?
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Because the proposed action is subject to NEPA, preparation of a General Conformity Analysis is required. As such, a quantitative evaluation of construction and operational emissions was conducted and evaluated against the federal de minimis thresholds (Table 3.3-4) to determine whether implementation of the proposed project would result in an adverse effect.

Impact Evaluation

No Project/Action Alternative

Under the No Project/Action Alternative, RD 2035 would not construct a new screened joint intake. RD 2035 would continue to use its existing, unscreened diversion and this would have no new effect on air quality.

Proposed Project/Action Alternative

Impact 3.3-1: Project construction and/or operation could violate air quality standards or contribute substantially to an existing or projected air quality violation. (Potentially Significant during construction; Less than Significant during operations).

Construction Impacts

Most project construction activities occur in two distinct phases: the first involves site preparation and earthmoving activities, while the second involves installing equipment, concrete, and structural improvements. Site preparation includes activities such as general land clearing and vegetation removal. Earthmoving activities include cut and fill operations, trenching, soil compaction, and grading. General construction includes adding improvements such as roadway surfaces, structures, and facilities. The modeled emissions generated from these common construction activities are described in **Table 3.3-8** and include:

- Dust (including PM₁₀ and PM_{2.5}) primarily from fugitive sources such as soil disturbance and vehicle travel over unpaved surfaces;
- Combustion emissions of criteria air pollutants (including ROG, NO_x, PM₁₀, PM_{2.5}, and CO) primarily from operation of heavy equipment construction machinery (primarily diesel operated), portable auxiliary equipment and construction worker automobile trips (primarily gasoline operated); and,
- Evaporative emissions (ROG) from asphalt paving.

Construction-related fugitive dust emissions would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. In the absence of mitigation, construction activities may result in generating significant quantities of dust, and as a result, local visibility and PM₁₀ concentrations may be adversely affected (**Table 3.3-8**). In addition, the fugitive dust generated by construction would include not only PM₁₀, but also larger particles, which would fall out of the atmosphere within several hundred feet of the construction area and could result in nuisance-type impacts.

Construction activities would also result in the emission of pollutants of concern (ROG, NO_x, PM₁₀ and PM_{2.5}) from construction equipment exhaust and construction worker automobile trips. Emission levels for construction activities would vary depending on the number and type of equipment, duration of use, operating schedules, and the number of construction workers. Criteria pollutant emissions of ROG and NO_x from these emission sources would incrementally add to the regional atmospheric loading of ozone precursors during project construction.

Construction of the Proposed Project/Action is anticipated to occur over two years. For the worst-case day and annual project construction scenario, it was assumed that all components of the Proposed Project/Action would occur simultaneously. Estimated construction-related fugitive dust emissions, as well as exhaust emissions from construction equipment, trucks, and worker trips are shown in **Table 3.3-8**. As shown in, unmitigated emissions of PM₁₀ would exceed the 80 pounds per day significance threshold specified by the District and therefore the associated impact would be potentially significant.

Construction emissions associated with project activities, summarized below in **Table 3.3-8** in tons per year, are not anticipated to exceed the federal *de minimis* thresholds.

Project Operations Impacts

Operational emissions for the Proposed Project/Action would be generated primarily from on-road vehicular traffic. However, for the joint intake, only a few employee trips would be required periodically for routine inspection and maintenance, and would result in negligible emissions to the local air quality environment. This would be less-than-significant without mitigation.

**TABLE 3.3-8
CONSTRUCTION EMISSIONS ESTIMATES**

Project Construction	Criteria Pollutant Emissions - Year 2014				
	ROG	NOx	CO	PM10	PM2.5
Unmitigated Daily Construction Emissions (lbs/day) ¹	10	82	48	104	25
Mitigated Daily Construction Emissions (lbs/day) ²	10	82	48	52	14
YSAQMD Significance Threshold (lbs/day)	NA	NA	NA	80	NA
Significant (Yes or No)?	No	No	No	No	No
Unmitigated Annual Construction Emissions (tons/year) ¹	1	9	5	14	3
Mitigated Annual Construction Emissions (tons/year) ²	1	9	5	7	2
YSAQMD Significance Threshold (tons/year)	10	10	NA	NA	NA
Significant (Yes or No)?	No	No	No	No	No
General Conformity <i>de minimus</i> Threshold (Yes or No)?	NA	No	No	No	NA

Values in **bold** are in excess of the applicable YSAQMD significance threshold.

1. Project construction emissions estimates for off-road equipment, trucks, workers, and fugitive dust were made using URBEMIS 2007. The emissions listed above are for a worse-case day and year. Since the ozone precursor thresholds are based on annual emissions, the equipment assumptions are based on the weighted average of usage for construction activities throughout the year. Equipment and trucks were tiered from the *Davis-Woodland Water Supply Project Environmental Impact Report* (SCH Number 2006042175).
2. Fugitive dust control measures (described below in Mitigation Measure 3.3-1) were incorporated into the URBEMIS model.

Mitigation Measure

Measure 3.3-1: During construction, the RD 2035 shall require construction contractors to implement the following fugitive dust mitigation measures in order to keep levels below YSAQMD thresholds of significance:

- Water all active construction areas at least twice daily.
- Limit onsite vehicles to a speed of 15 miles per hour on unpaved roads.
- Haul trucks shall maintain at least two feet of freeboard.
- Cover all trucks hauling soil, sand, and other loose materials.
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut-and-fill operations and hydroseed area.
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).
- Plant vegetative ground cover in disturbed areas as soon as possible.
- Cover inactive storage piles.
- Sweep streets if visible soil material is carried out from the construction site.
- Treat accesses to a distance of 100 feet from the paved road with a 6 to 12 inch layer of wood chips or mulch, or with a 6-inch layer of gravel.
- Construction equipment shall be properly tuned and maintained in accordance with manufacturers' specifications.
- Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action

within 24 hours. The telephone number of the YSAQMD shall also be visible to ensure compliance with YSAQMD rules.

Impact Significance after Mitigation: As depicted in **Table 3.3-5**, implementation of the above fugitive dust controls during the short-term construction period would reduce PM₁₀ emissions to a less-than-significant level. All other criteria pollutant emissions during construction, as well as pollutant emissions during operations, would be less-than-significant without mitigation.

Impact 3.3-2: The Project would not conflict with or obstruct implementation of the applicable air quality plan. (Less than Significant).

The applicable air quality plan is the *Triennial Assessment and Plan Update* (YSAQMD, 2010) for ozone. The current YSAQMD set of rules and regulations represents all feasible control measures for YSAQMD sources. The YSAQMD plans to achieve the California Ambient Air Quality Standards (CAAQS) and NAAQS by the earliest practicable date as a result of local reductions.

As described above in Impact 3.3-1, project emissions of NO_x and ROG (ozone precursors) would not exceed the YSAQMD significance threshold during the short-term duration of construction. While operations would increase vehicle trips, the increases are so small that they will not result in any perceptible increase in pollutants and this will not conflict with applicable air quality plans. This impact would be less-than-significant for Proposed Project/Action construction and operations.

Mitigation: None required.

Impact 3.3-3: Project construction and/or operation would not expose sensitive receptors to substantial pollutant concentrations. (Less than Significant).

Carbon Monoxide Hotspots

CO is a localized pollutant of concern. The majority of construction activities would occur in the watershed, at a substantial distance from any sensitive receptors. Although on-road vehicles could pass-by approximately 50 feet from sensitive residences, CO background concentrations (where air districts still monitor CO) and the average emissions from vehicles and equipment continue to decline. Construction activities for the Proposed Project/Action would not emit CO in quantities that could pose health concerns.

Project operations also would not be anticipated to result in or contribute to CO concentrations that exceed the California 1-hour ambient air quality standard of 20 ppm or the 8-hour standard of 9 ppm because of the negligible amount of project-generated trips for operation and maintenance, as discussed above in Impact 3.3-1. The Proposed Project/Action would not result in significant localized concentrations of CO.

Toxic Air Contaminants

Construction of the Proposed Project/Action would result in short-term diesel exhaust emissions (DPM), which are TACs, from on-site heavy-duty equipment. Project construction would generate DPM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities. The dose to which sensitive receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project. Thus, the duration of the proposed construction activities (2 years) would only constitute approximately 3 percent of the total exposure period. In addition, the majority of project construction activity would occur in the watershed at a substantial distance from sensitive receptors. Because the use of mobilized equipment would be temporary and there are no sensitive receptors located immediately adjacent to areas where construction would occur for prolonged periods, DPM from construction activities would not be anticipated to result in the exposure of sensitive receptors to levels that exceed applicable standards.

In addition, the long-term operation of the project would not result in any non-permitted sources of toxic air emissions. As a result, exposure of sensitive receptors to substantial toxic air emissions from the Proposed Project/Action would be less than significant.

Mitigation: None required.

Impact 3.8-4: Project operation would create objectionable odors affecting a substantial number of people. (Less than Significant).

Construction, Project Operations & Water Transfer Impacts

The types of land use development that pose potential odor problems include agriculture, wastewater treatment plants, food processing and rendering facilities, chemical plants, composting facilities, landfills, transfer stations and dairies. The Proposed Project/Action would not cause any such uses to occupy the project site. Any potential odors associated with construction activities would be minimal and temporary. Therefore the Proposed Project/Action would not create objectionable odors that would affect a substantial number of people and thus odor impacts would be less-than-significant without mitigation.

Mitigation: None required because potential odor impacts would be less-than-significant without mitigation.

Impact 3.3-5: Development and operation of the Project would result in a cumulative increase of criteria pollutant emissions. (Potentially Significant during construction; Less than Significant during operations).

A cumulative impact occurs when two or more individual effects, considered together, are considerable or would compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant impacts, meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects.

No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. In addition, according to the YSAQMD *Handbook for Assessing and Mitigating Air Quality Impacts*, if a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions (YSAQMD, 2007). Alternatively, if a project does not exceed the identified significance thresholds, then the project would not be considered cumulatively considerable and would result in less-than-significant air quality impacts.

As described above in Impact 3.3-1, construction of the Proposed Project/Action would result in less than significant emissions of criteria pollutants with implementation of the fugitive dust mitigation measures. As discussed in Impacts 3.3-1 and 3.3-3, the Proposed Project/Action would result in less than significant operational emissions without mitigation. Therefore, the Proposed Project/Action would not have a considerable contribution to cumulative air quality (criteria air pollutants) during operations, and the impact would be considered less than significant.

Mitigation Measure

Mitigation Measure 3.3-5: Implement Mitigation Measure 3.3-1.

Significance after Mitigation: As depicted in **Table 3.3-5**, implementation of the above fugitive dust controls during the short-term construction period would reduce criteria pollutant emissions to a less-than-significant level. All other criteria pollutant emissions during construction, as well as pollutant emissions during operations, would be less-than-significant without mitigation.

Impact 3.3-6: Construction and operation of the Project would not result in a cumulatively considerable increase in GHG emissions and would not either directly or indirectly, have a significant impact on the environment or conflict with any applicable plan, policy or regulation of an appropriate regulatory agency adopted for the purpose of reducing GHG emissions. (Less than Significant).

“The most common GHG that results from human activity is carbon dioxide, followed by methane and nitrous oxide” (OPR, 2008). State law defines GHG to also include hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. These latter GHG compounds are usually emitted

in industrial processes, and therefore not applicable to the Proposed Project/Action. The calculation presented below includes annual CO₂e GHG emissions from off-road equipment, trucks, and workers during construction and energy consumption (from project water conveyance) associated with facility operations.

With regard to GHG analysis Criterion A described above (potential conflict with the actions included in the Climate Change Scoping Plan), the Proposed Project/Action does not pose any apparent conflict with the most recent list of the ARB early action strategies (see **Table 3.3-5**, in particular measures W-1 through W-5).

With regard to GHG analysis Criterion B (relative size of the project), project GHG emissions during construction for a worse-case year would be approximately 1,335 metric tons CO₂e. The increase in GHG emissions from project operations at build-out would be approximately 1,526 metric tons/year CO₂e. This is well under the 25,000 metric tons/year CO₂e threshold used to classify major emitters. The 2020 GHG emissions limit for California, as adopted by ARB in December of 2007 is approximately 427 million metric tons of CO₂e. The Proposed Project/Action's annual contribution at build-out would be approximately 0.0004 percent of this total 2020 emissions limit, and therefore the Proposed Project/Action would not generate sufficient emissions of GHGs to contribute considerably to the cumulative effects of GHG emissions such that it would impair the state's ability to implement AB 32.

With respect to GHG analysis Criterion C (inherent energy efficiency of the project), the Proposed Project/Action would include all new pumping facilities that will make use of current, high energy efficiency equipment to minimize energy use.

Finally, with regard to GHG analysis Criterion D (potential conflict with applicable Yolo County plans, policies, or regulations adopted to reduce GHGs), Yolo County has not established GHG reduction plans, and the Project would not conflict with policies contained in the *County of Yolo 2030 Countywide General Plan Conservation and Open Space Element* (Yolo County, 2009). Therefore, the project would not conflict with any local regulations pertaining to GHGs.

Based upon the analysis of Criteria A, B, C and D presented above, the project would not result in a cumulatively considerable increase in GHG emissions such that the project would impair the State's ability to implement AB 32. This impact would be less-than-significant.

Mitigation: None required.

3.4 Noise and Vibration

3.4.1 Affected Environment

Noise

Sound is mechanical energy transmitted by pressure waves through the air. Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. The decibel (dB) scale is used to quantify sound intensity. Since the human ear is not equally sensitive to all frequencies within the entire spectrum, noise measurements are weighted more heavily within those frequencies of maximum human sensitivity in a process called “A-weighting,” referred to as dBA. In general, a difference of more than three dBA is a perceptible change in environmental noise, while a five dBA difference typically causes a change in community reaction. An increase of 10 dBA is perceived by people as a doubling of loudness (USEPA, 1974).

Cumulative noise levels from two or more sources will combine logarithmically, rather than linearly. For example, if two identical noise sources produce a noise level of 50 dBA each, the combined noise level would be 53 dBA, not 100 dBA.

Time variation in noise exposure is typically expressed in terms of the average energy over time (L_{eq}), or alternatively, as a statistical description of the sound level that is exceeded over some fraction of a given period of time. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time – half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_8 and L_{25} represent the noise levels that are exceeded eight and 25 percent of the time, respectively, or for five and 15 minutes during a 1-hour period, respectively.

Several methods have been devised to relate noise exposure over time to human response. The Day-Night Noise Level (L_{dn}) is a 24-hour L_{eq} that adds a 10 dBA penalty to sounds occurring between 10 PM to 7 AM to account for the increased sensitivity to noise events that occur during the quiet late evening and nighttime periods. A commonly used noise metric for this type of study is the Community Noise Equivalent Level (CNEL). The CNEL, originally developed for use in the California Airport Noise Regulation, adds a five dBA penalty to noise occurring during evening hours from 7 PM to 10 PM, and a 10 dBA penalty to sounds occurring between the hours of 10 PM and 7 AM to account for the increased sensitivity to noise events that occur during the quiet late evening and nighttime periods. Thus, the CNEL noise metric provides a 24-hour average of A-weighted noise levels at a particular location, with an evening and a nighttime adjustment, which reflects increased sensitivity to noise during these times of the day.

Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the affect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (Vdb) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration (FTA, 2006). Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Man-made vibration issues are therefore usually confined to short distances (i.e., 500 feet or less) from the source. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly and sick), and vibration sensitive equipment. Fragile buildings can be exposed to ground-borne vibration levels of 0.5 PPV without experiencing structural damage. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV. The human annoyance response level is 80 RMS.

Existing Noise Setting

The project area is rural in character and existing noise sources in the immediate vicinity of the proposed joint intake site are primarily limited to vehicular traffic on nearby roadways and the I-5 freeway, irregular noise associated with rail traffic, and recreational motorized watercraft on the Sacramento River.

One 48-hour long-term and one short-term (5-minute) noise level measurements was taken in the vicinity of the project site and summarized below in **Table 3.4-1**. Noise levels generally increase in the early morning corresponding with increases in commuter traffic and other activities. Noise reaches a maximum in the early evening before declining to late-night levels.

**TABLE 3.4-1
EXISTING NOISE ENVIRONMENT**

Location	Time Period	L _{eq} (dBA)	Noise Sources
Long-Term 1. East riverbank across from existing Intake facility, approximately 500 feet from diversion facility	24-hour CNEL measurements were: Wednesday: 65 dBA Thursday: 65 dBA	Hourly L _{eq} 's ranged from 53 to 66	Traffic on I-5 Traffic on Garden Highway Soft pouring of water out of diversion facility into river
Short-Term 1. Near LT1 site, approximately 500 feet from existing diversion facility	5 minutes	60	Traffic on I-5 (major source) Traffic on Garden Highway Water pouring out of diversion facility into river; Birds chirping

1. This noise value was scaled from a 67 dBA measurement taken 18' from the roadway CL. Scaling to a noise level at 50' provides a more representative value of what residences along the roadway would experience.

SOURCE: City of Davis, 2007.

3.4.2 Regulatory Framework

Federal

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations (CFR), Part 205, Subpart B. The federal truck pass-by noise standard is 80 dB at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

State

California Code of Regulations has guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. The State of California also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the State pass-by standard is consistent with the federal limit of 80 dB. The State pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dB at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by state and local law enforcement officials.

The State has also established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of DNL 45 dB in any habitable room. They require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than DNL 60 dB. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

Local

In California, local regulation of noise involves implementation of General Plan policies and Noise Ordinance standards. Local General Plans identify general principles intended to guide and influence development plans, and Noise Ordinances set forth the specific standards and procedures for addressing particular noise sources and activities.

General Plans recognize that different types of land uses have different sensitivities toward their noise environment; residential areas are considered to be the most sensitive type of land use to noise and industrial/commercial areas are considered to be the least sensitive. Yolo County has a General Plan but does not have a Noise Ordinance.

Yolo County General Plan

County of Yolo goals and policies pertaining to noise are set forth in the General Plan (Yolo County, 2009). **Table 3.4-2** presents goals and policies relevant to the Proposed Project/Action.

**TABLE 3.4-2
NOISE GOALS AND POLICIES OF YOLO COUNTY**

Number	Goals and Policies
Goal HS-7	<u>Noise Compatibility</u> . Protect people from the harmful effects of excessive noise.
Policy HS-7.1	Ensure that existing and planned land uses are compatible with the current and projected noise environment. However, urban development generally experiences greater ambient (background) noise than rural areas. Increased density, as supported by the County in this General Plan, generally results in even greater ambient noise levels. It is the County's intent to meet specified indoor noise thresholds, and to create peaceful backyard living spaces where possible, but particular ambient outdoor thresholds may not always be achievable. Where residential growth is allowed pursuant to this general plan, these greater noise levels are acknowledged and accepted, notwithstanding the guidelines in Figure HS-7.
Policy HS-7.3	Protect important agricultural, commercial, industrial, and transportation uses from encroachment by land uses sensitive to noise and air quality impacts.
SOURCE: Yolo County, 2009	

Although the County of Yolo does not have established exterior noise standards, the noise level standards included in Sacramento County's noise ordinance (codified in Chapter 6.68 of the Sacramento County Code) shall be applied to construction equipment noise that would occur in the County of Yolo and may result in increased noise levels across the Sacramento River in Sacramento County. The Sacramento County noise ordinance states that exterior noise shall not exceed 50 dBA L_{eq} between 10:00 p.m. and 7:00 a.m. and 55 dBA L_{eq} between 7:00 a.m. and 10:00 p.m. for residential and agricultural areas. Construction activities that occur in Yolo County between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday, and interior construction between the hours of 7:00 a.m. and 7:00 p.m. on Saturday, are exempt from these standards.

Environmental Consequences

Significance Criteria

This analysis of noise and vibration evaluates the potential effects of the Proposed Project/Action on the existing environment within or adjacent to the Proposed Project/Action Area. Significance criteria for this analysis are based on Appendix G of the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Appendix G).

Effects are considered significant if an alternative would result in any of the following:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project

- 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 expose people residing or working in the project area to excessive noise levels
- For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels

Impact Evaluation

Resources Not Considered in Detail

The following discussion of environmental impacts is limited to those potential impacts that could result in some level of potentially significant environmental change, as defined by CEQA. Implementation of the Proposed Project/Action would not be located within an airport land use plan (bullet 5 above) or within the vicinity of a private air strip (bullet 6 above) and would not be affected by aircraft related noise. No impact would occur under either of these two categories and are not discussed further within this section.

No Project/Action Alternative

Under the No Action Alternative, RD 2035 would not construct a new screened joint intake. RD 2035 would continue to use its existing, unscreened diversion and this would result in no change to the existing noise environment.

Proposed Project/Action Alternative

Impact 3.4-1: Construction and/or operation would expose persons to substantial temporary, periodic, or permanent noise levels or noise levels in excess of standards established in the local general plans or noise ordinances, or applicable standards of other agencies (Less than Significant with Mitigation).

Construction Impacts

Construction activity noise levels at and near the project site would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction-related material haul trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. In addition, certain types of construction equipment generate impulsive noises (such as pile driving), which can be particularly annoying. **Table 3.4-3** shows typical noise levels during different construction stages. **Table 3.4-4** shows typical noise levels produced by various types of construction equipment.

Construction activities would generate a significant amount of noise corresponding to the appropriate phase of building construction and the noise-generating equipment used during those phases. For each potential location, the noise levels (assuming an attenuation rate of six dBA by distance alone) at the closest receptors are addressed in the following discussion.

**TABLE 3.4-3
TYPICAL CONSTRUCTION
NOISE LEVELS**

Construction Phase	Noise Level (dBA, L_{eq}) ^a
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

a Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

SOURCE: USEPA, 1971

**TABLE 3.4-4
TYPICAL NOISE LEVELS FROM
CONSTRUCTION EQUIPMENT**

Construction Equipment	Noise
Dump Truck	88
Portable Air Compressor	81
Concrete Mixer (Truck)	85
Scraper	88
Jack Hammer	88
Dozer	87
Paver	89
Generator	76
Pile Driver	101
Back Hoe	85

SOURCE: Cunniff, *Environmental Noise Pollution*, 1977.

Construction Traffic

The specific hauling route or disposal destinations for excavated materials from the construction areas, or originating locations for delivery of imported fill and other materials to the work sites is not currently known. However, it is assumed construction materials and worker trips would originate from the major urban areas in the region and nearby communities. Based on the existing roadway network serving the project area, it is assumed trucks and construction workers traveling to and from the construction site would primarily use a combination of highways (e.g., I-5, I-80, and SR 113), arterials, and designated truck routes in the project vicinity to reach other local points and/or regional locations.

Trucks traveling to and from the construction site would include dump trucks to transport excavated material, flatbed trucks, and trailers to transport pipes, concrete ready-mix trucks to transport controlled density fill and concrete, and other miscellaneous trucks to support construction activities. With truck noise levels of 88 dBA L_{eq} at 50 feet, increased truck volume on local roadways to get to the construction work site would result in a substantial increase in noise over the existing ambient environment. This would be a significant impact without mitigation.

Construction Equipment

The closest residences to the joint intake facility are located on the eastside of the Sacramento River on Garden Highway, approximately 500 feet from the project site. These residences would experience noise levels of 81 dBA L_{eq} during pile driving, the loudest of the activities that would occur during Intake construction. Also, concrete pouring for the joint intake facility (58 dBA L_{eq} at nearest receptor) may be required to continue on into the nighttime hours. Installation of the sheet piles and temporary sheet pile cofferdam would occur over a one and two week period, respectively. Additionally, pile driving and concrete pouring could take three weeks, and the formation and pouring of the intake structural slab and walls could occur over a 12-week period. Although these activities would be for a short-term duration, construction noise at

these levels would exceed the standards applied to construction in Sacramento County (Yolo County does not have any standard) during the daytime and night-time hours (55 dBA L_{eq} and 50 dBA L_{eq} , respectively) and would be significant without mitigation.

Project Operations Impacts

Facility Noise

The joint intake pump station and HVAC equipment would be acoustically baffled or enclosed entirely to meet the interior 45 dBA L_{eq} noise standard applied to off-site sensitive receptors from stationary sources in Yolo and Sacramento County, the nearest of which is approximately 500 feet from the Proposed Project/Action. Moreover, facilities and equipment would be designed and used in a manner that complies with the respective Yolo and Sacramento County noise policies and ordinances. Therefore, this impact is considered a less-than-significant.

Operational Traffic

Because the maximum project generated traffic on any single day would be minimal and primarily distributed across rural roadways with few to no sensitive receptors in the vicinity, the Proposed Project/Action would not lead to a 3 dBA increase in noise over the existing total ambient noise level and would not have a perceptible change over the baseline total ambient noise level. Therefore, addition of project-related traffic would result in a negligible increase in noise from operational traffic and would be a less-than-significant impact.

The following measures would mitigate construction and operational noise impacts to Less than Significant:

Mitigation Measures

Measure 3.4-1a: In order to avoid noise-sensitive hours of the day and night, construction contractors shall comply with the following:

- Construction activities shall be limited to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday, and only interior construction shall be allowed between the hours of 7:00 a.m. and 7:00 p.m. on Saturday to avoid noise-sensitive hours of the day¹.
- Pile-driving shall be limited to between 8:00 a.m. and 4:00 p.m. Monday through Friday.

Measure 3.4-1b: To further address potential nuisance impacts of construction activities, construction contractors shall implement the following:

- Signs shall be posted at all construction site entrances to the property upon commencement of construction activities, for the purposes of informing all contractors/subcontractors, their employees, agents, material haulers, and all other persons at the applicable construction sites, of the basic requirements of Mitigation Measures 3.4-1a and 3.4-1c through 3.4-1e.

¹ Although the County of Yolo does not have established time limitations for construction activities, these specified hours are typically used during construction (Morrison, 2006).

- Signs shall be posted at the construction sites that include permitted construction days and hours, a day and evening contact number for the job site, and a contact number in the event of problems.
- An onsite complaint and enforcement manager shall respond to and track complaints and questions related to noise.

Measure 3.4-1c: To reduce daytime noise impacts due to construction of the joint intake facility, RD 2035 shall require construction contractors to implement the following measures:

- Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically-attenuating shields or shrouds, wherever feasible).
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA. Quieter procedures, such as use of drills rather than impact tools, shall be used whenever feasible.
- Stationary construction noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or other measures to the extent this does not interfere with construction purposes.

Measure 3.4-1d: Where feasible, pile driving noise impacts at the diversion/intake facility shall use “quiet” pile-driving technology (such as sonic or vibratory pile-driver use; pre-drilling of piles; jetted pile-driving), where feasible, if geotechnical and structural requirements and conditions permit this type of technology.

Measure 3.9-1e: No amplified sources (e.g., stereo “boom boxes”) shall be used in the vicinity of residences during construction.

Measure 3.4-1f: All above ground facilities that include stationary equipment (e.g., emergency generators, HVAC systems, pumps, motors, blowers, and compressors and the diversion/intake equipment) shall be designed with acoustically baffled/shielded enclosures around the stationary, noise-generating equipment to meet the applicable County interior noise level requirements at nearby sensitive receptors, where feasible.

However, for sensitive receptors in areas with existing elevated ambient night-time noise levels, such as receptors near major roadways, the enclosures for stationary equipment shall be designed such that noise levels from the stationary equipment shall not exceed the existing ambient night-time hourly L_{eq} noise levels at the receptor.

Impact Significance After Mitigation: Implementation of the above mentioned mitigation measures would reduce significant impacts associated with temporary construction and permanent noise and vibration related impacts to less than significant.

Impact 3.4-2: Project construction would expose persons to or generate excessive ground-borne vibration or ground-borne noise levels. (Less than Significant)

Construction Impacts

Ground-borne vibration from activities that involve “impact tools,” especially pile driving, could produce substantial vibration at nearby sensitive receptors. Because pile driving represents the worst case vibration scenario, it is used as the baseline for this analysis. Vibration levels for impact pile drivers are typically 0.644 inches/second PPV at 25 feet, which is a typical estimate for a wide range of soil conditions (**Table 3.4-5**). Under typical propagation conditions, vibration levels at residences 500 feet from the pile driving activities, which represents the location of the nearest receptor, would be 0.01 in/sec, which is well below the FTA threshold of 0.20 in/sec. Therefore, construction-related vibration impacts would be less than significant. Please refer Section 3.7 – Biological Resources, for discussion on vibration impacts on biological resources.

**TABLE 3.4-5
VIBRATION SOURCE LEVELS FOR CONSTRUCTION
EQUIPMENT (FROM MEASURED DATA)**

Equipment		PPV at 25 ft (in/sec)	Approximate Lv ^a at 25 ft
Pile Driver (impact)	Upper Range	1.518	112
	Typical	0.644	104
Pile Driver (sonic)	Upper Range	0.734	105
	Typical	0.170	93

a. Lv is the velocity level in decibels (VdB) referenced to 1 μ-inch/second and based on the root mean square (RMS) velocity amplitude.
SOURCE: FTA, 2006

Project Operations Impacts

Operation of the Proposed Project/Action would generate similar ground-borne vibrations as existing conditions through the operation of the joint intake pump station. Therefore, impacts from ground-borne vibration or ground-borne noise levels as a result of project operations would be similar to existing conditions and less than significant.

Mitigation: None required.

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3.5 Geology, Soils, and Seismicity

3.5.1 Affected Environment

Existing Geologic and Soil Conditions

Regional Geology

Yolo County lies within the Great Valley and Coast Range geomorphic provinces. The geologic parent material within the region was formed from erosion of mountain ranges to the east and geologic uplift along the western shore of the North American continent. Two hundred and forty-five million years ago, the Great Valley province began forming as deposition of sediment-laden runoff. Eventually, the sediment deposits known as the Great Valley sequence accumulated to a depth of almost six miles.

Large amounts of sediment continued to be added to the Great Valley sequence until approximately 30 million years ago. All of these processes occurred beneath the sea, and the water captured in the pores of the deeply buried rock is saline.

The Coast Range continued to be uplifted until approximately 1.6 million years ago. Cache and Putah Creeks began to deposit fresh sediment on top of the Tehama and Red Bluff formations as a broad and complex alluvial fan. These modern sediments are generally less than 150 feet thick. The meeting of the massive alluvial fans of the Coast Range and Sierra Nevada in the center of the Sacramento Valley confined the Sacramento River to a relatively narrow river valley or basin where it formed its current flood plain and natural levees.

Soils

In general, soils in the project area are characterized by deep, poorly drained, fine-sandy materials that may contain a high percentage of organic materials. The soils are well suited for deep mechanical preparation, moderately well suited for surface preparation, have a slight erosion hazard, and are all classified as hydric soils. There is one soil association found within the project area, Tyndall Series - (Te) Tyndall very fine sandy loam, deep. This soil type is a somewhat poorly drained silty very fine sandy loam typically found on alluvial fans. Slopes are less than one percent. Tyndall soils are used mainly for row crops, forage crops, truck crops, orchard, dryfarmed grain, pasture, wildlife habitat and recreation. Soils specific to the project site are underlain by buried clay at a depth that ranges from 40 to 60 inches (NRCS, 1972).

Soils located within the project area exhibit negligibly to moderately corrosive to concrete and high corrosive potential to uncoated steel (NRCS, 1972). The potential rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil, while the corrosion rate of uncoated steel is related to soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. Concrete or steel that intersects soil boundaries or layers is more susceptible to corrosion than the steel in installations that are entirely within one kind of soil or soil layer.

Regional Seismicity

The California Building Code (CBC; CCR Title 24) designates the entire northern Central Valley as Seismic Risk Zone 3. For comparison, areas within the San Francisco Bay Area are located within Seismic Risk Zone 4 and are at the highest risk to experience maximum magnitudes and damage in the event of an earthquake. Regionally occurring earthquakes could affect the project area, however, impacts resulting from such an event would likely be less severe than those experienced in the Bay Area.

The procedures and limitations for design of structures in accordance with the CBC consider seismic zoning, site characteristics, occupancy, configuration, structural system and height. Although both Seismic Zones 3 and 4 are susceptible to earthquake ground motion and particular seismic design criteria are required under the CBC, minimum requirements for design in Seismic Zone 4 are typically more rigorous than those required for Seismic Zone 3.

Table 3.5-1 identifies characteristic earthquakes on each of the active and potentially active faults within 60 miles of the project area. While the magnitude of an earthquake is a measure of the energy released, intensity is a measure of the ground shaking effects at a particular location. Shaking intensity can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. The Modified Mercalli (MM) intensity scale is commonly used to measure earthquake effects due to ground shaking. The MM values for intensity range from I (earthquake not felt) to XII (damage nearly total). MM intensities ranging from IV to X could cause moderate to significant structural damage.

Regional Faults

The nearest fault zones exhibiting historic displacement (activity within the last 200 years) to the Project area are the Concord-Green Valley, Marsh Creek-Greenville, and Hayward fault zones, located approximately 27 miles west, 40 miles west, and 54 miles southwest of the project area, respectively (Jennings, 1994). Other active faults within 70 miles of the Project area are the Dunnigan Hills (Zamora) (10 miles northwest), West Napa (36 miles southwest) Healdsburg-Rodgers Creek (57 miles southwest), and San Andreas (66 miles west).

A seismically-active, concealed (blind) fold and thrust fault belt situated within the Coast Range-Central Valley (CRCV) Geomorphic Boundary is located approximately 10 miles west of the Project area. Earthquakes associated with this fault system include the 6.1 magnitude (Mw) Kettleman Hills and 6.5 (Mw) Coalinga events (Wakabayashi and Smith, 1994). Published estimates of the CRCV slip rate derived from previous studies range from 1 to 10 mm/year, and estimated reoccurrence intervals of the Coalinga-type events range from 200 to 2,000 years. The concealed CRCV thrust is thought to have produced the Vacaville-Winters earthquake of 1892 (estimated 6.75 Mw intensity; Wakabayashi and Smith, 1994).

TABLE 3.5-1
ACTIVE AND POTENTIALLY ACTIVE FAULTS WITHIN 70 MILES OF THE PROJECT AREA

Fault Zone	Location Relative to Project Area	Recency of Faulting^a	Historical Seismicity^b	Slip Rate^c (mm/year)	Maximum Moment Magnitude^d
Dunnigan Hills	10 miles northwest	Holocene	N/A	N/A	6.8
CRCV (Segments 8-9)	10 miles west	Holocene	Coalinga: 6.5 Kettleman Hills: 6.1	3-8	6.0
Vaca Fault	18 miles southwest	Late Quaternary	N/A	N/A	N/A
Cordelia Fault	24 miles southwest	Late Quaternary	N/A	N/A	N/A
Concord –Green Valley	27 miles southwest	Historic	Active Creep ^e	6.0	6.9
Soda Creek Fault	32 miles southwest	Late Quaternary	N/A	N/A	N/A
Hunting Creek- Berryessa Fault	33 miles northwest	Holocene	Historic Active Creep		6.9
West Napa	36 miles southwest	Holocene	M5.2: 2000	1.0	6.5
Marsh Creek-Greenville	40 miles southwest	Historic	5.8	2.0	6.9
Mayacama (Southern)	50 miles west	Holocene	Historic Active Creep	N/A	6.9
Healdsburg– Rodgers Creek	57 miles southwest	Holocene	NA	9.0	7.0
Hayward	54 miles southwest	Historic	M 6.8: 1868 M 7.0: 1838 Many <M 4.5	9.0	6.9
San Andreas (Peninsula and Golden Gate segments)	66 miles west	Historic	M 7.1: 1989 M 8.25: 1906 M 7.0: 1838 Many <M 6	17.0	7.3

a Recency of faulting from Jennings, 1994. Historic: displacement during historic time (within last 200 years), including areas of known fault creep; Holocene: evidence of displacement during the last 10,000 years; Quaternary: evidence of displacement during the last 1.6 million years; Pre-Quaternary: no recognized displacement during the last 1.6 million years (but not necessarily inactive).

b Richter magnitude (M) and year for recent and/or large events.

c Slip Rate = Long-term average total of fault movement including earthquake movement, slip, expressed in millimeters.

d The Maximum Moment Magnitude is an estimate of the size of a *characteristic* earthquake capable of occurring on a particular fault. Moment magnitude is related to the physical size of a fault rupture and movement across a fault. Richter magnitude scale reflects the maximum amplitude of a particular type of seismic wave. Moment magnitude provides a physically meaningful measure of the size of a faulting event (CDMG, 1997). Richter magnitude estimations can be generally higher than moment magnitude estimations.

e Slow fault movement that occurs over time without producing an earthquake.

N/A = Not applicable and/or not available.

SOURCES: Jennings, C. W. 1994, Fault Activity Map of California (with Appendix), CGS, Geologic Data Map No. 6; Peterson, et. al., 1996, PSHA, CSG - Open File Report 96-08; USGS Open-File Report 96-706.

Potential Geologic / Seismic Hazards

The project area could experience the effects of a major earthquake from one of the active or potentially active faults located within 60 miles of the site. The four major hazards associated with earthquakes are fault surface rupture (ground displacement), ground motion (or ground shaking), ground failure (e.g., liquefaction), and differential settlement, slope instability, and land subsidence. These potential geologic hazards are discussed in the following text.

Potential Ground Motion

The California Geological Survey has determined the probability of earthquake occurrences and their associated peak ground accelerations throughout the State of California. The seismic hazard assessment determines the earthquake hazard that geologists and seismologists agree could occur in California. Current maps produced by the California Geological Survey are based on 10 percent exceedance in 50 years. The peak ground acceleration based on a 10 percent exceedance in 50 years within the project area could range between 0.20 g to 0.30 g (g is force of gravity, wherein ground motion is rated in comparison against acceleration by gravity) (Peterson, et. al, 1999). This range of potential ground acceleration is considered moderate (USGS, 1996).

Surface Fault Rupture

The Concord-Green Valley and Marsh Creek-Greenville fault zones are the closest active faults zoned under the Alquist-Priolo Earthquake Fault Zoning Act to the region and are situated approximately 27 – 40 miles southwest of the project area. The project site is neither located within, nor crosses, a delineated Alquist-Priolo Earthquake Fault Zone. Therefore, the risk of surface fault rupture within the Project area is considered low (CDMG, 1997).

Liquefaction

Liquefaction is the sudden temporary loss of strength in saturated, loose to medium dense, granular sediments subjected to ground shaking. Liquefaction can cause foundation failure of buildings and other facilities due to the reduction of foundation bearing strength.

The project area is characterized by shallow groundwater, because of its close proximity to the Sacramento River with standing water generally encountered between zero to three feet below the ground surface. Additionally, a review of local well records indicates that the project area is underlain by stratified layers of silt, silty clays, and isolated lenses of gravel and/or sand. Therefore, portions of the project site may be prone to liquefaction resulting from ground shaking. However, the potential for liquefaction at precise points on the project site may vary substantially, and would need to be determined by further engineering design and geotechnical studies.

Earthquake-Induced Settlement

Settlement of the ground surface can occur as a result of the relatively rapid compaction and settling of subsurface materials (particularly loose, non-compacted, and variable sandy sediments) during prolonged ground shaking. Typically, areas underlain by artificial fills, unconsolidated alluvial sediments, and slope wash, and areas with improperly engineered construction fills are susceptible to settlement. Although the general parent material of the soil resources in the project area may indicate a higher risk of earthquake-induced settlement, the potential for earthquake-induced settlement is considered low due to the substantial distance between the project site and a major active fault.

Slope Instability and Landslides

Slope failure, commonly referred to as landslide, include many phenomena that involve the downslope displacement and movement of material, either triggered by static (i.e., gravity) or

dynamic (i.e., earthquake) forces. Exposed rock slopes undergo rockfalls, rockslides, or rock avalanches, while soil slopes experience shallow soil slides, rapid debris flows, and deep-seated rotational slides.

Engineered slopes have a tendency to fail if not properly designed, constructed or compacted. Because the project site is generally level with the exception of the Sacramento River levee, hazards associated with landslides would be limited to slope movements along the levee. However, as the levee provides flood protection, its structural integrity is considered vital to the region and surrounding communities.

Land Subsidence

Subsidence is the gradual lowering of the land surface due to loss or compaction of underlying materials. Subsidence can occur as the result of groundwater, gas and oil extraction, or the decomposition of highly organic soils. The Yolo County Subsidence Network (a joint regional effort) was established in 1999 to provide the opportunity for Yolo County agencies to periodically monitor and measure local subsidence. Participating agencies include: the City of Davis, the City of Woodland, UC Davis, Yolo County Planning and Public Works Department, Yolo County Flood Control and Water Conservation District, the California Department of Water Resources, and the U.S. Army Corps of Engineers (Corps; YCWRA, 2008).

Soil-Related Hazards

Erosion

Erosion is the detachment and movement of soil materials through natural processes or human activities. In general, rates of erosion can vary depending on the soil resource's capacity to drain water, slope angle and length, extent of groundcover, and human influence. Topography in the area of the Proposed Project/Action is generally level with the exception of the toe of the slope of the Sacramento River levee. The erosion potential for soils across this region of Yolo County is generally low.

Expansive Soils

Expansive soils are characterized by a shrink-swell characteristic. Structural damage may result over a long period of time, usually resulting from inadequate soil and foundation engineering or the placement of structures directly on expansive soils. Expansive soils are largely comprised of clays, which expand in volume when water is absorbed and shrink when dried. Soil resources within the project area are comprised of silty clay loams, loams, silty clays, clays and sandy loams, some of which contain expansive clays. Project area soil resources have low to moderate and moderate to high expansive soils. (NRCS, 1972)

Corrosive Soils

Corrosive soils can damage underground utilities including pipelines and cables, and can weaken roadway structures. Project area soils are negligible to moderately corrosive to buried metal pipe, and therefore, could be potentially reactive to uncoated steel, concrete, or concrete covered steel reinforcement. (NRCS, 1972)

3.5.2 Regulatory Framework

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act), signed into law December 1972, requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development on or near active fault traces to reduce the hazard of fault rupture and to prohibit the location of most structures for human occupancy across these traces. Cities and counties must regulate certain development projects within the zones, which includes withholding permits until geologic investigations demonstrate that development sites are not threatened by future surface displacement (CDMG, 1997). Surface fault rupture is not necessarily restricted to the area within an Alquist-Priolo Zone.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was developed to protect the public from the effects of strong groundshaking, liquefaction, landslides, or other ground failure, and from other hazards caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. Before a development permit is granted for a site within a seismic hazard zone, a geotechnical investigation of the site has to be conducted and appropriate mitigation measures incorporated into the Project design.

California Building Code

The CBC is another name for the body of regulations known as the California Code of Regulations, Title 24, Part 2, which is a portion of the California Building Standards Code. Title 24 is assigned to the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable.

Published by the International Conference of Building Officials, the Uniform Building Code is a widely adopted model building code in the United States. The California Building Code incorporates by reference the Uniform Building Code (UBC) with necessary California amendments. About one-third of the text within the California Building Code has been tailored for California earthquake conditions. The Yolo County incorporates by reference the most recent version of the UBC and California Building Code.

Local

The Yolo County General Plan outlines the relevant policies pertaining to seismic and geologic hazards. These policies apply to the portions of the Project area that lie within the respective jurisdictions, and are outlined in **Table 3.5-2**.

**TABLE 3.5-2
SEISMIC AND GEOLOGIC HAZARDS GOALS AND POLICIES OF YOLO COUNTY**

Number	Description
Goal HS-1	<u>Geologic Hazards</u> . Protect the public and reduce damage to property from earthquakes and other geologic hazards.
Policy HS-1.1	Regulate land development to avoid unreasonable exposure to geologic hazards.
Policy HS-1.2	All development and construction proposals shall be reviewed by the County to ensure conformance to applicable building standards.
Policy HS-1.3	Require environmental documents prepared in connection with CEQA to address seismic safety issues and to provide adequate mitigation for existing and potential hazards identified.

SOURCE: Yolo County, 2009

3.5.3 Environmental Consequences

Significance Criteria

This analysis of geology, soils, and seismicity evaluates the potential effects of the Proposed Project/Action on the existing environment within or adjacent to the Proposed Project/Action Area. Significance criteria for this analysis are based on Appendix G of the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Appendix G).

Effects are considered significant if an alternative would result in any of the following:

- Expose people or structures to 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
- Result in substantial soil erosion or the loss of topsoil
- 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
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property
- 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

Impact Evaluation

Resources Not Considered in Detail

The following discussion of environmental impacts is limited to those potential impacts that could result in some level of potentially significant environmental change, as defined by CEQA. Implementation of the Proposed Project/Action would not require the use of septic tanks or alternative wastewater disposal systems. Therefore, no impact would occur and this issue is not discussed further within this section.

No Project/Action Alternative

Under the No Project/Action Alternative, RD 2035 would not construct a new screened joint intake. RD 2035 would continue to use its existing, unscreened diversion and this would have no effect on geology, soils, and seismicity.

Proposed Project/Action Alternative

Impact 3.5-1: Implementation of the Proposed Project/Action could expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking; seismic-related ground failure, including liquefaction; and landslides. (Less than Significant with Mitigation)

Construction and Operations Impacts

The project area would likely experience at least one major earthquake, greater than Magnitude 6, within the next 30 years. In the event of an earthquake in the eastern San Francisco Bay Area or along the Coast Range-Central Valley, severe ground motion could occur in susceptible areas within the project area. The intensity of such an event would depend on the active fault, the distance to the epicenter, the magnitude of the event, and the duration of shaking.

Levees within the project area are inspected and maintained by the various Reclamation Districts that have jurisdiction and DWR. These levees could be susceptible to failure during excessive ground motion, and areas where earthen fills are present could experience differential settlement. Settling of a levee during an earthquake could result in failure of the earthen structure. This is considered a potentially significant impact.

Recent DWR surveys of levee integrity within the Sacramento River system identified critical levee sites along the Sacramento River and other waterways (DWR, 2006f-g). One identified critical levee site on the Sacramento River at River Mile 70.7 is located directly across the river from the project site. Other critical levee sites were identified approximately 1.5 miles upstream and 0.8 mile downstream.

It is anticipated that the appropriate recommendations and design features to deal with adverse soils and geology impacts will be incorporated into the project design and that project facilities would be constructed to industry standards to protect against impacts from adverse geological impacts associated with seismic activity and other site specific soils and geology constraints,

including compliance with the CBC, UBC, International Building Code (IBC), and American Society of Civil Engineers (ASCE) standards. However, the construction of the proposed joint intake has the potential to alter the structural integrity of the levee within the immediate vicinity of project area. With installation of the outfall piping and the intake structure itself to the levee sideslopes, additional structural stress to the levee would be added if precautionary design measures are not implemented. This is considered a potential significant impact. Earthquake-induced ground shaking could also lead to slope instability in the project area along the Sacramento River levee, especially during times of high precipitation or runoff.

The following measures would mitigate seismic related impacts to less than significant:

Mitigation Measure

Mitigation Measure 3.5-1: RD 2035 shall consult with the appropriate Federal, State, and local agencies to identify and implement specific design and engineering requirements for levees that may be affected by installation of project facilities; specified design and engineering requirements deemed appropriate by agencies with jurisdiction over local levee integrity shall be incorporated into project design.

Impact Significance After Mitigation: Implementation of Mitigation Measure 3.5-1 would reduce significant impacts associated with strong seismic ground shaking and seismic-related ground failure to project area levees to less than significant.

Impact 3.5-2: The project could result in substantial soil erosion or the loss of topsoil. (Less than Significant with Mitigation)

Construction Impacts

Construction activities associated with the Proposed Project/Action would require a significant amount of backfilling, earthmoving, grading, and compaction, which would expose areas of soil to wind and water erosion that are presently covered with vegetation. The extent of erosion that could occur varies depending on soil type, vegetation/cover, weather conditions, and, in the case of local levees, their slope. This is considered a potentially significant impact.

Concentrated water erosion, if not managed or controlled, can eventually result in significant soil loss and/or discharging of sediment into installed utilities and/or adjacent lots. Sediment from project-induced onsite erosion can also accumulate in downstream drainage facilities, interfere with flow, and aggravate downstream flooding conditions. This is considered a potentially significant impact.

Project Operations Impacts

The diversion of surface water would result in only minor changes to flow within the Sacramento River system. These changes would be within the range of occurring river flows; therefore, no increase in erosion or loss of topsoil would occur as a result of the Proposed Project/Action.

The following mitigation measures would mitigate impacts associated with soil erosion and runoff to less than significant:

Mitigation Measure

Mitigation Measure 3.5-2: During construction, disturbed areas, shall be provided with temporary cover to prevent erosion of bare soils. Following construction, disturbed areas shall be hydroseeded with native grasses and other plants suitable for stabilizing unconsolidated sediments and reducing stormwater erosion.

Impact Significance After Mitigation: Implementation of Mitigation Measure 3.5-2 would reduce significant impacts associated with erosion and loss of top soil to less than significant.

Impact 3.5-3: The project could 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, or be located on expansive or corrosive soils. (Less than Significant)

Construction Impacts

Portions of the project area may be located on expansive and semi-unconsolidated soils, which could subject project facilities to geologic hazards. However, as discussed previously and in Section 2.0, Project Description, geotechnical investigations have been conducted and would continue to be conducted as final design of the project continues. It is anticipated that the appropriate recommendations and design features to deal with adverse soils and geology impacts will be incorporated into the project design and that project facilities would be constructed to industry standards to protect against impacts from adverse soils and geology impacts, including compliance with the CBC, UBC, IBC, and ASCE standards. As a result, potential impacts are highly unlikely and are considered to be less than significant.

Project Operations Impacts

Once constructed, the joint intake and diversion of surface water would occur through project facilities and would not affect local soil conditions nor pose a risk to life or property. No impact associated with project operations would result.

Mitigation: None required.

3.6 Hydrology and Water Quality

3.6.1 Affected Environment

The discussion of hydrology and water quality is included to address the potential effects of the Proposed Project/Action. RD 2035 currently maintains a water intake along the Sacramento River. The intake diverts surface water into the RD-2035 main canal and provides irrigation water for approximately 17,000 acres of CPG's agricultural land. The permitted Sacramento River diversion capacity for the existing intake facility is 400 cfs. The proposed facility would have the same capacity. The Proposed Project/Action represents a replacement intake structure with no change in overall diversion capacity.

Surface Water Hydrology and Water Quality

The Sacramento River Basin produces about two-thirds of the surface water supply of the Central Valley (SWRCB, 1999). Average annual runoff is approximately 22.4 million acre-feet (MAF). The most intensive runoff originates in the upper watershed of the Sacramento River upstream of Lake Shasta and on the waterways originating on the west slope of the Sierra Nevada and Cascade Mountains (CALFED, 2000).

Since the 1960s, water from the Trinity River watershed has been conveyed to the Sacramento River and commingled for use by the Central Valley Project (CVP). Diversions from the Trinity River, averaging about 732 thousand acre-feet per year (TAF/yr), are introduced to the Sacramento River near Redding (SWRCB, 1999).

The two major tributaries that flow into the lower Sacramento River are the Feather River, including flows from the Yuba River, and the American River. The combined flows of the Feather River and other eastside streams enter the Sacramento River near Verona, about 9 miles upstream of the Project area.

Tributaries from the west side of the Sacramento Valley also contribute flows to the Sacramento River. These tributaries include Stony Creek, Thomas Creek, Elder Creek, and Cottonwood Creek.

The American River joins the Sacramento River downstream of the project area, immediately north of the City of Sacramento. Flow in the Sacramento River proceeds from there downstream to the Sacramento-San Joaquin Delta (Delta), where it commingles with flows from other eastside waterways, flows from the San Joaquin River basin, and tidal water from the San Francisco Bay (CALFED, 2000).

Flood Control and Flood Management Facilities

In addition to the major reservoirs, which are also managed to provide storage for flood control purposes, a flood damage reduction system was constructed in the Sacramento Valley to control and direct high river flows away from urban areas and to minimize hazards to adjacent land uses, improvements, and populations. The flood damage reduction system consists of a series of levees and bypasses, located to take advantage of natural overflow basins, and includes: levees along the

Sacramento River south of Ord Ferry; levees along the lower portions of the Feather, Bear, and Yuba rivers; levees along the American River; and, the Colusa, Sutter, and Yolo Bypasses.

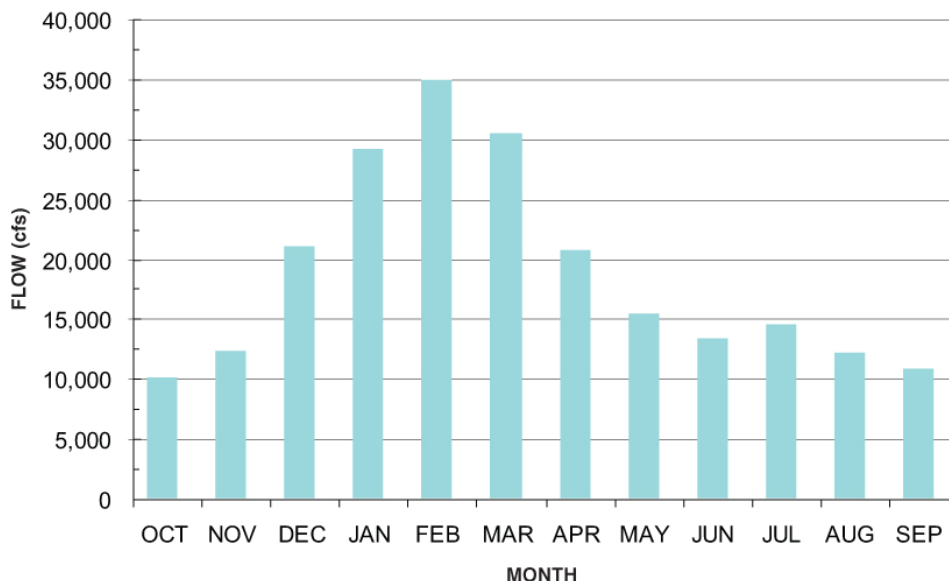
These bypasses are located parallel to the Sacramento River and receive excess flows from the Sacramento, Feather, and American rivers through a series of overflow channels and weirs. When flows of the Sacramento River are high, the three bypasses form one continuous waterway flowing to the Delta. The Sacramento River intersects these bypasses at several locations, including: the Butte Slough Outfall Gates, the Fremont Weir at Verona, the Sacramento Weir north of the American River confluence, and the East Levee Toe Drain at the terminus of the Yolo Bypass upstream of Rio Vista.

Existing Surface Water Hydrology

Sacramento River

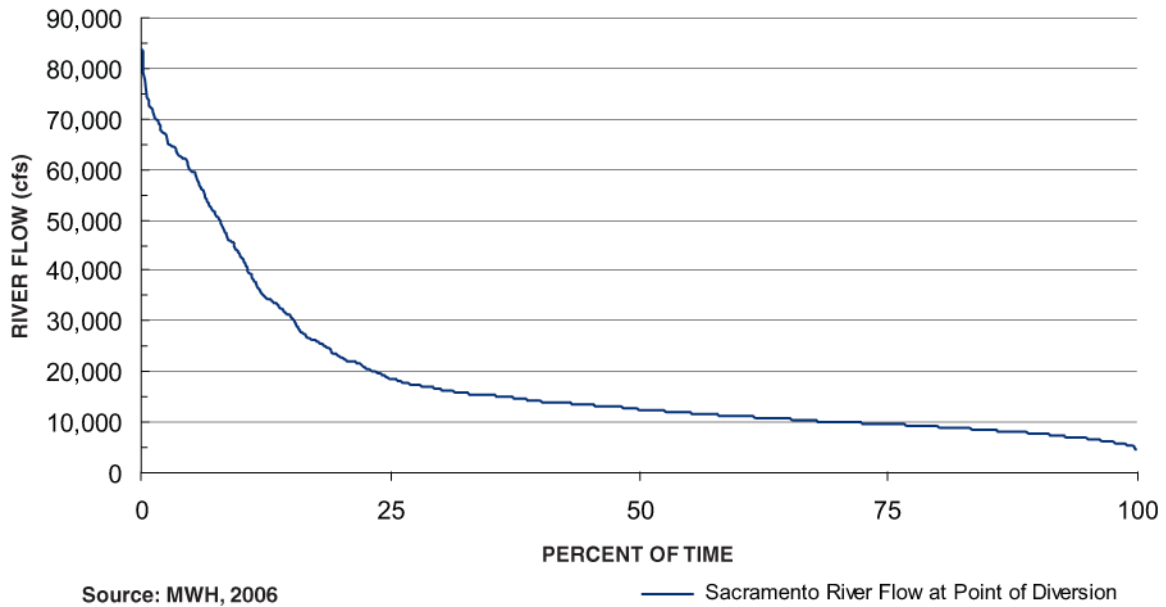
The Sacramento River is a highly regulated waterway that is influenced by: upstream water storage facilities; water diversions for agricultural, municipal, and industrial purposes; and the flood damage reduction system. These facilities manage the water originating in the Sacramento River watershed.

Flows in the Sacramento River are subject to wide variability on both a seasonal basis and a year-to-year basis. Seasonally, flows in the river vary as a result of runoff from local tributaries and releases from the major water storage reservoirs. On a year-to-year basis, flows in the river vary according to annual precipitation levels, volume of carryover storage in reservoirs, and releases to downstream water uses. **Figure 3.6-1** shows the mean monthly flows of the Sacramento River as estimated at the proposed point of diversion for the period of water years 1922 through 1994. The average annual flow of the Sacramento River for this period is estimated to be about 13.5 MAF as measured at the project area (City of Davis, 2007).



RD 2035 Joint Intake Project. 207705

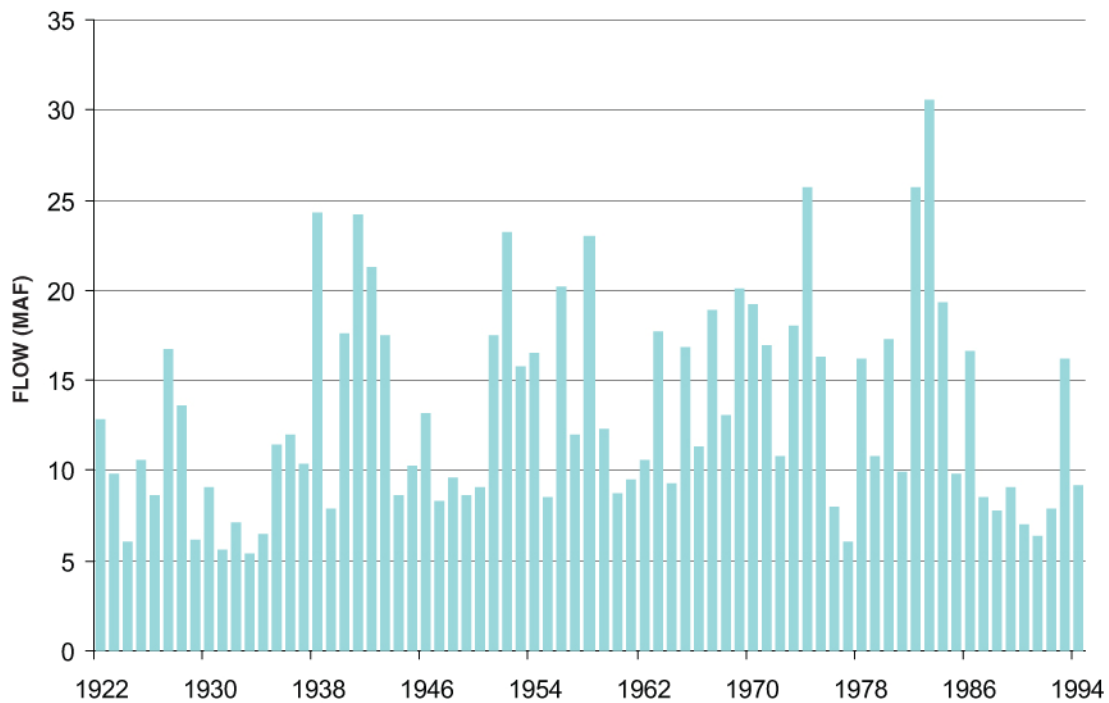
Figure 3.6-1
Existing Mean Monthly Sacramento River Flow
at the Proposed Point of Diversion



RD 2035 Fish Screen Project. 207705

Figure 3.6-2
Flow Exceedance Curve at the Proposed Point of Diversion

Figure 3.6-3 shows the annual Sacramento River flows as measured in the Project area (City of Davis, 2007).



RD 2035 Fish Screen Project. 207705

Figure 3.6-3
Sacramento River Annual Flow at Proposed Point of Diversion

Sacramento-San Joaquin Delta

The Delta receives runoff from a watershed that includes more than 40 percent of the State's land area. The Sacramento and San Joaquin Rivers converge at the western end of the Delta near Suisun Bay.

The three major sources of freshwater flowing into the Delta are the Sacramento River, the San Joaquin River, and Eastside streams (Mokelumne, Cosumnes, and Calaveras Rivers). The Sacramento River (including the Yolo Bypass) contributes from 77 to 85 percent of the freshwater inflows to the Delta, while the San Joaquin River contributes about 10 to 15 percent. The minor flows of the Mokelumne, Cosumnes, and Calaveras Rivers, which enter into the eastern side of the Delta, contribute most of the remainder of the Delta inflow. Approximately 10 percent of the Delta inflow is diverted for local uses, 30 percent is diverted for export by the CVP and State Water Project (SWP), 20 percent is required for salinity control, and the remaining 40 percent provides outflow to the San Francisco Bay in excess of minimum regulatory requirements (CALFED, 2000).

The Sacramento River enters the Delta, as defined by California Water Code Section 12220, at Freeport, where the average annual flow is about 16 MAF. The maximum mean monthly discharge at Freeport for the period of record (water years 1922 through water year 1994) was 71,340 cfs; the minimum mean monthly discharge was 4,494 cfs (CALFED, 2000).

Water Quality

Sacramento River

Water quality of the Sacramento River is generally good, and supports a variety of beneficial uses including drinking water supplies, irrigation supplies, recreation, and protection of fish and other aquatic life (Brown and Caldwell, et al., 1995; Domagalski et al., 2000a). Because most of the water in the Sacramento River and its major tributaries (Yuba, Feather, and American Rivers) is derived from melting snow that enters the rivers through managed discharges from upstream reservoirs, these waterways yield exceptionally high quality runoff, carrying low concentrations of dissolved minerals, sediments, and other constituents.

3.6.2 Regulatory Framework

Federal

Clean Water Act

The Clean Water Act (CWA) established the basic structure for regulating discharges of pollutants into the waters of the U.S. The CWA specifies a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff.

Section 404 of the CWA establishes a program to regulate the discharge of dredged and fill material into waters of the U.S., including some wetlands. Activities in waters of the U.S. that are regulated under this program include fills for development, water resource projects (e.g., dams and levees),

infrastructure development (e.g., highways and airports), and conversion of wetlands to uplands for farming and forestry. Under Section 404, any person or public agency proposing to locate a structure, excavate, or discharge dredged or fill material into waters of the U.S. or to transport dredged material for the purpose of dumping it into ocean waters must obtain a permit for the proposed activity from the U.S. Army Corps of Engineers (Corps). A Section 404 permit will be required for implementation of the Proposed Project/Action.

Under Section 401 of the CWA every applicant for a federal permit or license for any activity which may result in a discharge to a water body must obtain a Water Quality Certification that the proposed activity will comply with applicable water quality standards. The Project will need to obtain a Section 401 Water Quality Certification, issued by the State Water Resources Control Board (SWRCB), to complete requirements for obtaining a Section 404 permit from the Corps or permits from other federal agencies.

CWA Section 402 regulates point and nonpoint source discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program. In California, the SWRCB oversees the NPDES program, which is administered by the Regional Water Quality Control Boards (RWQCBs). The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits. Construction of the Project will require a General Construction Permit for stormwater discharges and a dewatering permit; operation will require a General Industrial Permit for stormwater discharges.

Rivers and Harbors Act

The Corps regulates the construction of any structure or work within navigable waters under Sections 9 and 10 of the Rivers and Harbors Act (RHA). The Corps regulates the construction of: wharves, breakwaters, and jetties; bank protection and stabilization projects; permanent mooring structures, vessels, and marinas; intake and outfall pipes; canals; boat ramps; aids to navigation; and other modifications affecting the course, location condition, and capacity of navigable waters. The Corps' jurisdiction under RHA is limited to "navigable waters," or waters subject to the ebb and flow of the tide shoreward to the mean high water mark that may be used for interstate or foreign commerce. The Corps must consider the following criteria when evaluating projects within navigable waters: (1) the public and private need for the project; (2) reasonable alternative locations and methods; and (3) the beneficial and detrimental effects on the public and private uses to which the area is suited. A Section 10 permit for construction of the Proposed Project/Action will be required.

State

Porter-Cologne Act

Under the Porter-Cologne Act, water quality objectives are limits or levels of water quality constituents or characteristics that are established for reasonable protection of beneficial uses. The Porter-Cologne Act requires the RWQCB to establish water quality objectives, while acknowledging that water quality may be changed to some degree without unreasonably affecting

beneficial uses. Designated beneficial uses, together with the corresponding water quality objectives, also constitute water quality standards under the CWA. Therefore, the water quality objectives form the regulatory references for meeting State and Federal requirements for water quality control. A change in water quality is only allowed if the change is consistent with the maximum beneficial use of the waters of the State, would not unreasonably affect the present or anticipated beneficial uses, and would not result in water quality lower than that specified in applicable water quality control plans (CVRWQCB, 1998).

Basin Plans and Water Quality Objectives

The Porter-Cologne Act provides for the development and periodic review of Water Quality Control Plans (Basin plans) that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters. Beneficial uses represent the services and qualities of a water body (i.e., the reasons why the water body is considered valuable), while water quality objectives represent the standards necessary to protect and support those beneficial uses. Basin plans are primarily implemented by using the NPDES permitting system and the issuance of waste discharge requirements (WDRs) to regulate waste discharges so that water quality objectives are met. Basin plans provide the technical basis for determining waste discharge requirements and taking regulatory enforcement actions if deemed necessary. Basin plans have been adopted for the Sacramento and San Joaquin River Basin (Region 5; CVRWQCB, 1998).

Region 5 has set water quality objectives for all surface waters in the region for the following substances and parameters: ammonia, bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity. Specific objectives for concentrations of chemical constituents are also applied to bodies of water based on their designated beneficial uses (SWRCB, 2006).

Streambed Alteration Agreement Program

Under Sections 1600-1616 of the California Fish and Game Code, notification to the DFG is required by any person, business, state or local government agency, or public utility that proposes an activity that will substantially divert or obstruct the natural flow or substantially change of use any material from the bed, channel, or bank of any river, stream, or lake, or deposit or dispose debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake. The Streambed Alteration Agreement that the notifying entity and DFG execute after such notification identifies potential impacts of construction and mitigation measures required to minimize and avoid impacts. Construction of the Proposed Project/Action will require a Streambed Alteration Agreement.

Central Valley Flood Protection Board

Any project encroaching into rivers, waterways, and floodways within and adjacent to federal and State authorized flood control projects or within designated floodways must receive approval from the Central Valley Flood Protection Board (CVFPB). Under Water Code Sections 8534,

8608, and 8710 – 8723, the CVFPB is required to enforce, within its jurisdiction, on behalf of the State of California, appropriate standards for the construction, maintenance, and protection of adopted flood control plans that will best protect the public from floods. The area of the Reclamation Board's jurisdiction includes the entire Central Valley, including all tributaries and distributaries of the Sacramento and San Joaquin Rivers and Tulare and Buena Vista Basins. The Reclamation Board exercises jurisdiction over the levee section, the waterside area between project levees, a 10-foot-wide strip adjacent to the landward levee toe, within 30 feet of the top to the banks with no levees, and within designated floodways adopted by the Board.

State Beneficial Uses and Water Management Purposes

The following beneficial uses are relevant to the Proposed Action and are applicable throughout California; they are defined in the California Water Code Section 13050(f) as including domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

The Central Valley Project Improvement Act (CVPIA) amended the previous authorizations of the CVP to include fish and wildlife protection, restoration, and mitigation as project purposes having equal priority with irrigation and domestic uses, and fish and wildlife enhancement as a project purpose equal in priority to power generation. The CVPIA identifies a number of specific measures to meet these purposes.

CVPIA's general purposes are to:

- Protect, restore, and enhance fish, wildlife, and associated habitats in California's Central Valley and Trinity river basins
- Address the Central Valley Project's impacts on fish, wildlife, and associated habitat
- Improve the Central Valley Project's operational flexibility
- Increase water-related benefits provided through expanded use of voluntary water transfers and improved water conservation
- Contribute to the State of California's interim and long-term efforts to protect the San Francisco Bay/Sacramento-San Joaquin Delta Estuary
- Achieve a reasonable balance among competing demands for project water, including requirements for fish and wildlife, agriculture, municipal and industrial, and power contractors.

Local

Yolo County General Plan

The Yolo County 2030 Countywide General Plan (Yolo County, 2009) contains goals and policies addressing surface water hydrology and water quality that would apply to the Proposed Project/Action.

**TABLE 3.6-1
SURFACE WATER-RELATED OBJECTIVES OF YOLO COUNTY**

Number	Goal and Policies
CO-5	<u>Water Resources</u> . Ensure an abundant, safe, and sustainable water supply to support the needs of existing and future generations.
CO-5.1	Coordinate with water purveyors and water users to manage supplies to avoid long-term overdraft, water quality degradation, land subsidence and other potential problems.
CO-5.2	Support projects that provide reliable and sustainable surface water from a variety of energy efficient sources. Sources should be sufficient to serve existing and planned land uses in prolonged drought periods and protect natural resources and surface water flows.
CO-5.6	Improve and protect water quality for municipal, agricultural, and environmental uses.
CO-5.11	Facilitate and encourage the development of new reliable future sources of supply consistent with local land use plans and regional water needs, including the completion of the Tehama-Colusa Canal.
CO-5.13	Ensure that regional, State, and federal water projects protect local water rights and areas of origin.

SOURCE: Yolo County, 2009

Sacramento River Basinwide and Regional Water Management Plans

In the mid-1990s, the Sacramento River Settlement Contractors initiated discussions with Reclamation for CVP contract renewals. This process resulted in the Sacramento River Settlement Contractors, in cooperation with Reclamation and with assistance from DWR, preparing the Sacramento River Basinwide Water Management Plan. Finalized in 2004, the plan identified potential water management improvements, including sub-basin level management actions and system improvement (water use efficiency) projects. This planning process resulted in a high level of regional cooperation among the Sacramento River Settlement Contractors, other CVP contractors, government agencies, and stakeholders. The Sacramento River Settlement Contractors and Reclamation are currently cooperating to finalize a regional water management plan that will encourage further regional and subbasin coordination, including meeting the CALFED Targeted Benefits and establishing proposed Quantifiable Objectives associated with numerous projects.

3.6.3 Environmental Consequences

Significance Criteria

This analysis of hydrology and water quality evaluates the potential effects of the Proposed Project/Action on existing resources within or adjacent to the Proposed Project/Action Area. Significance criteria for this analysis are based on Appendix G of the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Appendix G).

Effects are considered significant if an alternative would result in any of the following:

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would

drop to a level which would not support existing land uses or planned uses for which permits have been granted)

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site
- 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
- Otherwise substantially degrade water quality
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam
- Inundation by seiche, tsunami, or mudflow

Impact Evaluation

Resources Not Considered in Detail

The following discussion of environmental impacts is limited to those potential impacts that could result in some level of potentially significant environmental change. Given the location of the Proposed Project/Action is within or adjacent to the Sacramento River, it is not anticipated that implementation of the Proposed Project/Action would deplete groundwater supplies or interfere substantially with groundwater recharge. Additionally, construction of the Proposed Project/Action would be built at or above the FEMA-100 year flood elevation and would therefore not expose people or structures to flooding. Additionally, the Proposed Project/Action is situated away from areas that are typically subject to tsunami, or mudflow. Therefore, no impact would occur under these categories and are not discussed further within this section.

No Project/Action Alternative

Under the No Action Alternative, RD 2035 would not construct a new screened intake. RD 2035 would continue to use its existing, unscreened diversion and this would have no affect on the Sacramento River and the Delta, including water quality, temperature, downstream flows, dewatering effects, and effects to levees.

Proposed Project/Action Alternative

Impact 3.6-1: Project construction and operation would substantially alter the existing drainage patterns of the project site in a manner that would result in substantial erosion or siltation on- or off-site. (Less than Significant with Mitigation)

Construction Impacts

Construction of the Proposed Project/Action would involve operation of heavy equipment, excavation, stockpiling of spoils, grading, temporary construction associated with the coffer dam, installation of pipelines, installation of buildings and other ancillary intake support facilities, and other activities that could result in increased erosion or siltation to offsite areas. Compaction of soils by heavy equipment could result in decreased infiltration rates, causing increased runoff and erosion potential.

Construction activities could cause erosion and transportation of soil particles that, if released with surface water runoff, could cause sediment and other pollutants to leave the construction site. Sediment and pollutants could then enter into adjacent agricultural or natural waterways, causing increased sediment loading, increased pollutant loading, and sediment buildup. Downstream accumulation of sediment could then interfere with flows and aggravate downstream flooding conditions.

Each of these impacts has the potential to result in significant adverse impacts on the environment. Compliance with a Stormwater Pollution Prevention Plan (SWPPP) and NPDES Permit procedures, outlined in the mitigation measures described below, would minimize the potential erosion of soils and the release of sediment and hazardous materials into watercourses by implementing Best Management Practices (BMPs) that would: (1) reduce water turbidity, (2) reduce surface erosion, (3) control stormwater flows, (4) retain sediment within the construction site, (5) restore vegetation, and (6) reduce turbidity of groundwater from dewatering activities. With implementation of a SWPPP, construction activities would not violate applicable water quality standards, and the potential impacts would be reduced to less than significant.

The following measures would mitigate construction impacts associated with erosion and runoff to less than significant:

Mitigation Measures

Mitigation Measure 3.6-1a: Construction and operation of the proposed project is not expected to result in increased levels of water pollution or otherwise violate water quality standards. Compliance with the NPDES Permit for Discharges of Stormwater Associated with Construction Activities (NPDES General Stormwater Permit), from the CVRWQCB shall be implemented to avoid exceedance of applicable water quality standards.

Mitigation Measure 3.6-1b: During construction, if excess water from dewatering activities cannot be contained onsite or within existing RD 2035 supply channels, it shall be pumped into suitable detention facilities or Baker tanks or equivalent with sufficient capacity to control the volume of water. Tanks shall be equipped with a gel coagulant, a filter system, or other containment to remove sediment. The remaining water will then be discharged to nearby irrigation or drainage ditches, in accordance with CVRWQCB

requirements for discharges from general construction activities and trench dewatering. Within upland areas, sprinkler or other irrigation systems may be used to disperse the water over adjacent fields. BMPs, as described in the SWPPP, will also be implemented, as appropriate, to retain, treat, and dispose of groundwater from dewatering activities. Additional measures shall include, but are not limited to:

- Temporarily retain pumped groundwater, as appropriate, to reduce turbidity and concentrations of suspended sediments before discharge to surface waterways.
- Convey pumped groundwater to a suitable land disposal area capable of percolating flows.
- Incorporation of other measures from the Caltrans Storm Water Quality Handbook as appropriate (2010).

Groundwater collected during dewatering shall be tested for contamination prior to disposal. Discharges shall comply with CVRWQCB requirements.

Mitigation Measure 3.6-1c: A groundwater discharge monitoring program shall be implemented to ensure that receiving water quality does not exceed levels that would impact aquatic resources and agricultural use. If monitoring reveals that water quality would impact these beneficial uses, discharges to surface waterways will be reduced or diluted to acceptable levels, or terminated. If discharges are reduced or terminated, groundwater will be disposed through land application.

Implement **Mitigation Measure 3.7-1a and 3.7-1b.**

Impact Significance after Mitigation: Implementation of Mitigation Measure 3.6-1a through 3.6-1c and Mitigation Measures 3.7-1a and 3.6-1b would reduce significant impacts associated with water quality during dewatering and construction activities to less than significant.

Project Operations Impacts

The proposed intake facility would include impervious surfaces which would potentially increase local storm runoff and potentially lead to localized flooding. Implementation of the mitigation measures provided below, would infiltrate, retain, or channelize localized runoff emanating from project components and associated areas, thereby reducing cumulative flooding impacts to less-than-significant levels.

The following measures would mitigate operations impacts associated with soil erosion and runoff to less than significant:

Mitigation Measure

Mitigation Measure 3.6-1d: A drainage plan shall be prepared and implemented for the Proposed Project/Action. The drainage plan shall include measures to infiltrate, retain, or otherwise channel runoff away from areas of open soil and other features subject to erosion or flooding. Receiving drainage ditches or canals shall be sized appropriately to contain anticipated stormwater flows. Runoff waters shall be discharged in a manner to prevent downstream or offsite flooding, erosion, or sedimentation.

Impact Significance after Mitigation: Implementation of Mitigation Measure 3.6-1d would reduce significant impacts related to increased surface water runoff and water quality to receiving waters as a result of increased impervious surfaces to less than significant.

Impact 3.6-2: Dewatering of excavated areas during construction in areas of shallow groundwater would affect surface water quality. (Less than Significant with Mitigation)

The project area is characterized by a shallow groundwater that is heavily influenced by the Sacramento River table. Excavation for the intake construction would likely contact groundwater, at least intermittently. In the event that groundwater is encountered during construction, dewatering would be required to provide a dry and safe work site.

The discharge of groundwater from the dewatered construction site could adversely affect receiving water quality of local surface waters by increasing turbidity, sediment content, oils, grease, fluids, nutrients and/or other constituents that may be found in local groundwater. Groundwater quality within the Yolo Bypass is expected to be similar to that found in Bypass agricultural drains and could contain high levels of constituents such as manganese, salinity, nitrates, and boron. Discharge of groundwater into surface water could adversely affect surface water quality. Implementation of the mitigation measures provided below would ensure that potential impacts related to dewatering of excavated areas would be reduced to less than significant.

The following measures would mitigate impacts associated with dewatering activities to less than significant:

Mitigation Measures

Mitigation Measure 3.6-2: Mitigation measure 3.6-1a through 3.6-1c shall be implemented to prevent degradation of surface water quality resulting from dewatering of excavated areas during construction. Additionally, water from dewatering of excavated areas shall be discharged into a drainage ditch or canal sized appropriately to accept the discharge, or shall be land-applied to an area sufficient to receive the discharge without creating additional runoff.

Implement **Mitigation Measure 3.7-1a and 3.7-1b.**

Impact Significance After Mitigation: Implementation of Mitigation Measure 3.6-1a through 3.6-1c and Mitigation Measures 3.7-1a and 3.6-1b would reduce significant impacts associated with water quality during dewatering to less than significant.

3.7 Biological Resources

3.7.1 Affected Environment

Introduction

The project area is located in the central portion of the southern Sacramento Valley. Historically, this region supported extensive marshes, riparian woodlands intermixed with oak woodland, vernal pools, and grasslands. Intensive agricultural and urban development has resulted in substantial changes and conversions of these habitats. Native plant communities within the project area are concentrated along the two jurisdictional water features within the site, the Sacramento River and the RD 2035 main canal, while the central portion of the site is paved and developed. The existing intake is located in the northeastern portion of the limits of work. Studies conducted for the Proposed Project/Action focused on the potential intake facility along the Sacramento River. Note that at the time of writing this document, areas selected for potential construction staging areas and spoils storage locations have not been surveyed for wetlands or sensitive species.

General Description of Biological Communities, Sensitive Plant Communities, and Wildlife Habitats

Biological communities are assemblages of plant species that commonly occur together in the same area. Wildlife habitats generally correspond to plant communities. The biological communities described in this section generally follow the classification systems provided in Sawyer and Keeler-Wolf's *A Manual of California Vegetation* (Sawyer and Keeler-Wolf, 2009) and the DFG's *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer, 1988). As shown in **Figure 3.7-1**, the project area includes six habitat types including: annual grassland, perennial channel (Sacramento River), lacustrine (RD 2035 main canal), valley riparian woodland, valley oak woodland, and disturbed/ruderal.

Sensitive Plant Communities

DFG has identified a series of plant communities considered to be sensitive habitat. However, no recorded occurrences of any of these sensitive plant communities are present within or adjacent to the project area.

Biological Communities

The following six biological communities occur within the project area: annual grassland, perennial channel (riverine), lacustrine, valley riparian, valley oak woodland, disturbed/ruderal, and agriculture. A description of the wildlife species that each community commonly supports is also provided.

Annual Grassland

Approximately 0.59 acres of grassland habitat is located in the project area. The majority of grassland habitat within the project area is ruderal as it is disturbed and/or maintained. The plant species that occur in these disturbed areas are annual nonnative grasses and forbs of Eurasian origin. Common plants include wild oats (*Avena fatua*), bromes (*Bromus* spp.), yellow star-thistle (*Centaurea solstitialis*), field mustard (*Brassica rapa*), and prickly lettuce (*Lactuca serriola*).

Annual grassland habitat may provide foraging and breeding for wildlife species, especially when adjacent to less disturbed habitats. Bird species found in ruderal grassland habitat include mourning dove (*Zenaida macroura*), scrub jay (*Aphelocoma californica*), and house finch (*Carpodacus mexicanus*). Additionally, species such as raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), and feral cat (*Felis catus*) are often associated with this type of habitat.

Perennial Channel (Sacramento River)

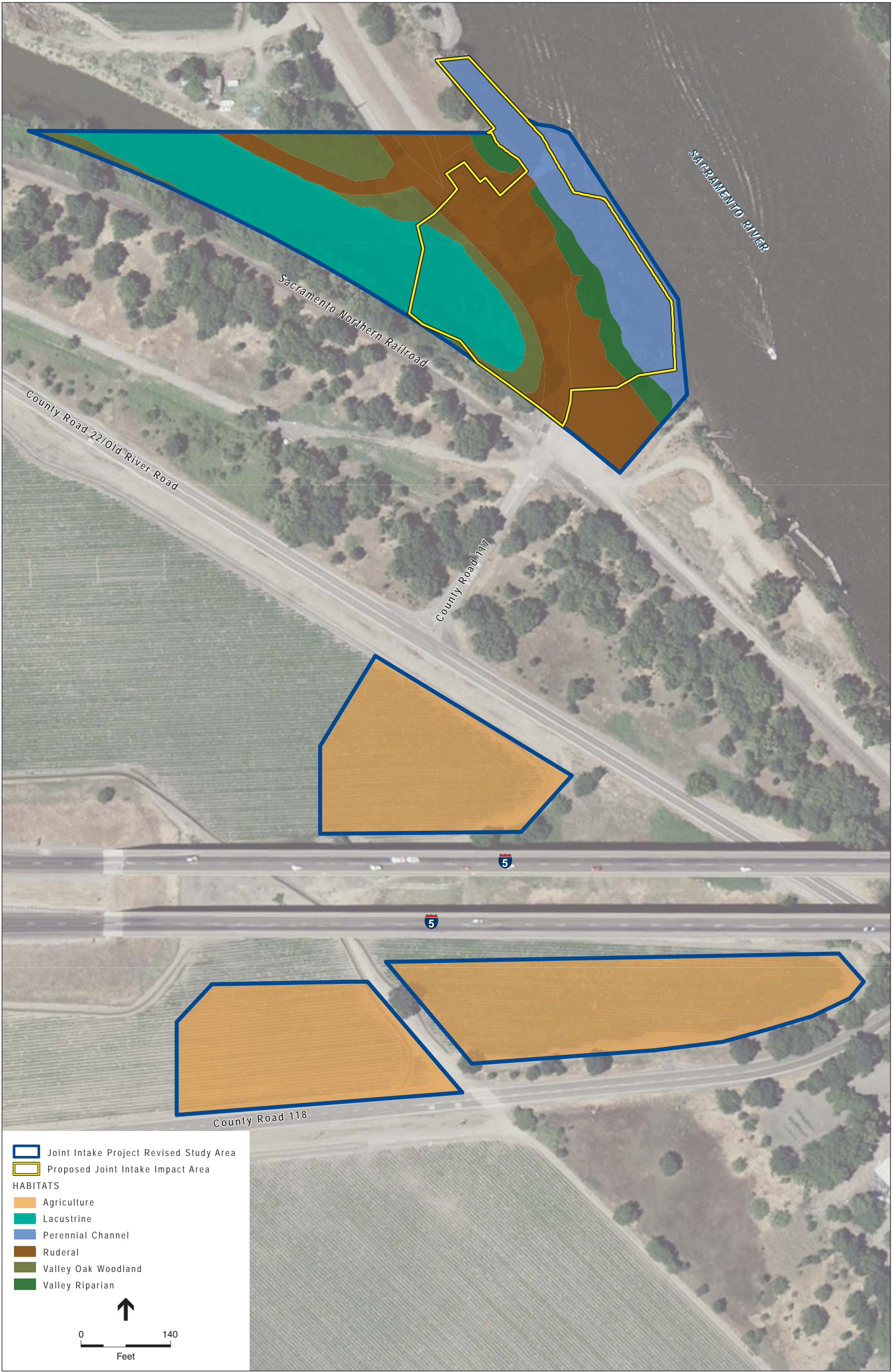
Perennial channel habitat, also known as riverine aquatic habitat, consisting of the Sacramento River occurs on approximately 1.08 acres on the eastern aspect of the project area. Riverine aquatic habitats are distinguished by intermittent or continually flowing water, and often occur in association with a variety of terrestrial habitats such as riparian and freshwater wetlands. River banks typically support species common to freshwater emergent wetlands or riparian areas including various sedges (*Carex* spp.), cattails (*Typha* spp.), watercress (*Rorippa nasturtium-aquaticum*), water primrose (*Ludwigia peploides*), giant reed (*Arundo donax*), and willow (*Salix* spp.).

The open water zones of large rivers or waterways provide resting and escape cover for many species of waterfowl. Mallard (*Anas platyrhynchos*), American coot (*Fulica americana*), common moorhen (*Gallinula chloropus*), and snowy egret (*Egretta thula*) are a few species common to this habitat. Some of the more common mammals found in riverine habitats include northern river otter (*Lontra canadensis*), mink (*Mustela vison*), muskrat (*Ondatra zibethicus*) and beaver (*Castor canadensis*). Riverine habitat provides habitat for aquatic species such as fish and invertebrates as well as waterfowl, amphibians, and some reptiles.

Lacustrine (RD 2035 Main Canal)

The RD 2035 main canal is characterized as lacustrine habitat. Lacustrine habitat is defined as portions of open, permanent bodies of water that are slow-moving to still and not subject to tidal exchange. This habitat type generally includes lakes, ponds, oxbows, gravel pits, and flooded islands. Vegetation cover is generally restricted to the edge of lacustrine habitat. Hydrophytic species associated with this habitat includes cattails, common tule (*Scirpus schoenoplectus*), water smartweed (*Polygonum* spp.), and water primrose. Approximately 1.74 acres of lacustrine habitat occurs in the project area.

Wildlife using the lacustrine habitat includes wading birds and waterfowl species such as great blue heron (*Ardea herodias*), great egret (*Ardea alba*), American coot (*Fulica americana*), and mallard (*Anas platyrhynchos*). Red-winged blackbirds (*Agelaius phoeniceus*) and aquatic reptiles and amphibians such as common garter snake (*Thamnophis sirtalis*), western pond turtle (*Actinemys marmorata*), and northern Pacific treefrog (*Pseudacris regilla*) also use this habitat type.



SOURCE: ESRI, 2011; MWH, 2011; and ESA, 2012

Reclamation District 2035 Joint Intake Project . 207705

Figure 3-7.1
Project Study Area Habitats

Valley Riparian Woodland

Valley riparian woodland occurs on the eastern portion of the project area along the levee of the Sacramento River of which approximately 0.35 acres occurs in the project area. Dominant overstory trees include Fremont's cottonwood (*Populus fremontii*) and valley oak (*Quercus lobata*) while the mid-canopy layer is dominated by willow (*Salix* spp.), Oregon ash (*Fraxinus latifolia*), box elder (*Acer negundo* var. *californica*), buttonbush (*Cephalanthus occidentalis*), and California grape (*Vitis californica*). The understory includes native species such as California rose (*Rosa californica*) and Santa Barbara sedge (*Carex barbarae*).

Riparian habitats provide important food, water, migration and dispersal corridors, and escape, nesting, and thermal cover for wildlife. Several species of amphibians, reptiles, and mammals use riparian habitats, which also support an abundance of bird species such as Anna's hummingbird (*Calypte anna*), Nuttall's woodpecker (*Picoides nuttallii*), black phoebe (*Sayornis nigricans*), and bushtit (*Psaltiriparus minimus*).

Valley Oak Woodland

Within the project area, valley oak woodland is found along the banks of RD 2035 main canal. This plant community is dominated almost exclusively by valley oaks (*Quercus lobata*) and generally occurs in valley grassland habitat with discontinuous canopy or in denser forest-like stands along valley drainages. In the project area, an understory comprised mostly of a dense shrub layer dominated by Himalayan blackberry (*Rubus discolor*) and California rose are found below the valley oak canopy.

Oak woodlands provide food and cover for many species of wildlife. Oaks supply a rich food source in the form of acorns to a variety of bird and mammals. Common wildlife species found in these habitat types include; red-shouldered hawk (*Buteo lineatus*), European starling (*Sturnus vulgaris*), California quail (*Callipepla californica*), plain titmouse (*Parus inornatus*), scrub jay, bushtit, acorn woodpecker (*Melanerpes formicivorous*), and western gray squirrel (*Sciurus griseus*).

Approximately 0.61 acre of valley oak woodland habitat is located within boundaries of the project area.

Disturbed / Ruderal

Disturbed/ruderal habitat (1.14 acres) occurs in areas such as along roadsides, trails, parking lots, etc. These communities are subjected to ongoing or past disturbances (e.g., vehicle activities, mowing). Disturbed/ruderal habitat in these areas supports a diverse weedy flora, primarily composed of non-native invasive species. This habitat occurs within the project area and in areas proposed for construction staging and spoils storage along County Road 117. Areas proposed for staging and spoils storage are located outside the current study area and have not been analyzed in detail, but these areas were reviewed on aerial photographs and appear to be fallow agricultural land or vacant lots.

Dominant species vary per locale but include introduced common annual weedy forbs such as bur-clover (*Medicago polymorpha*), filaree (*Erodium* sp.), field bindweed (*Convolvulus arvensis*), milk

thistle (*Silybum marianum*), and others. Non-native grasses are also represented including ripgut brome (*Bromus diandrus*), Italian wildrye (*Lolium multiflorum*), yellow star-thistle (*Centaurea solstitialis*), puncture vine (*Tribulus terrestris*), and others.

Agriculture

Within the project area, approximately 5.31 acres of agriculture in the form of dryland grain and seed crops is located in the areas identified for spoils storage north and south of Interstate-5. Dryland grain and seed crops are nonirrigated crops that primarily include barley, cereal rye, oats, and wheat. These are annuals crops that are often farmed and harvested for one growing season and left fallow for one or more years. The agricultural lands were fallow at the time of the site visits to the spoils areas.

Wetlands and Other Waters of the United States

Jurisdictional waters, or water features that may be regulated under Federal or state authority, have been identified in the project area. The Sacramento River (riverine) and the RD 2035 main canal (lacustrine) are characterized as waters of the United States. A wetland delineation conducted for the Project was verified by the Corps in August 2011 (SPK# 2010-01141). Approximately 2.65 acres other waters of the United States was mapped as occurring in the project's study area and included 0.91 acres of riverine and 1.74 acres of lacustrine. Beyond the ordinary high water mark (OHWM) of these two waterways, no other potentially jurisdictional features occur within the project area. Additional areas within the current DWWSP footprint occurs outside of the existing wetland delineation study area that was verified in August 2011. These areas include an agricultural field east of Tule Canal and south of East Main Street that will serve as a potential spoils disposal site and equipment storage as well as an area where the pipeline alignment has been refined near the proposed WTP. A wetland delineation was conducted for these areas and an update will be submitted to the Corps for verification. No additional potential jurisdictional features occur within the expanded study area.

Special-Status Species

A list of special-status species that with potential to occur within the project area was derived from the USFWS list of Federal Endangered and Threatened Species that Occur in or may be Affected by the Project, a 5-mile radius search of sensitive species occurrences in the California Natural Diversity Database (CNDDDB), and a query of the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants. A list of special-status species, their general habitat requirements, and an initial assessment of their potential to occur within the project area is provided below in **Table 3.7-1**. Those selected for further detailed discussion include those federally and/or state-listed species, candidate species, and/or species of special concern with moderate to high potential to occur within the project area. Designated critical habitat and delineated essential fish habitat (EFH) in the project area is also discussed.

**TABLE 3.7-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Scientific Name Common Name	Federal Status	State Status	CNPS Listing	Habitat Description / Blooming Period	Potential to Occur in the Project Area
Fish					
<i>Acipenser medirostris</i> Green sturgeon (Southern DPS)	FT	CSC	--	Spawns in large cobble in deep and turbulent river mainstem. The Southern DPS spawns in the Sacramento River basin and in the Sacramento-San Joaquin Delta and Estuary.	High. Migratory route in the Sacramento River; Project Area also provides suitable rearing habitat in riparian bank areas.
<i>Archoplites interruptus</i> Sacramento perch	--	CSC	--	Sloughs, slow-moving rivers, and lakes of the Central Valley	Low. May migrate through Project Area during years of high flows.
<i>Hypomesus transpacificus</i> Delta smelt	FT	CE	--	Found in the Sacramento-San Joaquin Delta, Suisun Bay, Carquinez Straight, and San Pablo Bay.	Unlikely. Project outside area designated as critical habitat. Project Area provides marginal quality habitat for reproduction or cover.
<i>Oncorhynchus mykiss</i> Central Valley steelhead	FT	--	--	Spawns in Sacramento River and tributaries where gravelly substrate and suitable water conditions occur.	High. Migratory route in the Sacramento River; also provides suitable juvenile rearing habitat in riparian bank areas.
<i>Oncorhynchus tshawytscha</i> Central Valley fall/late fall-run chinook salmon	FSC	CSC	--	Spawning in Sacramento River and associated tributaries, and in the San Joaquin River tributaries.	High. Migratory route in the Sacramento River; also provides suitable juvenile rearing habitat in riparian bank areas.
<i>Oncorhynchus tshawytscha</i> Central Valley spring-run chinook salmon	FT	CT	--	Spawns in Sacramento River and few select tributaries where gravelly substrate and suitable water conditions occur.	High. Migratory route in the Sacramento River; also provides suitable juvenile rearing habitat in riparian bank areas.
<i>Oncorhynchus tshawytscha</i> Sacramento River winter-run chinook salmon	FE	CE	--	Spawns primarily in upper reaches of the mainstem Sacramento River.	High. Migratory route in the Sacramento River; also provides suitable juvenile rearing habitat in riparian bank areas.
<i>Mylopharodon conocephalus</i> Hardhead	--	CSC	--	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Clear, deep pools with sand-gravel-boulder bottoms and slow water velocity.	Low. May migrate through Project Area during years of high flows.
<i>Pogonichthys macrolepidotus</i> Sacramento splittail	FD	CSC	--	Endemic to the Central Valley. Spawns in freshwater in areas with submerged vegetation. Tolerant of moderate salinities, adults are found primarily in the Delta and Suisun Bay and Marsh, but have been found as far upstream as Red Bluff Diversion Dam on the Sacramento River.	Low. May migrate through Project Area during years of high flows.
Reptiles					
<i>Actinemys marmorata</i> Western pond turtle	--	CSC	--	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation and requires areas of suitable basking sites and upland habitat for egg laying.	High. Western pond turtles are common on the Sacramento River and have been observed within the Project Area.

**TABLE 3.7-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Scientific Name Common Name	Federal Status	State Status	CNPS Listing	Habitat Description / Blooming Period	Potential to Occur in the Project Area
<i>Thamnophis gigas</i> Giant garter snake	FT	CT	--	Generally inhabits marshes, sloughs, ponds, slow-moving streams, ditches, and rice fields which have water from early spring through mid-fall, emergent vegetation (such as cattails and bulrushes), open areas for sunning, and high ground for hibernation and escape cover.	Moderate. Limited aquatic habitat occurs in the RD 2035 Main Canal. Potential upland habitat occurs in unpaved areas up to 200' from aquatic habitat.
Amphibians					
<i>Ambystoma californiense</i> California tiger salamander	FT	CT	--	Annual grassland and grassy understory of valley-foothill hardwood habitats in central and northern California. Needs underground refuges and vernal pools or other seasonal water sources.	Unlikely. No suitable habitat within or adjacent to the Project Area.
<i>Rana draytonii</i> California red-legged frog	FT	CSC	--	Breeds in slow moving streams with deep pools, ponds, and marshes with emergent vegetation.	Unlikely. No suitable habitat within or adjacent to the Project Area.
Birds					
<i>Agelaius tricolor</i> Tricolored blackbird	--	CSC	--	Nests in dense thickets of cattails, tules, willow, blackberry, wild rose, wheat and barley crops, and other tall herbs near fresh water.	Unlikely. Marginal riparian nesting habitat along Sacramento River banks. However, no suitable nesting habitat in the immediate vicinity of the Project Area.
<i>Ardea alba</i> (nesting) Great egret	--	--	--	Colonial nester in large trees. Rookery sites located near marshes, tideflats, irrigated pastures and margins of rivers and lakes.	Moderate. Potential nesting habitat located along the RD 2035 main canal and the Sacramento River.
<i>Ardea herodias</i> (nesting) Great blue heron	--	--	--	Colonial nester in tall trees, cliff sides and isolated marsh habitats.	Moderate. Potential nesting habitat along the RD 2035 main canal and the Sacramento River.
<i>Athene cunicularia</i> Western burrowing owl	--	CSC	--	Uses ground squirrel (or other mammal) burrows within open grasslands, prairies, savanna, or agricultural fields.	Low. While no potential nesting habitat is located in the Project Area, potential nesting habitat is located along the perimeter of the adjacent agricultural fields.
<i>Buteo swainsoni</i> Swainson's hawk	--	CT	--	Breeds in California's Central Valley. Winters primarily in Mexico. Typically nests in scattered trees or along riparian systems adjacent to agricultural fields or pastures.	High. CNDDDB (2011) records an occurrence near the Project Area. Suitable nesting habitat occurs within trees along the Sacramento River and within the Project Area. Foraging habitat available in agricultural fields adjacent to the Project Area.
<i>Charadrius alexandrinus nivosus</i> Western snowy plover	FT	CSC	--	Sandy beaches, salt pond levees and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	Unlikely. No suitable nesting habitat within or adjacent to the Project Area.

**TABLE 3.7-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Scientific Name Common Name	Federal Status	State Status	CNPS Listing	Habitat Description / Blooming Period	Potential to Occur in the Project Area
<i>Charadrius montanus</i> Mountain plover (wintering)	--	CSC	--	In California, winters in open short grasslands and plowed agricultural fields in the Central Valley and in foothill valleys west of San Joaquin Valley, and in Imperial Valley. Winters below 1,000 m (3200 ft).	Unlikely. No suitable wintering habitat within or adjacent to the Project Area.
<i>Coccyzus americanus occidentalis</i> Western yellow-billed cuckoo	FC	CE	--	Nests in extensive riparian forests (at least 40 hectares).	Unlikely. Riparian area surrounding Project Area is highly fragmented.
<i>Elanus leucurus</i> White tailed kite	--	CFP	--	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Nests in isolated, dense-topped trees.	Moderate. Potential nesting habitat located in the Project Area.
<i>Egretta thula</i> Snowy egret (rookery)	--	--	--	Nests in marshes, tidal-flats, streams, wet meadows, and borders of lakes. Colonial nester, with nest sites situated in protected beds of dense tules.	Low. Marginal potential nesting habitat located in the Project Area, along RD 2035 main canal.
<i>Nycticorax nycticorax</i> Black-crowned night heron	--	--	--	Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots. Colonial nester, usually in trees, occasionally in tule patches.	Low. Marginal potential nesting habitat located in the Project Area, along RD 2035 main canal.
<i>Pandion haliaetus</i> Osprey	--	--	--	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	Low. Marginal potential nesting habitat located in the Project Area,
<i>Plegadis chihi</i> White-faced ibis	--	--	--	Nest and forages in freshwater marshes and rivers, respectively.	Low. Marginal potential nesting habitat located in the Project Area, along the RD 2035 main canal.
<i>Progne subis</i> Purple martin	--	CSC	--	Nests in old woodpecker cavities mostly, also in human-made structures. Nest often located in tall, isolated tree/snag.	Unlikely. No suitable nesting habitat within or adjacent to the Project Area.
<i>Riparia riparia</i> (nesting) Bank swallow	--	CT	--	Nests in holes dug in sandy cliffs and river banks near water.	Unlikely. No suitable nesting habitat within or adjacent to the Project Area.
Mammals					
<i>Antrozous pallidus</i> Pallid bat	--	CSC	--	Prefers caves, crevices, hollow trees, or buildings in areas adjacent to open space for foraging. Associated with lower elevations in California.	Low. Marginal roosting habitat located in the Project Area.
<i>Lasionycteris noctivagans</i> Silver-haired bat	--	--	--	Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes and rarely under rocks. Needs drinking water. Primarily a coastal and montane forest dweller feeding over streams, ponds & open brushy areas.	Low. Marginal roosting habitat located in the Project Area.

**TABLE 3.7-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Scientific Name Common Name	Federal Status	State Status	CNPS Listing	Habitat Description / Blooming Period	Potential to Occur in the Project Area
<i>Lasiurus blossevillii</i> western red bat	--	CSC	--	Roosts primarily in trees, 2-40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Low. Marginal roosting habitat located in the Project Area.
<i>Lasiurus cinereus</i> hoary bat	--	--	--	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths; requires water.	Unlikely. Limited roosting habitat within forested areas along the Sacramento River; however, dense foliage for roosting is not available in the Project Area.
<i>Taxidea taxus</i> American badger	--	CSC	--	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Unlikely. No suitable habitat within or adjacent to the Project Area.
Invertebrates					
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	FE	--	--	Lifecycle restricted to vernal pools.	Unlikely. No suitable habitat within or adjacent to the Project Area.
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT	--	--	Lifecycle restricted to vernal pools.	Unlikely. No suitable habitat within or adjacent to the Project Area.
<i>Cicindela hirticollis abrupta</i> Sacramento Valley (Hairy-necked) tiger beetle	--	--	--	Larvae and usually adults occur on sand bars, sandy shores, flood scours etc. immediately associated with rivers. Requires fine sand that is damp at, or a few centimeters below, the surface, and sparse or absent vegetation. Habitats must also not be subject to inundation for more than a few days at a time.	Unlikely. The Project Area habitat conditions are not suitable for this species.
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	FT	--	--	Breeds and forages exclusively on blue elderberry (<i>Sambucus mexicana</i>) shrubs, below 3,000 feet in elevation.	High. Elderberry shrubs with stems measuring at least one inch in diameter occur within 100 feet of the Project Area.
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE	--	--	Found in vernal pools, swales, ephemeral drainages, stock ponds, reservoirs, or ditches.	Unlikely. No suitable habitat within or adjacent to the Project Area.
<i>Lindieriella occidentalis</i> California lindieriella	--	--	--	Lifecycle restricted to vernal pools and seasonal wetlands.	Unlikely. No suitable habitat within or adjacent to the Project Area.
Vascular Plants					
<i>Astragalus tener</i> var. <i>tener</i> Alkali milk-vetch	--	--	1B.2	Alkali playa, valley and foothill grassland, vernal pools / March – June.	Unlikely. No suitable habitat within the immediate vicinity of the Project Area.
<i>Atriplex cordulata</i> Heartscale	--	--	1B.2	Chenopod scrub, valley and foothill grassland, meadows / April – October.	Unlikely. No suitable habitat within the immediate vicinity of the Project Area.
<i>Atriplex depressa</i> Brittlescale	--	--	1B.2	Chenopod scrub, valley and foothill grasslands, meadows and seeps / May – October.	Unlikely. No suitable habitat within the immediate vicinity of the Project Area.
<i>Atriplex joaquiniana</i> San Joaquin saltbrush	--	--	1B.2	Chenopod scrub, valley and foothill grasslands, meadows and seeps / April – October.	Unlikely. No suitable habitat within the immediate vicinity of the Project Area.

**TABLE 3.7-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Scientific Name Common Name	Federal Status	State Status	CNPS Listing	Habitat Description / Blooming Period	Potential to Occur in the Project Area
<i>Chloropyron palmatum</i> (= <i>Cordylanthus palmatus</i>) Palmate-bracted bird's beak	FE	CE	1B.1	Chenopod scrub, valley and foothill grasslands (alkaline) / May – October.	Unlikely. No suitable habitat within the immediate vicinity of the Project Area.
<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i> Rose mallow	--	--	1B.2	Marshes and freshwater swamps / June – September.	Low. Marginal habitat located along RD 2035 main canal.
<i>Lepidium latipes</i> var. <i>heckardii</i> Heckard's pepper-grass	--	--	1B.2	Valley and foothill grassland, vernal pools/ March – May.	Unlikely. No suitable habitat within the immediate vicinity of the Project Area.
<i>Lessingia hololeuca</i> Wooly-headed lessingia	--	--	3	Annual herb occurring in broadleafed upland forest, coastal scrub, lower montane coniferous forest, and in serpentine valley and foothill grasslands. Blooms Jun-Oct.	Unlikely. No suitable habitat within the immediate vicinity of the Project Area.
<i>Symphyotrichum lentum</i> Suisun Marsh aster	--	--	1B.2	Perennial rhizomatous herb found in brackish and freshwater marshes and swamps. Blooms May-Nov. Elevation: 0 to 10 ft msl.	Low. Marginal habitat located along RD 2035 main canal.

NOTES:

The "Potential for Effect" category is defined as follows:

- Unlikely: The Project Area and/or immediate area do not support suitable habitat for a particular species. Project Area is outside of the species known range.
- Low Potential: The Project Area and/or immediate area only provide limited habitat for a particular species. In addition, the known range for a particular species may be outside of the Proposed Project/Action and Project Area.
- Moderate Potential: The Project Area and/or immediate area provide suitable habitat for a particular species.
- High Potential: The Project Area and/or immediate area provide ideal habitat conditions for a particular species.

Species that have medium or high potential to be impacted by the Proposed Project/Action and Project Area are shown in boldface type.

STATUS CODES:**FEDERAL:**

- FE = Listed as "endangered" under the federal Endangered Species Act
 FT = Listed as "threatened" under the federal Endangered Species Act
 FSC = NMFS designated "species of concern"
 FPD = Proposed delisted
 FD = Delisted

STATE:

- CE = Listed as "endangered" under the California Endangered Species Act
 CT = Listed as "threatened" under the California Endangered Species Act
 CCE = Proposed as a candidate species under the California Endangered Species Act
 CSC = California Department of Fish and Game designated "species of special concern"
 CFP = California Department of Fish and Game designated "fully protected"

CNPS:

- List 1B = Plants rare, threatened, or endangered in California and elsewhere
 List 2 = Plants rare, threatened, or endangered in California, but more common elsewhere
 List 3 = Plants about which more information is needed

SOURCE: USFWS (06/2011), DFG (06/2011), CNPS (06/2011).

Baseline Conditions for Species

The stretch of the Sacramento River that occurs within the project area is part of a migratory corridor for adult Sacramento River winter-run chinook salmon, Central Valley spring-run chinook salmon, Central Valley fall/late fall-run chinook and Central Valley steelhead, and provides migration and rearing habitat for juveniles of these species. A large proportion of all federally listed Central Valley salmonids are expected to use aquatic habitat within the Sacramento River in the project area. The Sacramento River also functions as a migratory and holding corridor for adult and rearing and migratory habitat for juvenile Southern Distinct Population Segment (DPS) of North American green sturgeon. In addition to supporting fish, the Sacramento River provides habitat for the western pond turtle. It is unlikely for Delta smelt to utilize this portion of the Sacramento River.

The RD 2035 main canal, located in the eastern portion of the project area, has potential to support giant garter snake (GGS). The valley oak woodland in the project area supports elderberry shrubs (*Sambucus* spp.), which are the host plant for valley elderberry longhorn beetle (VELB). The mature trees in the project area could provide nesting habitat for several bird species, including the great egret, great blue heron, Swainson's hawk, red-tailed hawk (*Buteo jamaicensis*) and white-tailed kite.

The following section provides life history information for the special-status species potentially affected by the Proposed Project/Action.

North American Green Sturgeon

On April 7, 2006, the NMFS listed the Southern DPS of the North American green sturgeon as threatened, although critical habitat for the green sturgeon has not yet been determined. Sturgeon are an anadromous fish species, spending the majority of their life in marine waters and then moving into freshwater throughout the fall and winter to spawn in the spring. Upon hatching, the young green sturgeon develop in the fresh water and are known to return to the ocean within one to four years. Historically, green sturgeon was found in the lower reaches of the San Joaquin River and Delta. Today, they occur in the upper Sacramento River and tributaries to the Sacramento River including the Feather, Yuba and American Rivers. Green sturgeon is frequently caught along the coast, but is present in limited numbers in the estuaries.

The green sturgeon has diverse habitat needs ranging from freshwater streams, rivers, estuarine habitat as well as marine waters depending upon their life stage. The specific habitat requirements for green sturgeon are poorly understood but are thought to resemble those of white sturgeon. Green sturgeon spawning is thought to occur in deep pools in areas of large cobbles, but can range from clean sand to bedrock in turbulent river mainstreams. The larger eggs and higher growth rates of developing green sturgeon in comparison to white sturgeon suggest that a higher oxygen demand may be required for proper embryonic development. Therefore, green sturgeon may subsequently require colder, cleaner water for spawning relative to white sturgeon (COSEWIC, 2004).

The spawning population of the Southern DPS of North American green sturgeon is currently restricted to the Sacramento River below Keswick Dam. This population is composed of a single

breeding population, which must pass by/through the project area. Adults migrate upstream by/through the project area primarily between March and June (Adams *et al.*, 2002), and small groups of juveniles have been captured at various locations on the Sacramento River as well in the Delta (downstream of Sacramento) during all months of the year. Therefore, within the project area, green sturgeon are likely to occur within the riverine aquatic habitat of the Sacramento River year-round.

Central Valley Steelhead

The Sacramento and San Joaquin Rivers offer the only migration route to the drainages of the Sierra Nevada and southern Cascade mountain ranges for steelhead. Information on migration and spawning tendencies of steelhead is difficult to determine due to the low abundance of spawners and the high flows and turbid waters occurring during winter spawning periods. Although quantitative estimates of the number of adult steelhead returning to Central Valley streams are not available, anecdotal information and observation indicate that population abundance is low. The most widespread run type of steelhead is in the winter (ocean-maturing) steelhead. Winter steelhead occur in essentially all coastal rivers in California, while summer steelhead are far less common. In California, both winter and summer steelhead generally begin spawning in December. Spawning occurs December through April in the Sacramento River mainstem and tributaries. Eggs are buried by the females in the loose gravel, usually at the lower end of a pool. Newly hatched larvae (alevins) initially stay in the gravel nesting area until their yolk sacs are absorbed (about two weeks) and then move into adjacent shallow and quiet pools. Juvenile steelhead remain in freshwater streams from one to three years before entering the ocean. Downstream migration predominantly occurs during fall and spring. Generally, steelhead would return to their natal streams in one to three years.

Adult steelhead typically migrate upstream within the Sacramento River during the winter (November - January) to spawning areas upstream of the proposed diversion locations and juvenile smolts migrate downstream during the spring (March – May). The proportion of steelhead in this DPS that migrate through the project area is unknown; however, because of the relatively large amount of suitable habitat in the Sacramento River relative to the San Joaquin River, the proportion of steelhead is probably high. Steelhead have not been observed spawning in the project area. The portion of the Sacramento River in the project area provides limited quality juvenile rearing habitat (aquatic riverine habitat) – banks are relatively steep and the bank vegetation is limited to forbs and shrubs. Riparian vegetation both upstream and downstream of the project area provides some suitable shaded riverine aquatic likely to be suitable migration habitat. However, when the majority of juvenile steelhead emigrate as yearlings, they are assumed to be primarily using the center of the channel rather than the shoreline.

Adult steelhead may be present in the project area from June through March, with the peak occurring between August and October (Bailey, 1954; Hallock *et al.*, 1957). Juvenile steelhead emigrate through the Sacramento River from late fall to spring. Given the timing of migrations and emigrations of adults and juveniles, Central Valley steelhead may be expected to occur in the Sacramento River near and within the project area from June through March.

Central Valley Spring-Run Chinook Salmon

Chinook salmon runs (fall/late fall-run, winter-run, and spring-run) are named for the time of season that upstream spawning migration occurs, and are defined by the combined timing of adult migration, the amount of time juveniles reside in a stream, and the time of year the smolts migrate out to sea. Timing of adult upstream migration varies within individual runs depending upon the region (Yoshiyama et al, 1998). Central Valley spring-run chinook enter the Sacramento River system from March to July, and spawning occurs from late August through early October (Yoshiyama et al, 1998). Due to the longer period of time between upstream migration and spawning, spring-run chinook must hold out in the cold temperatures of mountain headwaters to avoid excessive summertime temperatures of the valley and foothills. Spring-run ascent to mountain elevations can only be accomplished if there are no obstructions within the drainage system preventing passage.

Life histories (migration, holding, spawning, rearing, and juvenile emigration) of chinook salmon vary within the separate runs, but essential habitat requirements including substrate, temperature, dissolved oxygen, stream flow, and water quality are consistent throughout the runs. Chinook salmon require a water temperature from 43° to 56° F to successfully spawn (Boles, 1988). Spawning can occur in habitats ranging from small tributaries to large river beds, and generally requires coarse gravel riffles. Chinook salmon eggs incubate in the gravel for approximately 35 to 50 days, depending on the temperature. The newly emerged fry remain in the gravel until most of the yolk sac is absorbed.

Successful rearing of juvenile chinook requires cool streams/rivers with significant vegetative cover providing shade for protection from predation. Emigration strategies within the Sacramento-San Joaquin system can vary depending on the time of emergence. Spring-run emigration timing is dependant upon the tributaries of origin, and can occur through the period of November through June. Based upon Butte Creek research conducted by DFG, over 95% of spring-run emigrate as fry/young-of-the-year. Only a small portion of the population would over-summer emigrating the subsequent fall as yearlings.

Adult Central Valley spring-run chinook salmon are expected on the Sacramento River between March and July (Myers *et al.*, 1998; Good *et al.*, 2005). Peak presence is believed to be during February and March (DFG, 1998). In the Sacramento River, juveniles may begin migrating downstream almost immediately following emergence from the gravel with most emigration occurring from December through March (Moyle *et. al.*, 1989; Vogel and Marine, 1991). Snider and Titus (2000) observed that up to 69 percent of spring-run chinook salmon emigrate during the first migration phase between November and early January. The remainder of the Central Valley spring-run chinook salmon emigrate during subsequent phases that extend into early June. The exact composition of the age structure is not known.

Given the timing of migrations and emigrations of adults and juveniles, Central Valley spring-run chinook may be expected to occur in the Sacramento River near and within the project area from November through June.

Central Valley Fall/Late Fall-Run Chinook Salmon

Fall/late fall-run Chinook salmon are the most abundant species of Pacific salmon inhabiting the Sacramento and San Joaquin river systems. Fall/late fall-run chinook salmon are not listed for protection under either the California Endangered Species Act (CESA) or federal Endangered Species Act (FESA), but are considered a species of special concern by NMFS and DFG. Although fall/late fall-run chinook salmon inhabit a number of watersheds within the Central Valley for spawning and juvenile rearing, the largest populations occur within the mainstem Sacramento River, Feather River, Yuba River, American River, Mokelumne River, Merced River, Tuolumne River, and Stanislaus River. Fall/late fall-run chinook salmon, in addition to spawning in these river systems, are also produced in fish hatcheries located on the Sacramento River, Feather River, American River, Mokelumne River, and Merced River. Hatchery operations are intended to mitigate for the loss of access to upstream spawning and juvenile rearing habitat resulting from construction of dams and reservoirs within the Central Valley in addition to producing fall/late fall-run chinook salmon as part of the ocean salmon enhancement program to support commercial and recreational ocean salmon fisheries. Fall/late fall-run chinook salmon also support an inland recreational fishery.

Adult fall/late fall-run chinook salmon migrate from the coastal marine waters upstream through San Francisco Bay, Suisun Bay, and the Delta during late summer and early to late fall (approximately late July – early December). Spawning occurs between October and December with the greatest spawning activity occurring typically in November and early December. A portion of the fry population migrate downstream soon after emergence, where they rear within the lower river channels, Delta, and estuary, including Suisun Bay and the lower reaches of channels within the marsh, during the spring months. The remaining portion of juvenile salmon continue to rear in the upstream stream systems through the spring months, until they are physiologically adapted to migration into saltwater (smolting), which typically takes place between April and early June. A small proportion of the chinook salmon juveniles may, in some systems, rear through the summer and fall months migrating downstream during the fall, winter, or early spring as yearlings. Adult chinook salmon spawn at ages ranging from approximately two to five years, with the majority of adult fall-run chinook salmon returning at age three.

Given the timing of migrations of adults and the potential for juveniles to linger within the Sacramento River system, Central Valley fall/late fall-run Chinook may be expected to occur in the Sacramento River near and within the project area all the months of the year.

Sacramento River Winter-Run Chinook Salmon

Winter-run Chinook salmon generally begin migrating upstream from December through February and hold-over in the Sacramento River system for a couple of months before peak spawning occurs between May and July (Groot, 1998). Temperatures must be suitable for the winter-run to hold over. Winter-run chinook emigration to the Delta has been known to occur from November through April, after only four to seven months of river life (Groot, 1998). Juveniles may exhibit a sustained residence in the middle or lower Sacramento River or Upper Delta prior to seaward migration. Juvenile Sacramento River winter-run chinook salmon migration patterns in the Sacramento River can best be described by temporal migration characteristics found by the USFWS (2001) in beach seine

captures along the lower Sacramento River between Sacramento and Princeton. Beach seining samples the shoreline rather than the center of the channel, as is often the case in rotary screw traps and trawls, and is considered the most accurate sampling effort in predicting the nearshore presence of juvenile salmonids. In the Sacramento River, between Princeton and Sacramento, juveniles are expected between September and mid April, with highest densities between December and March (USFWS, 2001). Rotary screw trap work at Knights Landing on the Sacramento River by Snider and Titus (2000) captured juveniles between August and April, with heaviest densities observed first during November and December, and second during January through March. The largest captures occurred during periods of sustained high flow, generally greater than 20,000 cfs.

Adult winter-run typically migrate to spawning areas upstream of the proposed diversion locations, and occur seasonally in the vicinity of the proposed diversion locations. Adult Sacramento River winter-run chinook salmon are expected to be present in the Sacramento River near and within the project area between November and June (Myers *et al.*, 1998; Good *et al.*, 2005) as they migrate to spawning grounds. Juveniles are expected to occur within the Sacramento River near and within the project area from September through April. Marginal rearing habitat for winter-run chinook occurs in the project area.

The general seasonal timing of migration and spawning by each of the runs is detailed in **Figure 3.7-2**. These trends are based on observations of fish passage upstream at the Red Bluff Diversion Dam and other fishery monitoring within the Sacramento River (Vogel and Marine, 1991).

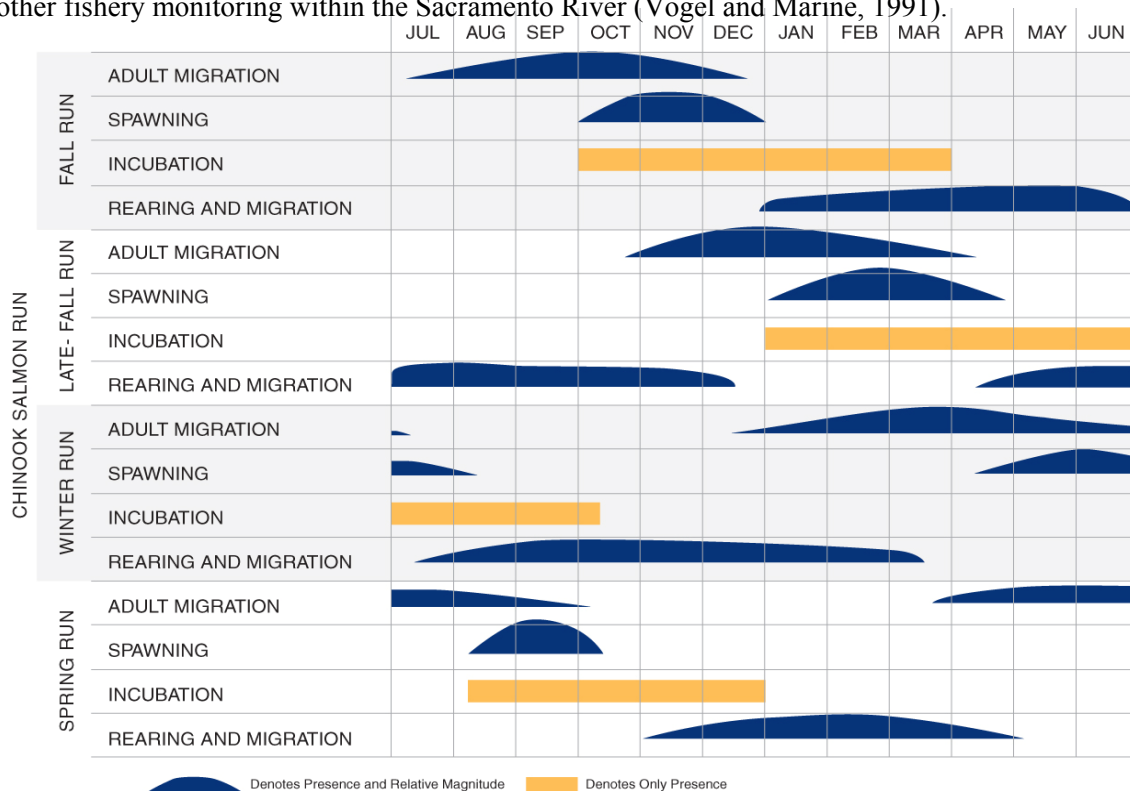


Figure 3.7-2
Life History of Chinook Salmon in the Sacramento River

Delta Smelt

Delta smelt is a threatened, endemic fish species to the Sacramento–San Joaquin Delta estuary and inhabit the freshwater portions of the Sacramento-San Joaquin River Delta area (the “Delta”), lower reaches of the Sacramento and San Joaquin rivers, and the low-salinity portions of Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties. They occur in the Delta primarily below Mossdale on the San Joaquin River and Isleton on the Sacramento River, although they may occur as far upstream as the Feather River confluence (USFWS, 2004). They used to be one of the most common pelagic fish (i.e., living in open water away from the bottom) in the upper Sacramento-San Joaquin Estuary. Currently however, delta smelt populations are threatened due to several factors which include, but are not limited to:

- Changes in the seasonal timing and magnitude of freshwater inflow to the Delta and outflow from the Delta
- Entrainment of larval, juvenile, and adult delta smelt into a large number of unscreened water diversions (primary agricultural) located throughout the Delta (Center for Biological Diversity et al. 2006)
- Predation by striped bass, largemouth bass, and a number of other fish species inhabiting the estuary has also been identified as a source of mortality for delta smelt
- Exposure to toxic substances resulting in direct or indirect affects
- Variation in the quality and availability of low-salinity habitat within the Delta and Suisun Bay, in response to seasonal and inter-annual variability in hydrologic conditions within the Delta
- Reduced food (prey) availability thought to be the result of reduced primary production due, in part, to a reduction in seasonally-inundated wetlands, competition for food resources with non-native fish and macroinvertebrates (e.g., filter feeding by the non-native Asian overbite clam *Corbula*), and competition among native and non-native zooplankton species

The delta smelt was federally listed as a threatened species on March 5, 1993 (USFWS, 1993). On December 19, 1994, USFWS designated critical habitat for delta smelt within the Sacramento-San Joaquin River system (USFWS, 1994). The designation of delta smelt critical habitat extends throughout the Delta and completely encompasses the project area. Delta smelt are also listed as an endangered species under the California Endangered Species Act.

Delta smelt are a relatively small (2 to 3 inches long) species with an annual lifecycle, although some individuals may live two years. Prior to spawning, adult delta smelt may migrate upstream into the lower reaches of the Sacramento and San Joaquin Rivers, and lower eastside streams, where spawning occurs from approximately February through June, with the greatest spawning activity occurring in April and May in the Sacramento River basin. Females deposit adhesive eggs on substrates such as gravel, rock, and submerged vegetation. Eggs hatch, releasing planktonic larvae which are passively dispersed downstream by river flow. Larval and juvenile delta smelt rear within the estuarine portions of the Delta for a period of approximately 6 to 9 months before beginning their upstream spawning movement.

Delta smelt generally inhabit the lower reaches of the Sacramento River downstream of Isleton, the San Joaquin River downstream of Mossdale, and the Delta including Suisun Bay. Although

juvenile and adult delta smelt are most abundant within the western Delta and Suisun Bay, they may occur within the lower San Joaquin River throughout the year. Delta smelt were once one of the most common pelagic fish in the Delta. Delta smelt have experienced a general decline in population abundance over the past several decades leading to their listing as a threatened species under FESA and endangered under CESA. The causes of decline are multiple and synergistic, including reduction in flows; entrainment losses to water diversions; high outflows; changes in food organisms; toxic substances; disease, competition, and predation; and loss of genetic integrity (SWRCB, 1999b, Baxter et al. 2008).

Valley Elderberry Longhorn Beetle

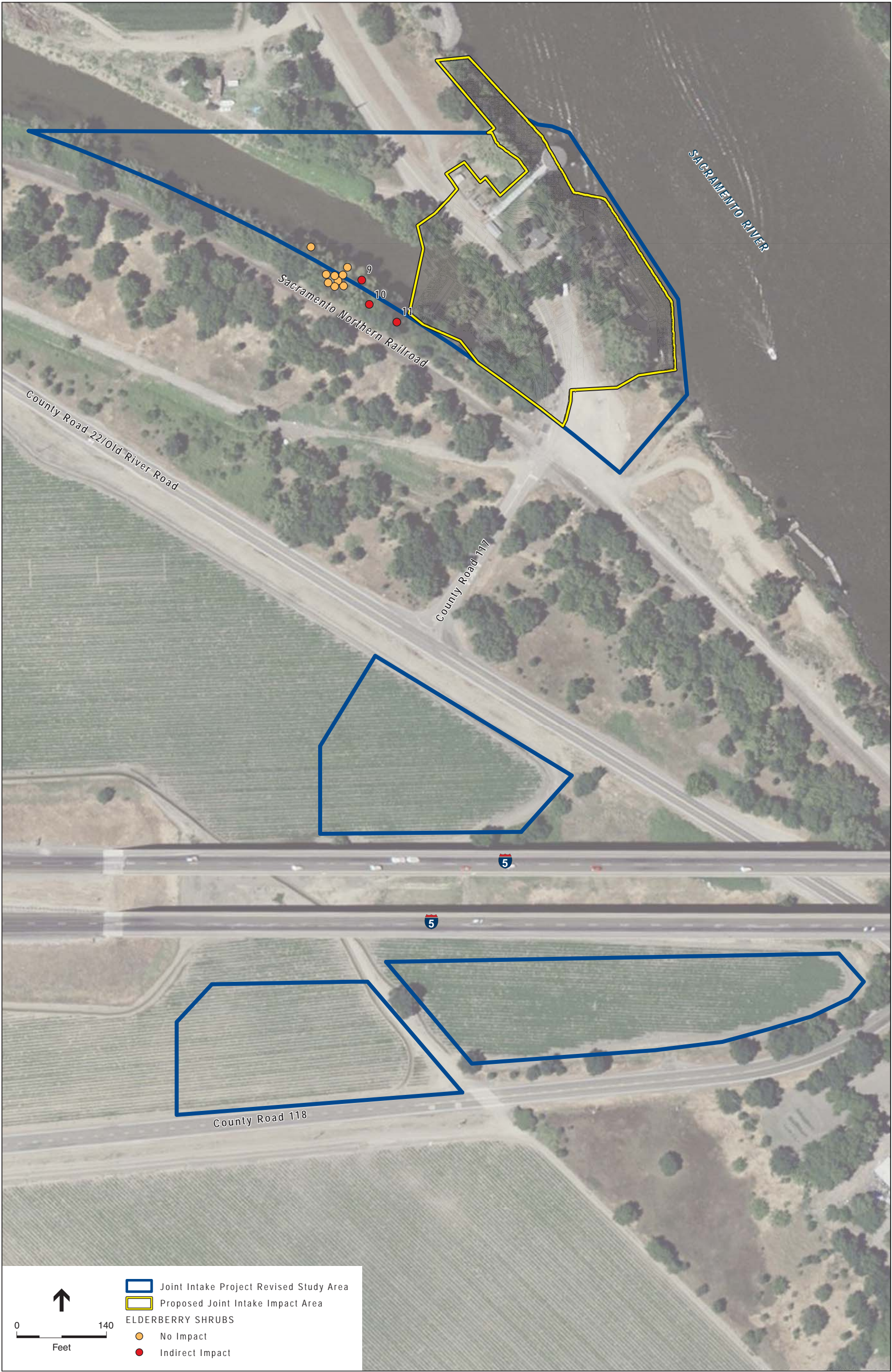
Suitable habitat for the VELB is typically defined as live elderberry stems measuring at least one inch in diameter. They are generally found along waterways and in floodplains that support remnant stands of riparian vegetation, seldom do they occur above 3,000 feet in elevation. The VELB is completely dependent on its host plant, elderberry (*Sambucus* spp.), which is a common component of the riparian forests and adjacent upland habitats of California's Central Valley and foothills (USFWS, 1999b). Elderberry shrubs/trees with VELB populations occur in a variety of habitats and plant communities, but most often are found in riparian or oak savanna areas. Records for this species are restricted to small, scattered populations along the Sacramento, American, San Joaquin, Kings, Kaweah, and Tule rivers and their tributaries. The species has the potential to occupy shrubs below 3,000 feet in elevation within the Central Valley. VELB is federally listed as threatened, but has been recommended for delisting as part of the five-year review process.

A survey for elderberry shrubs in the project area was conducted and 12 elderberry shrubs were located in the western portion of the project area (**Figure 3.7-3**). A total of 3 shrubs are located within 100 feet of the active Work Area along the south side of RD 2035 main canal. Areas proposed for construction staging and spoils storage have not been surveyed for VELB habitat.

Giant Garter Snake

GGs prey primarily on aquatic species such as fish and amphibians. Generally active from April through September, the GGS breeds from March into May, and again briefly in September. Young are brooded internally by females, who give birth to 10 to 46 (average is 23) live young from late July into September. Young disperse into dense cover and reabsorb their yolk sacs, then begin feeding on their own. They reach sexual maturity in three to five years. From early October to April, the GGS takes refuge in winter retreats and is generally not active (USFWS, 1999a).

The GGS is endemic to wetlands of California's Central Valley. This snake inhabits irrigation and drainage canals, rice fields, marshes, sloughs, ponds, small lakes, low-gradient streams, and adjacent uplands. The snake requires enough water during their active season to maintain high densities of prey; emergent wetland vegetation for cover and foraging; and adjacent uplands and openings in streamside vegetation for basking sites. Higher uplands are used for cover and refuge from floodwaters during their non-active season. The GGS is typically absent from wetlands with sand, gravel, or rock substrates, and from riparian woodlands.



SOURCE: ESRI, 2011; MWH, 2011; and ESA, 2012

Reclamation District 2035 Joint Intake Project . 207705

Figure 3-7.3
Elderberry Shrub Locations

The GGS population was probably always disjunct, with a southern population occurring from the vicinity Buena Vista Lake in Kern County to Merced County, and a northern population occurring from San Joaquin County to Butte County. To the east and west, the populations were probably confined by the foothills of the Sierra Nevada Mountains and the Coast Ranges. There are 13 separate populations presently recognized by the USFWS, coinciding with historic flood basins and tributary streams in the Central Valley (USFWS, 1999a). These populations are discontinuously distributed from the Fresno area in the south to Butte Creek in the north.

GGs have been recorded in several locations near the project area. Records from 1999 documented occurrences in irrigation canals on Conaway Ranch (DFG, 2011).

No GGs were observed during field reconnaissance in the project area; however, given the cryptic and evasive nature of this species, determination of presence more often relies on the habitat characteristics, the most current information about the extant range of the species, surrounding locality records, and the biology and ecology of the GG.

Agricultural land use within the region generally provides suitable GG habitat, with abundant rice fields and associated irrigation ditches, rodent burrows for upland refugia, and open upland areas for basking. Within the project area, GG aquatic habitat includes the RD 2035 main canal. There are also several types of drainage ditches outside of the project area that could support aquatic GG habitat. The availability of emergent or aquatic vegetation for cover and basking sites varies with each ditch, season, and the operations of RD 2035 within a given year. Within the project area, all habitats within 200 feet of suitable GG aquatic habitat are considered either aquatic or upland habitat for the snake (**Figure 3.7-4**). However, upland areas that are covered by a walled structure such as a building or more than 200 feet from suitable aquatic habitat are generally not considered suitable habitat for GG. Additionally, the Sacramento River is not considered suitable aquatic habitat for this species. Areas proposed for construction staging and spoils storage have not been surveyed for GG habitat suitability.

Western Pond Turtle

The western pond turtle is most commonly found in ponds, marshes, creeks, and irrigation ditches (Zeiner et al., 1988). This species frequently basks on logs or other objects out of the water when water temperatures are low and air temperatures are greater than water temperatures. Mating typically occurs in late April or early May, but may occur year-round. Nests are located in upland locations that may be a considerable distance from the aquatic site (up to ¼ mile). Hatchling turtles are thought to emerge from the nest and move to aquatic sites in the spring. This species may occur in the vicinity of sloughs, channels, and canals. In the project area, western pond turtles are likely to occur in and along the banks of the Sacramento River and the RD 2035 main canal.

Cooper's Hawk

Cooper's hawk is a breeding resident throughout most of the wooded portion of California (Zeiner et al., 1990). It breeds in the Sierra Nevada foothills, New York Mountains, Owens Valley, and other local areas in California. Peak breeding season is May through July, although it

can occur anywhere from March to August (Zeiner et al., 1988-1990). Cooper's hawks use dense wooded stands for breeding and patchy to open woodlands and habitat edges for foraging. They can often be found in live oak and riparian deciduous habitats. The species ranges from sea level to above 9,000 feet. After breeding, Cooper's hawks from the north migrate to winter throughout woodlands in California. Cooper's hawk prefers dense stands of live oak, riparian deciduous or other forest habitats near water. The trees in the project area could provide suitable nesting habitat for Cooper's hawk.

Great Egret

The great egret is not a state or federally listed species, but it is listed on the DFG Special Animals list. They commonly forage in wetlands, ponds, and agricultural fields for a variety of prey, including fish, aquatic and terrestrial invertebrates, and small mammals. Great egrets nest in tall trees and snags in small to large colonies relatively near foraging areas. Nesting colonies are subject to disturbance by nearby activities such as construction. Great egrets are commonly seen foraging in and around the project area and could use trees in the project area for nesting. No recorded nest sites occur in the project area.

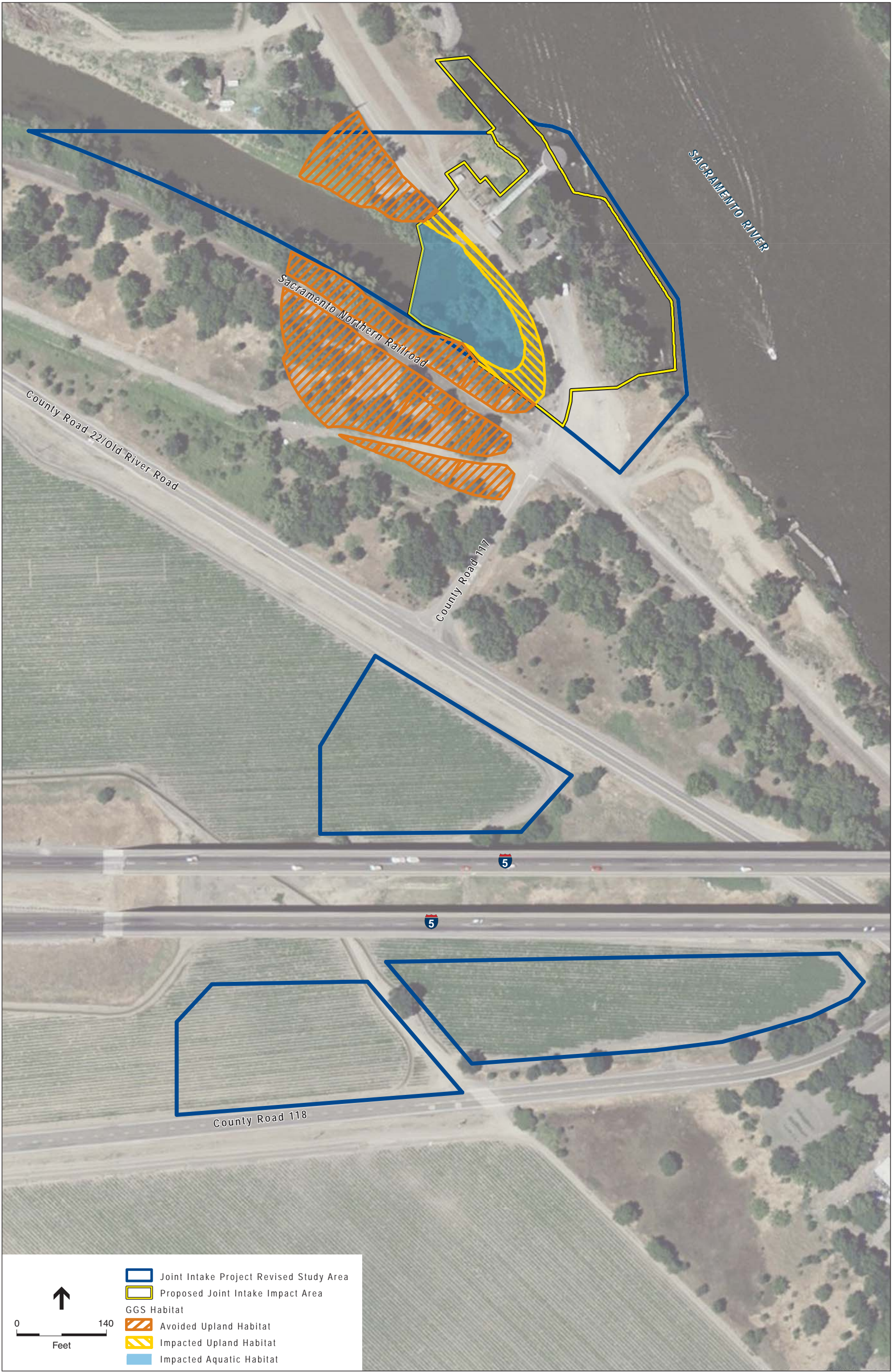
Great Blue Heron

The great blue heron is not a state or federally listed species, but it is listed on the DFG Special Animals list. This heron is a colonial nester in tall trees, cliff sides and sequestered spots on marshes. The rookery sites are in close proximity to foraging habitats, such as marshes, lake margins, tide flats, river and streams, and wet meadows. Clutch size ranges from three to seven eggs. Great blue herons are commonly seen foraging in and around the project area and could use trees in the project area for nesting. No recorded nest sites occur in the project area.

Swainson's Hawk

The Swainson's hawk is a migratory raptor listed as threatened by the State of California. It breeds in western North America and winters for the most part in South America. It nests in trees, usually in riparian areas, but forages over pasturelands and open agricultural fields. In the Central Valley it is associated with riparian corridors adjacent to field crops and grasslands and subsists largely on small mammals, especially California vole (*Microtus californicus*), California ground squirrel (*Spermophilus beecheyi*), and large insects. Suitable foraging habitat within an energetically efficient flight distance from active Swainson's hawk nests has been found to be of great importance. Because the prey base for Swainson's hawk is highly variable from year to year, depending on cycles of agriculture, rainfall, and other natural cycles, large acreages of potential foraging habitat must be allotted per breeding pair.

The decline of the species in the Central Valley has been associated with extensive reduction of Swainson's hawk habitat. Suitable foraging habitat is present within the project area in agricultural fields, where populations of prey species are supported. Suitable nesting habitat occurs within the riparian woodland habitats within the project area. Large valley oak and cottonwood trees occur along the river and RD 2035 main canal. Several Swainson's hawk nests have been recorded within a mile of the project area (DFG, 2011).



SOURCE: ESRI, 2011; MWH, 2011; and ESA, 2012

Reclamation District 2035 Joint Intake Project . 207705

Figure 3-7.4

Giant Garter Snake Habitat

White-tailed Kite

White-tailed kite is a California “fully protected” raptor, and is listed on the DFG Special Animals list. They are year-round residents in central California (Zeiner et al., 1990). They typically nest in oak woodlands or trees, especially along marshes or river margins, and they may use any suitable tree or shrub that is of moderate height. Unlike other raptors, kites often roost, and occasionally nest, communally; therefore, disturbance of a relatively small roost or nesting area could affect a large number of birds. Their nesting season may begin as early as February and extends into August. Kites forage during daylight hours for rodents in wet or dry grasslands and fields. They feed on rodents, small reptiles, and large insects in fresh emergent wetlands, annual grasslands, pastures, and ruderal vegetation. This species has been recorded nesting approximately 8.5 miles east of the project area. The riparian habitat located in the project area may provide suitable nesting habitat.

3.7.2 Regulatory Framework

The following discussion describes the various federal, state, and local laws and regulations that prescribe consideration of species and habitats which may be found in the project area.

Federal Regulations

Federal Endangered Species Act

The FESA prohibits the “take” of endangered or threatened fish and wildlife species on public or private property, and the “take” of endangered or threatened plants in areas under federal jurisdiction or in violation of state law. Under the FESA, the definition of “take” is to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The USFWS has interpreted the definition of “harm” to include any significant habitat modification that could result in take. If a project would take a federally listed species, then an incidental take permit is required to authorize the take. Such a permit typically requires various measures to compensate for or to minimize the take.

Pursuant to Section 7 of the FESA, a federal agency reviewing a project within its jurisdiction must determine whether any federally listed threatened or endangered species, or species proposed for federal listing, may be present in the project area, and then must determine whether the project would have a potentially significant impact on such species. In addition, the federal agency must determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3], [4]).

The USFWS administers the FESA for all terrestrial and non-marine aquatic species and the NMFS administers FESA for marine fish species, including anadromous salmonids such as salmon, sturgeon, and steelhead. Projects for which a federally listed species or its habitat is present and for which federal permits are required must receive authorization from USFWS and/or NMFS.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 imposes criminal and civil penalties on persons in the U.S. or within U.S. jurisdiction lands that take, possess, sell, purchase, barter, offer to sell or purchase or barter, transport, export or import a bald or golden eagle, alive or dead, or any part, nest, or egg of these eagles, or that violate any permit or regulations issued under the Act, without the permission of the Secretary of the Interior. Bald eagles (*Haliaeetus leucocephalus*) may not be taken for any purpose unless the Secretary issues a permit prior to the taking.

Migratory Bird Treaty Act and California Fish and Game Code Protections

The Migratory Bird Treaty Act (16 USC, Sec. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Birds of prey are protected in California under the State Fish and Game Code, Section 3503.5 (1992). Section 3503.5 states that it is “unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “take” by the DFG. Any loss of fertile eggs, nesting raptors, or any activities resulting in nest abandonment would constitute a significant impact. Project impacts to these species would not be considered significant unless they are known or have a high potential to nest in the project area or to rely on it for primary foraging.

Waters of the United States

The Corps has primary federal responsibility for administering regulations that concern “waters of the U.S.” within the project area. The Corps acts under two statutory authorities, the Rivers and Harbors Act (Sections 9 and 10) which governs specified activities in “navigable waters of the U.S.,” and the Clean Water Act (Section 404), which governs specified activities in “other waters of the U. S.” including wetlands. The Corps requires that a permit be obtained if a project proposes placing structures within, over, or under navigable waters or discharging dredged or fill material into “waters of the U.S.” below the ordinary high-water mark in non-tidal waters. The EPA, USFWS, NMFS, and several other agencies can provide comments on Corps permit applications.

The federal government defines wetlands in Section 404 of the Clean Water Act as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support (and do support, under normal circumstances) a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3[b] and 40 CFR 230.3). The federal definition of wetlands requires three wetland identification parameters to be present: wetland hydrology, hydric soils, and hydrophytic vegetation.

“Other waters of the U.S.” refers to those hydric features that are regulated by the Clean Water Act but are not wetlands (33 CFR 328.4). To be considered jurisdictional, these features must exhibit

a defined bed and bank and an ordinary high-water mark. Examples of other waters of the U.S. include rivers, creeks, intermittent and ephemeral channels, ponds, and lakes. Human-made wetland areas that are not regulated under this act include stock watering ponds and created water treatment facilities.

Essential Fish Habitat for Pacific Salmon

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, established procedures designed to identify, conserve, and enhance EFH. The EFH designation applies to all species managed under a Federal Fishery Management Plan (FMP). In California, the FMP for salmon designates the mainstem Sacramento River as EFH (Pacific Salmon Fisheries, 1999). The Sacramento River within the project area contains three components of EFH listed in **Table 3.7-2**.

**TABLE 3.7-2
DESCRIPTION OF SACRAMENTO RIVER ESSENTIAL FISH HABITAT**

Essential Fish Habitat Component	Description
Juvenile Rearing	Juvenile rearing is discussed primarily in terms of rearing in the natal stream area. As the FMP notes, juvenile rearing may be an incidental habitat function in the mainstem rivers, which serve primarily as migration corridors;
Juvenile Migration Corridors	The FMP notes that "Smolts swim and drift through the streams and rivers and must reach the estuary or ocean where there are adequate prey and water quality conditions and must find adequate cover to escape predators as they migrate"
Adult Migration Corridors and Adult Holding Habitat	The FMP does not specifically identify habitat requirements for adult migration, but notes that passage blockage, water quality, flow modifications, channel modification, reduced frequency of holding pools, lack of cover, reduced depth of holding pools, reduced cold-water refugia, and increased predation resulting from habitat modifications are habitat concerns.

SOURCE: Pacific Salmon Fisheries, 1999

Amendment 14 of the Pacific Salmon FMP identifies and describes mechanisms by which various factors may influence EFH and salmonids. Specifically, habitat requirements are identified and potential habitat concerns are listed. The requirements/concerns applicable to EFH in the project area are summarized **Table 3.7-3**:

**TABLE 3.7-3
FISH MANAGEMENT PLAN CONCERNS IN PROJECT AREA**

Habitat Requirement	Habitat Concern
Adult migration pathways	Water diversions, changes in water currents and hydrology, changes in water quality during project construction
Smolt migration pathways	Entrainment into water diversions, changes in water currents and hydrology, changes in water quality during project construction

SOURCE: Pacific Salmon Fisheries, 1999

Given these designated characteristics, the primary components of EFH present at the project area are migration pathways. The existing condition of the habitat in the area is disturbed in terms of

flow modifications, channel modification (channelization and riprap), lack of vegetative cover, and the likely increased predation resulting from these habitat modifications. Flow modifications are primarily the result of upstream impoundments, which have reduced flows in winter and spring, when natural precipitation and snow melt would otherwise result in higher flow, and increased flows in summer and fall, which are generally dry periods in California's Central Valley. Smolt migration pathways are affected by existing water diversions upstream and downstream from the project area.

Critical Habitat Designations for Fish

Central Valley Spring-run Chinook Salmon

NMFS recently designated critical habitat for the Central Valley spring-run Chinook salmon. Critical habitat consists of the waters, substrates, and adjacent riparian zones of accessible estuarine and riverine reaches. Critical habitat is designated to include all reaches accessible to Chinook salmon in the Sacramento River and its tributaries in California, all river reaches and estuarine areas of the Sacramento-San Joaquin Delta, all waters from Chipps Island westward to the Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and Carquinez Straits, all waters of San Pablo Bay west of the Carquinez Bridge, and all waters of San Francisco Bay (north of San Francisco/Oakland Bay Bridge) from San Pablo Bay to the Golden Gate Bridge. Excluded are areas above specific dams or above long standing naturally impassable barriers.

The Proposed Project/Action would be constructed within an area of the Sacramento River designated as critical habitat for spring-run Chinook salmon.

Central Valley Steelhead

NMFS recently designated critical habitat for Central Valley steelhead. Critical habitat is designated to include all river reaches accessible to listed steelhead in the Sacramento and San Joaquin Rivers and their tributaries. Also included are river reaches and estuarine areas of the Sacramento-San Joaquin Delta, all waters from Chipps Island westward to the Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and Carquinez Straits, all waters of San Pablo Bay west of the Carquinez Bridge, and all waters of San Francisco Bay (north of the San Francisco/Oakland Bay Bridge) from San Pablo Bay to the Golden Gate Bridge. Excluded are areas of the San Joaquin River upstream of the Merced River confluence and areas above specific dams or above longstanding naturally impassable barriers.

The Proposed Project/Action would be constructed within an area of the Sacramento River designated as critical habitat for steelhead.

Sacramento River Winter-run Chinook Salmon

NMFS designated critical habitat for Sacramento River winter-run chinook salmon on June 16, 1993. Critical habitat is designated to include the Sacramento River from Shasta Dam to Chipps Island. Also included are all waters from Chipps Island westward to Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and Carquinez Straits, all waters of San Pablo Bay west of the

Carquinez Bridge, and all waters of San Francisco Bay (north of the San Francisco/Oakland Bay Bridge) from San Pablo Bay to the Golden Gate Bridge.

The Proposed Project/Action would be constructed within an area of the Sacramento River designated as critical habitat for winter-run Chinook salmon.

Delta Smelt

USFWS designated critical habitat for Delta smelt within the Sacramento-San Joaquin system on December 19, 1994. Specific areas identified as critical habitat for Delta smelt spawning include Barker, Lindsay, Cash, Prospect, Georgiana, Beaver, Hog, Sycamore Sloughs and the Sacramento River in the Delta, and the tributaries of northern Suisun Bay. Areas identified as critical habitat for Delta smelt rearing extend eastward from the Carquinez Straits, including Suisun, Grizzly, and Honker Bays, Montezuma Slough and its tributary sloughs, up the Sacramento River to its confluence with Three-Mile Slough, and south along the San Joaquin River including Big Break. The Sacramento River upstream of Sacramento (I Street Bridge), including the area in the vicinity of the proposed intake, is not located within the area designated as critical habitat by USFWS for Delta smelt.

Green Sturgeon

Green sturgeon has been listed by NMFS as a threatened species under FESA. The NMFS designated Critical Habitat for the threatened green sturgeon on October 9, 2009. Regionally, Critical Habitat occurs in riverine habitat in the Sacramento River, lower Feather River, lower Yuba River, the Sacramento-San Joaquin Delta, Suisan Bay, San Pablo Bay, and San Francisco Bay.

The proposed intake is located within habitat designated as Critical Habitat for green sturgeon.

State Regulations

California Endangered Species Act (CESA)

Pursuant to the California Endangered Species Act and Section 2081 of the California Fish and Game Code, a permit from the DFG is required for a project that could result in the take of a state-listed threatened or endangered species (i.e., species listed under CESA). Under CESA, the definition of “take” includes an activity that would directly or indirectly kill an individual of a species, but the state definition does not include “harm” or “harass,” as the federal definition does. As a result, the threshold for take under the CESA is typically higher than that under the FESA. Under CESA, DFG maintains a list of threatened species and endangered species (California Fish and Game Code 2070). The DFG also maintains two additional lists: (1) a list of candidate species that are species DFG has formally noticed as being under review for addition to either the list of endangered species or the list of threatened species; and (2) a list of “species of special concern,” these lists serve as “watch lists.”

Consistent with the requirements of CESA, a state agency reviewing a project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the

project area and determine whether the Proposed Project/Action would have a potentially significant impact on such species. To initiate this process, a letter shall be submitted to DFG describing the project, state-listed species potentially affected, proposed avoidance and minimization measures for the species, and request for concurrence that the project would not result in take of state listed species. Ultimately it is DFG's responsibility to determine whether take of the species would occur or not. If DFG determines that take would not occur, then a consistency determination (pursuant to Fish and Game Code 2080.1) or application for a take permit (pursuant to Fish and Game Code 2081) would be required.

California Fish and Game Code

The California Fish and Game Code protects a variety of species from take. Certain species are considered *fully protected*, meaning that the code explicitly prohibits all take of individuals of these species except for take permitted for scientific research. Section 5050 lists fully protected amphibians and reptiles, Section 5515 lists fully protected fish, Section 3511 lists fully protected birds, and Section 4700 lists fully protected mammals. It also is possible for a species to be protected under the California Fish and Game Code, but not fully protected.

Eggs and nests of all birds are protected under Section 3503, nesting birds (including raptors and passerines) under Sections 3503.5 and 3513, and birds of prey under Section 3503.5. Migratory nongame birds are protected under Section 3800, and other specified birds under Section 3505.

California Native Plant Protection Act

The California Native Plant Protection Act of 1977 (Fish and Game Code Sections 1900–1913) is intended to preserve, protect, and enhance endangered or rare native plants in California and gives the DFG authority to designate state endangered, threatened, and rare plants and provides specific protection measures for identified populations. The Act also directs the California Fish and Game Commission to adopt regulations governing taking, possessing, propagation, and sale of any endangered or rare native plant.

Waters of the State

The State's authority to regulate activities in "waters of the U.S." is primarily with the DFG and the SWRCB. DFG provides comments on Corps permit actions under the Fish and Wildlife Coordination Act. California Fish and Game Code Sections 1600-1616 require the notification of DFG for any activity that would obstruct the flow of, or alter the bed, channel, or bank of a river or stream in which there is a fish or wildlife resource, including intermittent and ephemeral streams. Upon notification, the DFG has the responsibility to prepare a Streambed Alteration Agreement, in consultation with the project proponent, that includes appropriate mitigation measures.

Under Section 401 of the Federal Clean Water Act, the SWRCB, acting through the appropriate RWQCB, must certify that an Corps permit action meets state water quality objectives.

Discharges to wetlands and "other waters of the state" are also subject to state regulation under the California Porter-Cologne Water Quality Control Act (Porter-Cologne; Ca. Water Code, Div. 7, §§ 13000–14958). Water Code section 13260 requires "any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the state to file a

report of waste discharge (Water Code § 13260(a)(1)). The term “waters of the state” is defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (Water Code § 13050(e)). Therefore, whether or not Corps has concurrent jurisdiction under Section 404 of CWA, the SWRCB and RWQCB have jurisdiction to regulate waters of the state by issuing Waste Discharge Requirements or waivers thereof.

Oak Woodlands Conservation Act

California State Senate Bill 1334, the Oak Woodlands Conservation Act, became law on January 1, 2005 and was added to the CEQA statutes as Public Resources Code section 21083.4. This statute requires that a county must determine whether or not a project will result in a significant impact on oak woodlands and, if it is determined that a project may result in a significant impact on oak woodlands, then the County shall require one or more of the following mitigation measures:

1. Conserve oak woodlands through the use of conservation easements;
2. Plant an appropriate number of trees, including maintenance of plantings and replacement of failed plantings;
3. Contribute funds to the Oak Woodlands Conservation Fund for the purpose of purchasing oak woodlands conservation easements;
4. Other mitigation measures developed by the county.

Local Regulations

Yolo County 2030 Countywide General Plan

The Yolo County 2030 Countywide General Plan (adopted in 2009) includes a Conservation and Open Space Element containing goals and policies designed to protect natural resources in perpetuity for the benefit of current and future residents. These resources include water, woodlands, soils, lakes, rivers, fisheries, wildlife, and minerals. The conservation and open space goals and policies provide management guidance for biological resources that may occur in unincorporated lands within the project area.

3.7.3 Environmental Consequences

Significance Criteria

Significance criteria for this analysis were adapted from the CEQA Checklist, Appendix G of the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Appendix G). The following criteria have been established to quantify the impact of an adverse effect. An impact would exceed an impact threshold if the project would:

- Result in an adverse impact, either directly or through habitat modifications, any endangered, rare, or threatened species, as listed in Title 14 of the California Code of Regulations (Sections 670.2 or 670.5) or in Title 50, Code of Federal Regulations (Sections 17.11 or 17.12).
- 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 Game or U.S. Fish and Wildlife Service.

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

Impacts related to joint use operations with the WDCWA have been analyzed in the Draft Biological Assessment, and modeled in the 2007 DWWSP EIR, and 2011 DWWSP EIR Addendum, which found that there would be no detectable change to aquatic conditions as a result of the Proposed Project/Action (City of Davis, 2007; WDCWA, 2011). Therefore, there is no change in operations related to the use of water that requires analysis.

Impact Evaluation

No Action Alternative

Under the No Action Alternative, the existing intake would remain in place and would have no effect on special-status plants and animal species when compared to existing conditions. Existing habitat would not be subject to temporary disruption and permanent loss by re-grading, filling, or abandoning existing infrastructure. The continued unscreened diversion of water from the Sacramento River would potentially entrain resident and migratory fish species and salmonid species and would not provide for the long-term improvement of the aquatic habitat along the Sacramento River.

Proposed Project/Action Alternative

Impact 3.7-1: The Project could adversely affect some species identified as endangered, rare, or threatened by DFG, USFWS, or NMFS either directly or through habitat modification. (Less than Significant with Mitigation)

Fish Species

Construction Impacts

The reach of the Sacramento River, extending from the proposed construction area of the project area extending approximately 1,000 feet downstream of the diversion/intake site, was considered for impacts resulting from construction-related turbidity and sediment increases. The immediate vicinity of the intake/diversion structure was analyzed for all other potential issues under this impact. The

Proposed Project/Action would involve work within the Sacramento River; therefore, special-status species to consider in this habitat are the threatened North American green sturgeon (Southern DPS), threatened Central Valley steelhead, threatened Central Valley spring-run Chinook salmon, and endangered Sacramento River winter-run Chinook salmon, and the threatened delta smelt.

Construction of a surface water diversion in the Sacramento River has the potential to adversely impact various fish species and their habitats through increased levels of turbidity and suspended solids, loss of habitat, and direct mortality during cofferdam installation and dewatering activities.

In-water construction activities would take place during the construction period that will impact the least number of individuals of special-status fish. As **Table 3.7-4** indicates, there is no period of time for cofferdam construction that would completely avoid potential effects on salmonids.

**TABLE 3.7-4
PRESENCE OF SALMONID FISH SPECIES IN VICINITY OF PROPOSED INTAKE**

Salmonid Run	Life Stage	Presence In Vicinity of Proposed Intake					
		Apr and May	May and Jun	Jun and Jul	Jul and Aug	Aug and Sep	Sep and Oct
Spring run Chinook	Juvenile						
	Adult						
Winter run Chinook	Juvenile						
	Adult						
Fall run Chinook	Juvenile						
	Adult						
Late-Fall Run Chinook	Juvenile						
	Adult						
Steelhead	Juvenile						
	Adult						

Shaded areas represent presence of fish in the vicinity of the diversion/intake siting options. Density and number of fish may vary.

SOURCE: Vogel & Marine, 1991

All Chinook salmon runs would be present in the vicinity of the diversion/intake site during the June through August periods. However, these periods would have lower abundances of fish relative to other periods (Vogel and Marine, 1991). Therefore, construction during the June through August period would cause the least disturbance to salmonid runs and lifestages.

To minimize adverse effects of constructing the intake, installing the cofferdam and other in-water work will be limited to the period of June 1 to October 1; however, with NMFS approval, the work period may be extended through November 1. This period coincides with when Central Valley steelhead, Chinook salmon, and delta smelt are least likely to be present in the vicinity of the project area (Table 3.7-4). Green sturgeon, however, may occur in the project area on a year-round basis. The construction of the joint intake facility would require placement and removal of a sheet-pile cofferdam to isolate the work site from the rest of the river. This would result in a temporary localized disturbance with minor siltation of the water. Increased sedimentation may cause reduced survival of eggs or alevins, reduce primary and secondary river productivity,

interfere with feedings, cause behavioral avoidance, and cause a breakdown of social organization to native species downstream of the discharge area.

Effects of Pile Driving

Installation of sheet piles and beams during construction of the cofferdam would be performed using a vibrating method, with sheet piling installation occurring on a continuous basis for up to 4 weeks. Both vibratory and percussion hammers produce sound waves that can be perceived by fish. Based on studies of the use of sound as a potential barrier to fish movement (Hanson, 1996), salmonid behavioral responses to sound are inconsistent. There is some potential for fish to avoid the side of the river in response to pile driving. Vibrating hammers do not produce sound pressure levels at the 180 db pressure level that would result in damage and increased mortality to fish.

In the event that river bottom substrate does not allow installation of sheet piles and beams using the vibrating technique, limited use of a percussion hammer would be required. The percussion hammer would produce underwater sound pressure levels that would potentially affect salmonid behavior and physiology. The bottom substrate is expected to be relatively soft, based on results of core sampling at the site and similar substrate conditions encountered during installation of the cofferdam during construction of the RD 108 fish screen. Based on these conditions, it is expected that a relatively small percussion hammer would be used and underwater sound pressure levels would be less than the 180 db pressure level that would result in damage and increased mortality to fish.

The percussion hammer, if needed for cofferdam installation, would be used on an intermittent and short duration basis. Use of the percussion hammer would be minimized to the maximum extent possible. However, depending on the seasonal period of cofferdam installation, there is the probability that juvenile and/or adult salmonids would be in the area and would be affected by exposure to elevated underwater sound pressure levels. Given the limited and intermittent use of the percussion hammer, the relatively soft bottom substrate, and the rapid attenuation of sound in water, the area of potential affect is expected to be small and the magnitude of potential adverse effects is expected to be low. Impacts would be less than significant.

Effects of Increased Turbidity and Suspended Sediments

Increased sedimentation rates could result if fine sediment is discharged to the Sacramento River during project construction. Increased sedimentation may adversely affect water quality and channel substrate composition. Specific rates of sedimentation are dependent upon the duration, volume, and frequency at which sediments are contributed to the surface water flow. Substantial sedimentation rates may smother fish eggs and fish food (i.e., benthic invertebrates) and degrade spawning habitat. Furthermore, suspended sediments increase the turbidity of the water. High rates of turbidity can result in direct mortality or deleterious sublethal effects (e.g., gill abrasion, decreased visibility during foraging) to fish. Construction of the cofferdam would divert water from around work in the actively flowing channels. This would reduce the potential for sediment or other pollutants to enter the waterways and to impact downstream resources during active construction.

Following cofferdam construction, the area behind the cofferdam would be dewatered. The only mechanism for creation of turbidity and suspended sediments during construction is

therefore the driving of pilings to support the installation of the cofferdam. The period of increased turbidity would be limited to the period of installation of the cofferdam, which is expected to occur in a period of about four weeks.

Driving pilings creates vibrations at the edge of the pilings as they enter the sediment, causing displacement of sediment and re-suspension of fines. This occurs at the surface of the channel bottom, where a narrow stream of fine sediments may be re-suspended. Heavier sediments would be re-suspended no more than several inches, and are expected to fall back out of suspension within less than 100 feet. Based on studies of similar construction activities the area with increases in turbidity and suspended sediments would be no larger than 100 feet wide and 1,000 feet (300 meters) long. Coarser sediments would be a very small portion of the sediment plume and suspended sediment levels would not exceed ambient suspended sediment levels outside this small area. Due to the small area affected, there would be no adverse impact to ambient water quality.

Increased turbidity and suspended sediments would occur intermittently during construction of the cofferdam; water quality conditions would be expected to return to background levels within hours after construction activity is completed. These short-term increased turbidity and suspended sediment concentrations would have the potential to adversely affect protected fish species. This would be a potentially significant impact. This would include potential migration of winter-run Chinook salmon through critical habitat within the project area, and EFH for salmon, depending on the seasonal period when site preparation and installation/removal of the cofferdam occurs.

Because site preparation and installation of the cofferdam are most likely to occur during periods of reduced flows in the Sacramento River, the likelihood of adverse affects to winter-run, spring-run, and fall-run Chinook fry migration, critical and essential fish habitat and steelhead migration would be low. The vulnerable life-stages of these species would not be in the river system during this time. The fish present would be large and unlikely to be affected by the Project Action. Spring-run and fall-run Chinook salmon and juvenile steelhead may occur in the project area during the spring and would potentially be exposed to increased suspended sediment concentrations.

As previously discussed, the turbidity plume resulting from site preparation would not be expected to extend across the entire Sacramento River, but rather the plume would be expected to extend downstream from the site along the edge of the channel. As a result of the limited distribution of the plume within the river, salmonids would have the opportunity to readily avoid the plume during either upstream or downstream migration.

The projected localized increase in turbidity during portions of the construction periods may result in short-term (hours or days) changes in behavior or distribution of salmonids within the immediate vicinity of the site but would not be expected to have adverse effects such as mortality or blockage of migration on special-status salmonids. The suspended sediment and turbidity concentrations and duration of exposure for Chinook salmon or steelhead in the Sacramento River during cofferdam installation would be expected to be substantially below levels that would result in adverse effects. Mitigation Measures 3.7-1a and 3.7-1b would reduce impacts related to sedimentation and turbidity during construction to less than significant.

Loss of Habitat

The construction of temporary cofferdams and the diversion/intake structure would remove up to 0.83 acre of aquatic habitat along banks of the river. Although various special-status fish species are present seasonally in the area, the habitat found at this portion of the Sacramento River is not unique and is characterized by levees stabilized with riprap and lacking in emergent vegetation, a relatively deep, high velocity channel, and silt and sand substrate. The area is not used as spawning habitat by salmonids. Juvenile Chinook salmon and steelhead use the area as a migratory corridor and juvenile foraging area during downstream migration. Juvenile and adult salmon and steelhead would continue to utilize the Sacramento River as a migratory corridor.

Given the presence of riprap and a lack of submerged aquatic and emergent vegetation cover habitat, the area of channel where the facility would be placed would not be considered to have favorable rearing habitat quality for salmon or steelhead; in addition, there are smallmouth and largemouth bass in the river, which are non-native warm water predators on juvenile salmonids. Use of the channel with its lack of cover habitat under present conditions does not provide any advantages to juvenile salmonids and carries high risk of predation. The net value of the channel lost due to the Proposed Project/Action therefore would be low.

A new vertical fish screen in this reach of the river would not reduce movement in the migration corridor and the difference in habitat quality between the riprapped and unvegetated channel margin and a fish screen would be minor. The change in habitat is not likely to adversely affect Chinook salmon or steelhead populations, critical habitat for winter-run Chinook salmon (or pending critical habitat for spring-run Chinook salmon and Central Valley steelhead). Implementation of Mitigation Measure 3.7-1c would reduce these effects to less than significant.

Other Impacts from Diversion Construction

Fish, including adult and juvenile salmonids, may be stranded behind the cofferdam following initial construction and at any time when high river flows would overtop the cofferdam. Fish stranded behind the cofferdam would be rescued (netted) and returned to the river. A Fish Rescue Plan is provided in Appendix B. The life history stage affected during the initial closing of the cofferdam would depend on construction timing. The preferred timing for construction of the cofferdam would be during low-flow periods in the fall (July-September).

Construction during this time period would have the greatest effect on winter-run Chinook salmon juveniles rearing and migrating through the reach of the Proposed Project/Action. Early spring cofferdam construction schedules would shift effects to spring-run Chinook salmon juveniles, fall-run/late-fall-run Chinook salmon juveniles, and winter run Chinook salmon adults. Adults on their spawning runs may be stranded, but large adult fish can be more readily removed from the cofferdam area during dewatering.

Although salmonids typically respond well to handling, there could be incidental injury and death to individuals of the various salmonid species as a result of handling; it is also probable that the rescue program would not capture and release every juvenile. Depending on the season when the cofferdam would be installed, some minor but unquantifiable loss of salmonids due to stranding would be probable due to high water overtopping of the coffer dam. In addition, depending of the

stage of project construction, construction structures may prevent implementation of a fish rescue or limit its effectiveness. This would be an adverse direct effect. Implementation of Mitigation Measures 3.7-1b and 3.7-1d would reduce these impacts to less than significant.

During cofferdam construction, eggs, larvae, and adults of non-salmonid fish species may be adversely affected. These effects would occur as a result of an initial stranding behind cofferdams and subsequent injury or death during fish rescue operations. Stranding could occur following cofferdam construction, if flows were high and the cofferdams were overtopped; however, the frequency of such effects is unpredictable. Implementation of Mitigation Measures 3.7-1b and 3.7-1d would reduce impacts to non-salmonid fish species to less than significant.

Given the overall benefit to fish as a result of the Proposed Project/Action, as well as the use of a cofferdam, a fish salvage requirement for dewatered work sites, the localized and minimal in-river disturbances, the replacement of shallow aquatic habitat, and limiting in-water work to a period when fish will least likely be in the area, the Proposed Project/Action is expected to result in minimal impacts to the Sacramento River fisheries. Implementation of mitigation Measures 3.7-1a 3.7-1d would reduce construction-related adverse impacts to fish to less than significant.

Mitigation Measures

Mitigation Measure 3.7-1a: Implementation of a SWPPP including erosion control measures and BMPs for construction activities would reduce potential impacts to special-status fisheries species and habitat resulting from sedimentation and turbidity during construction of the screened joint intake facility and removal of the existing pump station. The following water quality protection measures shall be implemented:

- All instream construction activities will be limited to the low-flow period between June 1 through October 1, except if an extension through November 1 is approved by NMFS.
- Sediment curtains will be placed around the construction or maintenance zone to prevent sediment disturbed during trenching activities from being transported and deposited outside of the construction zone.
- Silt fencing will be installed in all upland areas where construction occurs within 100 feet of known or potential steelhead habitat.
- Fresh concrete will be isolated from wetted channels for a period of 30 days after it is poured. If a 30-day curing period is not feasible, a concrete sealant as approved by USFWS, NMFS, and DFG may be applied to the surfaces of the concrete structure. If a sealant is used, the manufacturer's guidelines for drying times will be followed before reestablishing surface flows within the Work Area.
- Spoil sites and other debris areas such as concrete wash sites will be located so they do not drain directly into the Sacramento River. If a spoil site drains into the Sacramento River, catch basins will be constructed to intercept sediment before it reaches the channel. Spoil sites will be graded to reduce the potential for erosion.

Mitigation Measure 3.7-1b: Installation of the cofferdam for construction of the intake structure is expected to result in short-term increases in local suspended sediment concentrations that may affect the distribution and behavior of sensitive fish species and their habitat. To avoid and minimize these impacts, site preparation and installation of the

sheet pile cofferdam will occur from June 1 to October 1 (but may be extended to November 1 with approval by NMFS).

Mitigation Measure 3.7-1c: To offset the permanent loss of 0.83 acre (675 linear feet) of shaded riverine aquatic habitat (shallow water habitat) due to installation of the joint intake facility, off-site mitigation habitat shall be purchased using at least a 1:1 ratio from an approved conservation bank.

Mitigation Measure 3.7-1d: Installation of a cofferdam and dewatering may result in stranding and the loss of protected fish and other aquatic species. RD 2035 will ensure that a qualified fisheries biologist will design and conduct a fish and wildlife rescue and relocation effort to collect fish and other wildlife species from the area within the cofferdam involving the capture and return of those animals to suitable habitat within the Sacramento River. To ensure compliance, a fisheries biologist shall provide observation during initial dewatering activities within the cofferdam. The fish rescue plan will be approved by NMFS, USFWS, and DFG prior to cofferdam installation and dewatering.

Impact Significance After Mitigation: Less than significant.

Operational Impacts

Operation of the intake facility has the potential to directly and indirectly impact fishery resources and aquatic habitat within the Sacramento River and Delta by entrainment of fish eggs and larvae that are not effectively excluded from the intake by the positive barrier fish screen. Operation of the positive barrier fish screen, designed and operated in accordance with DFG, NMFS, and USFWS criteria, would minimize entrainment and impingement of juvenile, sub-adult, and adult fish at the new intake. Operating staff would inspect and repair the facility, as needed to meet criteria, and would maintain a stock of replacement screens that would be installed rapidly in case repair is needed. Long-term operation is therefore expected to be reliable; periods of non-function would be brief. Given that approach velocities to the screen would be low (the maximum screen approach velocity would be 0.33 foot/second), the net effect on fish swimming behavior in the vicinity of the diversion is predicted to be insignificant. In addition, the fish screen would provide only minimal cover for ambush predators such as bass. Typically, the performance of a positive barrier fish screen is expected to reduce entrainment and impingement of fish and macroinvertebrates by 95 percent or more when compared to the existing unscreened diversion (City of Davis, 2007).

Fish exposure to screens may cause injury and may affect swimming behavior, resulting in increased vulnerability to predation. NMFS and DFG approach velocity criteria have been incorporated into the fish screen design to minimize changes in swimming behavior and fish contact with the screen. In addition, screens have been designed to present a non-abrasive surface to fish that may come in contact with them. The low approach velocities provided by the screen would offset some of these effects. The fish screen has been designed to have a smooth exterior surface and upstream and downstream transition areas that reduce or eliminate areas where juvenile salmonids are concentrated or disoriented to reduce the risk of predation, as well as to reduce or eliminate structural locations offering cover for ambush predatory fish such as bass.

As part of fish screen operations and maintenance, an automatic screen cleaning system, consisting of a brush, would be installed to reduce debris accumulations and help maintain uniform approach velocities over the screen surface, thereby avoiding turbulence and “velocity hot spots”, which increase the vulnerability of fish to localized impingement on the screen surface. The screen cleaning system would continue to function throughout Project operations.

Although it is unlikely that salmonid eggs and larvae would be present in the vicinity of the intake facility, screen operations would reduce the entrainment of larval stages and adults consistent with the NMFS or DFG requirements. Larvae and juveniles of non-salmonid species are likely to occur in the substrate or water column for most of the year. The potential vulnerability of fish species having planktonic eggs or larvae may result in some entrainment of these early lifestages into the water diversion. With respect to Delta smelt, losses due to entrainment are expected to be minimal because this species rarely utilizes this stretch of the Sacramento River (CDWR, 2009) and they predominantly reside offshore in deeper, open water habitat. Entrainment is anticipated to occur at very low levels. Impacts therefore would be considered less than significant.

Mitigation: None required.

Valley Elderberry Longhorn Beetle

Construction Impacts

Twelve elderberry shrubs are located just outside the limits of work, but within the project area, along the south side of RD 2035 main canal. The USFWS considers shrubs located within 100 feet of a project as potentially impacted. Ten shrubs are located within 100 feet of the limits of work and therefore have the potential to be impacted by the Proposed Project/Action. Direct impacts to elderberry shrubs include damage, pruning, and/or removal of shrubs during the course of construction activities. Temporary dewatering activities during construction may cause mortality of individual shrubs, especially if long dewatering periods are required to construct the intake facility. (See discussion of dewatering in Section 3.6 Water Resources). Significant impacts to VELB may occur during construction of the intake facility.

Incorporation of Mitigation Measure 3.7-1e would reduce this impact to a less-than-significant level.

Mitigation Measure

Mitigation Measure 3.7-1e: In order to avoid potential direct and indirect impacts to VELB, the following conservation measures will be implemented based upon the USFWS’s Conservation Guidelines for Valley Elderberry Longhorn Beetle.

- Fence and/or flag all areas to be avoided during construction activities as directed or approved by a USFWS approved biologist. In areas where encroachment on the 100-foot buffer has been approved by the USFWS, provide a minimum setback of at least 20 feet from the dripline of each elderberry plant.

- Brief contractors on the need to avoid damaging the elderberry plants and the possible penalties for not complying with these requirements.
- Erect signs every 500 feet along the edge of the avoidance area with the following information: “This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines and imprisonment.” The signs should be clearly readable from a distance of 20 feet, and must be maintained for the duration of construction.
- Instruct work crews about the status of the beetle and the need to protect its elderberry host plant.
- Implement dust control measures in areas where work is within 100 feet of an elderberry shrub.
- Restore any temporary damage done to the buffer area (area within 100 feet of elderberry plants) during construction. Provide erosion control and re-vegetate with appropriate native plants as approved by DFG.
- Prevent the use of insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.
- Mowing of grasses/ground cover may occur from July through April to reduce fire hazard. No mowing should occur within five feet of elderberry plant stems. Mowing must be done in a manner that avoids damaging plants (e.g., stripping away bark through careless use of mowing/trimming equipment).

If direct impacts occur, all elderberry plants with one or more stems measuring 1.0 inch or greater in diameter at ground level must be transplanted to a conservation area as approved by USFWS. A qualified biologist (monitor) must be on site for the duration of transplanting of the elderberry plants to ensure that no unauthorized take of the valley elderberry longhorn beetle occurs. If unauthorized take occurs, the monitor must have the ability to stop work until corrective measures have been completed. Elderberry shrubs shall be transplanted when the plants are dormant, approximately November through the first two weeks of February, after they have lost their leaves. The planting area must be at least 1,800 square feet for each elderberry transplant. The root ball should be planted so that its top is level with the existing ground. Compact the soil sufficiently so that settlement does not occur. As many as five additional elderberry plantings (cuttings or seedlings) and up to five associated native species plantings may also be planted within the 1,800 square foot area with the transplant. The transplant and each new planting should have its own watering basin measuring at least three feet in diameter. The conservation area must be protected in perpetuity as habitat for valley elderberry longhorn beetle.

Impact Significance After Mitigation: Less than significant.

Operational Impacts

Proposed Project/Action operations would not affect elderberry shrubs located within 100 feet of the outlet structure.

Mitigation: None required.

Giant Garter Snake

Construction Impacts

Approximately 0.51 acre of potential GGS aquatic habitat and up to 0.22 acres of resting and hibernacula (i.e., upland) habitat would be adversely affected by the Proposed Project/Action (Table 3.7-5). Suitable aquatic habitat in the project area is located within the RD 2035 main canal where the outfall structure would be constructed. The outfall structure would permanently remove potential GGS aquatic habitat. Aquatic habitat includes slow-moving water with emergent vegetation, including cattails and bulrush. Canopy cover is moderate to high (i.e., greater than 50%) in this area. Temporary impacts would result during general construction activities in surrounding grassland habitat.

**TABLE 3.7-5
SUMMARY OF GGS IMPACTS**

Habitat Type	Acres
Aquatic (permanent)	0.51
Upland (temporary)	0.22

With known populations of GGS occurring in close proximity and in the same canal system (DFG, 2011), there is a moderate to high potential the project area may be used by GGS for foraging, nesting, and/or over wintering. Implementation of Mitigation Measures 3.7-1f - 3.7-1h would reduce potential impacts to a less than significant level.

Mitigation Measures

Mitigation Measure 3.7-1f: Prior to their use, proposed staging and spoils storage areas shall be surveyed for the presence of GGS habitat. If GGS habitat is identified, implement Mitigation Measures 3.7-1h and 3.7-1i

Mitigation Measure 3.7-1g: The following mitigation measures would be implemented to avoid impacts to potential GGS movement corridors. These mitigation measures are in accordance with the USFWS programmatic biological opinion for GGS and pertain to Level 3 impacts, which are those where (a) there is a permanent loss of less than 3 acres of both aquatic and upland habitat for GGS; (b) there is a permanent loss of less than 1 acre of aquatic habitat for GGS; (c) there is a permanent loss of less than 218 linear feet of bank habitat; and (d) temporary disturbances are less than 20 acres and would occur over greater than 2 seasons.

- Construction activity within GGS habitat shall be limited to between May 1 and October 1, which is the active period for the snake. Activities proposed to occur between October 2 and April 30 must be approved by the USFWS Sacramento Fish and Wildlife Office. During this consultation a determination will be made as to whether additional measures are necessary to minimize and avoid take. Such measures might include but are not limited to requiring a biological monitor on site during construction when activities occur within GGS habitat.
- Any dewatered habitat must remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat.

- Construction personnel shall participate in a USFWS-approved worker environmental awareness program. Under this program, workers shall be informed about the presence of GGSs and habitat associated with the species and that unlawful take of the animal or destruction of its habitat is a violation of the Act. Prior to construction activities, a qualified biologist approved by the USFWS shall instruct all construction personnel about GGS as directed in the USFWS programmatic biological opinion for GGS (USFWS, 1997). Proof of this instruction shall be submitted to the Sacramento Fish and Wildlife Office.
- Pre-construction surveys for the GGS shall be conducted by a USFWS-approved biologist within 24 hours prior to ground disturbance. GGS encounters and field reports shall be addressed per the USFWS programmatic biological opinion for GGS.
- Clearing of wetland vegetation would be confined to the minimal area necessary to excavate toe of bank for riprap or fill placement. Excavation of channel for removal of accumulated sediments would be accomplished by using equipment located on and operated from top of bank, with the least interference practical for emergent vegetation.
- Movement of heavy equipment to and from the project site shall be restricted to established roadways to minimize habitat disturbance.
- Preserved GGS habitat shall be designated as Environmentally Sensitive Areas and shall be flagged or fenced as approved by a USFWS-qualified biologist and avoided by all construction personnel.
- After completion of construction activities, any temporary fill and construction debris shall be removed and, wherever feasible, disturbed areas shall be restored to pre-project conditions. Restoration work may include replanting emergent vegetation as directed in the USFWS programmatic biological opinion for GGS.
- If project activities continue for more than two seasons with temporary impacts then 3:1 ratio of replacement (or restoration plus 2:1 replacement) would be required. In the event of any permanent loss, a 3:1 habitat replacement ratio would be required (per the criteria listed in the USFWS programmatic biological opinion for GGS).
- All wetland and upland acres created and provided for the GGS shall be protected in perpetuity by a USFWS-approved conservation easement or similarly protective covenants in the deed and comply with provisions in the USFWS programmatic biological opinion for GGS.
- The Reporting Requirements shall be fulfilled in compliance with the USFWS programmatic biological opinion for GGS.

Mitigation Measure 3.7-4h: The following measures shall be implemented to compensate for Level 3 impacts to GGS to offset adversely affected habitat:

- Replacement of affected GGS habitat at a 3:1 ratio.
- All replacement habitat shall include both upland and aquatic habitat components. Upland and aquatic habitat components must be included in the replacement habitat at a ratio of 2:1 upland acres to aquatic acres.
- If restoration of habitat is a component of the replacement habitat: one year of monitoring restored habitat with a photo documentation report due one year from implementation of the restoration with pre- and post-project area photos.
- Five years of monitoring replacement habitat with photo documentation report due each year.

Impact Significance After Mitigation: Less than significant.

Operational Impacts

Proposed Project/Action operations would not have substantial adverse affects on GGS.

Mitigation: None required.

Swainson's Hawk

Construction Impacts

Suitable nesting habitat is found adjacent to the Sacramento River and within RD 2035 main canal where the proposed pump station and outfall would be constructed. Habitat in this area includes riparian woodlands with large diameter (i.e., greater than 30 inches diameter at breast height) valley oak, cottonwood and black willow (*Salix goodingii*). These overstory trees provide moderate to high (i.e., greater than 50%) canopy closure in this area. With records of Swainson's hawk nests occurring within one mile of the project area along the Sacramento River (DFG, 2011), there is a moderate to high potential this area may be used by Swainson's hawk for nesting. Approximately 0.23 acres of riparian habitat would be modified or eliminated by the Proposed Project/Action. Implementation of Mitigation Measures 3.7-1i - 3.7-1k will reduce potential impacts to less than significant.

The proposed staging and spoils storage areas have been identified as foraging habitat for Swainson's hawk. This temporary loss (two seasons) is considered less than significant.

Mitigation Measures

Mitigation Measure 3.7-1i: Prior to their use, proposed staging and spoils storage areas shall be surveyed to assess Swainson's hawk nesting habitat prior to construction. If nesting trees are located within the vicinity, implement Mitigation Measures 3.7-1j and 3.7-1k.

Mitigation Measure 3.7-1j: The following mitigation measures will be implemented to limit potential take and harassment of Swainson's hawk during construction:

- If feasible, trees required for removal shall be removed outside of the nesting period, March 1st through August 31st.
- If construction (including tree removal) is proposed to take place during the nesting season, then a qualified biologist shall survey the project area and all habitats within 0.5 mile of the site for Swainson's hawk nests. Should an active nest site occur within 0.5 mile of the project area, the DFG shall be consulted to develop measures that will protect the nest site from project-generated disturbance. Measures may include implementing a limited operating period surrounding the nest site until young have fledged.
- If construction is proposed to take place during the nesting season, then a qualified biologist shall survey the project site and all habitats within 0.5 mile of the site for Swainson's hawk nests. Should an active nest site occur within 0.5 mile of the project site, the DFG shall be consulted to develop measures that will protect the nest site from

project-generated disturbance. Measures may include implementing a limited operating period surrounding the nest site until young have fledged.

- There shall be no encroachment by construction equipment or personnel into existing riparian habitat areas located outside of the designated construction area and along the Sacramento River. Storage, parking and refueling of equipment shall be restricted to the identified work area (SHTAC, 2000).

Mitigation Measure 3.7-1k: In order to offset the temporary disturbance of riparian habitat, a vegetation mitigation plan will be developed for submittal to and approval by DFG. The plan shall contain species expected to be found in the vicinity of the project area. Details about the species and their past occurrence shall be included in the plan. RD 2035 shall comply with all terms of conditions for approval, including additional mitigation provisions to be implemented.

Impact Significance After Mitigation: Less than significant.

Operational Impacts

Proposed Project/Action operations would not have substantial adverse affects on Swainson's hawk.

Mitigation: None required.

Impact 3.7-2: The Proposed Project/Action could adversely affect some species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the DFG, USFWS, or NMFS either directly or through habitat modification. (Less than Significant with Mitigation)

Nesting Birds

Construction Impacts

Potential nest sites for sensitive bird species may be directly or indirectly affected by project construction. These species include: Cooper's hawk, great egret, great blue heron, red-tailed hawk, and white-tailed kite. In addition, other nesting birds such as migratory birds protected by the Migratory Bird Treaty Act may also be adversely affected by the Proposed Project/Action. Implementation of Mitigation Measure 3.7-2a as well as Mitigation Measures 3.7-1i- 3.7-1k will reduce adversely affected habitat to less than significant.

Mitigation Measure

Mitigation Measure 3.7-2a: Implement all mitigation measures listed for the Swainson's hawk (Mitigation Measures 3.7-1i - k). Pre-construction avian surveys shall also identify the presence of other raptors, rookeries, and migratory songbird nests. Should active nests be found within 0.25 mile of the project area, a 50-foot no work buffer for songbirds and a 500-foot no work buffer for raptors will be established. The DFG will be consulted to

ensure that the measures are adequate. No work will occur within the buffer zone until a qualified biologist deems the nest(s) are inactive and / or the young have fledged.

Impact Significance After Mitigation: Less than significant.

Operational Impacts

Proposed Project/Action operations would not have substantial adverse affects on other sensitive nesting birds.

Mitigation: None required.

Western Pond Turtle

Construction Impacts

Moderate to low quality habitat for the western pond turtle occurs within the RD 2035 main canal and near the shores of the Sacramento River. Potential impacts to this species would be similar to those described for the GGS; that is a loss of foraging, overwintering, and nesting habitat.

Implementation of Mitigation Measures 3.7-1f through 3.7-1h will reduce potential impacts to less than significant.

Mitigation Measure

Mitigation Measures 3.7-1f through 3.7-1h: Implement all mitigation measures listed for the GGS. Biological monitors present during construction shall also monitor for western pond turtles in the project area.

Operational Impacts

Proposed Project/Action operations would not have substantial adverse affects on western pond turtle.

Impact Significance After Mitigation: Less than significant.

Impact 3.7-3: The Proposed Project/Action would have other substantial adverse effects on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, or regulations or by the DFG or USFWS. (Less than Significant with Mitigation)

Construction Impacts

Sensitive natural communities that occur in the project area include riparian forest and valley oak woodland. Both communities provide habitat for a range of terrestrial wildlife species, including several species of songbirds, small mammals, mesocarnivores, and herpetofauna. Up to 0.23 acres of riparian habitat could be adversely affected by implementation the Proposed Project/Action.

The potential impact includes temporary disturbance and permanent displacement. Valley oak

woodland is outside the project area and therefore adverse impacts to this habitat type are not expected.

Diversion, intake, and outlet structures would be constructed within the Sacramento River and the RD 2035 main canal and along their associated banks and would directly impact riparian habitats associated with these areas. Dewatering of RD 2035 main canal could also temporarily affect additional riparian vegetation growing along the canal banks, depending on the length of time necessary to complete in-channel work and the season of construction. Indirect impacts to riparian vegetation may occur under unanticipated circumstances, which would result in adverse impacts to riparian resources such as disturbance during cleanup operations.

Implementation of Mitigation Measures 3.7-1f through 3.7-1h (giant garter snake) and 3.7-1k (Swainson's hawk) will reduce this impact to less than significant by purchasing conservation credits from an approved bank and restoring temporarily disturbed habitat. Because habitats purchased with these credits will be in-kind, this impact is reduced to a less-than-significant level.

Impact Significance After Mitigation: Less than significant.

Operational Impacts

Proposed Project/Action operations would not have substantial adverse effects on riparian habitat.

Mitigation: None required.

Impact 3.7-4: The Proposed Project/Action may have substantial adverse effects on federally protected waters as defined by Section 404 of the CWA through direct removal, filling, hydrological interruption, or other means. (Less than Significant with Mitigation)

Construction Impacts

The construction of the intake facility and outlet structure would result the permanent fill of jurisdictional features including the Sacramento River and RD 2035 main canal. Approximately 0.83 acres of riverine habitat (675 linear feet) and approximately 0.51 acres of lacustrine habitat will be permanently impacted by construction of the intake facility and the outlet structure. Implementation of Mitigation Measure 3.7-4 would reduce potential impacts to jurisdictional waters to a less-than-significant level.

Mitigation Measure

Mitigation Measure 3.7-4: Prior to construction, RD 2035 shall obtain a Section 404 (Clean Water Act) permit for impacts to jurisdictional wetlands from the Corps, a 1600 Streambed Alteration Agreement from the DFG, and a Section 401 permit from the Regional Water Quality Control Board (RWQCB) and shall comply with all conditions of permits received. In association with either or both permits, compensatory mitigation for impacts to jurisdictional wetlands may be required. RD 2035 shall compensate for the unavoidable loss of wetlands at a ratio of no less than 1:1 in order to ensure no net loss of

wetland habitat. Corps mitigation guidelines emphasize on-site mitigation preference, but in the potential case that on-site mitigation is not available, RD 2035 shall either:

- Purchase wetland mitigation credits from an Corps approved mitigation bank that services the project area, or
- prepare a plan to implement mitigation at an off-site location in accordance with the Corps mitigation requirements.

Impact Significance After Mitigation: Less than significant.

Operational Impacts

Proposed Project/Action operations would not have any substantial adverse effects on federally jurisdictional habitats.

Mitigation: None required.

Impact 3.7-5 The Proposed Project/Action would not interfere substantially with the movement of any native resident or migratory fish or wildlife corridors, or impede the use of native wildlife nursery sites. (Less than Significant).

Construction of the Proposed Project/Action may have a temporary impact to the movements of some terrestrial wildlife during construction. In addition, salmonids and other fresh water fish species may be temporarily displaced during construction. However, construction of the Project would not result in any permanent barriers to species movement, and migratory corridors for fish and wildlife will be unaffected. Therefore, a less-than-significant impact is expected.

Impact 3.7-6: The Proposed Project/Action would not conflict with any local policies or ordinances protecting biological resources, such as a Habitat Conservation Plan, Natural Community Conservation Plan, tree preservation policy or ordinance, or other approved local, regional, or state conservation plan. (No Impact)

The Yolo County NCCP/HCP, also called the Yolo Natural Heritage Program, is currently undergoing development and review by participating parties, including DFG, USFW, Yolo County, and the cities of Davis and Woodland. The finalized plan would describe biological conservation and other measures that local agencies would perform, and would include a series of studies and surveys outlined by the Report of Independent Science Advisors (Spencer et al., 2006). This report stipulates that the NCCP/HCP for Yolo County should include the biological goals, geographic area, plan duration, species to be addressed, and actions to be permitted. Biological goals would include specific goals that address: (1) sustaining and restoring species and habitats that are necessary to maintain continued viability of biological communities impacted by human changes to the landscape, and (2) conserving, restoring, protecting, and enhancing natural communities.

Because the NCCP/HCP is still under development, including the definition of the HCP/NCCP plan area boundaries, and has not yet been finalized or adopted, it is uncertain whether the Proposed Project/Action would conflict with the conservation goals or policies outlined within the forthcoming NCCP/HCP. Because the only existing policy for to the Yolo County NCCP/HCP is related to impacts to Swainson's hawk foraging habitat, and impacts to Swainson's hawk associated with the Project would be limited to nesting habitat, conflicts with existing conservation-based policies contained in the Yolo County HCP/NCCP are not expected.

Mitigation: None required.

3.8 Cultural Resources

“Cultural resources” is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties, sites of religious and cultural significance, modified landscapes, etc. The National Historic Preservation Act (NHPA) (16 USC 470) of 1966 is the primary Federal legislation that outlines the Federal government’s responsibility to cultural resources. Federal agencies regularly use the NHPA Section 106 process to identify potential impact a proposed project may have on cultural resources. Cultural resources analysis is part of the NEPA impact analysis. Reclamation is using the Section 106 process to analyze impacts to potential cultural resources.

The NHPA of 1966 is the primary Federal legislation that outlines the Federal Government’s responsibility to cultural resources (16 USC 470). Section 106 of the NHPA requires the Federal Government to take into consideration the effects of an undertaking on cultural resources listed on or eligible for inclusion in the National Register of Historic Places (NRHP). Those resources that are on or eligible for inclusion in the National Register are referred to as historic properties.

The Section 106 process is outlined in the Federal regulations at 36 Code of Federal Regulations (CFR) Part 800. These regulations describe the process that the Federal agency (Reclamation) takes to identify cultural resources and the level of effect that the proposed undertaking will have on historic properties. In summary, Reclamation must first determine if the action is the type of action that has the potential to affect historic properties. If the action is the type of action to affect historic properties, Reclamation must identify the area of potential effects (APE), determine if historic properties are present within that APE, determine the effect that the undertaking will have on historic properties, consult with the State Historic Preservation Officer to seek concurrence on Reclamation’s findings, and seek to resolve any adverse effects through either avoidance, project modification, or mitigation through a Memorandum of Agreement.

The California Environmental Quality Act (CEQA) is the primary State statute that guides cultural resources considerations for actions involving State or local agencies. Similar to the NHPA the CEQA process seeks to identify cultural resources that are significant and are eligible for inclusion in the California Register of Historical Resources (CRHR) (PRC, Section 21084.1). The guidelines for considering impacts to cultural resources under CEQA are located in the CEQA guidelines Section 15064.5. If actions result in significant and unavoidable impacts to resources eligible for inclusion in the CRHR, these effects must be mitigated through prescribed procedures. According to the CEQA guidelines if a cultural resource is eligible for inclusion in the NRHP it is eligible for inclusion on the CRHR and a means of mitigating significant and unavoidable impacts under CEQA can be to resolve adverse effects to historic properties using the Section 106 process. General mitigation measures are provided in later in this section and would be incorporated into a Memorandum of Agreement (MoA) to resolve Adverse Effects to historic properties assuming such impacts are adverse or significant and unavoidable. By completing the Section 106 process you effectively satisfy all the steps and considerations for impacts to cultural resources for CEQA.

3.8.1 Affected Environment

Prehistory

Central California archaeology has been described as a series of patterns. Fredrickson (1973) defines pattern as an essentially non-temporal, integrative cultural unit - the general life way shared by people within a given geographic region. Specifically three such patterns which overlap somewhat in adjoining areas are recognized for central California: the Windmill, Berkeley, and Augustine Patterns.

The Windmill Pattern, which may represent the advent of early Penutian speaking populations extend from approximately 4,500 to 3,000 B.P. This pattern was focused primarily on the lower Central Valley and Delta regions, and reflects the influence of a lacustrine or marsh adaption. This economic stance may have preadapted them for the environment of the lower Sacramento-San Joaquin Valley and Delta and may have entered the region with this adaptation more or less fully developed.

The Berkeley Pattern extends roughly from 3,000 to 1,500 B.P. and became more widespread or at least more archaeologically visible than the antecedent complex. The Berkeley Pattern has a greater emphasis on the exploitation of the acorn as a staple. The Berkeley Pattern initially may represent the spread of protoMiwok and Costanoans, collectively known as Utians, from their hypothesized lower Sacramento Valley/Delta homeland.

The last complex in this sequence is the Augustine Pattern which extended temporally from circa 1,500 B.P. to European contact. Augustine initially appears to be largely an outgrowth of the Berkeley Pattern but may have become a blend of Berkeley traits with those carried into the state by the migration of Wintuan populations from the north (Moratto, 1984).

Ethnographic Background

The project area was once inhabited by the Patwin Indians, who held an extensive region within north-central California. Patwin territory included the lower portion of the west side of the Sacramento Valley west of the Sacramento River from about the location of the town of Princeton in the north to Benicia in the south (Kroeber, 1925). The Patwin were bounded to the north, northeast, and east by other Penutian-speaking peoples (the Nomlaki, Wintu, and Maidu, respectively), and to the west by the Pomo and other coastal groups. Within this large territory, the Patwin have traditionally been divided into River, Hill and Southern Patwin groups, although in actuality a more complex set of linguistic and cultural differences existed than is indicated by these three geographic divisions. Near the project area, the Patwin are believed to have reached the Carquinez/Suisun area by about 1,500 B.P. (Whistler, 1977; McCarthy, 1985).

As with most of the hunting-gathering groups of California, the “tribelet” represented the basic social and political unit. Typically, a tribelet chief would reside in a major village where ceremonial events were also typically held. The status of such individuals was inherited patrilineally among the Patwin, although village elders had considerable power in determining who actually succeeded

to particular positions. The chief's main responsibilities involved administration of ceremonial and economic activities. Such individuals often decided when and where various fishing, hunting or gathering expeditions would occur, and similarly made the critical decisions concerning the more elaborate ceremonial activities. He also played a central role in resolving conflicts within the community or during wars which occasionally broke out with neighboring groups. Apparently, a Patwin chief had more authority than his counterparts among many of the other central California groups (McKern, 1922; Kroeber, 1925).

The introduction of Euro-American culture brought the end of Patwin culture. By 1871–72, when Stephen Powers surveyed the state gathering ethnographic information, the Patwin culture appeared to him to be virtually extinct.

Historic Setting

After an epoch of exploration and colonization by the Spanish, Russians, and, later, Mexicans, the missionization of the indigenous population and the development of presidios and civilian ranchos and pueblos throughout California created unprecedented landscape and social change. The burgeoning secular influence on the political affairs of California in the 19th century led to the sale of lands to non-Hispanics by the early 1830s. John Sutter was one of the first to acquire lands near the Sacramento River, and, in 1839, established Sutter's Fort, a bellwether for the development of Sacramento.

The Sacramento Valley remained relatively isolated and sparsely populated until the advent of the Gold Rush period. But, with Sacramento's proximity to mining areas, and its accessibility to maritime traffic, the area quickly became a trading and economic center. The burgeoning commerce along the Sacramento River encouraged continued population growth, with many of the miners and farmers settling along the natural levees of the Sacramento River. The settlements recognized that the active flood plain deposited fertile soils in the lands nearest to the river, which supported bountiful crops and provided easy access to transportation corridors along the river itself. When floods continued to beset agricultural activities in the area, a comprehensive flood control plan was designed and implemented by 1912 and irrigation projects were initiated and continue to the present time.

In 1861, the California Legislature created the State Board of Reclamation Commissioners (Board). For the next two years, the Board formed a system of reclamation and levees and laid out 30 districts. Reclamation Districts 1, 2, and 18 were organized to protect the American and Yolo basins and lower Sacramento County from flooding and to allow for reclamation of agricultural lands (Bouey and Herbert 1990). The area in which Pump Station 12.5 R is located was, at one time, included within the boundaries of the now inoperative RD 18, formed in 1862. Early reclamation efforts in this district include the excavation of the Tule Canal in 1864, as well as construction of low levees from Knight's Landing downstream along the right bank of the Sacramento River for 78 miles (USDI, BR 1952).

Because of the onset of the Civil War and modification of the assembly bill that established the Board, the work was not completed (McGowan 1961; Bradley and Corbett 1995). The Board

was dissolved in 1866 and control of swamp and overflow land fell to the counties (Thompson 1958). These earlier attempts of individual landholders to build levees and reclaim swamp and overflow land in the 1850s proved ineffective in most cases. Legislators began to recognize that a system or network of levees and drainages was required. They also realized that a large amount of capital and labor was necessary to build strong levees, drain large plots of land, and maintain the system. In 1911, the State Reclamation Board was established, which had jurisdiction over reclamation districts and levee plans. That year, with approval and a 33 million dollar authorization from the state, the Sacramento Flood Control Plan was implemented (Stene 2002). The focus of the plan was to construct levees, weirs, and bypasses along the river.

RD 2035 was formed in 1919 to provide flood protection, drainage, and irrigation water to Conaway Ranch (a.k.a. Woodland Farms) and other adjoining lands in eastern Yolo County. RD 2035 service area consists of approximately 17,000 acres located east of Woodland in Yolo County and includes land in the Yolo Bypass. RD 2035 pumps water for agricultural irrigation from the Sacramento River through a 400 cfs pump station that was built in 1919 and is located on the west bank of the Sacramento River, immediately upstream from the I-5 Vietnam Veterans Bridge over the Sacramento River. The diversion is allowed under appropriative water rights with a priority of 1919, and a US Bureau of Reclamation (USBR) CVP water rights settlement contract with the majority landowner within RD 2035. This water supply is used to irrigate about 17,000 acres of CPG's farmland for growing crops such as rice, corn, alfalfa, wheat, tomatoes, safflower, and other annual crops.

Methods

The effort to identify cultural resources in the project area included a record search, contacts with Native Americans, a field survey, and a significance evaluation of an existing pump station structure. The significance evaluation of the pump station is presented in a separate report (Pacific Legacy, 2003) ESA re-evaluated the pump station structure and surrounding landscape in 2011. Identification efforts were consistent with 36 CFR §800.4.

Records Search

A cultural resources records search of all pertinent survey and site data was conducted at the Northwest Information Center (NWIC) in May 2002, was updated in November 2008 (NWIC File # 08-0387), and again in October 2010 (NWIC File #10-0412). The records were accessed by utilizing the Gray's Bend USGS 7.5-minute quadrangle map, T10N, R3E, in Yolo County. The review included the existing pump station along with a 1/4-mile buffer around the project area radius around the pump house, which encompassed Proposed Project/Action components. In addition to Information Center maps and site record forms, other sources that were reviewed included the Directory of Properties in the Historic Property Data File for Yolo County, the National Register of Historic Places, the California Register of Historic Resources, the *California Inventory of Historic Resources* (1976), the *California Historical Landmarks* (1996), and the *California Points of Historical Interest* (1992).

Contacts with Native Americans

The Native American Heritage Commission (NAHC) was contacted by an ESA archaeologist on October 9, 2002, February 21, 2009, and November 9, 2010 and requested to provide information on locations of importance to Native Americans and a list of Native Americans that should be contacted. On November 23, 2010, the NAHC provided a list of six Native American individuals, groups, and organizations that should be contacted concerning locations of importance to Native Americans in the project area. ESA sent a letter to each organization on the NAHC list, providing information about the Proposed Project/Action and requesting information on locations of importance to Native Americans. To date, one response has been received. A response was received via letter from Marshall McKay of the Yocha Dehe Wintun Nation on January 11, 2011. Mr. McKay stated that the Project could impact undiscovered archaeological deposits. Dr. Marks phoned and emailed the Yocha Dehe Wintun Nation, but received no response. Consultation with Native Americans under Section 106 must be undertaken by the Federal Agency on a government to government basis. The efforts undertaken by ESA meet CEQA requirements, but not those of Section 106.

Field Survey

An archaeological field inspection of the project area was conducted on October 30, 2002 by Pacific Legacy, with additional investigations by ESA on February 4, 2011 and December 9, 2011. The surface of the entire project area was inspected using systematic survey transects spaced approximately 15 meters apart. Both the riverbank vegetation cover and steep slope reduced the visibility and accessibility for the purposes of a pedestrian survey. In addition, the area surrounding the pump station has been heavily modified for the creation of the levee, shoreline armoring, the construction of County Road 117, and shoulder stabilization. The surface was examined for constituents of archaeological sites, such as artifacts, features, or culturally modified soil horizons. As the levee is a historic-period resource, built along the banks of the river, any intact cultural horizons were either buried or disturbed by levee construction. Additionally, an updated architectural review of the pump station was conducted by ESA historian Katherine Anderson on December 9, 2011. This included photo documentation of the building as well as

3.8.2 Regulatory Framework

The cultural resources investigation conducted for the proposed fish screen project was conducted to comply with the requirements of the CEQA and compliant with Section 106 of the NHPA.. The NEPA review process for cultural resources impact assessment has been conducted concurrently with, and integrated with, the requirements of Section 106 of the NHPA.

National Register of Historic Places

In order for a cultural resource to be determined eligible for inclusion in the National Register it must meet certain criteria that are outlined in the regulations at 36 CFR Part 60.4. These criteria state:

“National Register criteria for evaluation. The quality of significance in American history, architecture, archaeology, engineering and culture is present in districts, sites, buildings, structures, and objects that possess

integrity of location, design, setting, materials, workmanship, feeling and association, and

- a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
- b) that are associated with the lives of persons significant in our past; or
- c) that embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- d) that have yielded or may be likely to yield, information important in prehistory or history.”

As described above, in order for a cultural resource to be eligible for inclusion in the National Register, it must also possess integrity of location, design, setting, materials, workmanship, and feeling and association. Integrity is the ability of a property to convey its significance. The evaluation of integrity is sometimes a subjective judgment, but it must always be grounded in an understanding of a property’s physical features and how they relate to its significance (National Register Bulletin on How to Apply the National Register Criteria for Evaluation).

To retain historic integrity a property will always possess several, and usually most, of these aspects. The retention of specific aspects of integrity is paramount for a property to convey its significance. Determining which of these aspects are most important to a particular property requires knowing why, where, and when the property is significant (National Register Bulletin 15: How to Apply the National Register Criteria).

In addition to meeting the above described criteria, a resource must maintain sufficient integrity to reflect its historical significance. A resource must possess integrity of location, design, setting, materials, workmanship, feeling, and association.

- **Location.** Integrity of location refers to whether the property has been moved or relocated since its construction.
- **Design.** Design is the composition of elements that constitute the form, plan, space, structure, and style of a property.
- **Setting.** Setting is the physical environment of a historic property that illustrates the character of the place.
- **Materials.** Materials are the physical elements combined in a particular pattern or configuration to form the aid during a period in the past.
- **Workmanship.** Workmanship is the physical evidence of the crafts of a particular culture or people during any given period of history.

- **Feeling.** Feeling is the quality that a historic property has in evoking the aesthetic or historic sense of a past period of time. Although it is itself intangible, feeling is dependent upon the aid's significant physical characteristics that convey its historic qualities.
- **Association.** Association is the direct link between a property and the event or person for which the property is significant.

Section 106 of the National Historic Preservation Act

The NHPA of 1966 is the primary Federal legislation that outlines the Federal Government's responsibility to cultural resources (16 USC 470). Section 106 of the NHPA requires the Federal Government to take into consideration the effects of an undertaking on cultural resources listed on or eligible for inclusion in the National Register of Historic Places (NRHP). Those resources that are on or eligible for inclusion in the National Register are referred to as historic properties.

The Section 106 process is outlined in the Federal regulations at 36 Code of Federal Regulations (CFR) Part 800. These regulations describe the process that the Federal agency (Reclamation) takes to identify cultural resources and the level of effect that the proposed undertaking will have on historic properties. In summary, Reclamation must first determine if the action is the type of action that has the potential to affect historic properties. If the action is the type of action to affect historic properties, Reclamation must identify the area of potential effects (APE), determine if historic properties are present within that APE, determine the effect that the undertaking will have on historic properties, consult with the State Historic Preservation Officer to seek concurrence on Reclamation's findings, and seek to resolve any adverse effects through either avoidance, project modification, or mitigation through a Memorandum of Agreement.

California Environmental Quality Act

CEQA requires that public or private projects financed or approved by public agencies must assess the effects of the project on historical resources. Historical resources are defined as buildings, sites, structures, objects or districts, each of which may have historical, architectural, archaeological, cultural, or scientific significance. CEQA requires that if a project results in an effect that may cause a substantial adverse change in the significance of an historical resource, then alternative plans or mitigation measures must be considered; however, only significant historical resources need to be addressed. Therefore, prior to the assessment of effects or the development of mitigation measures, the significance of cultural resources must first be determined. The steps that are normally taken in a cultural resources investigation for CEQA compliance are as follows:

- Identify potential historical resources
- Evaluate the eligibility of historical resources
- Evaluate the effects of a project on all eligible historical resources

3.8.3 Environmental Consequences

Significance Criteria

This analysis of cultural resources evaluates the potential effects of the Proposed Project/Action on the existing and potentially undiscovered resources within or adjacent to the Proposed Project/Action Area. Significance criteria for this analysis are based on Appendix G of the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Appendix G).

Effects are considered significant if an alternative would result in any of the following:

The following criteria have been established to quantify the impact of an adverse effect for evaluation. They have been taken from CEQA Checklist, Appendix G of the State CEQA Guidelines (California Code of Regulations Title 14, Chapter 3, Appendix G). An impact would exceed an impact threshold if the alternative would:

- Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature
- Disturb any human remains, including those interred outside of formal cemeteries?

Impact Evaluation

Resources Not Considered in Detail

Implementation of the Proposed Project/Action would not directly or indirectly affect paleontological resources. Underlying geologic materials in the project area consist predominantly of manmade fill and the type of sedimentary deposits where paleontological resources might be present but are typically not found. Therefore, no impact would occur and this resource will not be discussed further within this section.

No Project/Action Alternative

Under the No Project/Action Alternative, RD 2035 would not construct a new joint intake. RD 2035 would continue to use its existing, unscreened diversion and this would have no impact on known or undiscovered cultural, historical, and/or paleontological resources.

Proposed Project/Action Alternative

Impact 3.8-1: Project construction would cause a substantial adverse change in the significance of a historical or unique archaeological resource within the Project area. (Less than Significant with Mitigation)

Construction Impacts

Buildings, Structures, and Historic Resources

Cultural resources investigations in the APE have been previously conducted by Pacific Legacy, Inc. in 2003. Subsequent surveys by ESA occurred in 2008, 2010, and 2011. The identification were carried out pursuant to the regulations at 36 CFR §800.4 for Section 106 and efforts failed to identify archaeological resources within the APE. Two historic era resources were located within the APE and include the RD 2035 Pump Station 12.5 and a Sacramento River Levee. Pacific Legacy (2003) archaeological staff recommended that Pump Station 12.5 as not eligible for inclusion in the National Register while the Sacramento River Levee remained unevaluated. Given the time that has passed the Pacific Legacy evaluation was conducted by archaeologists and not a qualified architectural historian, ESA and Reclamation determined additional review of the two resources was necessary. The two resources are eligible for consideration as historic properties as allowed for by the consideration criteria outlined in the regulations at 36 CFR §60.4(a – g). As a result, ESA is providing Reclamation with additional documentation to evaluate Pump Station 12.5 and the Sacramento River levee for inclusion on the National Register utilizing the National Register eligibility Criteria at 36 CFR §60.4 (a – d). Utilizing the Section 106 process, the lead Federal agency will seek concurrence on its finding of effect from the SHPO and seek to resolve any adverse effects, should they arise. Adverse effects will be resolved through avoidance, project modification, or mitigation through a memorandum of agreement (MOA) between the SHPO, the lead Federal agency, and other potential signatories. Through the Section 106 process, the potential adverse effects can be mitigated to less than significant impact for cultural resources impacts under NEPA and CEQA.

Project Operations Impacts

Project operations would not create a potential adverse change in a historical or archaeological resource within the project area. No impact to historical or archaeological resources would occur due to project operations.

Mitigation measures identified below would mitigate impacts associated with historical or unique archaeological resources to less than significant:

Mitigation Measure

Mitigation Measure 3.8-1: If previously undiscovered cultural resources are encountered, all activity in the vicinity of the find shall cease until it can be evaluated by a qualified archaeologist and a Native American representative. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil (“midden”) containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-

period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. If the archaeologist and Native American representative determine that the resources may be significant, they will notify Yolo County. An appropriate treatment plan for the resources should be developed. The archaeologist shall consult with Native American representatives in determining appropriate treatment for prehistoric or Native American cultural resources.

In considering any suggested mitigation proposed by the archaeologist and Native American representative, the County will determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is infeasible, other appropriate measures (e.g., data recovery) will be instituted. Work may proceed in other parts of the project area while mitigation for cultural resources is being carried out.

Impact Significance After Mitigation: Implementation of Mitigation Measure 3.8-1 would reduce potentially significant impacts associated with the accidental discovery of unknown cultural resources to less than significant.

Impact 3.8-2: Project construction would disturb any human remains, including those interred outside of formal cemeteries. (Less than Significant with Mitigation)

Construction Impacts

Evidence of human burial or scattered remains related to prehistoric occupation of the area could be inadvertently encountered anywhere within the project area during construction activities. Damage to previously undisturbed burials or human remains would constitute a significant impact. Implementation of Mitigation Measure 3.8-1, as summarized above, would reduce this impact to less than significant.

Project Operations Impacts

Project operations would not disturb human remains. No impact to human remains, including those interred outside of formal cemeteries, would occur as a result of the operation of the Proposed Project/Action.

Mitigation Measure

Implementation of Mitigation Measure 3.8-1, as summarized above, would reduce this impact to less than significant.

Impact Significance After Mitigation: Implementation of Mitigation Measure 3.8-1 would reduce potentially significant impacts associated with the accidental discovery of culturally significant undiscovered human remains to less than significant.

3.9 Transportation and Traffic

3.9.1 Affected Environment

Yolo County is primarily a rural area with people and businesses concentrated in several small to medium-sized communities, including the City of Davis, the City of Woodland, and the City of West Sacramento. The roadway network that would be affected by the project is located in southern Yolo County, in the vicinity of the City of Woodland. The transportation system in the region is composed of an interconnected network of state, county, and city roadways. There are no local transit systems or delineated pedestrian and bicycle facilities in the vicinity of the project area.

Roadway Network

Regional access to the project area is provided primarily by I-5 and Interstate 80 (I-80). I-5 is located south project area and serves as a major route connecting southern California to the Pacific Northwest. I-80 is also located immediately south of the project area and serves as a major route connecting the west coast with the rest of the United States. Regional access is also provided by State Route (SR) 113, a four-lane freeway, with two lanes in both directions, in the vicinity of the project area and provides primary access between Cities of Davis and Woodland. County Road 22 and County Road 117 provide immediate access to the project site.

Table 3.9-1 presents the peak hour and average annual daily traffic for select roadways in the project area. As shown, the state routes and interstate highway convey the majority of vehicle trips, whereas the local roadways convey substantially fewer vehicles. These local roadways are indicative of the rural, non-suburban land uses found throughout the Project area.

**TABLE 3.9-1
EXISTING TRAFFIC VOLUMES ON AREA ROADWAYS**

Roadway	Peak Hour Traffic	Average Annual Daily Traffic (AADT)
I-5 at E. Main St. in Woodland	3,025	34,250
SR 113 at County Road 25	2,050	21,600
County Road 22 (Old River Road) between Woodland and County Road 117	1,650	2,507
SOURCE: City of Davis, 2007		

The local roadways support a large portion of their daily traffic during peak hour conditions. In the case of County Road 22, about 65 percent of the average annual daily traffic occurs in the single peak hour. The roadway experiences much less use during the remaining 23 hours.

Sierra Northern Railroad

The Sierra Northern Railroad operates on 16-miles of track between West Sacramento and Woodland with tracks adjacent to the project site. Sierra Northern Railroad primarily hauls agricultural freight, but also provides seasonal passenger excursions generally in May to October.

3.9.2 Regulatory Framework

The development and regulation of the project area transportation network involves state and local jurisdictions. State jurisdiction includes permitting and regulation of the use of state highways, while local jurisdiction includes implementation of permitting, policies, and regulations, as well as management and regulation of local roads. The Proposed Project/Action would encroach onto rights-of-way and surfaces of both state and local roadways. Therefore, applicable permits would need to be acquired prior to construction from those entities that manage or maintain the affected roadways. Applicable state and local laws and regulations related to traffic and transportation issues are discussed in the following discussion.

State

California Department of Transportation - District 3

Caltrans manages interregional transportation, including management and construction of the California highway system. In addition, Caltrans is responsible for permitting and regulation of the use of state roadways. The Project area includes three roadways that are within Caltrans' jurisdiction (I-5, SR 16, and SR 113).

Caltrans' construction practices require temporary traffic control planning "during any time the normal function of a roadway is suspended". In addition, Caltrans requires that permits be obtained for transportation of oversized loads and transportation of certain materials, and for construction-related traffic disturbance. Caltrans regulations may apply to the transportation of construction crews and construction equipment throughout the project area.

Local

The Yolo County 2030 Countywide General Plan includes transportation policies applicable to the project area and are summarized in **Table 3.9-2**.

**TABLE 3.9-2
TRANSPORTATION POLICIES OF YOLO COUNTY**

Number	Policies
Yolo County	
CI-1.11	Coordinate with local governments and agencies to ensure that roadway maintenance and improvements do not affect other critical infrastructure.
CI-2.1	When constructing or modifying roadways, plan for use of the roadway space by all users, including automobiles, trucks, alternative energy vehicles, agricultural equipment, transit, bicyclists, and pedestrians, as appropriate to the road classification and surrounding land uses.
CI-3.1	Maintain Level of Service (LOS) C or better for roadways and intersections in the unincorporated county.
CI-3.3	CEQA review for subsequent projects will analyze project traffic and circulation impacts using both the Yolo County General Plan policies and Caltrans policies (based on the CSMPs, TCCRs, or other guidelines) as applicable.
CI-3.9	To the greatest feasible extent, require new development to construct safety improvements consistent with current design standards on existing roadways that are anticipated to accommodate additional traffic from planned development.
CI-3.11	Require new development to finance and construct all off-site circulation improvements necessary to mitigate a project's transportation impacts (including public transit, pedestrian and bicycle mobility, safety and level of service-related impacts, and impacts to the State Highway System). For mitigation to be considered feasible, it must be consistent with the policies of the General Plan.
CI-3.12	Collect the fair share cost of all feasible transportation improvements necessary to reduce the severity of cumulative transportation impacts (including public transit, pedestrian and bicycle mobility, safety and level of service-related impacts).
CI-3.18	Ensure adequate access for emergency vehicles.
SOURCE: Yolo County, 2009	

3.9.3 Environmental Consequences

Significance Criteria

This analysis of transportation and traffic evaluates the potential effects of the Proposed Project/Action on existing transportation resources and traffic patterns within or adjacent to the Proposed Project/Action Area. Significance criteria for this analysis are based on Appendix G of the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Appendix G).

Effects are considered significant if an alternative would result in any of the following:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit
- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)

- Result in inadequate emergency access
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities

Impact Evaluation

Resources Not Considered in Detail

The following discussion of environmental impacts is limited to those potential impacts that could result in some level of potentially significant environmental change, as defined by CEQA. Implementation of the Proposed Project/Action would not affect air traffic nor would the Proposed Project/Action serve transit, bicycle, or pedestrian uses or conflict with adopted policies, plans, or programs related to those uses. Therefore, no impact would occur under these two categories and they will not be discussed further within this section.

No Project/Action Alternative

Under the No Project/Action Alternative, RD 2035 would not construct a new screened intake and would continue to use its existing, unscreened diversion. This would have no new impact on existing transportation and traffic patterns.

Proposed Project/Action Alternative

Impact 3.9-1: Project construction would substantially increase traffic in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections). (Less than Significant with Mitigation)

Construction Impacts

Construction of the Proposed Project/Action would intermittently and temporarily generate increases in vehicle trips by construction workers and construction vehicles on area roadways over the duration of project construction activities. Construction activities, including the raising and widening of County Road 117, would also result in a temporary reduction in the number of, or the available width of, travel lanes on roads adjacent to construction activities, resulting in short-term traffic delays for vehicles traveling past the construction zones, and in some cases, temporary closure of road segment, with resulting disruption to access for adjacent land uses and streets for both general traffic and emergency vehicles.

Construction activities would also generate short-term increases in vehicle trips by construction workers and construction vehicles on area roadways to and from construction areas. Construction-generated traffic would be temporary and therefore would not result in any long-term degradation in operating conditions or level of service (LOS) on any local roadways. The primary off-site impacts from the movement of construction trucks, primarily any materials hauling trucks, would include short-term and intermittent lessening of roadway capacities due to slower movements and larger turning radii of the trucks compared to passenger vehicles. As a result, construction activities

associated with the Proposed Project/Action would have a potentially significant impact on existing traffic and capacity on local roadways.

Project Operations Impacts

Disruption of traffic flow attributable to the operation of the Proposed Project/Action would be limited to the duration of construction activities. Operation of the Proposed Project/Action does not require a significant number of workers, and in some instances can be operated remotely, and would therefore not generate a significant increase traffic volumes on roadways above existing levels.

The following mitigation measures would mitigate impacts associated with increased construction traffic to less than significant:

Mitigation Measures

Mitigation Measure 3.9-1a: Construction contractors shall implement measures consistent with provisions of the *Work Area Protection and Traffic Control Manual* including requirements to ensure safe maintenance of traffic flow through or around the construction work zone, and safe access of police, fire, and other rescue vehicles (CJUTCC, 2010).

Mitigation Measure 3.9-1b: RD 2035 shall prepare and implement a Traffic Control/Traffic Management Plan subject to approval by the appropriate local jurisdiction (i.e., Caltrans, Yolo County, Sierra Northern Railroad) prior to construction. The plan shall:

- Include a discussion of work hours, haul routes, limits on the length of open trench, work area delineation, traffic control and flagging;
- Identify all access and parking restriction and signage requirements;
- Layout a plan for notifications and a process for communication with affected residents and businesses prior to the start of construction. Advance public notification shall include posting of notices and appropriate signage of construction activities. The written notification shall include the construction schedule, the exact location and duration of activities within each street (i.e., which lanes and access point/driveways would be blocked on which days and for how long), and a toll-free telephone number for receiving questions or complaints;
- Include a plan to coordinate all construction activities with emergency service providers in the area at least one month in advance. Emergency service providers would be notified of the timing, location, and duration of construction activities. All roads would remain passable to emergency service vehicles at all times;
- Include the requirement that all open trenches be covered with metal plates at the end of each workday to accommodate traffic and access; and
- Specify the street restoration requirements pursuant to agreements with the local jurisdictions.

Mitigation Measure 3.9-1c: Prepare vehicle movement and detour plans to minimize impact to local road circulation. This may include the use of signing and flagging to guide vehicles through and/or around the construction zone.

Mitigation Measure 3.9-1d: Identify and utilize areas for equipment parking, staging, and construction crew parking to limit lane closures in the public right-of-way.

Impact Significance After Mitigation: Implementation of Mitigation Measure 3.9-1a through Mitigation Measure 3.9-1d would reduce significant impacts associated with temporary construction impacts to existing traffic and transportation patterns to less than significant.

Impact 3.9-2: Construction would adversely affect access to adjacent land uses and temporarily block access routes used by city police departments, Yolo County Sheriff's Department, fire departments, and emergency services, or substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). (Less than Significant with Mitigation)

Construction Impacts

As described above, construction of the Proposed Project/Action would have temporary effects on traffic flow associated with construction worker and equipment traffic at local ingress or egress points. This could result in temporary reduction in travel lanes, temporary lane closures, temporary road closures, and result in delays for local residents and emergency vehicle access in the vicinity of the construction site. This is a potentially significant impact.

Project Operations Impacts

Once constructed, project operations would not affect access to adjacent land uses or temporarily block emergency access routes. Modifications to County Road 117 in the vicinity of the project site would slightly increase the elevation and width of the road and would not result in increased hazards to motorists or local farm equipment. This impact is less than significant.

The following mitigation measures would mitigate impacts associated with local and emergency access to adjacent land uses to less than significant:

Mitigation Measure

Implement **Mitigation Measure 3.9-1b through 3.9-1d.**

Impact Significance After Mitigation: Implementation of Mitigation Measure 3.9-1a through Mitigation Measure 3.9-1d would reduce significant impacts associated with temporary disruption to local and emergency access associated with construction activities to less than significant.

3.10 Hazards and Hazardous Materials

3.10.1 Affected Environment

Existing Setting

Land use within the majority of the project/action area consists primarily of rural land and agricultural uses, but also includes local county roadways and a railroad. Past and present use of hazardous materials typical to agricultural production include agricultural fertilizers, pesticides, herbicides, and fuels. Because the land use in the project/action area has not significantly changed in the last 50 years, historic hazardous materials use was likely similar to present day hazardous materials use, however, current regulatory restrictions have limited the use and control of many substances.

Information about hazardous materials sites in the proposed project area was collected by conducting a review of the Cal/EPA Cortese List Data Resources (Cortese List). The Cortese list includes the following data resources that provide information regarding the facilities or sites identified as meeting the Cortese list requirements: the list of Hazardous Waste and Substances sites from Department of Toxic Substances Control (DTSC) EnviroStor database; the list of Leaking Underground Storage Tank (LUST) sites from GeoTracker database; the list of solid waste disposal sites identified by Water Board; the list of active Cease and Desist Orders and Cleanup and Abatement Orders from Water Board; and the list of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code identified by DTSC.

The Cortese List is a reporting document used by the state, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. The Cortese List is updated at least annually, in compliance with California regulations (California Code Section 65964.6(a)(4)). The Cortese List includes federal superfund sites, state response sites, non-operating hazardous waste sites, voluntary cleanup sites, and school cleanup sites. Only one site was found within one mile of the project/action area; however, it is listed as cleanup status completed – case closed.

3.10.2 Regulatory Framework

Federal

Federal regulatory agencies include the Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), Nuclear Regulatory Commission (NRC), US Department of Transportation (DOT), and National Institutes of Health (NIH). The following represent federal laws and guidelines governing hazardous substances.

- Pollution Prevention Act (42 U.S. Code Section 13101 et seq. / 40 Code of Federal Regulations)
- Clean Water Act (33 U.S. Code Section 1251 et seq. / 40 Code of Federal Regulations)
- Oil Pollution Act (33 U.S. Code Section Sections 2701-2761 / 30, 33, 40, 46, 49 Code of Federal Regulations)

- Clean Air Act (42 U.S. Code Section 7401 et seq. / 40 Code of Federal Regulations)
- Occupational Safety and Health Act (29 U.S. Code Sections 651 et seq. / 29 Code of Federal Regulations)
- Federal Insecticide, Fungicide, and Rodenticide Act 7 U.S. Code Section 136 et seq. / 40 Code of Federal Regulations)
- Comprehensive Environmental Response Compensation and Liability Act (42 U.S. Code Section 9601 et seq. / 29, 40 Code of Federal Regulations)
- Superfund Amendments and Reauthorization Act Title III (42 U.S. Code Section 9601 et seq. / 29, 40 Code of Federal Regulations)
- Resource Conservation and Recovery Act (42 U.S. Code Section 6901 et seq. / 40 Code of Federal Regulations)
- Safe Drinking Water Act (42 U.S. Code Section 300f et seq. / 40 Code of Federal Regulations)
- Toxic Substances Control Act (15 U.S. Code Section 2601 et seq. / 40 Code of Federal Regulations)

At the federal level, the principal agency regulating the generation, transport and disposal of hazardous substances is the EPA, under the authority of the Resource Conservation and Recovery Act (RCRA). The EPA regulates hazardous substance sites under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). Applicable federal regulations are contained primarily in Titles 29, 40, and 49 of the CFR.

State

Legislation at the state level allows state agencies to accept delegation of federal responsibility for hazardous materials and hazardous waste management. The Cal/EPA and the Office of Emergency Services (OES) of the State of California establish rules governing the use of hazardous substances. The SWRCB has primary responsibility to protect water quality and supply. The Secretary for Environmental Protection oversees the following agencies: California Air Resources Board (ARB), Integrated Waste Management Board, Department of Pesticide Regulation, SWRCB, DTSC, and Office of Environmental Health Hazard Assessment.

Applicable State laws include the following:

- Porter Cologne Water Quality Control Act (California Water Code Section 13000–14076 / 23 California Code of Regulations)
- California Accidental Release Prevention Law (California Health and Safety Code Section 25531 et seq. / 19 California Code of Regulations)
- California Building Code (California Health and Safety Code Section 18901 et seq. / 24 California Code of Regulations)
- California Fire Code (California Health and Safety Code Section 13000 et seq. / 19 California Code of Regulations)
- California Occupational Safety and Health Act (California Labor Code Section 6300–6718/ 8 California Code of Regulations)

- Hazardous Materials Handling and Emergency Response “Waters Bill” (California Health and Safety Code Section 25500 et seq. / 19 California Code of Regulations)
- Hazardous Waste Control Law (California Health and Safety Code Section 25100 et seq. / 22 California Code of Regulations)
- Carpenter-Presley-Tanner Hazardous Substance Account Act “State Superfund” (California Health and Safety Code Section 25300 et seq. / California Revenue and Tax Code Section 43001 et seq.)
- Hazardous Substances Act (California Health and Safety Code Section 108100 et seq.)
- Safe Drinking Water and Toxic Enforcement Act “Proposition 65” (California Health and Safety Code Sections 25180.7, 25189.5, 25192, 25249.5-25249.13 / 8, 22 California Code of Regulations)
- California Air Quality Laws (California Health and Safety Code Section 39000 et seq. / 17 California Code of Regulations)
- Aboveground Petroleum Storage Act (California Health and Safety Code Section 25270 et seq.)
- Pesticide Contamination Prevention Act (California Food and Agriculture Code Section 13141 et seq. / 3 California Code of Regulations)
- Underground Storage Tank Law “Sher Bill” (California Health and Safety Code Section 25280 et seq. / 23 California Code of Regulations)

Local

Yolo County General Plan

The Safety and Seismic Policies section of the Yolo County 2030 Countywide General Plan outlines goals and objectives relating to toxic substances and other hazards that may occur within the county. **Table 3.10-1** includes county policies as relevant to the project (Yolo County, 2009).

**TABLE 3.10-1
HAZARDOUS MATERIALS AND SAFETY POLICIES OF YOLO COUNTY**

Number	Policies
HS-4.1	Minimize exposure to the harmful effects of hazardous materials and waste.
HS-4.3	Encourage the reduction of solid and hazardous wastes generated in the county.

SOURCE: Yolo County, 2009

3.10.3 Environmental Consequences

Significance Criteria

This analysis of hazards and hazardous materials evaluates the potential effects of the Proposed Project/Action on the existing environment within or adjacent to the Proposed Project/Action Area. Significance criteria for this analysis are based on Appendix G of the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Appendix G).

Effects are considered significant if an alternative would result in any of the following:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials
- 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
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school
- 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
- 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 for people residing or working in the project area
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands

Impact Evaluation

Resources Not Considered in Detail

The following discussion of environmental impacts is limited to those potential impacts that could result in some level of potentially significant environmental change, as defined by CEQA. The development of the proposed project/action would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school because there are no schools within one-quarter mile of the project site. The proposed project/action is not located within an airport land use plan or within the vicinity of a private airstrip. Lastly, the Proposed Project/Action is not located within a fire hazard area as defined by the California Department of Forestry and Fire and would not be subject to wildland fires (CalFire, 2007). These issues will not be analyzed further in this section.

No Project/Action Alternative

Under the No Project/Action Alternative, RD 2035 would not construct a new screened intake for joint use and would continue to use its existing, unscreened diversion and this would have no new affect on hazards and hazardous materials.

Proposed Action Alternative

Impact 3.10-1: The Project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment. (Less than Significant)

Construction and Operational Impacts

Construction and operation of the Proposed Project/Action could involve the use, storage and disposal of small quantities of hazardous materials. The use, storage, and transport of hazardous materials would be required to comply with applicable local, state, and federal regulations. Transportation of hazardous materials on area roadways is regulated by California Highway Patrol (CHP) and Caltrans, and use of these materials is regulated by DTSC, as outlined in Title 22 of the CCR. Any project facilities that would use or store hazardous materials would be required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases. Because the Proposed Project/Action is required by law to implement and comply with existing hazardous material regulations, impacts related to the creation of significant hazards to the public through routine, transport, use, disposal, and risk of upset are less than significant.

Impact 3.10-2: The project could be located on a site that is included on a list of hazardous materials sites and, as a result, would create a significant hazard to the public or the environment. (Less than Significant with Mitigation)

Construction and Operational Impacts

The Proposed Project/Action would not be located on a hazardous materials site that is known to be on a list compiled pursuant to Government Code Section 65962.5. Therefore, no impacts are anticipated. However, the accidental discovery of unknown hazardous materials may occur during construction which is considered a significant effect.

Implementation of the following mitigation would reduce the impact associated with the accidental discovery of unknown hazardous materials to less than significant:

Mitigation Measure

Mitigation Measure 3.10-2: To mitigate potential hazards resulting from disturbing contaminated areas, the extent of contamination from hazardous materials sites within or adjacent to the construction area shall be delineated during final design through the preparation of a Phase 1 Environmental Site Assessment, as necessary. Disturbance to contaminated areas during construction shall be avoided, or any work done within contaminated areas shall be undertaken in compliance with standards approved by the DTSC or Yolo County Health Department to ensure that hazardous materials shall not be released as a result of the ground disturbance.

Additionally, if unidentified contaminated soil and/or groundwater are encountered, or if suspected contamination is encountered during any construction activities, work shall be

halted in the area of potential exposure, and the type and extent of contamination shall be identified. A qualified professional, in consultation with appropriate regulatory agencies, will then develop and implement a plan to remediate the contamination and properly dispose of the contaminated material.

Impact Significance After Mitigation: Implementation of Mitigation Measure 3.10-2 would reduce significant impacts associated with accidentally discovery of unknown hazardous materials during construction activities to less than significant.

Impact 3.10-3: The project could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Less than Significant with Mitigation)

Construction and Operational Impacts

Temporary lane closures could occur during construction activities and the widening and raising of CR 117 could interfere with emergency vehicle access. This is a potentially significant impact.

Operation of the Proposed Project/Action would not involve any activities that would interfere with emergency response plans or evacuation plans in place through the California OES or Yolo County.

Implementation of the following mitigation measures would reduce the impact associated with the interference of an emergency response plan to less than significant:

Mitigation Measure

Mitigation Measure 3.10-3a: Implement Mitigation Measure 3.9-1b.

Impact Significance After Mitigation: Implementation of Mitigation Measure 3.9-1b would reduce significant impacts associated with interference to an emergency response plan to less than significant.

3.11 Recreation

3.11.1 Affected Environment

Sacramento River

The Sacramento river supports a variety of recreational, water-dependent activities including boating and fishing, and recreational activities including camping, hiking, picnicking, and sightseeing, that are enhanced by the scenic value of the river.

There are several public and private boat launches and marinas located along the river in the vicinity of the Proposed Project/Action. The Elkhorn Boat Launching Facility is located on the eastside of the river about three miles downstream from the Elkhorn Diversion in Sacramento County. This facility is owned and operated by the Sacramento County Department of Parks and Recreation, and includes picnic areas, restrooms, a scenic lookout, and a boat launch ramp. The park is open year-round from sunrise to sunset and a use fee is required.

The Elkhorn Regional Park is located on the west side of the Sacramento river, approximately 1.75 miles south of the I-5 Sacramento river crossing. The park is owned and operated by the Yolo County Division of Parks and Natural Resources. The 55-acre park offers a wide variety of recreational opportunities including fishing, picnicking, bird watching, nature study, and boating. The park has a boat ramp, picnic area, parking lot, and sanitary facilities. The park is open from 7:00 a.m. until dusk, except when river conditions require closure.

Two private marinas are located within the immediate vicinity of the Project area: the Alamar Marina and Metro Marina. The Alamar Marina is located at river Mile 70.5 on the eastside of the river. This marina offers covered and non-covered boat docks, a fuel dock, and houseboat and jet ski rentals. The Metro Marina is located at river Mile 70.5 on the eastside of the river. This marina consists of 13 cover slips that can accommodate boats 30 feet in length. The spaces are rented out on a daily, monthly or yearly basis.

There are numerous other informal recreation sites located along the length of the river where public access is readily available and vehicle parking can be accommodated. These sites usually support bank fishing that occurs during the course of the year, depending on the presence of game fish in this river reach. One such site is the area immediately north of the Sacramento Weir where vehicle parking can be accommodated and access to the Sacramento river is readily available. Public river access is typically not promoted or allowed on private property including the project/action site.

River Flows Supporting Recreational Uses

Flows in the Sacramento river directly support a variety of recreational activities including boating and waterskiing. The river also indirectly supports other recreational activities such as fishing by supporting fish habitat. Previous studies performed for the Sacramento river concluded that optimal instream flow conditions for recreational boating ranged from about 2,500 cfs to about 12,500 cfs (City of Davis, 2007).

3.11.2 Regulatory Framework

State

California Code of Regulations Title 14, Article 6, Waterway marking system, Section 7000 states “Pursuant to the authority vested in it by Section 659, Harbors and Navigation Code, the Department of Boating and Waterways adopts rules and regulations for a uniform system for marking the State's waters; such rules and regulations to establish, (a) a system of regulatory markers for use on all waters of the State to meet needs not provided for by the U.S. Coast Guard system of navigational aids, and (b) a system of navigational aids for use on the waters of the State not marked by the U.S. Coast Guard and/or not determined to be United States navigable waters; provided that such rules and regulations shall not be in conflict with the markings prescribed by the U.S. Coast Guard.”

Local

Yolo County General Plan

The Open Space and Recreation Element of the Yolo County 2030 Countywide General Plan calls for creating expanded public access to the Sacramento river and the creation of public open space along the Sacramento river. The Element also provides for the County to establish a variety of outdoor recreational and educational opportunities along the Sacramento river for use by the public. A continuous corridor of natural open space is called for along the Sacramento river, with provision for limited access at specific locations to recreational and educational uses from a County road or highway, and possible bicycle access to select areas. The Element calls for recreational uses to be clustered at locations along the river, to minimize habitat disturbance and provide efficient and cost-effective management by the County. All access, whether by road or by trail, must be through an entry point that can be controlled.

The Yolo County 2030 Countywide General Plan includes policies pertaining to the recreational resources. **Table 3.11-1** includes County policies as relevant to the project (Yolo County, 2009).

**TABLE 3.11-1
RECREATION POLICIES OF YOLO COUNTY**

Objective Number	Objective Description
Yolo County	
LU-7.2	Support and participate in countywide, regional and other multiagency planning efforts related to housing, tourism, air quality, open space, green infrastructure, recreation, agriculture, habitat conservation, energy, emergency preparedness and flood protection.
ED-4.4	Encourage ecotourism including boating, kayaking, canoeing, fishing, hunting, horseback riding, hiking, and bird watching.
ED-4.9	Support the development of tourist services (consistent with this General Plan) along Interstate 5 (Yolo, Zamora, Dunnigan), State Route 16 (Madison, Esparto) and State Route 113 (Knights Landing).

SOURCE: Yolo County, 2009

3.11.3 Environmental Consequences

Significance Criteria

This analysis of recreation evaluates the potential effects of the Proposed Project/Action on existing recreational resources within or adjacent to the Proposed Project/Action Area. Significance criteria for this analysis are based on Appendix G of the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Appendix G).

Effects are considered significant if an alternative would result in any of the following:

- 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?
- 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?

Impact Evaluation

No Project/Action Alternative

Under the No Project/Action alternative, a new screened joint intake would not be constructed and RD 2035 would continue to use its existing, unscreened diversion and this would have no affect on recreational resources. As a result impacts to recreational resources would remain unchanged from existing conditions and would be less than significant.

Proposed Project/Action Alternative

Impact 3.11-1: Construction and operation of the joint intake could reduce access to, or interfere with the use of existing recreational opportunities or facilities, including recreational use of the Sacramento river. (Less than Significant)

Construction Impacts

Construction of the diversion/intake facility would temporarily and intermittently disrupt pedestrian and vehicle access along CR 117 and a portion of the Sacramento river levee. The intake would cross Road 117, requiring traffic controls or detour. The existing RD 2035 intake does not currently support informal recreational activities such as bank fishing and sightseeing. Therefore, while onshore construction activities at this location would impact pedestrian and vehicle access to CR 117 and the Sacramento levee, it would not interfere with the use of existing recreational opportunities or facilities.

In-water construction activities would include the use of a temporary sheetpile and floating equipment along the west side of the river, which would temporarily restrict Sacramento river recreational use within the vicinity of the intake but would not restrict use across the entire width of the river and would be less than significant.

Project Operations Impacts

The diversion/intake structure would be located along the west side of the Sacramento river. Installation and operation of a new diversion/intake structure may restrict recreational boating in the area of the facility but would not eliminate access to the Sacramento river. Pedestrian access to levee banks directly adjacent to the intake structure could be restricted by Project-related security fencing and/or other barriers. However, this is consistent with existing conditions at the intake site, which does not support recreational activities. As a result, project operations would not interfere with the use of existing recreational opportunities or facilities and would be less than significant.

3.12 Environmental Justice, Socioeconomics, and Indian Trust Assets

3.12.1 Affected Environment

Environmental Justice and Socioeconomics

On February 11, 1994, President Clinton issued Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-income Populations. The purpose of the order is to avoid disproportionately adverse environmental, human health, or economic impacts from federal policies and actions on minority and low-income populations. The executive order requires that any significant adverse impacts of a federal project or alternatives on minority and low-income populations be reported and, where appropriate, that mitigation measures be prescribed.

Information based on the 2010 census is presented in **Table 3.12-1** for the State of California, Yolo County, and Census Tract 101.02, the tract that contains the project site. In Yolo County, the 2010 ethnic composition was 63.2 percent Caucasian, 30.3 percent Hispanic or Latino, 13.0 percent Asian, 2.6 percent African American, 1.1 percent American Indian and Alaskan, and 13.9 percent “other races.” For the rural project area, Census Tract 101.02, the 2010 ethnic composition was 62.4 percent Caucasian, 42.9 percent Hispanic or Latino, 5.8 percent Asian, 2.6 percent African American, 1.7 percent American Indian and Alaskan, and 19.7 percent “other races.”

**TABLE 3.12-1
DEMOGRAPHIC DATA**

	California	Yolo County	Census Tract 101.02
White	57.6%	63.2%	62.4%
Hispanic or Latino:	37.6%	30.3%	42.9%
Black or African American	6.2%	2.6%	2.6%
American Indian and Alaska Native	1.0%	1.1%	1.7%
Asian	13.0%	13.0%	5.8%
Native Hawaiian and Other Pacific Islander	0.4%	0.5%	0.8%
Some other race	17.0%	13.9%	19.7%
Two or more races	4.9%	5.8%	6.9%
SOURCE: U.S. Census Bureau, 2010			

The 2005-2007 U.S. Census Community Survey Update identifies that 13.0 percent of the population was below the poverty level in the State California and 16.5 percent was below the poverty level in Yolo County. No data for Census Tract 101.02 was available.

The median family income in Yolo County was \$54,307 during the 2005-2007 Census Community Survey update. This number was slightly lower than California’s median family income of \$58,361

during the same time period (U.S. Census Bureau, 2010). No data for Census Tract 101.02 was available.

In general, minorities comprise an equal to or a smaller percentage of the total population in Yolo County and Census Tract 101.02 relative to the state as a whole. Poverty and income are also not disproportionate for the study area as compared to the state. As a result, the study area does not include a disproportionate number of minority and low-income populations and would not result in adverse environmental, human health, or economic impacts from the proposed federal action.

Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property rights held by the United States for Indian Tribes or individuals. Trust status originates from rights imparted by treaties, statutes, or executive orders. ITAs are lands, including reservations and public domain allotments, minerals, water rights, hunting and fishing rights, or other natural resources, money or claims. Assets include real property, physical assets, or intangible property rights. ITAs cannot be sold, leased, or otherwise alienated without Federal approval. ITAs do not include things in which a tribe or individuals have no legal interest, such as off-reservation sacred lands or archaeological sites in which a tribe has no legal property interest. Reclamation has determined that there are no ITAs within the vicinity of the project area.

3.12.2 Environmental Consequences

Significance Criteria

The following criteria have been established to quantify the impact of an adverse effect for evaluation. An impact would exceed an impact threshold if the alternative would:

- Adversely affect minority or low-income populations and Indian Trust Assets.

Environmental Evaluation

No Project/Action Alternative

Under the No Project/Action Alternative, RD 2035 would not construct a new screened joint intake and would continue to use its existing, unscreened diversion and this would have no affect on socioeconomics, environmental justice or Indian Trust Assessts.

Proposed Project/Action Alternative

Impact 3.12-1: Effects to Minority or Low-Income Populations and Indian Trust Assets (No Impact)

Demographic analysis of the local population indicates that no minority or low-income communities of concern are located within the affected environment for the Proposed Project/Action that warrant environmental justice analysis. Reclamation has determined that there are no ITAs within

the vicinity of the project area. Consequently, no environmental justice, socioeconomic or Indian trust impacts are associated with the Proposed Project/Action.

Mitigation: None required.

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3.13 Public Services and Utilities

This section presents a discussion of the public services and utility service systems that provide service to the project area and surrounding vicinity, describes associated regulatory framework, and presents an analysis of potential project-related impacts to local service providers or infrastructure within the project area. Proposed public services and utilities analyzed in this section include law enforcement, fire protection, emergency medical response services, solid waste disposal, and electricity.

Impacts resulting from the Proposed Project/Action are anticipated to focus on construction-related impacts to existing service or utility infrastructure that may be located within or adjacent to the project construction footprint. Growth-related effects of the Proposed Project/Action to local public service providers (i.e., law enforcement, schools, libraries, etc.) are more fully discussed in 3.15 “Growth Inducing Effects”. Additionally, impacts to recreation-related resources are addressed in Section 3.11 “Recreation.”

Because the purpose of the Proposed Project/Action is to construct a replacement intake, this section does not separately analyze the project’s impacts on water service. Water supply impacts related to M&I use associated with joint use of the Proposed Project/Action by the Woodland-Davis Clean Water Agency (WDCWA) were discussed analyzed in the 2007 DWWSP EIR and 2011 DWWSP EIR Addendum.

3.13.1 Affected Environment

Existing Conditions

Law Enforcement

The Yolo County Sheriff’s Office and the California Highway Patrol provide law enforcement services to the unincorporated lands within the project area. Given the rural nature of the project area, calls to the project site for law enforcement are relatively low.

Fire Protection and Medical Services

The project area would be served by fire stations located within the City of Woodland, Davis, and West Sacramento, and the UC Davis campus. Emergency medical services are also provided to the project area by the City of Woodland Fire Department as well as Woodland Memorial Hospital.

Schools

There are no schools within the vicinity of the project area.

Storm Drainage

There are no dedicated storm water collection systems located within the vicinity of the project site. The storm drainage system is generally connected to flood control canals and channels that drain into the Sacramento River or infiltrate into groundwater. More information about regulation of stormwater runoff and quality can be found in Section 3.6, Water Resources.

Flood Control

Numerous special districts have been established in the Project area that are responsible for flood control. Section 3.6, Water Resources, provides additional information about flood control in the Project area.

Solid Waste Disposal

The Yolo County Central Landfill (YCCL) is a 722-acre facility is a Class III solid waste landfill which provides comprehensive solid waste and recycling services, including municipal solid waste, recycling, salvaging, household hazardous waste, and business hazardous waste. At the current waste disposal rate (assuming a diversion rate of 70 percent, no large increase of waste from outside the county, and future waste cells operated as bioreactors) the landfill's closure date is estimated as January 1, 2081, for a future operational life of about 72 years (Yolo County, 2009).

Water Services

As discussed on page above, water supply impacts related to M&I use associated with joint use of the Proposed Project/Action by the WDCWA were discussed in the 2007 DWWSP EIR and 2011 DWWSP EIR Addendum.

Wastewater

There are no public wastewater collection systems that serve the project area. Rural uses are typically served by existing on-site septic systems such as leech fields.

Utilities

Electricity and gas are provided to the project site by Pacific Gas and Electric Company (PG&E) and by Western Area Power Administration. PG&E has identified that adequate power is available to serve the Proposed Project/Action without the construction of new, or rehabilitation of existing facilities (Jones, 2011).

3.13.2 Regulatory Setting

This section discusses the local policies and regulations relevant to the analysis of utilities and public services issues in the project area. No federal regulations pertaining to utilities and public services are applicable to the proposed project.

State

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 requires state, county and local governments to divert at least 50% of their solid waste from their landfills by the year 2000. State law enacted in 1989 requires that a minimum of 25 percent of the total wastes generated are diverted from landfills by 1995 and a minimum of 50 percent are diverted by the year 2000. The Act is overseen by the California Integrated Waste Management Board (CIWMB). CIWMB oversees a reporting program for local jurisdictions to account for levels of diversion achieved. Implementation is often carried out by a local entity called a Local Enforcement Agency (LEA). The LEA for the Project area is the County of Yolo.

Local

Yolo County General Plan

Yolo County's 2030 Countywide General Plan includes goals and policies relevant to the Proposed Project/Action. **Table 3.13-1** includes County policies as relevant to the project (Yolo County, 2009).

**TABLE 3.13-1
PUBLIC SERVICES AND UTILITIES GOALS AND POLICIES OF YOLO COUNTY**

Number	Goals and Policies
PF-2	<u>Stormwater Management</u> . Provide efficient and sustainable stormwater management to reduce local flooding in existing and planned land uses.
PF-2.1	Improve stormwater runoff quality and reduce impacts to groundwater and surface water resources.
PF-2.2	Construct on-site stormwater detention facilities that are designed so that runoff from the 100-year storm event does not: (1) result in an increase in peak release rate; (2) result in a time decrease associated with the time of concentration; (3) contribute to adjacent flood problems; and/or (4) significantly alter the direction of runoff.
PF-2.3	Design new stormwater facilities to enhance recreational, habitat, and/or aesthetic benefits, as well as to integrate with existing parks and open space features.
PF-2.4	Encourage sustainable practices for stormwater management that provide for groundwater recharge and/or improve the quality of runoff through biological filtering and environmental restoration.
PF-4	<u>Law Enforcement</u> . Enhance public safety to prevent crime and improve neighborhood relations.
PF-4.1	Ensure the provision of appropriate law enforcement service and facilities to serve existing and planned land uses.
PF-4.2	Strive to maintain an average response time of 12 minutes for 90 percent of priority law enforcement calls in the rural areas.
PF-4.4	Incorporate law enforcement concerns into land use planning, including the following measures: Identify and mitigate potential law enforcement hazards of new development during the project review and approval process. Work with local community groups to prevent crime. Promote the creation of Neighborhood Watch Groups in residential areas. Coordinate with Chambers of Commerce, business associations, and others to increase public safety within commercial areas.
PF-5	<u>Fire and Emergency Medical Services</u> . Support fire and emergency service providers to enhance the protection of life and property.
PF-5.1	Improve the performance and efficiency of fire protection and emergency medical services.

**TABLE 3.13-1
PUBLIC SERVICES AND UTILITIES GOALS AND POLICIES OF YOLO COUNTY**

Number	Goals and Policies
PF-5.3	Require assertive fire protection measures in all development to supplement limited rural fire district resources.
PF-5.4	Encourage fire districts and other emergency medical service providers to achieve National Fire Protection Association standards of an average response time for emergency calls of nine minutes at least 90 percent of the time in the unincorporated communities and 15 minutes at least 80 percent of the time in rural areas, with the exception of remote areas (requiring a travel distance of more than 8 miles).
PF-5.9	The County shall require, and applicants must provide, a will-serve letter from the appropriate fire district/department confirming the ability to provide fire protection services to the project, prior to each phase.
PF-9	<u>Solid Waste and Recycling</u> . Provide safe, cost-efficient, and environmentally responsible solid waste management.
PF-9.1	Meet or exceed State waste diversion requirements.
PF-9.2	Manage property to ensure adequate landfill space for existing and planned land uses.
PF-9.8	Require salvage, reuse or recycling of construction and demolition materials and debris at all construction sites.
PF-9.9	Encourage use of salvaged and recycled materials in construction.
PF-11.4	Pipelines that cross agricultural areas shall be buried at a depth that avoids conflicts with expected agricultural practices.

SOURCE: Yolo County, 2009.

Yolo County Emergency Response Plan

The Yolo County Emergency Response Plan discusses the structure of the emergency response effort by the County of Yolo. Its structure follows the Incident Command System (ICS) and the Standardized Emergency Management System (SEMS). Both ICS and SEMS are statewide organizational standards that allow ease of interaction between multiple agencies.

3.13.3 Environmental Consequences

Significance Criteria

This analysis of public services and utilities evaluates the potential effects of the Proposed Project/Action on the existing public services and utilities within or adjacent to the Proposed Project/Action Area. Significance criteria for this analysis are based on Appendix G of the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Appendix G).

Effects are considered significant if an alternative would result in any of the following:

- 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:
 - Fire protection
 - Police protection

- Schools
- Parks
- Other public facilities

An alternative is considered to have a significant impact on utilities and service systems if it would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- 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;
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed;
- 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;
- Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- Comply with federal, state, and local statutes and regulations related to solid waste.

Impact Evaluation

Resources Not Considered in Detail

The following discussion of environmental impacts is limited to those potential impacts that could result in some level of potentially significant environmental change, as defined by CEQA. Implementation of the Proposed Project/Action would not require the construction or expansion of new wastewater or storm water facilities (bullets 1,2, 3 and 5 above). While the Proposed Project/Action would be jointly operated by RD 2035 and the WDCWA (bullets 1 through 3 above), the construction of new water supply facilities and procurement of new water entitlements was the subject of the 2007 DWWSP EIR, and is not the subject of this environmental analysis. Therefore, impacts associated with the above mentioned categories are less-than-significant and are not discussed further within this section.

No Project/Action Alternative

Under the No Project/Action Alternative, RD 2035 would not construct a new screened joint use intake and would continue to use its existing, unscreened diversion and this would have no new affect on public services and utilities.

Proposed Project/Action Alternative

Impact 3.13-1: The project would generate the need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times of other performance objectives for any of the public services (i.e., fire protection, police protection, other public facilities, the construction of which could cause significant environmental impacts). (Less than Significant)

Construction Impacts

An increased need for emergency services may occur during construction. The potential for accidents requiring emergency services could increase during construction of Project components because of increased use of heavy equipment, truck traffic and equipment movement. However, the potential increase would only result in a short-term, temporary increase in the need for police and fire services, in the event of an accident. This type of demand increase could be accommodated by existing facilities and resources in the Project vicinity.

Project Operations Impacts

Operation of the Proposed Project/Action would not result in the need for new governmental facilities. In addition, the Proposed Project/Action would not generate any demands for additional public services that would require new or altered facilities, including police, fire protection, storm drainage, solid waste, and wastewater facilities. Additional use of some utilities would result from project operations including the use additional electricity, however PG&E has indicated that it can adequately supply the Proposed Project/Action without the need to construct new or expanded facilities (WYA, 2011). However, no additional production of wastewater or solid waste would result with the implementation of the Proposed Project/Action.

Mitigation: None required.

Impact 3.13-2: The project would be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs. (Less than Significant)

Construction Impacts

Construction of the Proposed Project/Action facilities would involve site preparation and grading. Construction activities may generate waste materials, including vegetation, asphalt, concrete, and other nonhazardous materials, that could be recycled and/or disposed of in a landfill. Other waste materials related to construction of the Proposed Project/Action would not be generated in substantial amounts. RD 2035 would coordinate waste disposal with the YCCL. Therefore, implementation of the Proposed Project/Action would not substantially reduce the capacity/life of the YCCL.

Project Operations Impacts

Proposed Project/Action operations would generate sludge and trash waste streams that would be disposed of at the YCCL. The YCCL has a future operation life of approximately 72 years with an expected closure date of January 1, 2081 (Yolo County, 2009). Capacity within the YCCL is

therefore sufficient to meet project waste disposal needs, and no significant impact to landfill capacity is anticipated.

Mitigation: None required.

Impact 3.13-3: The project would violate federal, state, and local statutes and regulations related to solid waste. (Less than Significant)

Construction & Project Operations Impacts

Implementation and construction of the Proposed Project/Action will require compliance with previously stated State and county policies. Solid waste disposal from associated with construction and operations would increase disposal at the YCCL. Waste generated by the project would be within the capacity of the YCCL. The Proposed Project/Action would be in compliance with policies related to solid waste disposal in the Yolo County General Plan. The policies address reducing consumption of non-renewable resources, and reuse and recycling of resources.

Mitigation: None required.

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3.14 Cumulative Effects

3.14.1 Regulatory Framework

The Cumulative effects analysis broadens the scope of analysis to include effects beyond those directly attributable to the implementation of the Proposed Project/Action. Cumulative effects are defined as the effects “...on the environment which result from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions regardless what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR Sec. 1508.7)”. The purpose of cumulative effects analysis, as stated by the CEQ “is to ensure that federal decisions consider the full range of consequences” (CEQ, 2007).

Section 15130(b) of the CEQA Guidelines states that the following three elements are necessary to an adequate discussion of significant cumulative impacts:

- Either: (A) a list of past, present, and probable future projects producing related or cumulative impacts, including those projects outside the control of the Lead Agency (i.e., the list approach); or (B) a summary of projections contained in an adopted general plan or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact (i.e., the plan approach). Any such planning document shall be referenced and made available to the public at a location specified by the Lead Agency.
- A summary of expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available.
- A reasonable analysis of the cumulative impacts of the relevant projects. [A project] shall examine reasonable, feasible options for mitigating or avoiding the Project’s contribution to any significant cumulative effects.

This analysis uses the “list” method for identifying and evaluating potential cumulative impacts. The past, present, and probable future projects listed in Table 3.14-1 are either: (a) located within the vicinity of the proposed project facilities and may affect the same environmental resources; or (b) of a similar nature to the Proposed Project/Action, including other water supply or management projects located in the Sacramento River basin. The identified projects are in various stages of development and include projects that are under construction, have been recently approved, or are pending approval.

**TABLE 3.14-1
PROJECTS WHICH MAY CONTRIBUTE TO CUMULATIVE EFFECTS**

Project Name	Acreage	Location	Description	Status	Potential Environmental Impacts*
Yolo County					
Elkhorn Specific Plan (Yolo County General Plan)	343	Unincorporated Yolo County, Surrounding the project site.	Specific Plan that includes the action area to include a mix of commercial and industrial job producing development. Includes the project site as part of the specific plan area.	General Plan Adopted in November 2009. Will require specific plan and focused/tiered EIR.	Aesthetics, Agricultural Land, Air Quality, Biological Resources, Cultural Resources, Drainage, Flooding, Geologic/Seismic, Noise, Public Services, Soil Erosion, Toxic/Hazardous, Traffic/Circulation, Water Quality, Water Supply, and Land Use.
City of Davis					
Davis-Woodland Water Supply Project	n/a	Unincorporated Yolo County, City of Davis, City of Woodland, University of California Davis, adjacent to the Project site.	Includes the development of an adequate water supply for drinking and cost-effective wastewater treatment in Davis, Woodland, and UC Davis through 2040. The project would involve the construction of a new or consolidated intake with RD 2035 along the Sacramento River and includes the construction of conveyance pipelines and a water treatment plant.	EIR certified December 2007.	Aesthetics, Agricultural Land, Air Quality, Biological Resources, Cultural Resources, Drainage, Flooding, Geologic/Seismic, Noise, Public Services, Soil Erosion, Toxic/Hazardous, Traffic/Circulation, Water Quality, Water Supply, and Land Use.
City of Sacramento					
Natomas Levee Improvement Program	n/a	Sacramento River in the vicinity of the project site.	Bank protection measures at nine sites along the east (left) bank of the Sacramento River in order to control erosion and improve flood protection. Project area is located between River Mile 69 (at approximately the Interstate 5 river crossing) and RM 79 (the confluence with the Natomas Cross Canal).	Construction in progress – not built out	Aesthetics, Agricultural Land, Air Quality, Biological Resources, Fisheries Cultural Resources, Drainage, Flooding, Geologic/Seismic, Noise, Soil Erosion, Toxic/Hazardous, Traffic/Circulation, Water Quality.
Other Water Management Projects					
Sacramento River Water Reliability Study	n/a	Encompassing portions of southern Sutter County, northern Sacramento County, and western and southern Placer County. Facilities proposed north and south of the project site along the Sacramento River	Water supply infrastructure components, including water diversion from the Sacramento River, water treatment facilities, and water conveyance pipelines. The project extends from the Sacramento River east into Placer County.	Draft EIR/EIS being prepared.	Water Supply, Vegetation, Wildlife, Fisheries, Loss of Agricultural Land, Water Quality, Land Use, Noise, Aesthetics, and Cultural Resources.
American Basin Fish Screen Habitat Improvement Project	n/a	Sacramento County, Sutter County along the Sacramento River north of the project site.	This project involves the consolidation of diversions and the addition of state-of-the-art fish screens to Natomas Central Mutual Water Company's (NMWC's) diversions on the Sacramento River between Verona and the American River.	Under Construction; completion in early 2013	No significant adverse impacts; beneficial effects to fisheries

3.14.2 Description of Cumulative Projects

Land Development Projects

Yolo County General Plan Update (Elkhorn Specific Plan)

The Yolo County General Plan update, approved by the Yolo County Board of Supervisors on November 10, 2009, allows for an additional 26,600 residents, 9,500 homes, and 901 acres of economic development through the year 2030. The four primary land use changes that account for these increases include:

- New commercial and industrial development for the Elkhorn Specific Plan Area (320 job-producing acres)
- Dunnigan community expansion (21,000 residents, 7,500 units, and 430 job-producing acres)
- Madison community expansion (3,655 residents, 1,305 units, and 116 job-producing acres)
- Conversion to industrial at Spreckels site (69 job-producing acres)

The Elkhorn Specific Plan Area surrounds the RD 2035 intake site and consists of approximately 348 acres designated for commercial and industrial uses but not for residential uses. The Elkhorn Specific Plan Area is viewed by the County as having several key factors that would allow the area opportunities for economic development including frontage on the Sacramento River, access via an interchange to I-5, proximity to the Sacramento International Airport and three cities. Development of the Elkhorn Specific Plan Area will require site specific environmental review and development will be phased over the next 20 years to 2030 (Yolo County, 2009).

Water and Infrastructure Improvement Projects

Natomas Levee Improvement Program

In 2007, Sacramento Area Flood Control Agency (SAFCA) released a Final EIR on its proposed assessment district to fund the local share of the Natomas Levee Improvement Program (NLIP). The EIR identified many NLIP features spanning several phases analyzed at both a programmatic and project specific level. Affected areas include the east levee of the Sacramento River, the south levee of the Natomas Cross Canal (NCC), and the west levees of the Pleasant Grove Creek Canal (PGCC) and the Natomas East Main Drainage Canal. Project features include:

- Increasing freeboard so the top of the levee height remains three feet above the water elevation of a 200-year flood. This could affect five miles of the north levee of the NCC as well as about 20 miles of the levees referenced above.
- Preventing erosion at areas that could be prone to erosion-induced levee failure (a total of about three miles).
- Remedying subsurface seepage affecting 20-30 miles including sections of the above levees plus the north levee of the American River. This seepage is a hazard where the soils below the levee are permeable, allowing water to seep under the levee during high flows. Such seepage can lead to erosion of the levee foundation and ultimately failure of the levee.

SAFCA has certified and is the process of preparing several EIR's to cover the various phases of the project, some of which are currently under construction. Phase 4a project approval is expected to occur in November of 2009. A notice of preparation for a joint EIR / Environmental Impact Statement (EIS) for Phase 4b was released on November 5, 2009 (SAFCA, 2009).

Davis-Woodland Water Supply Project

As described in the project description, the Cities of Davis and Woodland and UC Davis, termed the DWWSP Partners, have developed alternatives to obtain a surface water supply to use conjunctively with their existing groundwater supply. In 2007, the DWWSP partners completed CEQA environmental documentation (2007 DWWSP Final EIR, certified October 16, 2007), which identified the joint use of RD 2035's new diversion facility as one of three water supply intake alternatives. Details of the DWWSP Project included a joint use diversion/intake facility with RD 2035 that would divert up to 52 million gallons per day (mgd) (average 80 cfs) of water from the Sacramento River under a capacity-related-joint-use arrangement with RD 2035. The amount of water diverted would be limited to the water rights held by the DWWSP Partners (City of Davis, 2007). Other DWWSP Facilities include:

- Approximately 4.5-mile long dual 42-inch untreated water conveyance pipelines
- 51.8 mgd Water treatment plant
- Approximately 15 miles of treated water transmission pipelines
- Local storage and distribution facilities

Sacramento River Water Reliability Study

Studies for the Sacramento River Water Reliability Study (SRWRS) project are funded jointly by Reclamation and Placer County Water Agency (PCWA). This project consists of a new water diversion and pump station on the Sacramento River near the end of Elverta Road north of the Sacramento International Airport. The diversion would have a capacity of 235 mgd (about 365 cfs). A water treatment plant would be built on 100 acres along Elverta Road near the diversion, and pipelines would be built connecting the diversion to the treatment plant and the treatment plant to the systems of the SRWRS project partners, the City of Sacramento, the City of Roseville, the Sacramento Suburban Water District (SSWD), and the PCWA.

The objective of the SRWRS is to construct a new diversion on the Sacramento River to provide water to the project partners while preserving the American River consistent with the Water Forum Agreement. The Notice of intent for the project was published July 30, 2003 with Scoping meetings held in September of 2003. The Draft EIS/EIR is currently being completed with no estimated date for completion (Reclamation, 2009).

American Basin Fish Screen Habitat Improvement Project

The American Basin Fish Screen and Habitat Improvement Project was developed to address concerns regarding the potential adverse effects to local fish species caused by existing diversion facilities owned and operated by Natomas Central Mutual Water Company (Natomas Mutual), while assuring the reliability of the water supply for beneficial uses within the Natomas Basin. At various

times of the year, the lower Sacramento River and NCC are inhabited by numerous fish species at various life stages, including such state and federally-listed species as the winter-run chinook salmon, spring-run chinook salmon, Central Valley steelhead, green sturgeon and other at-risk species. The project includes the installation of positive barrier fish screens to minimize the entrainment of resident and migratory fish species; consolidating and eliminating numerous water diversion facilities within Natomas Mutual service area; restoring aquatic and riparian habitats where facilities are removed; removing a diversion dam at the mouth of the Natomas Cross Canal and Sacramento River; and modifying and improving portions of the water distribution system.. The Final EIS/EIR for this project was published on July 28, 2008 with the Record of Decision signed on April 20, 2009 (Natomas Mutual, 2008). Construction of project improvements is currently underway and scheduled for completion in early 2013 (USBR, 2011).

3.14.3 Cumulative Impact Summary and Analysis

Issues Not Resulting in Potential Cumulative Impacts

For the following resource areas, the Proposed Action is not expected to make a cumulatively considerable contribution to an impact because it is expected that the effects of the Proposed Project/Action would not be added to the effects of other projects (i.e., no cumulative impact is expected to occur), or because the contribution of the Proposed Project/Action to any potential cumulative effect would be very minor.

- Land Use and Agriculture
- Aesthetic Resources
- Noise and Vibration
- Geology, Soils and Seismicity
- Transportation and Traffic
- Hazards and Hazardous Materials
- Socioeconomics and Environmental Justice ITAs
- Recreation
- Public Services

Land Use Agriculture

The Proposed Project/Action, affecting primarily the water side of the levee along the Sacramento River, would not convert any farmland or otherwise affect agricultural resources. Therefore, this project would not contribute to a cumulative effect to Land Use and Agricultural Resources.

Aesthetic Resources

As described in Section 3.2, no designated scenic vistas occur within the project area. Because there are already substantial human-made features including an existing water intake structure, marina and dock, and the I-5 bridge along the Sacramento River in the vicinity of the project site, visual effects resulting from the Proposed Project/Action would not result in a contribution to cumulative impact.

Noise and Vibration

Construction noise and vibration effects associated with the Proposed Project/Action would be localized, intermittent, and temporary and would not result in a contribution to a significant cumulative impact. Operational noise would be similar to existing water diversion operations at the site. New noise generating mechanical equipment, such as HVAC systems, would be shielded and would not result in a contribution to a cumulative effect.

Hazardous materials

No known hazardous materials or hazardous materials sites have been identified in the vicinity of the Proposed Project/Action. Mitigation identified in Section 3.10 will be implemented to minimize the potential for exposure of people or the environment to undiscovered hazardous materials encountered during construction activities. If hazardous materials are encountered, the effects would be localized and would not be expected to be additive with the effects of other actions. Therefore, there would be no cumulative effects related to hazardous materials.

Geology, Soils and Seismicity

The implementation of the projects identified in Table 3.14-1 would neither increase nor decrease seismic risk for persons or structures in the vicinity. Potential geologic, soils, and seismic hazards identified for the Proposed Project/Action would be reduced to less than significant through implementation of standard mitigation measures, compliance with the California Building Code and Uniform Building Code, and standard engineering practices. Therefore, there would be no cumulative effects related to Geology, Soils and Seismicity.

Transportation and Circulation

Construction traffic impacts would be temporary and would not contribute to a cumulative impact. Traffic impacts resulting from operation and maintenance of the Proposed Project/Action were determined to be less than significant. There would be no operational increases in LOS or volume capacity ratios. Therefore, in combination with the traffic impacts of other projects, the Proposed Project/Action would not contribute to a cumulative effect on transportation and traffic.

Socioeconomics and Environmental Justice ITAs

As described in Section 3.12, no minority or low-income communities of concern are located within the affected environment for the Proposed Project/Action. Consequently, the Proposed Project/Action would not contribute to a cumulative effect on environmental justice, socioeconomics, or Indian trust assets.

Recreation

Effects of the Proposed Project/Action on recreational uses would be limited to potential disturbance of access to the river during construction, and potential temporary degradation in the quality of recreational resources as a result of construction activity and noise. Because of the temporary nature of the construction effects and the likelihood that any access restrictions or

degradation of the quality of recreational resources would last only during the duration of the construction phase, these effects are not considered substantial enough to make a contribution to a cumulative effect on recreation.

Public Services

Construction would temporarily affect public utility infrastructure, primarily roads, and could result in temporary disruptions in emergency services. Standard mitigation, including coordination with public utility agencies and service providers, would minimize the possibility that any significant effect would occur. Furthermore, any such incidents would be isolated to the construction phase and would not contribute to a cumulative effect.

Issues that May Result in Potential Cumulative Impacts

The remainder of this section focuses on analysis of the potential contributions of the Proposed Action to cumulative impacts with regard to the following resource topics:

- Surface Water Hydrology and Water Quality
- Biological Resources
- Cultural resources
- Air quality

Surface Water Hydrology and Water Quality

Project operations, when combined with other existing, planned or foreseeable future Sacramento River diversions or water management projects, would not adversely affect Sacramento River hydrologic conditions and water quality.

Because the proposed RD 2035/WDCWA joint intake would not alter RD 2035's existing diversions from the Sacramento River, this project does not impact surface water hydrology or water quality. The project serves as a replacement diversion facility for the existing unscreened RD 2035 intake. RD 2035's diversions from the replacement intake would be the same as existing conditions and future conditions without the project. Therefore, this project would not contribute to cumulative effects.

WDCWA joint use of the RD 2035 intake would divert water under its own water rights, separate from RD 2035's diversions. In this case, the DWWSP diversions would be in addition to those of RD 2035 and would contribute to cumulative effects on surface water hydrology. The impacts of the DWWSP have been analyzed previously in an EIR adopted by Davis and Woodland in 2007 and in the 2007 DWWSP EIR Addendum adopted in April of 2011.

Project Construction, when combined with other existing, planned or foreseeable future Sacramento River diversions or water management projects, could potentially adversely affect Sacramento River water quality.

The Proposed Project/Action would only contribute short term and temporary increases to degradation of water quality during construction. The proposed BMPs and mitigation measures and compliance with Federal and state water quality regulations identified in Section 3.6 and 3.7 would reduce the level of impacts to less than significant. However, because the specific construction timing of some of the cumulative projects identified in Table 3.14-1 is unknown, there is a potential that construction activities for those projects could overlap with construction of the Proposed Action and result in a potential contribution to a cumulative water quality impact.

Biological Resources

The Project, when combined with other existing, planned or foreseeable future projects in the area, would not result in cumulative impacts to terrestrial biological resources.

The environmental impact analysis presented in Section 3.7 identified potential adverse impacts to species and their habitats from implementation of the Proposed Project/Action without the implementation of mitigation. Mitigation is identified to substantially lessen project impacts and no impacts were determined to be significant and unavoidable. Implementation of the Proposed Project/Action has the potential to contribute to the loss or degradation of sensitive habitats, including riverine aquatic habitat, seasonal wetlands, and riparian areas, and to adversely affect several special-status wildlife species, including the Swainson's hawk, GGS, and VELB. Most of the potentially adverse effects of the Proposed Project/Action related to wildlife would be associated with temporary construction activities to individuals and their habitats, but permanent loss of certain habitats would also result from some of the landside improvements including grading and reconfiguration of the outfall channel that serves the existing RD 2035 main canal. These effects could contribute to the further decline of certain species and habitat losses that have led to the need for protection under the ESA. Similar potential for adverse effects on special-status species and their habitats would be associated with the development of the projects within the project area in Yolo County identified in Table 3.14-1 including the Elkhorn Specific Plan and development of the DWWSP landside facilities. These projects will be required to mitigate impacts to special-status species and sensitive habitats to the maximum extent feasible. However, there is a potential that construction activities for those projects could overlap with construction of the Proposed Action and result in a potentially significant contribution to a cumulative impact to terrestrial biological resources.

Implementation of the mitigation measures in Section 3.7 would ensure that the effects of the Proposed Project/Action are reduced or avoided in accordance with the requirements of the ESA and other regulatory programs that protect habitats, such as Section 1602 of the DFG Code. Furthermore, RD 2035 would implement avoidance and other mitigation measures in accordance with the requirements of the FESA, CESA, and Section 1602 of the DFG Code and would include additional habitat protection and/or replacement and enhancement components into the Proposed Project/Action. Although the Proposed Project/Action would impact riparian habitat, including riverine habitat, this would be offset by the beneficial effect to fisheries that the project would provide

through the replacement of an unscreened intake with one that is screened. The Proposed Project/Action would not make a considerable contribution to cumulative impacts on terrestrial resources.

The Project, when combined with other existing, planned or foreseeable future, would not result in cumulative impacts to fisheries within the Sacramento River.

The environmental impact analysis presented in Section 3.7, identified potential adverse impacts to species and their habitats from implementation of the Proposed Project/Action. All aquatic biological resource impacts have been determined to be less than significant. The replacement of the existing unscreened intake with one that is screened is considered a beneficial effect.

Of the proposed projects described above that are within the cumulative geographic scope of the Proposed Project/Action, there are only a few that would involve activities that could affect hydrologic conditions in the Sacramento River. As a result, only those projects that could affect fish species that inhabit the Sacramento River are included in the cumulative impacts analysis. Only a limited number of projects that have the potential to cumulatively impact aquatic resources are specifically considered in the cumulative impacts analysis for fisheries and aquatic resources. These projects are:

- Davis-Woodland Water Supply Project
- Sacramento River Water Reliability Study
- American Basin Fish Screen and Habitat Improvement Project
- Sacramento Area Flood Control Agency Natomas Levee Improvement Program

It can be reasonably assumed that the impacts of these projects could result in potentially significant construction-related cumulative impacts on aquatic resources because there is a potential that construction activities for those projects could overlap with construction of the Proposed Project/Action. However, the Proposed Project/Action is not expected to contribute to environmental impacts that may result from the other projects listed above, because the Proposed Project/Action will incorporate mitigation measures that will reduce the construction-related impacts to a very small residual amount.

Operation of the RD 2035 joint intake is not anticipated to have a cumulative impact to fisheries resources since the diversions from the replacement intake would be the same as existing conditions and future conditions without the project. Operational maintenance activities would be limited to screen maintenance and this is expected to occur infrequently or limited to emergency conditions.

As a result, the Proposed Project/Action would have minor short-term construction-related adverse effects on aquatic resources, however it would have a long-term beneficial effect by replacing the existing RD 2035 unscreened diversion with one that is screened. Therefore, construction and operation of the Proposed Project/Action it would not make a considerable contribution to cumulative impacts on fisheries resources.

Cultural Resources

The Project, when combined with other planned projects or projects under construction in the area, could result in cumulative impacts to buried archaeological and/or human remains.

Implementation of the Proposed Project/Action could result in damage to previously unidentified buried archaeological and/or human remains during ground-disturbing activities of project construction. In the event that other projects in the vicinity of the Proposed Project/Action also uncover previously unidentified buried archaeological and/or human remains, the Proposed Project/Action could incrementally contribute to a cumulative impact to unidentified archaeological and/or human remains. However, implementation of Mitigation Measure 3.8-1 will ensure that the Proposed Project/Action will have a less than significant impact, and in combination with the impacts of other projects, the incremental effects of the Proposed Project/Action will not be cumulatively considerable.

Air Quality

Construction of the Proposed Action in combination with other planned projects or projects under construction in the area, could contribute to cumulative air quality impacts in the region.

As identified in Section 3.3 Air Quality, the southern SVAB is designated as ‘non-attainment’ for state and federal ozone standards and state PM₁₀ standards. Project-related construction impacts to air quality are considered less than significant with the implementation of Mitigation Measures. However, because the specific construction timing of the projects identified in Table 3.14-1 is unknown, there is a potential that construction activities for these projects could overlap with construction of the Proposed Project/Action and result in a potentially significant incremental contribution to air quality impacts that could be cumulatively considerable.

3.15 Growth Inducing Effects

A growth-inducing effect is an effect which fosters economic or population growth. If the Proposed Project/Action is determined to be growth-inducing the effects of this growth need to be analyzed. Growth inducing effects may include effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air, water, and other natural resources.

The significance of the growth-inducing potential of a project is determined whether or not it stimulates population growth or a population concentration above what is assumed in local and regional land use plans, or in projections made by regional planning authorities such as Sacramento Area Council of Governments (SACOG) which incorporate population projections for all cities and communities within the region. Projects that induce growth consistent with local and regional land use plans are still considered growth inducing. However, it is assumed that the environmental effects of this growth have been analyzed and mitigated during the development of these growth plans. When growth extends beyond the assumptions outlined within existing growth plans, the environmental effects of this growth have not been considered and must be analyzed. The key issue related to growth inducement for the Proposed Project/Action is whether or to what extent water supplies provided by the project would have indirect growth-inducing impacts.

3.15.1 Direct Growth Inducement

The Proposed Project/Action would result in the demolition of the existing RD 2035 Sacramento River intake and construction of a new positive barrier fish screen, intake and pump station. Temporary employment would be generated during the construction phase. Because of rising unemployment and housing availability, especially in construction as a result of a slowing housing market, construction workers would be available from the local labor pool without drawing new workers to the area. Additionally, because The Proposed Project/Action would not result in an in water supply over that which currently exists, it would not support any additional growth beyond what is already approved including the creation of additional housing units or additional permanent employment, nor would it require that additional housing resources be developed elsewhere. Therefore, no direct growth inducement would occur with implementation of the Proposed Project/Action.

3.15.2 Removal of Infrastructure or Institutional Barriers to Growth

Implementation of the Proposed Project/Action would result in a new replacement diversion and pump station similar to the existing RD 2035 facilities to provide irrigation and environmental water to the existing RD 2035 service area. The Proposed Project/Action would maintain RD 2035's pumping capacity of 400 cfs and would not result in additional water supply above and beyond the existing capacity amount. The replacement diversion would not provide new unplanned municipal or agricultural capacity and would only serve existing agricultural uses within the Conaway Ranch. The replacement diversion serves only to utilize and protect RD-2035's existing water rights and ensure that it can maintain a reliable long-term supply to their service area in a manner that complies with present

and future regulatory requirements. Therefore, the Proposed Project/Action would not result in growth inducing effects or foster economic growth above existing conditions.

As described in Section 2 of this document, CPG has entered into an agreement with the WDCWA to provide up to 100 cfs of municipal water supply to serve the Cities of Woodland, Davis, and the University of California, Davis. The 2007 DWWSP EIR assessed the growth inducement potential of the entire water supply project, which includes joint use of the Proposed Project/Action intake and CPG's assignment of water rights to WDCWA, and considered the additional population and development that would be supported by water deliveries as compared to the level of growth allowed by and analyzed in existing applicable land use plans, including the City of Davis General Plan 2001, City of Woodland General Plan 2002, and UC Davis Long Range Development Plan (LRDP), 2003.

It should be noted that construction of the RD 2035/WDCWA Joint Intake would take place independent of the DWWSP Project and that the WDCWA is currently pursuing an alternate intake location in the event that joint intake with RD 2035 is infeasible. Additionally, the Cities of Woodland, Davis, and UC Davis currently have access to groundwater supplies and have identified other alternative intake locations along Sacramento River independent of the Proposed Project/Action. Consequently, the Proposed Project/Action would not induce growth by extending infrastructure to a currently unserved area because the ability to provide water to serve current and planned growth already exists. Rather, the Proposed Project/Action would provide for a more reliable water source for the WDCWA member agencies than under current conditions and represents the potential consolidation of two Sacramento River intakes into one. This conclusion is based on three factors; (1) well water currently serves municipal/industrial customers in the project area; the absence of surface water pipeline delivery systems has not constrained growth in these areas in the past, and in the absence of surface water, growth could be accommodated through continued groundwater pumping and costly treatment measures which would ultimately lead to increased salt loads in effluent discharges; (2) the WDCWA member agencies have a number of policies that discourage conversion of farmland, especially outside of designated growth areas including the City of Davis Measure J and the establishment of the Urban Limit Line for the City of Woodland. As a result, the Proposed Project/Action would not be expected to alter the pattern of growth in any of these areas, rather it would provide supply reliability for existing and planned growth; and (3) the significant impacts associated with planned growth have been considered and mitigation measures, where feasible, have been adopted by the WDCWA member agencies. Therefore, the Proposed Project/Action would not result in growth inducing effects beyond those already identified by each respective lead agency in the 2007 DWWSP EIR, nor remove a barrier to growth.

SECTION 4

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SECTION 5

Bibliography

Section 1.0 - Introduction

City of Davis. 2007. *Davis Woodland Water Supply Project Environmental Impact Report*. April 2007.

Section 2.0 - Project Description

California Department of Fish and Game (DFG), 2000. Fisheries Engineering Projects and Information. Fish Screen Criteria.
<http://www.dfg.ca.gov/fish/Resources/Projects/Engin/index.asp> (Site Accessed January 25, 2012)

Jones, Sam. Personal Communication with Sam Jones, West Yost Associates regarding PG&E power supply. October 4, 2011

National Marine Fisheries Service (NMFS, 1998). National Marine Fisheries Service Southwest Region Fish Screening Criteria for Anadromous Salmonids.
<http://swr.nmfs.noaa.gov/hcd/fishscrn.pdf> (Site Accessed January 25, 2012)

Taber Consultants, 2010. Geotechnical Investigation – Revised, RD 2035 Sacramento River Pump Station, Yolo County, September 2010.

Taber Consultants. 2011. RD 2035 Sacramento River Pump Station Geotechnical Investigation-Addendum (Revised), August 12, 2011.

West Yost Associates. 2000. RD 2035 Sacramento River Pump Intake Positive Barrier Fish Screen Design and Environmental Review. Technical Memo

Section 3.1 Land Use and Agriculture

Yolo County. 2009. 2030 Countywide General Plan Update. November 2009.

Section 3.2 Aesthetic Resources

California Department of Transportation (Caltrans), California Scenic Highway System: A list of eligible and officially designated routes,
<http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm> (site accessed October 4, 2011).

Yolo County. 2009. 2030 Countywide General Plan Update. November 2009.

Section 3.3 Air Quality and Climate Change

- California Air Pollution Control Officers Association (CAPCOA), 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*.
- California Air Resources Board (ARB), 2000. *Proposed Risk Reduction Plan for Diesel-Fueled Engines and Vehicles*, October 2000.
- California Air Resources Board (ARB), 2002. *Public Hearing to Consider Amendments to the Ambient Air Quality Standards for Particulate Matter and Sulfates*, May 3, 2002.
- California Air Resources Board (ARB), 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*, April 2005.
- California Air Resources Board (ARB), 2007. *Mandatory Reporting of California greenhouse gas Emissions*, Presentation at Cal/EPA Headquarters. August 29, 2007.
- California Air Resources Board (ARB). 2008. *Climate Change Scoping Plan*. December 11, 2008.
- California Air Resources Board (ARB), 2009. *ARB Fact Sheet: Air Pollution Sources, Effects and Control*, <http://www.arb.ca.gov/research/health/fs/fs2/fs2.htm>, page last reviewed December 2009.
- California Air Resources Board (ARB), 2010a. *Ambient Air Quality Standards*, available at <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf> Standards last updated September 8, 2010.
- California Air Resources Board (ARB), 2010b. *Area Designation Maps*, <http://www.arb.ca.gov/desig/adm/adm.htm>, page updated September 7, 2010.
- California Air Resources Board (ARB), 2011. *Summaries of Air Quality Data, 2007-2009*; <http://www.arb.ca.gov/adam/cgi-bin/db2www/polltrends.d2w/start>
- California Climate Action Registry (CCAR), 2009. *General Reporting Protocol, Version 3.1*. January 2009.
- Dockery, D. W., and Pope, C.A., III, 2006. *Health Effects of Fine Particulate Air Pollution: Lines that Connect*. Journal Air & Waste Management Association, pp. 709–742.
- Governor’s Office of Planning and Research (OPR), 2008. *Technical Advisory – CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review*. June 19, 2008.
- Yolo County. 2009. 2030 Countywide General Plan Update. November 2009.
- Yolo-Solano Air Quality Management District (YSAQMD), 2007. *Handbook for Assessing and Mitigating Air Quality Impacts*. July 11, 2007.
- Yolo-Solano Air Quality Management District (YSAQMD), 2010. *Triennial Assessment and Plan Update*. May 2010.

Section 3.4 Noise and Vibration

City of Davis. 2007. *Davis Woodland Water Supply Project Environmental Impact Report*. April 2007.

Cunniff, Patrick. 1977. Environmental Noise Pollution.

Federal Transit Administration (FTA). 2006. Transit Noise and Vibration Impact Assessment, May 2006.

Morrison, David. 2006. Personal Phone Communication with David Morrison, Assistant Planning Director for the County of Yolo. August 15, 2006.

United States Environmental Protection Agency (USEPA). 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. March 1974.

Yolo County. 2009. 2030 Countywide General Plan Update. November 2009.

Section 3.5 Geology, Soils, and Seismicity

California Division of Mines and Geology (CDMG). 1997. California Division of Mines and Geology, Guidelines for Evaluating the Hazard of Surface fault Rupture, CDMG Note 49, 1997a.

Jennings, C. W. 1994. Fault Activity Map of California and Adjacent Areas. California Division of Mines and Geologic Data Map No. 6, 1:750,000.

Natural Resources Conservation Service (NRCS), 1972. Soil Survey for Yolo County, California. Prepared for the NRCS [Natural Resources Conservation Service; previously the Soil Conservation Service (SCS)], June 1972

Peterson, et.al., 1999. Seismic Shaking Hazard Map for California. California Geological Survey.

U.S. Geological Survey, 1996. USGS Response to an Urban Earthquake -- Northridge '94: The Local Effects of Strong Ground Shaking. <http://pubs.usgs.gov/of/1996/ofr-96-0263/localeff.htm>

Yolo County. 2009. 2030 Countywide General Plan Update. November 2009.

Yolo County Water Resources Authority (YCWRA). 2008. DWR/USBR Sacramento Valley Subsidence Project. Available at http://www.yolowra.org/projects_subsidence.html

Section 3.6 Hydrology and Water Quality

Brown and Caldwell, Archibald & Wallberg Consultants, Marvin Jung & Associates, and McGuire Environmental Consultants, Inc. 1995. Study of Drinking Water Quality in Delta Tributaries. Prepared for California Urban Water Agencies.

- CALFED. 2000. CALFED Bay-Delta Program Final Programmatic Environmental Impact Statement/Environmental Impact Report. July 2000.
- Central Valley Regional Water Quality Control Board (CVRWQCB). 1998. Water Quality Control Plan (Basin Plan) for the Sacramento River Basin and the San Joaquin River Basin. 4th ed.
- City of Davis. 2007. *Davis Woodland Water Supply Project Environmental Impact Report*. April 2007.
- Domagalski, J. L., D. L. Knifong, P. D. Dileanis, L. R. Brown, J. T. May, V. Connor, and C. N. Alpers. 2000a. Water Quality in the Sacramento River Basin. California 1994-1998. U.S. Geological Survey Circular 1215. Available at: <http://pubs.usgs.gov/circ/circ1215/>
- State Water Resources Control Board (SWRCB). 2006. Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. December 13, 2007. Available at: http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/wq_control_plans/2006wqcp/docs/2006_plan_final.pdf
- State Water Resources Control Board (SWRCB). 1999. Final Environmental Impact Report for Implementation of the 1995 Bay-Delta Water Quality Control Plan.
- Yolo County. 2009. 2030 Countywide General Plan Update. November 2009.

Section 3.7 Biological Resources

- Adams, P.B., C.B. Grimes, J.E. Hightower, S.T. Lindley, and M.L. Moser. 2002. Status Review for the North American green sturgeon. NOAA, National Marine Fisheries Service, Southwest Fisheries Science Center, Santa Cruz, CA. 49 p.
- Bailey E.D. 1954. Time pattern of 1953–54 migration of salmon and steelhead into the upper Sacramento River. DFG unpublished report. 4 p.
- Baxter, R., R. Breuer, L. Brown, M. Chotkowski, F. Feyrer, M. Gingras, B. Herbold, A. Mueller-Solger, M. Nobriga, T. Sommer, and K. Souza. 2008. Pelagic organism decline progress report: 2007 Synthesis of results. Interagency Ecological Program for the San Francisco Estuary 2008, 1-86.
- Boles, G. 1988. Water temperature effects on chinook salmon with emphasis on the Sacramento River: a literature review. Report to the California Department of Water Resources. Northern District. 43 pp.
- California Department of Fish and Game (CDFG). 2011. California Natural Diversity Database: Data request for the Davis, Eldorado Bend, Grays Bend, Knights Landing, Merritt, Sacramento West, Taylor Monument, Verona, and Woodland USGS 7.5 minute quadrangles. Wildlife & Habitat Data Analysis Branch, Department of Fish and Game.
- California Department of Fish and Game (CDFG). 2011. *Special Animals List*. Habitat Conservation Planning Branch, Department of Fish and Game. January 2011.

- California Department of Fish and Game (CDFG). 2011. *Special Plants List*. Habitat Conservation Planning Branch, Department of Fish and Game. July 2011.
- California Department of Water Resources (CDWR). 2009. Bay Delta and Tributaries database (BDAT).
- California Native Plant Society (CNPS). 2011. Inventory of Rare and Endangered Plants (online edition V8-01a). California Native Plant Society, Sacramento, CA.
- Center for Biological Diversity, The Bay Institute, and Natural Resources Defense Council. 2006. Emergency petition to list the delta smelt (*Hypomesus transpacificus*) as an endangered species under the Endangered Species Act. Submitted to U.S. Fish and Wildlife Service. March 8 2006.
- City of Davis. 2007. Davis Woodland Water Supply Project Environmental Impact Report. April 2007.
- COSEWIC. 2004. COSEWIC Assessment and Update Status Report on the Green Sturgeon *Acipenser medirostris* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa.
- Good, T.P., R.S. Waples, and P. Adams (editors). 2005. Updated status of federally listed ESU of West Coast salmon and steelhead. U.S. Department of Commerce, NOAA Technical Memo. NMFS-NWFSC-66, 598 pages.
- Groot, C. and L. Margolis (eds.). 1998. Pacific salmon life histories. UBC Press. Vancouver, B.C.
- Hallock, R.J., D.H. Fry, and D.A. LaFaunce. 1957. The use of wire fyke traps to estimate the runs of adult salmon and steelhead in the Sacramento River. California Fish and Game 43(4):227-96.
- Hanson, C.H. 1996. Guidance efficiency of an acoustic (low-frequency sound) barrier in reducing juvenile Chinook salmon entrainment at the Reclamation District 1004 Princeton Slough Diversion: 1995 field studies and evaluation. Prepared for Reclamation District 1004. Hanson Environmental, Inc.
- Mayer, K. E. and W. F. Laudenslayer, Jr. 1988. A Guide to Wildlife Habitats of California. State of California, Resources Agency, Department of Fish and Game. Sacramento, California. 166 pp.
- Moyle, P. B., J. E. Williams, and E. D. Wikramanayake. 1989. Fish species of special concern of California. Wildlife and Fisheries Biology Department, University of California, Davis. Prepared for The Resources Agency, California Department of Fish and Game, Rancho Cordova.
- Moyle, P.B. 2002. Inland Fishes of California. University of California Press, Berkeley, CA. 517 pp.

- Myers, J.M., R.G. Kope, G.J. Bryant, D. Teel, L.J. Lierheimer, T.C. Wainwright, W.S. Grant, F.W. Waknitz, K. Neely, S.T. Lindley, and R.S. Waples. 1998. Status review of Chinook salmon from Washington, Idaho, Oregon, and California. U.S. Department of Commerce, NOAA Technical Memo. NMFS-NWFSC-35. 443 pages.
- Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A Manual of California Vegetation. California. 2nd Edition. Native Plant Society Press. Sacramento, CA.
- Snider, B., and R.G. Titus. 2000. Timing, composition, and abundance of juvenile anadromous salmonid emigration in the Sacramento River near Knights Landing, October 1996-September 1997. California Department of Fish and Game, Habitat Conservation Division, Stream Evaluation Program Technical Report No. 00-04.
- Spencer, W, Noss, R, Marty, J, Schwartz, M, Soderstrom, E, Bloom, P, Wylie, G, and S Gregory. Report of Independent Science Advisors for Yolo County Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP). March, 2006.
- State Water Resources Control Board (SWRCB). 1999b. Water Right Decision 1641 (D1641). Accessed online in September, 2007 at <http://www.waterrights.ca.gov/Decisions/D1641rev.pdf>.
- Swainson's Hawk Technical Advisory Committee (SHTAC). 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. Swainson's Hawk Tech. Advis. Comm. May. 2000.
- U.S. Fish and Wildlife Service. (USFWS). 1993. Endangered and Threatened Wildlife and Plants: Determination of Threatened Status for the Delta Smelt. Federal Register, Vol. 58, Number 42, March 5, 1993.
- U.S. Fish and Wildlife Service. (USFWS). 1994. Endangered and Threatened Wildlife and Plants: Critical Habitat Determination for the Delta Smelt. Federal Register, Vol. 59, Number 242, December 19, 1994.
- U.S. Fish and Wildlife Service. (USFWS). 1997. Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California. Federal Register, 1-1-F-97-14
- U.S. Fish and Wildlife Service (USFWS). 1999a. Draft Recovery Plan for the Giant Garter Snake. www.fws.gov/pacific/news/1999/garter.pdf
- U.S. Fish and Wildlife Service. 1999b. Conservation guidelines for the Valley Elderberry Longhorn Beetle. Sacramento Fish and Wildlife Office. 15 pp.
- U.S. Fish and Wildlife Service (USFWS). 2001. Abundance and survival of juvenile Chinook salmon in the Sacramento-San Joaquin Estuary: 1997 and 1998. Annual progress report. 131 pages.

- U.S. Fish and Wildlife Service (USFWS). 2004. Formal Programmatic Consultation on the Issuance of Section 10 and 404 Permits for Projects with Relatively Small Effects on the Delta Smelt (*Hypomesus transpacificus*) and its Critical Habitat within the Jurisdiction of the Sacramento Fish and Wildlife Office of U.S Fish and Wildlife Service, California, 1-1-04-F-0345, December 1.
- Vogel, D.A., and K. R. Marine. 1991. Guide to upper Sacramento chinook salmon life history. Report to U.S. Bureau of Reclamation, Central Valley Project. Redding, California: Ch2m Hill 55pp.
- Yoshiyama, R, F. Fisher, and P. Moyle, 1998. Historical Abundance and Decline of Chinook Salmon in the Central Valley. North American Journal of Fisheries Management. Vol. 18. pp 487–521
- Zeiner, D.C., W.F. Laudenslayer Jr., K.E. Mayer, and M. White (eds). 1988. California's Wildlife, Volume I, Amphibians and Reptiles. California Department of Fish and Game. Sacramento. 272 pp.
- Zeiner, D.C., W.F. Laudenslayer Jr., K.E. Mayer, and M. White (eds). 1990. California's Wildlife, Volume II, Birds. California Department of Fish and Game. Sacramento. 732 pp.

Section 3.8 Cultural Resources

- Fredrickson, D. A. 1973. Early cultures of the North Coast Ranges, California. Ph.D. dissertation. University of California, Davis. Davis, CA.
- Kroeber, A. L. 1925 Handbooks of the Indians of California. Berkeley, CA. California Book Company.
- McCarthy, H. 1985. Linguistics and its Implications for California Ethnogeography and Culture History. Pages 20–35 in Ethnography and Prehistory of the North Coast Ranges, California, Publication Number 8, Center for Archaeological Research, University of California, Davis, CA.
- McKern, W.C. 1922. Functional Families of the Patwin. American Archaeology and Ethnology 13 (7): 235-258.
- Moratto, M. J. 1984. California Archaeology. San Francisco: Academic Press.
- Pacific Legacy, Inc. 2003. National Register of Historical Places Evaluation of Reclamation District Pump station 12.5 R, Sacramento River, Yolo County, California.
- Whistler, K.A. 1977. Wintun Prehistory: An Interpretation Based on Reconstruction of Plant and Animal Nomenclature. Pages 157-174 in Proceedings of the Third Annual Meeting of the Berkeley Linguistics Society, Berkeley Linguistics Society. Berkeley, CA.
- Yolo County. 2009. 2030 Countywide General Plan Update. November 2009.

Section 3.9 Transportation and Traffic

City of Davis. 2007. Davis Woodland Water Supply Project Environmental Impact Report. April 2007.

Yolo County. 2007. Coast, Suellen. Assistant Engineer, Yolo County Engineering. Personal communication, March 5, 2007.

Yolo County. 2009. 2030 Countywide General Plan Update. November 2009.

Section 3.10 Hazards and Hazardous Materials

Yolo County. 2009. 2030 Countywide General Plan Update. November 2009.

Section 3.11 Recreation

City of Davis. 2007. Davis Woodland Water Supply Project Environmental Impact Report. April 2007.

Yolo County. 2009. 2030 Countywide General Plan Update. November 2009.

Section 3.12 Socioeconomics and Environmental Justice

U.S. Census Bureau. 2010. United States Census 2010. Available at: <http://factfinder.census.gov/>

Section 3.13 Public Services and Utilities

Yolo County. 2009. 2030 Countywide General Plan Update. November 2009.

Jones, Sam. 2011. Personal Communication with Sam Jones, West Yost Associates regarding PG&E power supply. October 4, 2011

Section 3.14 Cumulative Effects

City of Davis. 2007. Davis Woodland Water Supply Project Environmental Impact Report. April 2007.

Council on Environmental Quality, 2007. CEQ Collaboration in NEPA: A Handbook for NEPA Practitioners. October 2007

Sacramento Area Flood Control Agency (SAFCA), 2009. Natomas Levee Improvement Program Information Available at: http://www.safca.org/Programs_Natomas.html

U.S. Bureau of Reclamation (Reclamation). 2004. Sacramento River Water Reliability Study Program Information. Available at:
http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=907

U.S. Bureau of Reclamation (Reclamation). 2011. Anadromous Fish Screen Program (AFSP) 2011 AWP PowerPoint Presentation. Available at:
http://www.usbr.gov/mp/cvpia/docs_reports/meetings/2011/Final%20AFSP%20AWP%20Feb%2017,%202011.pdf

Woodland Davis Clean Water Agency (WDCWA). 2011. Davis Woodland Water Supply Project Environmental Impact Report Addendum. April. 2011

Yolo County. 2009. 2030 Countywide General Plan Update. November 2009.

Section 3.15 Growth Inducing Effects

No sources are cited in this Section.

Appendix A

CEQA Initial Study Checklist



ENVIRONMENTAL CHECKLIST

Initial Study

1. **Project Title:** RD 2035/Woodland Davis Clean Water Agency Joint Intake Project
2. **Lead Agency Name and Address:** Reclamation District 2035 (CEQA) and U.S. Bureau of Reclamation (NEPA)
2800 Cottage Way, MP-410,
Sacramento, CA 95825
3. **Contact Person and Phone Number:** Shelly Hatleberg (916-978-5290)
4. **Project Location:** Located on the west bank of the Sacramento River levee, approximately one half mile north of the I-5 river crossing and directly adjacent to the existing RD 2035 intake in unincorporated Yolo County. The nearest urban area is the City of Woodland, located approximately five miles west of the project site.
5. **Project Sponsor's Name and Address:** Reclamation District 2035
6. **General Plan Designation(s):** Agricultural (AG)
7. **Zoning Designation(s):** Agricultural General Zone (A-1)
8. **Description of Project:** Under the Proposed Project/Action, RD 2035 would construct and operate a new intake and fish screen facility to replace its existing unscreened diversion. The proposed facility would have the same maximum pumping capacity as the existing intake (400 cfs). To accommodate joint use with the WDCWA, the new facility would include space for pumps to serve the DWWSP. Under the proposed facility, RD 2035 would continue to pump up to 400 cfs for agricultural uses and WDCWA would pump up to 100 cfs for municipal uses.
9. **Surrounding Land Uses and Setting.** Agricultural
10. **Other public agencies whose approval is required.** U.S. Bureau of Reclamation, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Coast Guard, California Department of Fish & Game, Central Valley Flood Protection Board, Central Valley Regional Water Quality Control Board, State Historic Preservation Office, State Water Resources Control Board, Yolo/Solano Air Quality Management District, Woodland Davis Clean Water Agency, Reclamation District(s) 2035, 827, 785, 537, 1600.

Environmental Factors Potentially Affected

The proposed project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input checked="" type="checkbox"/> Geology, Soils and Seismicity |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards and Hazardous Materials | <input checked="" type="checkbox"/> Hydrology and Water Quality |
| <input type="checkbox"/> Land Use and Land Use Planning | <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise |
| <input type="checkbox"/> Population and Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input checked="" type="checkbox"/> Transportation and Traffic | <input type="checkbox"/> Utilities and Service Systems | <input type="checkbox"/> Mandatory Findings of Significance |

DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial study:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ 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, no further environmental documentation is required.

Signature

Date

Printed Name

For

Environmental Checklist

Aesthetics

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
1. AESTHETICS — Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Subsection 3.2 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for aesthetic resources.

Agricultural and Forest Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
2. AGRICULTURAL AND FOREST RESOURCES —				
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
Would the project:				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

Subsection 3.1 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for agricultural and forest resources.

Air Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
3. AIR QUALITY — Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

Subsection 3.3 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for air quality.

Biological Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
4. BIOLOGICAL RESOURCES — Would the project:				
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 Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

Subsection 3.7 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for biological resources.

Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
5. CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Subsection 3.8 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for cultural resources.

Geology, Soils, and Seismicity

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
6. GEOLOGY, SOILS, AND SEISMICITY — Would the project:				
a) Expose people or structures to 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.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

Subsection 3.5 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for geology, soils, and seismicity.

Greenhouse Gas Emissions

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
7. GREENHOUSE GAS EMISSIONS — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

Subsection 3.3 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for greenhouse gas emissions.

Hazards and Hazardous Materials

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
8. HAZARDS AND HAZARDOUS MATERIALS — Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

Subsection 3.10 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for hazards and hazardous materials.

Hydrology and Water Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
9. HYDROLOGY AND WATER QUALITY — Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

Subsection 3.6 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for hydrology and water quality.

Land Use and Land Use Planning

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
10. LAND USE AND LAND USE PLANNING — Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

Subsection 3.1 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for land use and planning.

Mineral Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
11. MINERAL RESOURCES — Would the project:				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

The Project will be constructed on a site that has not been identified as a significant source of mineral resources. According to the Yolo County General Plan, mineral resources areas classified as MRZ-2 by the State Geologist are concentrated along Cache Creek, to the west of the Project area. Therefore, no impact is expected.

Noise

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
12. NOISE — Would the project:				
a) Result in Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in Exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

Subsection 3.4 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for noise.

Population and Housing

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
13. POPULATION AND HOUSING — Would the project:				
a) Induce substantial 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

Subsection 3.12 and 3.15 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for population and housing.

Public Services

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
14. PUBLIC SERVICES — Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of, or the 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 following public services:				
i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

Subsection 3.13 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for public services.

Recreation

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
15. RECREATION — Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

Subsection 3.11 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for recreation.

Transportation and Traffic

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
16. TRANSPORTATION AND TRAFFIC — Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

Subsection 3.9 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for transportation and traffic.

Utilities and Service Systems

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
17. UTILITIES AND SERVICE SYSTEMS — Would the project:				
a) Conflict with wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

Subsection 3.13 of the IS/EA presents a description of the existing conditions, environmental effects and mitigation measures, as appropriate, for utilities and service systems.

Mandatory Findings of Significance

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
18. MANDATORY FINDINGS OF SIGNIFICANCE — Would the project:				
a) 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) 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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

- a) As identified and discussed under Environmental Checklist Items 1 (Aesthetics), 3 (Air Quality), 4 (Biological Resources), 5 (Cultural Resources), 6 (Soils, Geology, and Seismicity), 8 (Hazards and Hazardous Materials), 9 (Hydrology and Water Quality), 12 (Noise), and 16 (Transportation and Traffic), implementation of the proposed project could result in potentially significant impacts in these resource areas that could have the potential to degrade the quality of the environment, and impact biological and cultural resources. Implementation of mitigation measures incorporated into the proposed project would reduce the identified impacts to less than significant.
- b) As discussed in Section 3.0 of the IS/EA, the proposed project would not cause long term adverse affects on the resources described. However, some of the resources have the potential to incur temporary, short-term effects during construction. An initial assessment of potential cumulative effects indicated that air quality, climate change, traffic and circulation, and vegetation, wildlife and special-status species have the potential to contribute to significant cumulative effects; however, implementation of mitigation measures presented in Section 3.0 of the IS/EA would reduce the project's contribution to potentially significant cumulative impacts for these resource topics to less than considerable. Therefore, cumulative impacts would be less than significant.
- c) See Environmental Checklist Items 18a and b.

Appendix B

Fish Rescue and Salvage Plan



APPENDIX B

Fish Rescue and Salvage Plan

Fish Rescue and Salvage Plan

The following protection measures will be incorporated to minimize potential effects on fish populations, primarily as a result of construction of the cofferdam for the new intake structure, and to safely rescue fish from the cofferdam before dewatering activities. Depending on the season when the cofferdam would be installed, some minor but unquantifiable loss of salmonids due to stranding would be probable due to high water overtopping of the coffer dam. In addition, depending of the stage of project construction, construction structures may prevent implementation of a fish rescue, limit its effectiveness, or require multiple fish rescues.

Visual Estimate of Fish within Cofferdam

A sheet pile cofferdam will be constructed on the waterside of the riverbank along the outermost edge of the intake structure footprint. The cofferdam will be constructed by placement of drilled or driven piers within the river. Before the cofferdam is completely enclosed, biologists will conduct a visual survey for anadromous salmonids and other fish species by snorkeling within the cofferdam area and using a counting device to record the number of any fish visually observed if water clarity allows for this estimate to be reasonably made. Snorkeling will begin at the upstream end of the cofferdam and continue to the downstream end. The biologists will specify the type of fish observed, specifically steelhead or Chinook salmon. The visual surveys will be performed twice. The first survey will serve as a baseline and a second survey will check the accuracy of the first survey. If a major discrepancy is noted between the first and second surveys, a third survey will be performed.

Placement of Crowding Net

Upon the completion of the visual surveys, a crowding net will be placed at the upstream end of the cofferdam. The net will span the width of the cofferdam and will be placed at a depth sufficient to span the deepest reaches of the cofferdam. Biologists or other project staff will move the net from the upstream end of the cofferdam to the downstream end and attach it to a sheet panel pile, thus creating an exclusion area to keep fish from entering the cofferdam. Once the crowding net is in place, divers will conduct another visual survey to determine if fish are located within the cofferdam. If fish remain within the cofferdam, the netting procedure would be repeated. The net

would be collapsed, removed from both ends of the cofferdam and gathered together to the surface. Captured fish would immediately be removed from the net and returned to the river.

Reporting Requirements

Upon the completion of the fish rescue and salvage activities, a Fish Salvage Operation Report will be submitted to NOAA Fisheries for review and comment. The report will document the procedures implemented to rescue and salvage fish within the cofferdam and will include information on the number of fish salvaged and the type and size of fish and special-status fish salvaged. The project proponents will respond to any comments by NOAA Fisheries on the report and submit a finalized version in order to comply with appropriate reporting requirements for the project.