



**DRAFT
MITIGATED NEGATIVE DECLARATION
WESTLANDS WATER DISTRICT GROUNDWATER PUMPING
AND CONVEYANCE PROJECT**

**Submitted to:
Westlands Water District
3130 North Fresno Street
Fresno, California 93703-6056**

**Submitted by:
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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
AF	acre feet
AFY	acre feet per year
bgs	below ground surface
BPSs	Best Performance Standards
CAL FIRE	California Department of Forestry and Fire Protection
CARB	California Air Resources Board
CCAP	Climate Change Action Plan
CDEC	California Data Exchange Center
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
CH ₄	methane
CIP	Canalside Integration Project
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CVP	Central Valley Water Project
CVRWQCB	Central Valley Regional Water Quality Control Board
dB	Decibel
dBA	A-weighted decibel scale
DMC	Delta-Mendota Canal
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EC	electro-conductivity
EISIP	Expanded Irrigation System Improvement Program
Farmland	Farmland of Statewide Importance
FMMP	Farmland Mapping and Monitoring Program
GHGs	greenhouse gases
GSPs	Groundwater Sustainability Plans
HCFCs	hydrochlorofluorocarbons
IMS	Irrigation Management System
IS	Initial Study

ACRONYMS AND ABBREVIATIONS (Cont.)

MND	Mitigated Negative Declaration
msl	mean sea level
N ₂ O	nitrous oxide
NO	nitric oxide
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen oxides
Ozone	Ground-level Ozone
PM ₁₀	Respirable Particulate Matter
PM _{2.5}	Fine Particulate Matter
Project	Westlands Water District Groundwater Pumping and Conveyance Project
RWQCB	Regional Water Quality Control Board
SJRRP	San Joaquin River Restoration Program
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLC	San Luis Canal
SO ₂	Sulfur Dioxide
SWP	State Water Project
SWRCB	State Water Resources Control Board
TACs	Toxic Air Contaminants
TDS	Total Dissolved Solids
US EPA	U.S. Environmental Protection Agency
USBR	U.S. Bureau of Reclamation
USGS	U.S. Geological Survey
VOC	volatile organic compounds
WWD	Westlands Water District

1.0 INTRODUCTION

This Initial Study (IS) and Mitigated Negative Declaration (MND) has been prepared in accordance with the California Environmental Quality Act (CEQA) and State Guidelines for Implementation of CEQA. It serves as the environmental document for the proposed Westlands Water District Groundwater Pumping and Conveyance Project. The primary intent of this document is to (1) determine whether Project implementation would result in potentially significant or significant impacts to the environment; and (2) to incorporate mitigation measures into the project design, as necessary, to eliminate the project's potentially significant or significant project impacts or reduce them to a less than significant level.

In accordance with CEQA, projects that have potential to result in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, must undergo analysis to disclose the potential significant effects. The provisions of CEQA apply to California governmental agencies at all levels, including local agencies, regional agencies, State agencies, boards, commissions, and special districts. CEQA requires that an IS be prepared for a discretionary project such as the Westlands Water District Groundwater Pumping and Conveyance Project to determine the range of potential environmental impacts of that project and define the scope of the environment review document. As specified in the CEQA Guidelines Section 15064(f), the lead agency may prepare a MND if, in the course of the IS analysis, if it is recognized that the project may have a significant impact on the environment, but that implementing specific mitigation measures (i.e., incorporating revisions into the project) would reduce any potentially significant impacts to a less than significant level. As the lead agency for the proposed Project, Westlands Water District has the principal responsibility for conducting the CEQA environmental review to analyze the potential environmental effects associated with Project implementation. During the review process, it was determined that potential impacts would be reduced to less than significant with the implementation of mitigation measures. The lead agency has incorporated mitigation measures to reduce or eliminate any potentially significant Project-related impacts. Therefore, an MND has been prepared for the proposed Project.

2.0 PROJECT TITLE

Westlands Water District Groundwater Pumping and Conveyance Project

3.0 LEAD AGENCY NAME AND ADDRESS

Westlands Water District
3130 North Fresno Street
Fresno, California 93703-6056

4.0 CONTACT PERSON AND PHONE NUMBER

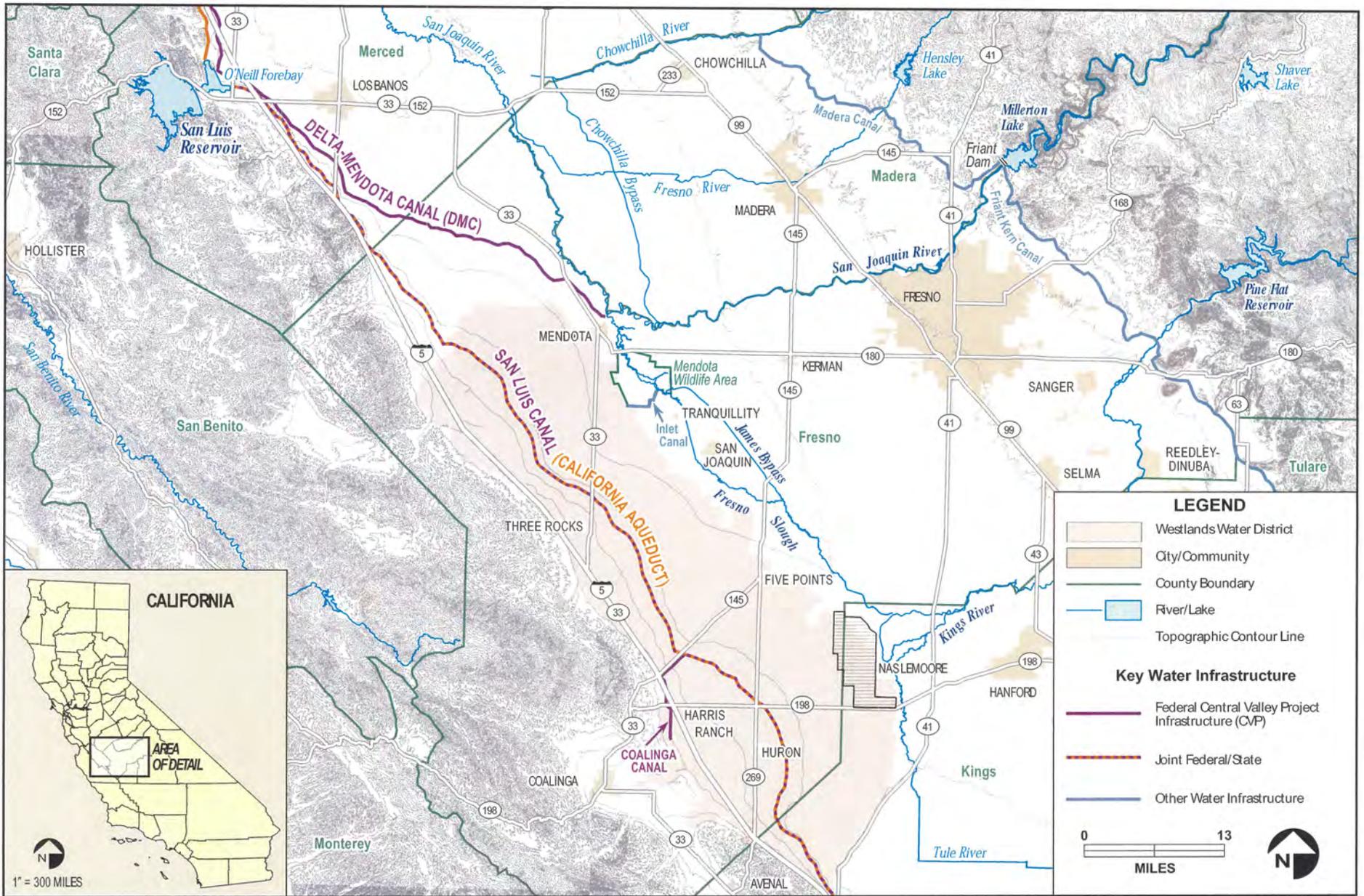
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5.0 APPLICANT

Westlands Water District
3130 North Fresno Street
Fresno, California 93703-6056

6.0 PROJECT OVERVIEW

The Westlands Water District (WWD) Groundwater Pumping and Conveyance Project (Project) is located in Fresno and Kings Counties within the WWD (Figure 1). The source of the water would be groundwater wells located throughout the WWD. The proposed Project would result in no more than 30,000 acre feet (AF) of groundwater being pumped into the San Luis Canal (SLC) annually from 2016 through 2019. The groundwater would be pumped into the SLC via licensed water integration facilities located on either side of this canal. Although wells are located throughout the WWD, only those where groundwater produced meets the United States Bureau of Reclamation (USBR) 2015 SLC Water Quality Monitoring Program which is based off of the Title 22 water quality standards for integration into the SLC would be used. Additionally, the proposed Project include the construction of four permanent water integration location facilities which would be located at mileposts 141.02R, 156.36R, 157.98L and 159.98RL, along the SLC. These water integration locations were previously constructed as temporary facilities and utilized in 2014 and 2015. These temporary water integration location facilities consist of a piping system that goes over the canal road but still allows vehicles to cross. The State Department of Water Resources (DWR) has required these sites to be removed and permanent facilities to be constructed by the 2017 program which would result in a total of four minor construction Projects to take place in late 2016 and would end prior to the beginning of the 2017 program. Permanent water integration location construction events would be temporary (approximately one week) and would require minor amounts of construction equipment, excavation and construction worker trips.



FIGURE

1

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7.0 PROJECT DESCRIPTION

Westlands Water District (WWD) proposes to implement a groundwater transfer program during years when the WWD receives 20% or less of its water allocation from the Central Valley Water Project (CVP) to permit qualified participating water users to pump groundwater from wells throughout the WWD to the SLC from April to August for a period of four years using existing public and privately owned pipelines. The groundwater then would be pumped into the SLC at existing and proposed licensed water integration locations. Such water would be conveyed using the SLC for withdrawal and use on other land within the WWD.

The proposed Groundwater Pumping and Conveyance Project (Project) would complement a proposal approved by the U.S. Bureau of Reclamation (USBR) in 2015 which issued a Warren Act Contract for the introduction of up to 30,000 acre feet per year (AFY) of groundwater into the federal and state operated facilities on the SLC by the WWD or private growers as excess capacity is available. The federal Warren Act Contract is in effect through 2019.

7.1 Project Background

This Initial Study/ Mitigated Negative Declaration (IS/MND) was prepared under the California Environmental Quality Act (CEQA) and describes a proposed multi-year Groundwater Pumping and Conveyance Project (Project) in the WWD. In 2014, the USBR approved a Warren Act Contract for a period of five years from 2015-2019 to convey up to 30,000 AFY from groundwater pumping to the SLC for transfer when WWD receives a federal water allocation of 20% or less from USBR.¹ An emergency CEQA exemption was completed by WWD in 2015 to address impacts to state facilities for the first year of the program. This IS/MND was prepared to cover the remaining years of the program.

In 1990, WWD adopted short-term programs of groundwater conveyance for emergency drought relief: the Canalside Integration Program (CIP). In times of drought and restricted pumping, the DWR has allowed the WWD's water users to participate in the CIP in which groundwater is pumped and conveyed through the SLC. The DWR first adopted specific operating criteria for access to the California Aqueduct in 1990. The program was renewed yearly through 1994. Pump-ins from WWD water users participating in the CIP into the SLC were approximately 9,600 acre-feet in 1990; 72,000 acre-feet in 1991; 97,000 acre-feet in 1992; 12,400 acre-feet in 1993; and 84,500 acre-feet in 1994. However, in 1995, the integration of groundwater into the SLC was suspended because of concerns by DWR and other agencies that groundwater could degrade the water quality in the SLC (WWD 2014).

On June 12, 2008, the Governor issued a Proclamation of a State of Emergency for nine counties in the Central Valley, including Fresno and Kings. The Proclamation directed that DWR would take certain actions to address water supply reductions, including the conveyance of groundwater in the SLC. Subsequently, WWD and DWR entered into an agreement for the *Introduction and Conveyance of Local Groundwater in the California Aqueduct*. The agreement

¹ The Warren Act (Act of February 21, 1911; Chapter 141, 36 Stat. 925) authorizes USBR to enter into contracts to impound, store, or convey non-Central Valley Project water in federal facilities, when excess capacity is available. Warren Act Contracts are issued by USBR to allow movement of non-federal water through federal facilities.

became effective on August 8, 2008, and provided for conveyance of up to 20,000 acre-feet of groundwater through September 30, 2008. WWD ultimately conveyed about 14,000 acre-feet from approximately 30 groundwater wells.

The State of California is currently experiencing unprecedented water management challenges due to severe drought in recent years. On January 17, 2014, the Governor proclaimed a Drought State of Emergency (State of California 2014). On December 22, 2014, provisions within this proclamation were extended until May 31, 2016. On April 1, 2015, following the lowest snowpack ever recorded in California and the ongoing drought, the Governor proclaimed a second Drought State of Emergency and directed the State Water Resources Control Board to implement mandatory water reductions in cities and towns across California to reduce water usage by 25 percent (State of California 2015).

Water allocations to the WWD from the CVP have been substantially reduced over the last decade due to both dry years and environmental restrictions. For example, the allocation percentage for WWD from the CVP in 2013 was 20% (239,000 AF) of WWD's full allocation of 1.195 million AFY. Under these circumstances of major reductions in surface water supplies, groundwater pumping has substantially expanded to partially offset the substantial decline in available surface water supplies. Additionally, in order to meet the needs of customers, water districts are relying on exchanges, transfers, and pumped groundwater to make the best use of the limited available supplies.

7.2 Project Vicinity and Location

The Project is located in Fresno and Kings Counties within WWD which lies on the Westside of the San Joaquin Valley (Figure 1). The WWD overlies the Tulare Lake Groundwater Basin, and the groundwater wells proposed for pumping are located within the Westside Subbasin of the Tulare Lake Groundwater Basin (Figure 2). Private pipelines used for water conveyance are potentially located throughout the WWD while licensed water integration outlets are located along the SLC.

7.3 Project Setting

WWD encompasses more than 600,000 acres of farmland located in western Fresno and Kings Counties and serves approximately 600 family-owned farms that average 900 acres in size. WWD is a CVP contractor with a water service contract to receive up to 1,195,000 AFY from the CVP. The San Luis Unit receives water from the Delta through the Delta-Mendota Canal (DMC) and the SLC. Water is delivered directly to lands in the San Luis Unit or is stored temporarily in San Luis Reservoir for later delivery. Once diverted from the CVP facilities, water is delivered to farmers through 1,034 miles of underground pipe and over 3,300 metered delivery outlets. All water deliveries are measured by meters along the SLC at each diversion lateral and at each field outlet. All meters are tested at least once every five years. Water is delivered to farmers based on water orders placed the previous day. At the scheduled time, a farmer opens the valve at the delivery point to obtain the approved flow.

In addition to the CVP supply, landowners in WWD rely on groundwater pumping, water transfers, and water acquisitions to supplement the CVP supply, and if the water portfolio comes up short, land is taken out of production (fallowed). Lands have also been retired from production, whereby cultivation entirely ceases for extended periods of time or in some cases permanently.

Groundwater was the primary source of water for irrigation during the early days of agriculture in the Central Valley. Over the years, excessive pumping led to a dramatic drop in the water table as well as soil subsidence. With the introduction of surface water supplies from the CVP, pumping was reduced, and the groundwater levels recovered to some extent. Hydrologic conditions and regulatory restrictions in recent years have made surface water supplies more limited, which has led to a greater reliance on groundwater to meet demand. In particular, over the last four years, drought related reductions in available surface water supplies have substantially increased reliance on groundwater.

Groundwater quality within WWD varies by location and depth. Depending on the quality of water, typically measured by electro-conductivity (EC), its use may be restricted to certain crops or uses, or it may not be permitted in state or federally-operated conveyance systems (see Water Resources Section below). Water from groundwater wells is regularly tested to demonstrate its suitability for a particular purpose or distribution system.

The SLC is a concrete lined canal through the WWD that is generally approximately 200 feet in width and is typically bordered by paved, graveled or earthen roads along both banks. Lands along the SLC within the WWD are generally already heavily developed with agricultural uses, including areas cultivated with row crops, orchards and vineyards, as well as agricultural support facilities such as ponds, small reservoirs, wells and intake and water integration facilities. The canal is occasionally periodically bridged by public and private roads and is sometimes crossed by natural drainages. In the vicinity of the four temporary licensed water integration locations, the SLC and its surroundings are completely developed with roads, bridges and agricultural uses. These facilities overlie disturbed areas as shown below in Photos 1-3.

7.4 Existing WWD Water Conservation Program

Efficient use of water resources is a primary focus of WWD and a key factor in the ongoing productivity of its customers. The design of WWD's distribution system is evidence of the farmer's commitment to water conservation. The permanent distribution system consists of approximately 1,034 miles of closed, buried pipeline, rather than open unlined canals used in some parts of the Central Valley. In addition, WWD operates an on-demand system in which water is delivered on request when and where it is desired for irrigation up to the capacity limits of the system.

WWD's water conservation program has evolved and continues to evolve with future demands. In 1972, the Irrigation Management Services (IMS) program was implemented in cooperation with Reclamation to help farmers make the most efficient on-farm use of water. In 1978, the Irrigation Guide was developed to replace the IMS Program. The guide provided crop water use

information to all WWD farmers and was mailed weekly. WWD expanded its conservation program in 1981 to promote the most effective use of its limited water supply and developed the Water Conservation Management Handbook that was specific to the conditions of the district. Additionally, WWD has also increased the use of drip irrigation throughout the district.

The WWD has also adopted a Water Management Plan in accordance with State and Federal laws to satisfy the requirements of the Agricultural Water Management Planning Act. This plan is updated every five years. WWD has also established an Expanded Irrigation System Improvement Program (EISIP) which offers low interest loans to water users for the lease-purchase of irrigation equipment. This program offers funds to be used towards the purchase of irrigation system equipment and the purchase of portable aluminum irrigation pipes, micro irrigation, linear move and center pivots (WWD 2015).

Current Activities

WWD spends in excess of \$1,000,000 annually on water conservation program activities. The current program, as presented in the 2007 Water Conservation Plan and the 2008 Water Conservation Plan Update, consists of the following elements:

- Soil, water, and climatic data are monitored, collected, and analyzed to provide a sound basis for WWD's water management information and assistance programs.
- The guide provides farmers with water requirements for various crops based on actual weather and computer modeling. The guide's crop water use values are verified with neutron probes strategically located throughout WWD.
- The Water Conservation and Management Handbook contains specific water management information for WWD's farming conditions.
- WWD maintains an aggressive program for installing, upgrading, and repairing WWD water meters. Water meters, which are required at each WWD delivery and on private wells participating in any of WWD's conjunctive use programs, provide farmers and WWD with an important water management tool.
- Groundwater monitoring provides farmers with information on the quality and depth of deep groundwater. It enables them to assess their groundwater development and use options at a much lower cost than if they had to obtain the information on their own.
- Shallow groundwater monitoring provides farmers with information on the quality and depth of shallow groundwater on a districtwide basis. It gives irrigation managers another low-cost tool with which to develop their water management strategy.
- Efficiency testing is conducted on WWD pumps, which serve as part of the water distribution system. It can help prevent potentially catastrophic system downtime and reduce electrical consumption and costs.

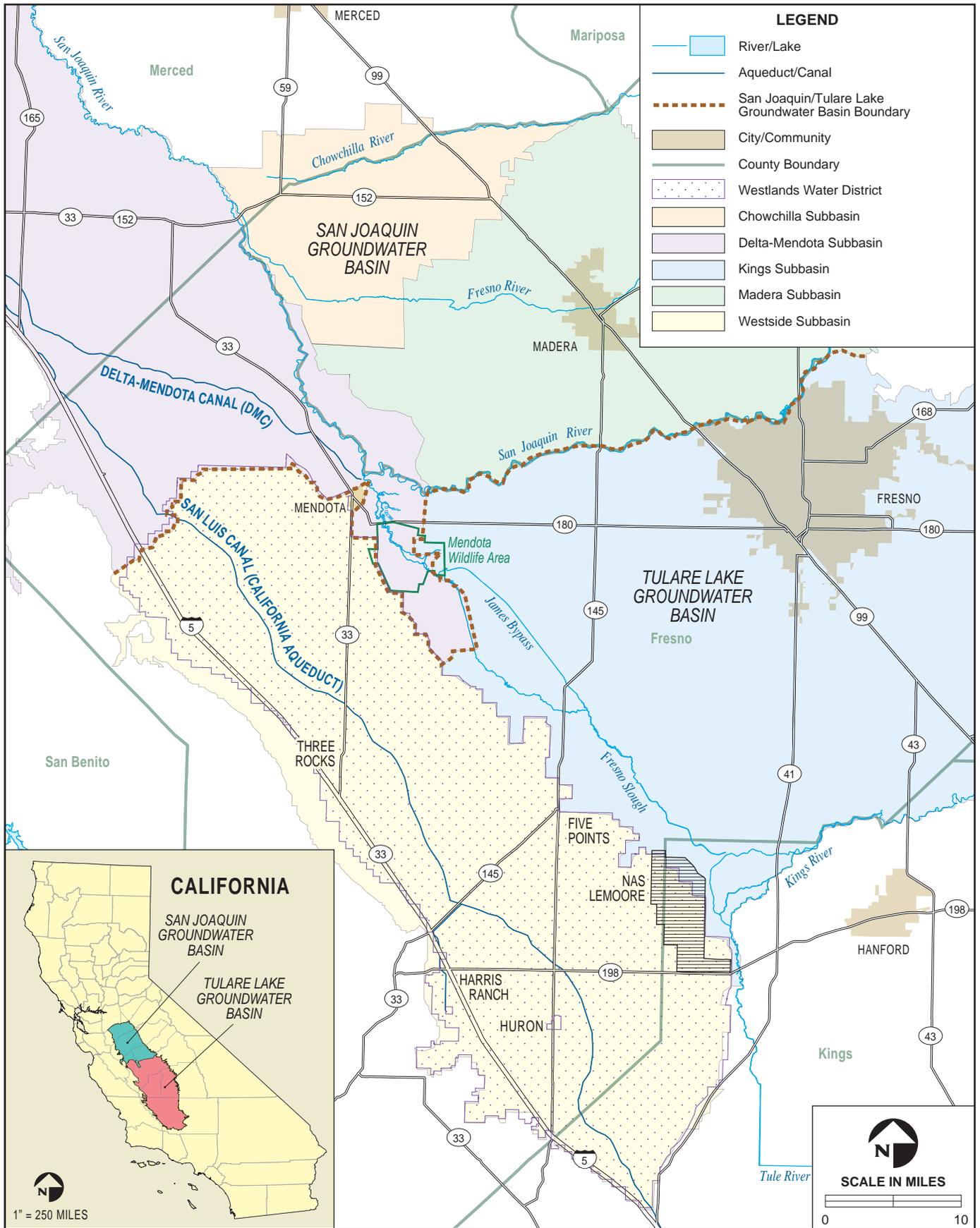
- Conjunctive use of surface water and groundwater improves overall water supply reliability by making more efficient use of whatever water is available. In wet periods, use of surface water is encouraged to preserve groundwater supplies. In droughts, greater flexibility in the use of groundwater is facilitated to extract the maximum benefit from the resource.
- WWD has adopted a groundwater management plan as provided through Assembly Bill 3030.
- WWD is distributing water conservation information to nonagricultural water users and will design and implement an in-school water conservation program targeted at elementary school students.
- WWD has established a low-interest revolving fund for growers to access. The purpose is to encourage purchase and use of equipment to increase irrigation efficiency.
- WWD provides satellite imagery of grower fields depicting distribution uniformity via the District website during times when images are available.

7.5 Project Objectives

The proposed Project has the following objectives:

1. Provide flexibility in using water supplies from private wells to help customers sustain agricultural crops;
2. Use irrigation water, delivered through WWD facilities, where needed by Project participants;
3. Ensure pumped groundwater meets the Title 22 water quality standards;

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Groundwater Subbasins in the Study Area

FIGURE 2

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8.0 PROJECT DETAILS

The proposed Project would involve three main components: groundwater pumping, water conveyance and water quality monitoring. In addition, all water delivered would be subject to existing water banking, place of use, water allocation and credit provisions. As noted above, the proposed Project would involve the construction of four permanent water integration location facilities as part of this Project to replace four existing temporary water integration facilities. Due to the proposed limitations on pumpage and the established historic use of the wells, it is not anticipated that overall groundwater extractions would increase under this proposal. These matters are discussed more fully below.

8.1 Project Groundwater Pumping Program

The proposed Project would allow credited water that has been metered as input into the SLC to be delivered, through WWD facilities, to the participants' lands. There are approximately 600 operating groundwater wells within the WWD, although well participation would be limited to those meeting water quality standards. In 2015, a total of 51 wells were utilized as part of the USBR adopted program. The proposed groundwater pumping would occur between the months of April and August in years when WWD receives 20% or less allocation from USBR. The proposed Project is limited to a maximum of 30,000 AFY of groundwater that may be delivered into the SLC during any single year or up to 120,000 AF over the four year life of this Project. Because of water quality criteria and anticipated pumping restrictions, actual annual Project volume may be less than this maximum value. The amount of water potentially pumped and conveyed annually could be driven by the following factors:

- USBR contract allocation levels to water users;
- availability and price of alternate sources of surface water supplies;
- water quality and capacity limitations in the SLC;
- conveyance capacities of the WWD distribution system; and
- seasonal limitations on groundwater pumping related to groundwater overdraft and potential subsidence.

8.2 Conveyance Mechanisms

The proposed Project would consist of using existing facilities to convey water from approved wells to licensed water integration locations along the joint use federal and state operated portion of the SLC within the WWD. Water conveyance would be accomplished either directly into the SLC via pipelines or through WWD laterals. The proposed Project would utilize 82 separate water integration locations with associated wells (Table 1), however, additional wells and water integration locations may participate if they meet the water quality standards as described in Appendix A. Of the 82 water integration locations, four of them are temporary water integration locations that will be converted to permanent water integration locations as part of this Project. This is described further below. The amount of water from each source would vary,

but the total quantity introduced under the proposed Project would not exceed a combined volume of 30,000 AF in a given year over the four year life of the Project.

**Table 1.
 Proposed Water Integration Locations**

#	San Luis Canal Milepost	Facility Type	State Well ID
1	105.00L	Direct Discharge (P)	141202R01
2	105.20L	Direct Discharge (P)	141202R02
3	107.10R	Direct Discharge (P)	141225D01
4	107.63R	Direct Discharge (P)	141319R01
5	108.85L	Direct Discharge (P)	141316N05
6	110.49L	Direct Discharge (P)	141322P01
7	110.52L	Direct Discharge (P)	141323EO2
8	111.02R	Direct Discharge (P)	141327E01
9	111.91R	Direct Discharge (P)	151305D02
10	113.77	Direct Discharge (P)	141628P01
11	114.00R	Direct Discharge (P)	151316L01
12	114.95L	Direct Discharge (P)	151407E01
13	115.43L	Lateral 7	Lateral 7 Reverse Flow
14	116.91R	Direct Discharge (P)	151322M01
15	117.52L	Direct Discharge (P)	151419F01 151419Q01
16	118.46R	Direct Discharge (P)	151431D02
17	119.56R	Direct Discharge (P)	151431D02
18	120.80L	Direct Discharge (P)	161404D01
19	122.59RA	Direct Discharge (P)	161427P01
20	123.05L	Direct Discharge (P)	161403H01
21	123.89R	Direct Discharge (P)	161424E01
22	124.18L	Direct Discharge (P)	161412N02
23	125.33R	Direct Discharge (P)	161506P02
24	125.99L	Direct Discharge (P)	161518P04
25	126.65L	Lateral 12L	161520H01
26	127.40L	Direct Discharge (P)	161521L01 161521N03
27	128.49R	Direct Discharge (P)	171413A01
28	128.50L	Direct Discharge (P)	161533J01
29	128.54L	Direct Discharge (P)	161532A06
30	130.81R	Direct Discharge (P)	171510M01
31	132.77L	Direct Discharge (P)	171513A01
32	133.80L	Direct Discharge (P)	171601N03
33	133.81L	Direct Discharge (P)	171623J01 171623M01 181606F01 171614Q01
34	135.48RA	Direct Discharge (P)	171526A01
35	135.96R	Lateral 14R	171526L01
36	136.03L	Direct Discharge (P)	171614Q01 171623J01 171623M01
37	137.00R	Lateral 15R	171536Q02
38	137.31L	Direct Discharge (P)	181606F01
39	137.83L	Direct Discharge (P)	171623J01 171623M01 171614Q01 171601N03

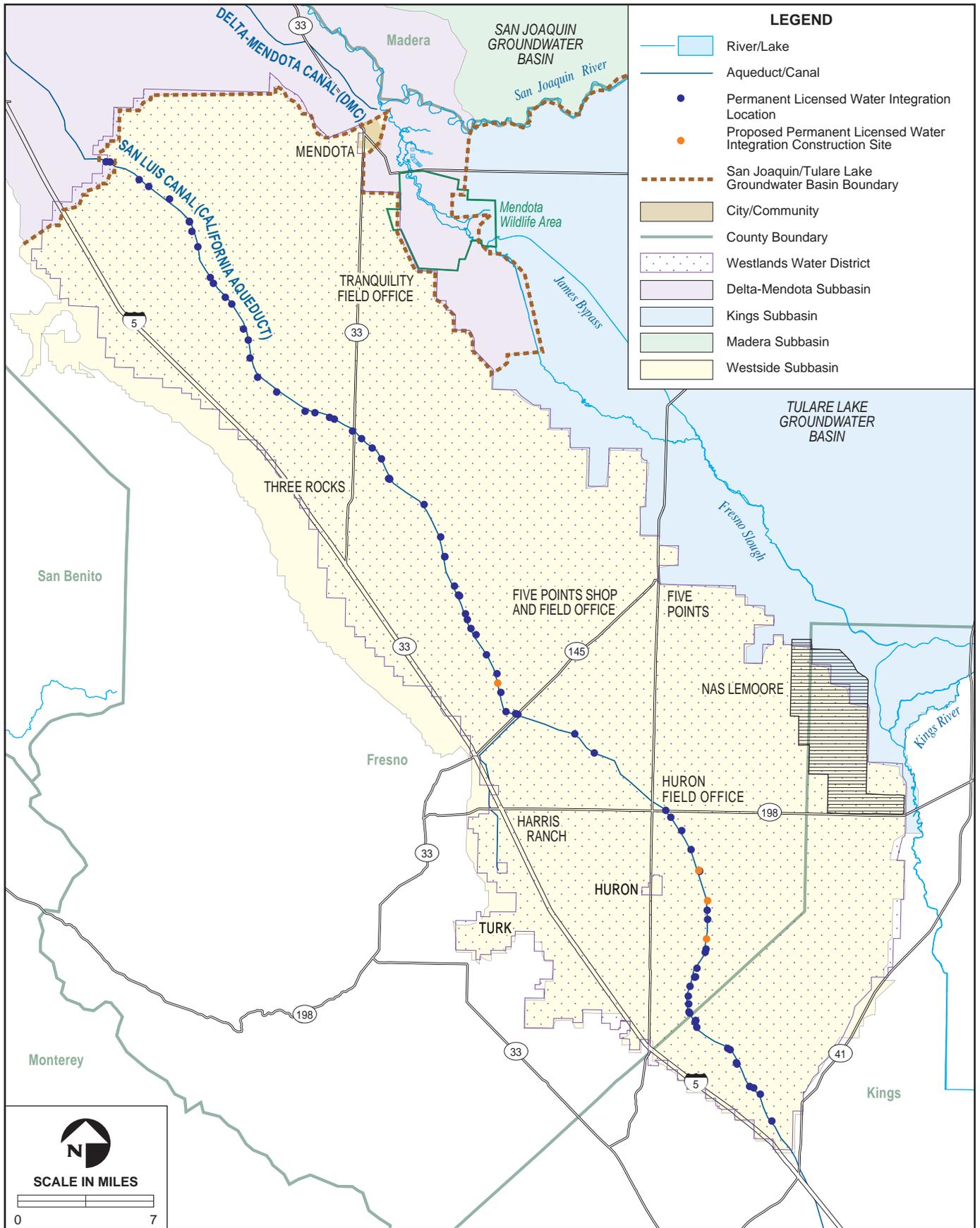
**Table 1.
 Proposed Water Integration Locations (Cont.)**

#	San Luis Canal Milepost	Facility Type	State Well ID
40	138.24L	Direct Discharge (P)	181605N01
41	139.40L	Direct Discharge (P)	181609R01
42	140.55LA	Direct Discharge (P)	181617R02
43	141.02R	Direct Discharge (T)	181620F01
44	141.55L	Direct Discharge (P)	181621Q02
45	142.58R	Direct Discharge (P)	181629N02
46	143.00L	Direct Discharge (P)	181627N01
47	143.20L	Direct Discharge (P)	191610E01
48	146.35L	Direct Discharge (P)	181720N02
49	147.75RC	Direct Discharge (P)	191720B01
50	152.75L	Direct Discharge (P)	191723R01
51	153.10R	Direct Discharge (P)	191726H01
52	154.10L	Direct Discharge (P)	191836N01
53	155.15L	Direct Discharge (P)	191831N01
54	156.36R	Direct Discharge (T)	201714K01 201712H01
55	156.37LA	Direct Discharge (P)	201806Q01
56	156.40L	Lateral 31	201808M01
57	157.98L	Direct Discharge (T)	201817G01
58	158.47R	Lateral 32	201714R01
59	158.95L	Direct Discharge (P)	201820E01
60	159.98R	Direct Discharge (T)	201830G02 201831C01
61	160.50RA	Direct Discharge (P)	201734D01
62	160.68L	Direct Discharge (P)	201832E01
63	161.60L	Direct Discharge (P)	211805C01 211809D02
64	162.08L	Direct Discharge (P)	211805C01 211805M01
65	162.10R	Direct Discharge (P)	211806G01
66	162.64L	Direct Discharge (P)	211808B01 211809L01
67	163.18R	Direct Discharge (P)	211807E01
68	163.59L	Direct Discharge (P)	211805M01 211808Q01
69	164.00R	Lateral 27R	211818G01
70	164.11R	Direct Discharge (P)	211818G03
71	164.55L-A	Direct Discharge (P)	211817N03 211816P01 211816N01 211822E01 211823E01 211823D06
72	164.55L-B	Direct Discharge (P)	211816P01 211816N01 211822E01
73	164.63R	Direct Discharge (P)	211818G03
74	164.95R	Direct Discharge (P)	211833G01 211833N02 211829E01
75	166.90R	Direct Discharge (P)	211827K02
76	167.04L	Lateral 37	211823D06 211919C03
77	167.84R	Direct Discharge (P)	221804H01
78	167.86R	Direct Discharge (P)	211833N02 211833G01
79	169.21R	Direct Discharge (P)	221803B01

**Table 1.
 Proposed Water Integration Locations (Cont.)**

#	San Luis Canal Milepost	Facility Type	State Well ID
80	169.48L	Direct Discharge (P)	211835Q01 211835N02
81	169.88L	Direct Discharge (P)	221801E01
82	171.50LA	Direct Discharge (P)	221812R01

Notes:
 Some wells are capable of discharging at multiple locations along the canal.
 P = Permanent facility
 T = Temporary facility



Licensed Water Integration Locations

**FIGURE
3**

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Water for delivery into the SLC would be conveyed through pipelines ranging from a few hundred feet to more than ten miles in length. These pipelines are currently used to distribute water supply throughout WWD. At the SLC right-of-way, the buried pipelines pass through the canal bank and are capable of discharging water directly into the SLC below the water line. Flows into the SLC would be metered by WWD and verified by DWR. When direct conveyance into the SLC is impractical, qualified groundwater may be conveyed from a participating well into a WWD lateral, with the flow reversed through the lateral to the SLC. Such water must pass through a reverse-flow meter before participation in this program is permitted. Currently, District Lateral 7 in the central portion of WWD east of the SLC is the only lateral with this capability. Because of this limitation, it is anticipated that most water delivered under this program would be conveyed via facilities directly into the SLC.

The qualified groundwater pumped into the SLC in this manner would be subject to a 5% reduction assessed by USBR for transportation and other losses. The non-Project water would either be directly delivered to agricultural users in the WWD, exchanged for CVP water for agricultural users located upstream of the points of introduction or stored in the San Luis Reservoir for later delivery to WWD via the SLC. The Project participants either take delivery of an equal amount of water through WWD laterals or receive a credit for an equivalent amount of water for later delivery, subject to the following options and limitations.

- At an additional cost, water can be exchanged for credit in San Luis Reservoir when adequate storage space exists in the USBR portion of storage space in the Reservoir and when adequate space is available in the SLC to receive participating water. Additional details are discussed below in Section 8.5, *Water Banking*.
- Banked non Project groundwater is among the first water to be spilled (lost) when storage space is no longer available in San Luis Reservoir for CVP water.

8.3 Conversion of Temporary Water Integration Locations to Permanent Water Integration Locations

The proposed Project would include the conversion of four temporary water integration locations to permanent water integration locations. Implementation of the proposed Project would require minor construction to convert these facilities from temporary to permanent which would last approximately one week for each location. Conversion of the four temporary water integration locations to permanent water integration locations would occur on the dirt/gravel road directly adjacent to the canal as shown in Photos 1-3 below.

Construction of the four water integration location facilities would involve minor excavation and ground disturbance and would require equipment such as excavators, graders, pavers and a backhoe. Construction of the four permanent water integration location facilities would be minor and temporary in nature, would be confined to disturbed areas and would be of low profile or below ground construction. Pipelines located below the canal water surface would include an air vent valve and each pipe would have a minimum of two feet of cover throughout the embankment area. The pavement would be replaced with four inches of compacted asphalt mix. The permanent pipeline would daylight on the canal side above the canal lining, and the pipe

would then extend to integrate water below the water line. The permanent pipelines would be supported on wood blocks above the canal lining. In order to prevent erosion on the unlined canal side slope, pipelines would be extended out further into the canal, if necessary as shown below in Figure 4.



Photograph No. 1.

Temporary water integration location along the canal. Four temporary water integration locations will be converted to permanent water integration locations as part of the proposed Project.

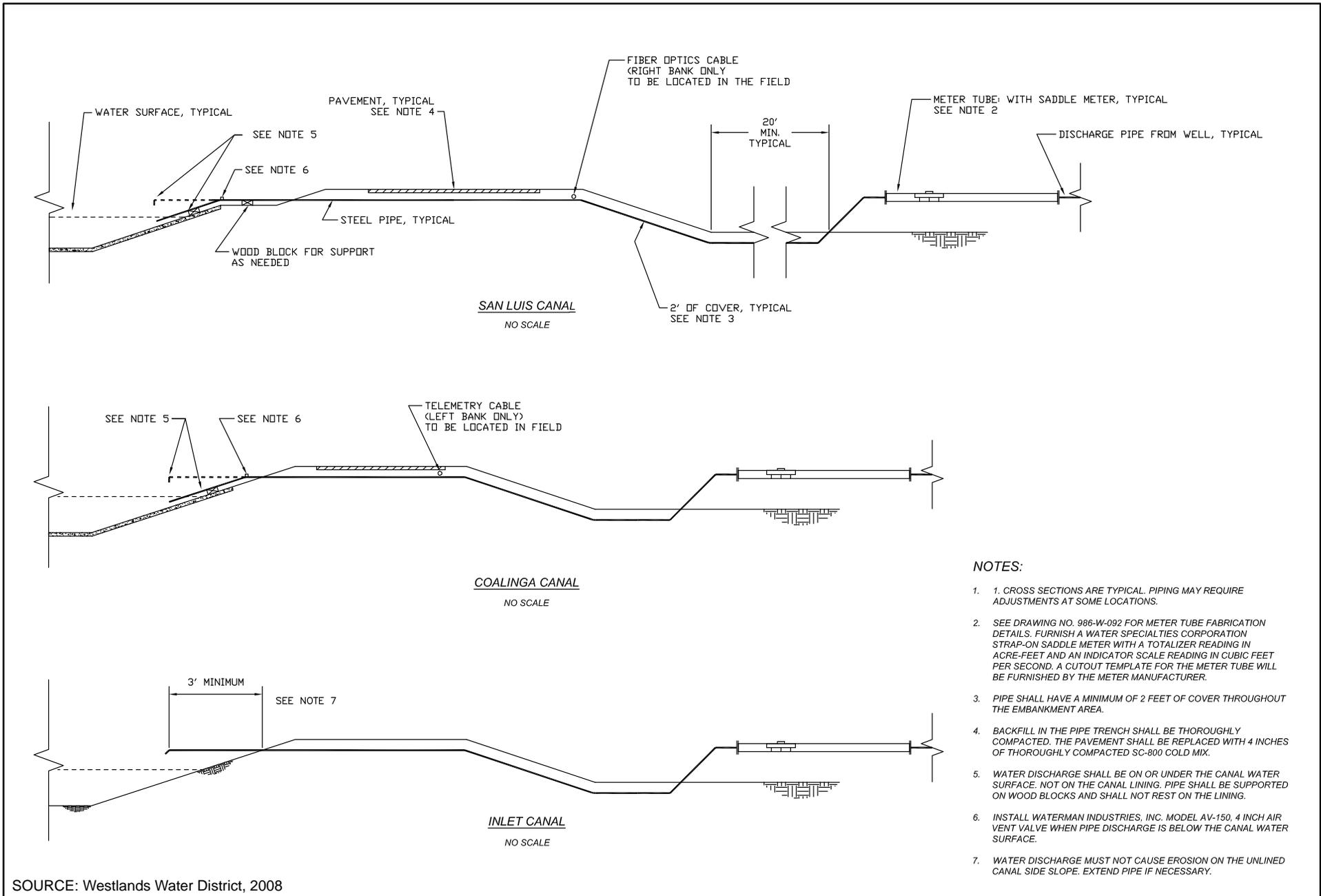


Photograph No. 2.
Temporary pipelines integrate water below the water line.



Photograph No. 3.

Permanent pipelines would daylight above the canal lining and extend to integrate water below the water line.



SOURCE: Westlands Water District, 2008

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8.4 Water Quality Monitoring and Protection

Groundwater in the WWD generally has high salinity content due to the historic buildup of salts in the soils. Salinity is typically measured using EC often stated as Total Dissolved Solids (TDS). Currently, farmers often blend groundwater extracted from their wells in WWD that have high salinity content with CVP water to reduce the salinity before application to irrigated farmland. To confirm that the groundwater from the participating wells meets the USBR 2015 SLC Water Quality Monitoring Program which is based off of the applicable Title 22 California Drinking Water Standards, the water users' groundwater would be tested before the water is transferred via the SLC (see Appendix A for a complete list of water quality standards). No drainage water is permitted under this program. Key constituents for testing would include TDS, metals, organic chemicals and other potential pollutants. Each well operator must provide sufficient information about each well to confirm that the pumped water would be consistent, predictable and acceptable in quality. The water would continue to be tested at periodic intervals during pumping to ensure no water quality violations occur. The wells within the WWD must meet the Title 22 California Drinking Water Standards in order to be used in the proposed Project. As a result of the water quality standards, it is estimated only approximately 13% of the 643 wells within WWD would qualify to participate in this Project. The primary disqualifying factor would be high salinity levels, where any well with TDS exceeding 1,100 milligrams/ liter would be disqualified (SWQCB 2012). Mean daily salinity and EC would be assessed with the sensors located along the canal that report real-time data to the California Data Exchange Center (CDEC). The mean daily salinity and EC data would be downloaded by USBR to monitor daily changes along the canal. Additionally, both WWD and USBR would use mass balance models to estimate the contribution of salinity to the canal from the actively pumping wells (USBR 2015). Based on monitoring data, USBR and WWD have the authority to shut off inflows of the WWD distribution system or SLC if the quality or quantity of the inflow is unacceptable.

8.5 Water Banking

The SLC is used jointly by USBR and DWR and is divided into federal and state shares. While the canal is not physically divided into two, it establishes limits for the amount and ownership of the water conveyed. Because the Project's water, when integrated to the canal, would mix with state and federal water, the pumped water could be used in WWD and downstream in lieu of releases from San Luis Reservoir of stored CVP water. So the release from San Luis Reservoir could be reduced by the amount of pumped groundwater integrated to the SLC. This practice, known as water banking, allows an exchange of canal Project water with water stored in San Luis Reservoir, providing the participant a credit for an equivalent amount of water in storage in San Luis Reservoir.

8.6 Water Allocation and Credit System

Under the WWD credit system, groundwater delivered to the SLC would be credited to Project participants. Credit for water delivered into the canal is reduced by 5% of the amount delivered to account for losses from evaporation and seepage in the canal. Given the maximum groundwater delivery of 30,000 AFY under the proposed program, the 5% conveyance loss equates to a maximum of 1,500 AFY. WWD takes delivery of this net amount of water through other laterals along the SLC in the same month it is introduced.

8.7 Place of Use of Project Water

Water generated by this Project would be used on historically irrigated lands in WWD. The water would be used to make up for reductions in firm contract supply. WWD also has a set of policies in place that encourage the trading of water among farmers with landholdings in the WWD. No water from this program would be sold, transferred or exchanged either directly or indirectly for use outside the WWD. Consequently, even though a Project participant receives a credit for pumping groundwater into the SLC, that credit, generated by virtue of the proposed Project, can result in the delivery of water to almost any parcel of land within the WWD.

The delivery of water within the WWD is subject to the following limits:

- water would not be delivered to lands ineligible for water under the federal Reclamation laws; and,
- water would not be delivered to lands that have not been historically irrigated.

8.8 Required Permits and Approvals

The proposed Project would likely require the following permits and approvals: California Department of Water Resources review and approval of Drinking Water Source Assessment and Protection Program documentation, and amendment to any existing operating permit for the water distribution system.

9.0 APPROVAL REQUIRED BY OTHER PUBLIC AGENCIES

California Department of Water Resources

10.0 SITE INFORMATION

**Table 2.
 Site Information**

Site Information	
General Plan and Coastal Land Use Plan Designation	Agricultural
Zoning Ordinance, Zone District	Various; See Section 14.10, "Land Use and Planning"
Present Use and Development	Agriculture
Surrounding Use/Zoning	Agriculture
Utilities and Public Services	Water Supply: Groundwater pumping Sewage: N/A Power: N/A Natural Gas: N/A Telephone: N/A Fire: N/A School District: N/A

11.0 ENVIRONMENTAL SETTING

See "Environmental Setting" discussion under each issue area in Section 14, *Environmental Checklist*.

12.0 EVALUATION OF ENVIRONMENTAL IMPACTS

- 1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the Project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

- 4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
 - a. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - b. Earlier Analysis Used. Identify and state where they are available for review.
 - c. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
- 5) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- 9) The explanation of each issue should identify:
 - a. The significance criteria or threshold, if any, used to evaluate each question; and
 - b. The mitigation measure identified, if any, to reduce the impact to less than significance.

13.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

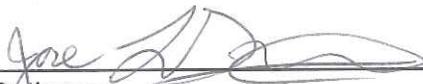
The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist and discussed on the following pages.

<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture and Forestry Resources	<input type="checkbox"/>	Air Quality
<input type="checkbox"/>	Biological Resources	<input type="checkbox"/>	Cultural Resources	<input type="checkbox"/>	Greenhouse Gas Emissions
<input type="checkbox"/>	Geology/Soils	<input type="checkbox"/>	Hazards & Hazardous Materials	<input type="checkbox"/>	Hydrology/ Water Quality
<input type="checkbox"/>	Land Use/Planning	<input type="checkbox"/>	Mineral Resources	<input type="checkbox"/>	Noise
<input type="checkbox"/>	Population/Housing	<input type="checkbox"/>	Public Services	<input type="checkbox"/>	Recreation
<input type="checkbox"/>	Transportation/Traffic	<input type="checkbox"/>	Utilities/Service Systems	<input type="checkbox"/>	Mandatory Findings of Significance

14.0 DETERMINATION

On the basis of this initial evaluation:

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



Jose Gutierrez
Deputy General Manager - Resources

2/5/16
Date

14.1 Aesthetics

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

14.1.1 Existing Setting

The proposed Project is located within the WWD in rural western Fresno and Kings County. The proposed Project area is open, low elevation, flat agricultural land on the west side of the San Joaquin Valley. The SLC is surrounded by row crops, equipment storage, flood storage infrastructure (e.g. pumps, ponding basins, embankments), occasional agricultural outbuilding and scattered rural housing. The proposed Project would largely utilize existing facilities, including existing wells and conveyance infrastructure. The site specific setting of the four temporary water integration locations are all confined to existing developed roads, constructed embankments and the concrete lined sides of the SLC. These areas do not support existing native vegetation, trees or other scenic features. There are no scenic vistas or designated state scenic highways within the WWD service area.

14.1.2 Discussion

a – d. **No Impact.** The proposed Project is not located on or near a scenic vista and would have no effect on a scenic vista. There are no designated state scenic highways, trees, rock outcroppings or other natural heritage sites in the Project vicinity that could be affected. Construction of the four permanent water integration location facilities would be minor and temporary in nature, would be confined to disturbed areas, would be of low profile or below

ground construction and would not result in adverse effects to scenic resources, visual character, or quality of the site and its surroundings. No new light or glare would be created during or after the proposed Project. Therefore, no impacts would occur.

14.2 Agricultural and Forestry Resources

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>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 (CARB).</p> <p>Would the Project:</p>				
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 type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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"/>

14.2.1 Existing Setting

Agricultural production is the dominant land use in western Fresno and Kings Counties and within the WWD service area. Water in the SLC is provided for agricultural production throughout the central valley. The groundwater pumped and integrated into the SLC for the proposed Project would also be used for agricultural production. The proposed Project would involve the conversion of four temporary water integration pipelines to permanent water integration pipelines. There are no forestry resources within the WWD service area.

14.2.2 Discussion

a – e. **No Impact.** The proposed Project would integrate pumped groundwater into the SLC for conveyance to agricultural lands throughout the WWD service area, including Prime Farmland. The proposed Project would not convert farmland to nonagricultural uses, and potentially would keep some farmland from becoming fallowed or retired due to the drought conditions. The proposed Project would not conflict with existing zoning for agricultural uses or a Williamson Act contract. The proposed Project would increase available water supplies to irrigate Williamson Act contract lands within the WWD service area. The proposed Project area does not include forestry resource and would not conflict with zoning or rezoning of forest land. The proposed Project would not involve land development activities that would directly or indirectly induce changes in the use of surrounding agricultural land, such as the need for schools or other services. The proposed Project would not induce new residential, commercial, or industrial land development activities to occur in the future. The proposed Project includes the construction of four permanent water integration location facilities. These water integration locations were previously constructed as temporary facilities and utilized in 2014 and 2015. The water integration location facilities to be used for the proposed Project would replace the existing temporary pipelines, which sit on top of the road, with permanent pipelines that would be placed underneath the road before discharging into the canal. Impacts involving changes in the existing environment, which due to their location or nature could result in conversion of farmland to non-agricultural uses would not occur. Overall, implementation of the proposed Project would be supportive of agriculture and would assist farmers in maintaining agricultural productivity by providing flexibility in allocation of scarce water supplies. Therefore, no impacts would occur.

14.3 Air Quality

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that 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 type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

14.3.1 Existing Setting

The WWD service area is in San Joaquin Valley Air Basin, which includes all of Fresno and Kings Counties as well as six other Central Valley counties. The San Joaquin Valley Air Pollution Control District implements air quality management strategies to attain and maintain Central Valley air quality standards.

The air pollutants most relevant to air quality planning and regulation in the Air Basin and their potential health impacts include:

- **Ground-Level Ozone (Ozone):** Ozone is a pungent, colorless, toxic gas produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_x) and

volatile organic compounds (VOCs). Conditions that produce high concentrations of ozone are direct sunshine, stagnation, high temperatures, and strong temperature inversions. Ozone concentrations are generally highest during the summer months when these conditions are favorable. Direct health effects include respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, elderly, persons with respiratory disorders, and persons who exercise strenuously outdoors.

- **Respirable Particulate Matter (PM₁₀) and Fine Particulate Matter (PM_{2.5}):** PM₁₀ and PM_{2.5} consist of suspended dust particles less than 10 or 2.5 microns, respectively. PM₁₀ is generally fugitive dust kicked up from mobile sources or wind. PM_{2.5} is emitted from combustion processes or is formed as a secondary pollutant through chemical reactions. Most particulate matter is produced by fuel combustion, motor vehicle travel, and construction activities. Children, elderly, and persons with pre-existing respiratory or cardiovascular disease are more susceptible to the effects of high PM₁₀ and PM_{2.5} levels. Potential health effects include skin, eye and throat irritation, respiratory infections, and asthma attacks. Daily fluctuations in PM_{2.5} concentration levels have been tied to hospital admissions, school and kindergarten absences, a decrease in respiratory lung volumes in normal children, and increased medication use. Recent studies show lung function in children is reduced with long-term exposure to particulate matter.
- **Carbon Monoxide (CO):** CO is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest near congested transportation corridors and intersections, especially during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Elevated concentrations of CO weaken the heart's contractions and lower the amount of oxygen carried by the blood. Inhalation of moderate levels of CO can cause nausea, dizziness, and headache, while inhalation of high levels can be fatal. CO reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity and impaired mental abilities. Individuals most at risk include fetuses, patients with heart disease, and patients with chronic hypoxemia (oxygen deficiency).
- **Nitrogen Dioxide (NO₂):** NO₂ is byproduct of fuel combustion. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), which reacts quickly to form NO₂, creating the mixture of NO and NO₂ commonly called NO_x. NO₂ results in reduced visibility. NO₂ also contributes to the formation of ground-level ozone and PM_{2.5}. Major sources of NO_x include power plants, large industrial facilities, and motor vehicles. NO_x irritates the nose and throat and increases susceptibility to respiratory infections, especially in asthmatics.
- **Sulfur Dioxide (SO₂):** SO₂ is a colorless, extremely irritating gas or liquid that is produced as a result of burning high sulfur-content oils and coal, and from chemical processes occurring at chemical plants and refineries. Major sources of SO₂ include power plants and large industrial facilities. SO₂ emissions aggravate lung diseases, especially bronchitis, and constricts breathing passages, especially in asthmatics and during moderate to heavy exercise. SO₂ can causes wheezing, shortness of breath, and coughing. High levels of particulate appear to worsen the effect of SO₂, and long-term exposures to both pollutants leads to higher rates of respiratory illness.

- **Lead:** Lead occurs in the atmosphere as particulate matter. The primary sources of airborne lead include the manufacturing and recycling of batteries, paint, ink, ceramics, ammunition, and secondary lead smelters. From 1970 to 2005, lead emissions in the US dropped by 99 percent (USEPA 2012). Fetuses, infants, and children are sensitive to the adverse effects of lead exposure. Exposure to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased levels of lead are associated with increased blood pressure. Lead poisoning can cause anemia, lethargy, seizures, and death.
- **Toxic Air Contaminants (TACs):** TACs are a diverse group of air pollutants including both organic and inorganic chemical substances emitted from sources including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research facilities. TACs differ from the above criteria pollutants in that ambient air quality standards have not been established for TACs. TACs are capable of causing chronic and acute health effects. These effects include increased risk of cancer. The majority of the estimated health risks from TACs can be attributed to a relatively few compounds, the most important being particulate matter from diesel-fueled engines.
- **Odors:** Odors are not regulated under the Federal or State Clean Air Acts; however, they are considered under CEQA. Odors can potentially affect human health in several ways. Odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Unpleasant odors can also trigger memories or attitudes, causing cognitive and emotional effects such as stress.

San Joaquin Valley Air Pollution Control District

The SJVAPCD is the agency principally responsible for comprehensive air pollution control in the Air Basin; as such, they are responsible for preparing attainment plans for each nonattainment criteria pollutant for which the district does not meet the standard. The SJVAPCD has developed plans and established strategies to attain State and Federal ozone and PM standards. To meet Federal CAA requirements, the SJVAPCD adopted the following plans: 2014 8-hour Ozone Implementation Plan; 2013 Revoked 1-hour Ozone Plan; 2012 PM_{2.5} Plan; 2007 Ozone Plan, and the 2007 PM₁₀ Maintenance Plan.

These plans include regulatory and incentive-based measures to reduce emissions of ozone and PM precursors throughout the San Joaquin Valley. The current rules and regulations are published on the SJVAPCD's website, and include regulations regarding generation of dust during construction activities (Rule 8021) and permitting requirements for new and modified stationary sources of air emissions (Rule 2201). Additionally, Rules 4550 (Conservation Management Practices) and 3190 (Conservation Management Practices Plan Fee), adopted in 2004, require farmers with over 100 acres of contiguous lands to prepare and implement Conservation Management Practices relating to agricultural air quality in an effort to reduce fugitive dust emissions and reach attainment status on PM₁₀. Fugitive dust due to construction or earth moving activities are addressed in Rule 8021 and 8081, which require control measures

to limit dust emissions. Lastly, Rule 4702 (Internal Combustion Engines) requires diesel engines to meet compliance standards (SJVAPD 2015).

14.3.2 Discussion

a-b. **Less than significant.** In the WWD service area, air emissions are regulated by the SJVAPCD. Construction of the four permanent water integration location facilities within Westlands would produce short-term intermittent combustion emissions over approximately one week for each replacement project from operation of construction equipment, excavation and construction worker trips. Permanent water integration location construction events would be temporary (approximately one week) and would only incrementally increase basin-wide combustion emissions, and would not exceed the SJVAPCD annual emissions thresholds or significantly degrade ambient air quality standards set by the EPA and CARB, or impact the State's ability to comply with the SIP. While combustion emissions would temporarily increase, they would not conflict with an existing air quality plan, would not result in a cumulatively substantial net increase in combustion emissions and would not violate or contribute substantially to an existing air quality standard. Although combustion emissions would incrementally increase from short-term water integration facility location construction, this impact would be less than significant.

In terms of ongoing pumping over the four year Project life, operation of wells could create direct emissions where such pumps are diesel powered or would create indirect emissions from power plant operations where pumps are electric. However, these wells are already in operation, and as total groundwater withdrawals would not increase within the WWD, associated direct or indirect emissions would remain similar. Therefore, operational impacts would be less than significant.

c. **Less than significant.** The proposed Project includes the construction of four permanent water integration location facilities. These water integration locations were previously constructed as temporary facilities and utilized in 2014 and 2015. The water integration location facilities to be used for the proposed Project would simply place the existing temporary pipelines, which sit on top of the road, underneath the road before discharging into the canal. In terms of ongoing pumping over the four year Project life, operation of wells could create direct emissions where such pumps are diesel powered or would create indirect emissions from power plant operations where pumps are electric. However, these wells are already in operation, and as total groundwater withdrawals would not increase within the WWD, associated direct or indirect emissions would remain similar. Therefore, operational impacts would be less than significant. Therefore, the proposed Project would not generate new air quality emissions that could result in a cumulatively considerable net increase of any criteria pollutant, thus, this impact would be less than significant.

d. **No Impact.** Construction of the proposed Project would be minor and temporary in nature and would generate insignificant sources of air pollutants. In terms of ongoing pumping over the four year Project life, operation of wells could create direct emissions where such pumps are diesel powered or would create indirect emissions from power plant operations where pumps are electric. However, these wells are already in operation, and as total groundwater withdrawals would not increase within the WWD, associated direct or indirect emissions would remain similar. Therefore, operational impacts would be less than significant. Thus, the proposed Project would not generate new pollutant concentrations that could impact sensitive receptors such as children, older adults, or persons with preexisting respiratory or cardiovascular illness. Therefore, no impact would occur.

e. **No Impact.** Implementation of the proposed Project would not create new objectionable odors. Therefore, no impact would occur.

14.4 Biological Resources

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 wetlands, etc.), through direct removal, filling, hydrological interruption or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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"/>

14.4.1 Existing Setting

A species list was obtained from the US Fish and Wildlife Service on February 10, 2015 (document number 150210122721). This list, along with a CNDDDB search in 2015, and other information were used to compile the species table below.

The proposed Project area includes more than 600,000 acres and facilities such as the San Luis Reservoir, SLC and agricultural lands within the WWD that would receive portions of their irrigation water from this program. The only federally listed species that may occur in the area are the Buena Vista Lake shrew, San Joaquin kit fox, blunt-nosed leopard lizard, giant garter snake, California least tern, and San Joaquin woolly-threads. Of these, the only species that can use agricultural lands at all is the San Joaquin kit fox, which can forage, but not den, in crop

fields where the fields lie close to native lands (Warrick et al. 2007). The majority of the proposed Project area consists of agricultural lands.

The Mendota Wildlife Area receives some water input from groundwater wells that produce water that is ultimately conveyed by WWD Lateral 7, and the giant garter snake occurs at that location, as well as a number of migratory bird species. Kern National Wildlife Refuge receives water from the California Aqueduct, via approximately 12 miles of Buena Vista Water Storage District facilities. The Buena Vista Lake shrew is found at Kern National Wildlife Refuge, which also supports a number of migratory birds. A complete list of federally listed species and critical habitat is summarized in Table 3 below.

**Table 3.
 Federally Listed Species and Critical Habitat**

Common Name	Scientific Name	Federal Listing Status	Critical Habitat	Range/ Habitat Use	Occurrence in Project Area	Impacts
Conservancy fairy shrimp	<i>Branchinecta conservation</i>	Endangered	Designated	Found in turbid vernal pools	Vernal pools are absent from the Project area	No impact on the species or critical habitat
Longhorn fairy shrimp	<i>Branchinecta longiantenna</i>	Endangered	Designated	Occurs in multiple types of vernal pools	Vernal pools are absent from the Project area	No impact on the species or critical habitat
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	Threatened	Designated	Occurs in a variety of vernal pools or other depressions that have a similar hydrology	Vernal pools and other similar depressions are absent from the Project area	No impact on the species or critical habitat
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	Threatened	Designated	Requires elderberry shrubs with stems one inch or greater in diameter at ground level	Elderberry shrubs do not occur around the edge of San Luis Reservoir or in actively farmed lands or at Meyers Water Bank	No impact on the species or critical habitat

**Table 3.
 Federally Listed Species and Critical Habitat (Cont.)**

Common Name	Scientific Name	Federal Listing Status	Critical Habitat	Range/ Habitat Use	Occurrence in Project Area	Impacts
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	Endangered	Designated	Found in a wide range of vernal pool types, has a disjunct range	Vernal pools are absent from the Project area	No impact on the species or critical habitat
North American green sturgeon	<i>Acipenser medirostris</i>	Threatened	Designated	Inhabits the Sacramento-San Joaquin Delta and spawns in the Sacramento River	The proposed Project area is outside of the species range. White sturgeon have been found in San Luis Reservoir, but not green sturgeon	No impact on the species or critical habitat
Owens tui chub	<i>Gila bicolor snyderi</i>	Endangered	Designated	Found only in a limited number of populations in the Owens River Valley where it inhabits standing water or low-gradient rivers and streams	The proposed Project area is outside of the species range	No impact on the species or critical habitat
Delta smelt	<i>Hypomesus transpacificus</i>	Threatened	Designated	Occurs in the Sacramento-San Joaquin Delta	The proposed Project area is outside of the species range	No impact on the species or critical habitat
Lahontan cutthroat trout	<i>Oncorhynchus clarki henshawi</i>	Threatened	None	Found in cold-water habitats in the Lahontan Basin	The proposed Project area is outside of the species range	No impact on the species
Paiute cutthroat trout	<i>Oncorhynchus clarki seleniris</i>	Threatened	None	Currently found in a few populations in the Inyo and Sierra National Forests; eliminated from its historic range within the Humboldt Tolyabe National Forest	The proposed Project area is outside of the species range	No impact on the species

**Table 3.
 Federally Listed Species and Critical Habitat (Cont.)**

Common Name	Scientific Name	Federal Listing Status	Critical Habitat	Range/ Habitat Use	Occurrence in Project Area	Impacts
Central Valley steelhead	<i>Oncorhynchus mykiss</i>	Threatened	Designated	Occurs in the Sacramento-San Joaquin Delta, and spawns and rears in parts of the Sacramento and San Joaquin River systems	The proposed Project area is outside of the species range	No impact on the species or critical habitat
Central Valley spring-run chinook salmon	<i>Oncorhynchus tshawytscha</i>	Threatened	Designated	Occurs in the Sacramento-San Joaquin Delta, and spawns and rears in parts of the Sacramento River system; is being reintroduced to the upper San Joaquin River	The proposed Project area is outside of the species range	No impact on the species or critical habitat
Sacramento River winter-run chinook salmon	<i>Oncorhynchus tshawytscha</i>	Endangered	Designated	Occurs in the Sacramento-San Joaquin Delta, and spawns and rears in parts of the Sacramento River system	The proposed Project area is outside of the species range	No impact on the species or critical habitat
California tiger salamander (central population)	<i>Ambystoma californiense</i>	Threatened	Designated	Breeds in vernal pools and other similar ponds and uses rodent burrows in surrounding grasslands for refugia during the non-breeding season	Vernal pools and other suitable breeding ponds do not occur in the proposed Project area	No impact on the species or critical habitat
California red-legged frog	<i>Rana draytonii</i>	Threatened	Designated	Uses foothill streams and ponds; has been eliminated from the San Joaquin Valley floor. The species and its critical habitat occur just to the west of San Luis Reservoir, but not in the reservoir itself	The proposed Project area does not include any suitable habitat for this species and is outside of its critical habitat	No impact on the species or critical habitat

**Table 3.
 Federally Listed Species and Critical Habitat (Cont.)**

Common Name	Scientific Name	Federal Listing Status	Critical Habitat	Range/ Habitat Use	Occurrence in Project Area	Impacts
Mountain yellow-legged frog (northern population)	<i>Rana muscosa</i>	Endangered	Proposed	Occurs in high mountain streams in parts of the Sierra Nevada (south of the Monarch Divide), mostly on National Park or National Forest lands	The proposed Project area is outside of the species range	No impact on the species or critical habitat
Sierra Nevada yellow-legged frog	<i>Rana sierrae</i>	Endangered	Proposed	Occurs in high mountain streams in parts of the Sierra Nevada (north of the range of the mountain yellow-legged frog), and parts of the eastern slope of the Sierra Nevada.	The proposed Project area is outside of the species range	No impact on the species or critical habitat
Yosemite toad	<i>Anaxyrus canorus</i>	Threatened	Proposed	Uses wet meadows and surrounding forest in parts of the Sierra Nevada	The proposed Project area is outside of the species range	No impact on the species or critical habitat
Blunt-nosed leopard lizard	<i>Gambelia sila</i>	Endangered	None	Found in alkali scrub and arid grassland habitat in parts of the San Joaquin Valley and adjacent areas (such as Carrizo Plain).	Blunt-nosed leopard lizards may occur on the western-most edges of WWD, but not on actively-farmed lands	No impact; the water involved in the proposed Project cannot be used to bring native lands into production
Giant garter snake	<i>Thamnophis gigas</i>	Threatened	None	Found in and near wetland habitat in Mendota Pool and the Grasslands	Occurs at Mendota Wildlife Area, which receives water from Lateral 7	No impact. Selenium would not rise above 1.34 ppb in Lateral 7

**Table 3.
 Federally Listed Species and Critical Habitat (Cont.)**

Common Name	Scientific Name	Federal Listing Status	Critical Habitat	Range/ Habitat Use	Occurrence in Project Area	Impacts
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	Threatened	Designated	A coastal shorebird; occasionally found inland at evaporation ponds	Not known to occur in the proposed Project area, which is outside of the typical range. Not expected due to lack of evaporation ponds.	No impact on the species or critical habitat
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Threatened	Proposed	Uses extensive cottonwood-willow forests; currently restricted in California to a portion of the Sacramento River, the Kern River, and the Colorado River	The species could fly overhead on its migration to and from breeding habitat along the Sacramento River and wintering grounds in South America, but would not otherwise use the proposed Project area.	No impact on the species or critical habitat
California condor	<i>Gymnogyps californianus</i>	Endangered	Designated	Forages for carrion in large expanses of foothill and oak savanna ringing the southern San Joaquin Valley floor.	This species habitat does not occur in the proposed Project area and there are no records of its occurrence in the area.	No impact on the species or critical habitat

**Table 3.
 Federally Listed Species and Critical Habitat (Cont.)**

Common Name	Scientific Name	Federal Listing Status	Critical Habitat	Range/ Habitat Use	Occurrence in Project Area	Impacts
California least tern	<i>Stemula antillarum browni</i>	Endangered (recommended for downlisting to Threatened)	None	Normally nests on sandy coastal habitat and forages for small fish. Sometimes can be found inland where open water with small fish is found.	Has been documented foraging at sewage ponds on Lemoore Naval Air Station. Monitoring in 2014 of the San Luis Drain in and adjacent to WWD did not result in any least tern observations.	No impact. Least terns would not be affected because the proposed Project would not contribute to any drainage that could contaminate potential foraging habitat such as the San Luis Drain.
Giant kangaroo rat	<i>Dipodomys ingens</i>	Endangered	None	Occurs in arid grasslands and saltbush scrub in Kern County and a few other south San Joaquin Valley locations. The closest population to the proposed Project area is the Kettleman Hills in Kings County.	Does not occur in the proposed Project area	No impact on the species
Fresno kangaroo rat	<i>Dipodomys nitratooides exilis</i>	Endangered	Designated	Uses alkali sink and arid grassland habitat; historical occurrences at and near the Alkali Sink Ecological Reserve and Madera Ranch. A possible Fresno/Tipton hybrid population may still occur at Lemoore Naval Air Station	Does not occur in the proposed Project area.	No impact on the species or critical habitat

**Table 3.
 Federally Listed Species and Critical Habitat (Cont.)**

Common Name	Scientific Name	Federal Listing Status	Critical Habitat	Range/ Habitat Use	Occurrence in Project Area	Impacts
Tipton kangaroo rat	<i>Dipodomys nitratooides</i>	Endangered	None	Generally only occurs south of the proposed Project area, although there may be a very small Fresno/Tipton hybrid population near the proposed Project area (see above).	Does not occur in the proposed Project area.	No impact on the species
Sierra Nevada bighorn sheep	<i>Ovis Canadensis californiana</i>	Endangered	Designated	Found in the remote arid mountain habitat in the southern Sierra Nevada	The proposed Project area is outside of the species range	No impact on the species or critical habitat
Buena Vista Lake shrew	<i>Sorex ornatus relictus</i>	Endangered	Designated	Uses riparian/wetland habitat. Critical habitat occurs near, but outside of WWD.	Occurs at Kern National Wildlife Refuge	No impact on the species or critical habitat. Selenium would not rise above 1.49 ppb at Check 21.
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	Endangered	None	Prefers saltbush scrub and arid grassland habitat, but can use agricultural lands for foraging within a mile or so of occupied habitat.	Records of the species are known from the proposed Project area.	No impact. The proposed Project would not result in any land use changes.
Fisher	<i>Pekania pennant</i>	Proposed Threatened	None	Occupies montane forest habitat	The proposed Project area is outside of the species range	No impact on the species
Mariposa pussy-paws	<i>Calyptridium pulchellum</i>	Threatened	None	Occurs on decomposed granite in foothills of south-central Sierra Nevada	The proposed Project area is outside of the species range	No impact on the species

**Table 3.
 Federally Listed Species and Critical Habitat (Cont.)**

Common Name	Scientific Name	Federal Listing Status	Critical Habitat	Range/ Habitat Use	Occurrence in Project Area	Impacts
San Benito evening-primrose	<i>Camissonia benitensis</i>	Threatened	None	Found on serpentine-derived alluvial soils in western Fresno and San Benito Counties	The proposed Project area is outside of the species range	No impact on the species
Succulent owl's-clover	<i>Castilleja campestris</i> ssp. <i>succulent</i>	Threatened	Designated	Occurs in vernal pool habitat in southern Sierra Nevada foothills	Vernal pools are absent from the proposed Project area.	No impact on the species or critical habitat
California jewelflower	<i>Caulanthus californicus</i>	Endangered	None	Occurs in saltbush scrub and arid grasslands; there are three known naturally-occurring populations: Carrizo Plain, Santa Barbara Canyon, and the Kreyenhagen Hills in Fresno County.	Does not occur in the proposed Project area. Has been eliminated from the area, though still found in the Kreyenhagen Hills.	No impact on the species
Hoover's spurge	<i>Chamaesyce hooveri</i>	Threatened	Designated	Found in vernal pools (usually deeper pools) in the Sierra Nevada foothills	Vernal pools are absent from the proposed Project area.	No impact on the species or critical habitat
Palmate-bracted bird's-beak	<i>Cordylanthus palmatus</i>	Endangered	None	Occurs in alkali sink habitat	Suitable habitat no longer occurs in the proposed Project area	No impact on the species
San Joaquin woolly-threads	<i>Monolopia congdonii</i>	Endangered	None	Found in arid grasslands and saltbush scrub habitat	May still occur on the western fringes of WWD	The proposed Project would not result in any land use change.

**Table 3.
 Federally Listed Species and Critical Habitat (Cont.)**

Common Name	Scientific Name	Federal Listing Status	Critical Habitat	Range/ Habitat Use	Occurrence in Project Area	Impacts
Colusa grass	<i>Neostapfia colusana</i>	Threatened	Designated	Occurs in vernal pools; some of the known locations are spread far apart and it may occur in other localities where it hasn't been verified yet.	Vernal pools are absent from the proposed Project area.	No impact on the species or critical habitat
San Joaquin Valley Orcutt grass	<i>Orcuttia inaequalis</i>	Threatened	Designated	Found in vernal pools in the southern Sierra Nevada foothills	Vernal pools are absent from the proposed Project area.	No impact on the species or critical habitat
Hairy Orcutt grass	<i>Orcuttia pilosa</i>	Endangered	Designated	Occurs in vernal pools. Known both from the northeastern Sacramento Valley and the southern Sierra Nevada foothills.	Vernal pools are absent from the proposed Project area.	No impact on the species or critical habitat
Hartweg's golden sunburst	<i>Pseudobahia bahifolia</i>	Endangered	None	Found in grasslands and oak woodlands on the east side of the San Joaquin Valley and foothills. Usually on fine-textured soils with Mima mounds present.	The proposed Project area is outside of the species range	No impact on the species
San Joaquin adobe sunburst	<i>Pseudobahia peirsonii</i>	Threatened	None	Found in grasslands along the eastern side of the southern San Joaquin Valley	The proposed Project area is outside of the species range	No impact on the species
Keck's checker-mallow	<i>Sidalcea keckii</i>	Endangered	Designated	Found in grasslands in the Sierra Nevada foothills	The proposed Project area is outside of the species range	No impact on the species or critical habitat
Greene's tuctoria	<i>Tuctoria greenei</i>	Endangered	Designated	Found in different types of vernal pools	The proposed Project area is outside of the species range	No impact on the species or critical habitat

14.4.2 Discussion

a-c. **No Impact.** Implementation of the proposed Project would involve minor construction of the installment of four permanent water integration location facilities. This construction would take place on developed lands that support existing roads, concrete canal walls or disturbed artificial embankments. As construction would be relatively minor and short term, no long-term impacts to biological resources would occur.

During the operation of the proposed Project, Project wells would draw water from the Westside Groundwater Basin, which is currently in a state of severe overdraft mainly from pumping that occurred in the 1950's and 1960's. Such overdraft may indirectly affect biological resources such as streams and wetlands, through drawdown of groundwater levels which can lead to decreased stream flow and some potential for desiccation of wetlands that are fed by groundwater discharge. However, because the proposed Project wells would be used to irrigate existing cultivated agricultural lands, and Project withdrawals would not increase overdraft beyond existing baseline conditions which include long term pumping of these wells, no impact would occur.

Additionally, there are no sensitive natural communities identified in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service located in the Project vicinity. Additionally, there are no marshes, vernal pools or federally protected wetlands in the Project vicinity. Conversion of the four temporary water integration locations to permanent water integration locations would occur on the dirt/gravel road directly adjacent to the canal. The dirt road and its surroundings at each location is devoid of habitat that is considered suitable for any sensitive species. Therefore, there would be no impacts to sensitive species, natural communities, vernal pools, marshes or wetlands as a result of implementation of the proposed Project.

d. **Less than Significant.** Under the proposed Project, the water would help to keep agricultural lands in production. No native lands or lands fallowed and untilled for three or more years could be brought into production with the use of the water involved in the proposed Project. Both Mendota Wildlife Area and Kern National Wildlife Refuge water supplies may mix with groundwater introduced as a result of the proposed Project, and this would occur partly during times of the year when these refuges would receive water supplies. However, the selenium levels are expected to remain well below the threshold for an effect on wildlife, which is 2 parts per billion as measured in the water column (USBR and San Luis & Delta-Mendota Water Authority 2009 and references therein). Data from 2014 shows that the selenium level has not exceeded 1 part per billion at Check 21 during the time period from April through September. According to calculations performed by USBR, using recent baseline data and projecting changes in Lateral 7, the selenium level in Lateral 7 would not exceed 1.34 parts per billion with the proposed Project, and according to a model for the California Aqueduct, also including recent data and considering projected flow resulting from DWR and USBR actions, the selenium level would no increase above 1.49 parts per billion at Check 21, during the months that groundwater would be pumped as part of the proposed Project. No drainage would be generated that could make its way into aquatic habitat potentially used by the Giant garter snake or California least tern. Therefore, impacts would be less than significant.

e. **No Impact.** The proposed Project would not conflict with any local policies or ordinances protecting biological resources. Therefore, no impacts would occur.

f. **No Impact.** No Habitat Conservation Plans or Natural Community Conservation Plans are currently in place in Fresno and Kings Counties, therefore, the proposed Project would not conflict with any Habitat Conservation Plans or Natural Community Conservation Plans. Further, the proposed Project would be designed to ensure that no drainage would be generated that could make its way into aquatic habitats potentially used by the Giant garter snake or the California least tern. Salinity levels of the water supplies of the Mendota Wildlife Area or Kern National Wildlife Refuge would also be protected. Therefore, no impacts would occur.

14.5 Cultural Resources

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geological 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

14.5.1 Existing Setting

Cultural resources in this area are generally prehistoric in nature and include remnants of native human populations that existed before European settlement. As San Joaquin Valley is rich in historic and prehistoric cultural resources, it is possible that undiscovered cultural resources remain within the proposed Project area. Known cultural resources in these areas include historic features of the built environment, primarily those of the CVP and SWP. Components of the CVP have been determined eligible for inclusion in the National Register and have been prepared for inclusion through a multiple property nomination. Existing temporary water integration locations are allocated on roads, disturbed embankments and along the concrete

slopes of the SLC, areas not likely to support either prehistoric or historic resources due to past grading and frequent maintenance activities.

Portions of the proposed Project area are situated in sediments deposited from the latest Holocene that are considered to have high potential for buried deposits. Although the Central Valley has been occupied by human populations since prehistoric times, the predominantly agricultural use of the area for more than 100 years has caused a large amount of deep ground disturbance (e.g., deep ripping) and disruption that may have disturbed undiscovered Native American cultural sites. In particular, deep excavation and place of fill during construction of the SLC likely disturbed or destroyed subsurface cultural resources along and adjacent to the canal.

14.5.2 Discussion

a. **No Impact.** The proposed Project would not cause a substantial adverse change in the significance of a historical resource given that the groundwater pumping and conveyance would primarily utilize existing infrastructure for its intended purpose. Limited construction would occur within four small, previously disturbed areas located along roads, artificial earthen embankments and the concrete lined slopes of the SLC. This area would be located outside of any key character defining features of the SLC (e.g., pump stations and bridges), and within areas previously subjected to major excavation and fill activities. Given the disturbance in the area required to construct the canal and dirt/gravel road, it is highly unlikely that any cultural resources would be located within the roadbed during construction activities. Therefore, no impact would occur.

b – d. **No impact.** Given previous disturbance related to past grading and excavation for construction of the canal and roads that run along either side of the canal, it is extremely unlikely that undiscovered archaeological, paleontological, cultural resources, or human remains would be encountered during construction. Further, installation of the permanent water integration locations under the road would not require major excavation or grading and would not go deeper than the canal itself. Further, under the proposed Project, the water would help keep existing cultivated agricultural lands in production. Lands that are undisturbed, fallowed or untilled for three or more years could not be brought into production with the use of the water involved in the proposed Project. Therefore, no impacts would occur.

14.6 Geology and Soils

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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"/>

14.6.1 Existing Setting

The WWD service area is located in the Great Valley geomorphic province, which is an alluvial plain about 400 miles long and 50 miles wide. The WWD service area is not located in an Alquist-Priolo Earthquake Fault Zone or in a mapped landslide or liquefaction zones.

14.6.2 Discussion

a. **No Impact.** The proposed Project would only involve the minor construction of four permanent water integration location facilities including short sections of above ground and subsurface pipelines. Such facilities would be constructed to meet the requirements of the Uniform Building Code or equivalent standards designed to resist damage from the maximum foreseeable earthquake. Therefore, there proposed Project would not expose people or structures to adverse effects involving rupture of a known earthquake fault, strong seismic ground shaking, ground failure, liquefaction or landslides.

b. **Less than Significant.** The proposed Project would not include activities that could result in substantial erosion or the loss of topsoil. Water would be transferred with the proposed Project via existing waterways and infrastructure, and would be used for continued agricultural irrigation in the WWD service area. The proposed Project would potentially keep some farmland from becoming fallowed due to the current drought conditions. Therefore, the proposed Project could potentially reduce the risk of soil erosion or loss of topsoil that may otherwise occur. Thus, there would be less than significant impacts to substantial erosion or the loss of topsoil as a result of the proposed Project.

c. **Less than Significant.** Potential land subsidence effects are discussed in Section 14.9, *Hydrology and Water Quality*.

The proposed Project would include the minor construction for four permanent water integration location facilities. Limited construction would occur within four small, previously disturbed areas located along roads, artificial earthen embankments and the concrete lined slopes of the SLC. In addition, the WWD service area is not located on a mapped liquefaction zone nor would the proposed Project be located within geologic units or soil that would be unstable as a result of the proposed Project. Therefore, the proposed Project would not expose people or structures to

potential substantial adverse effects from seismic-related ground failure, lateral spreading, liquefaction or collapse. Therefore, impacts would be less than significant.

d. **Less than Significant.** The proposed Project includes the construction of four permanent water integration location facilities. These water integration locations were previously constructed as temporary facilities and utilized in 2014 and 2015. Construction of the four water integration location facilities would involve minor excavation and ground disturbance and would not result in significant risks to life or property from expansive soils as they would occur in locations already subject to excavation and compaction as part of the SLC construction. Therefore, there would be less than significant impacts to the risk of life or property from expansive soils as a result of the proposed Project.

e. **No Impact.** The proposed Project would not require the use of septic tanks or wastewater disposal systems. Additionally, the proposed Project would not impact the existing sanitary sewer lines within the Project area. Therefore, there would be no impact to septic systems or alternative wastewater treatment systems as a result of the proposed Project.

14.7 Greenhouse Gas Emissions

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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"/>

14.7.1 Existing Setting

Global climate change can be measured by changes in wind patterns, storms, precipitation, and temperature. Scientific consensus has identified human-related emissions of greenhouse gases (GHGs) above natural levels is a significant contributor to global climate change. GHGs are emissions that trap heat in the atmosphere and regulate the Earth's temperature, and include water vapor, CO₂, methane (CH₄), nitrous oxide (N₂O), ground level ozone, and fluorinated gases, such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and halons. The potential impacts of climate change include severe weather patterns, flooding, reduced quality and availability of water, sea level rise, and beach erosion. Primary activities associated

with GHG emissions include transportation, operation of utilities (e.g., power generation and transport), industrial activities, manufacturing, agriculture, and residential uses. End-use sector sources of GHG emissions in California are as follows: transportation (37 percent), industry (23 percent), electricity generation (20 percent), agriculture and forestry (8 percent), residential (7 percent) and other (5 percent) (CARB 2015).

Assembly Bill (AB) 32 is a California State Law that establishes a comprehensive program to reduce GHG emissions from all sources throughout the state. AB 32 requires the California Air Resources Board (CARB) to develop regulations and market mechanisms to reduce California's GHG emissions to 1990 levels by 2020, representing a 25 percent reduction statewide, with mandatory caps beginning in 2012 for significant emissions sources. (CARB 2014).

San Joaquin Valley Air Pollution Control District

The SJVAPCD, the agency principally responsible for comprehensive air pollution control in the San Joaquin Valley Air Basin, adopted the Climate Change Action Plan (CCAP) in 2008, which called for guidance to assist SJVAPCD staff, valley businesses, land use agencies, and other permitting agencies in addressing GHG emissions as part of the CEQA process. In response, the SJVAPCD adopted a district policy and guidance in December 2009 to provide direction assessing and reducing the impacts of project specific GHG emissions on global climate change from stationary sources. The policy is detailed in *District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency* (District Policy) and guidance regarding this policy is provided in *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*.

The District Policy establishes the process to evaluate the significance of action-specific GHG emission impacts on global climate change and to establish Best Performance Standards (BPSs) to reduce action-specific GHG emissions. Use of BPSs is a method of streamlining the CEQA process of determining significance and is not a required emission reduction measure. Actions implementing BPSs are determined to have a less than cumulatively significant impact. Otherwise, demonstration of a 29-percent reduction in GHG emissions, from business-as-usual, is required to determine that an action would have a less than cumulatively significant impact. The SJVAPCD is developing BPSs for Full-Time Agricultural Operations Spark-Ignited Internal Combustion Engines Serving Irrigation Pumps, but has not yet posted draft or approved BPSs for these sources. The SJVAPCD has not officially adopted a significance threshold for generation of GHGs from water exchanges to assess the level at which an action's incremental contribution is considered cumulatively considerable.

The District Policy applies to projects for which the SJVAPCD has discretionary approval authority over the Project and serves as the lead agency for CEQA purposes. However, land use agencies can refer to it as guidance for projects that include stationary sources of emissions. The guidance does not limit a lead agency's authority in establishing its own process and guidance for determining significance of action-related impacts on global climate change.

14.7.2 Discussion

a. **Less than Significant.** The proposed Project includes the construction of four permanent water integration location facilities. The water integration location facilities to be used for the proposed Project would replace the existing temporary pipelines, which sit on top of the road, underneath the road before discharging into the canal. Operation of the proposed Project wells and conveyance facilities would not increase the generation of GHG emissions over the existing environmental baseline as overall groundwater withdrawals and conveyance would not increase under the proposed Project. Thus, the proposed Project would not represent a new source of greenhouse gas emissions. While the potential exists that some water would be moved further than under existing conditions thereby incrementally increasing energy demand and GHG emissions, such minor incremental increases cannot be reasonably forecasted and it would be speculative to do so. Construction of the proposed Project would be minor and temporary in nature and would generate insignificant sources of greenhouse gas emissions. Therefore, impacts related to greenhouse gas emissions would be less than significant.

b. **Less than Significant.** Neither Fresno nor Kings Counties have specific regulations regarding reducing GHG emissions and the proposed Project would not conflict with Climate Change Action Plan adopted by the SJVAPCD. Therefore, impacts related to GHG emissions would be less than significant.

14.8 Hazards and Hazardous Materials

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>

14.8.1 Existing Setting

Several schools are located within the WWD service area, including Mendota High School, Columbia College, Neutra Elementary School, Akers Elementary School, Chestnut High School, and Huron Middle School. Airports in the WWD service area include William Robert Johnston Municipal Airport, San Joaquin Airport, Harris-Agro West Airport, West Side Field Station Airport, Harris Ranch Airport, Willet Field, and Stone Land Company Airport.

The Hazardous Waste and Substances Sites List (Cortese List) is compiled by the California Department of Toxic Substances Control (DTSC) in accordance with Section 65962.5 of the California Government Code. A search of the Cortese List and a search for sites with reported hazardous material spills, leaks, ongoing investigations, and/or remediation near the Project sites were performed using the DTSC online EnviroStor database (DTSC 2015). In addition, a search was conducted using the State Water Resources Control Board's (SWRCB's) GeoTracker database (SWRCB 2015). LUST and other cleanup sites are also located in the WWD service area.

14.8.2 Discussion

a–b. **Less than Significant.** During construction activities for the proposed Project, typical hazardous materials would be used at the site, including hydraulic fluids and vehicle fuels. The use of these materials during project construction would be short-term in nature and would occur in accordance with standard construction practices, as well as with applicable federal, state, and local health and safety regulations. Construction activities would not create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials. Therefore, impacts would be less than significant. Agricultural activities could involve the use and storage of hazardous materials, however, use and storage would not increase as a result of the proposed Project.

c. **Less than Significant.** Construction of the proposed Project may result in the release of emissions, however construction would be temporary in nature and would be located miles from the closest sensitive receptor. Several schools are located within the WWD service area, however none are located in close proximity to the proposed construction areas. The proposed Project would not emit hazardous emissions or handle hazardous materials, substances or waste within 0.25 miles of an existing or proposed school. Operational emissions from diesel pumps would be used as part of the program and would not change from ongoing operations and would be well removed from sensitive receptors. Agricultural activities in the WWD service area could involve the use and storage of hazardous materials, but use and storage would not change or increase as a result of the proposed Project. Therefore, potential impacts associated with the emission of hazardous materials near an existing or proposed school would be less than significant.

d. **No Impact.** The proposed Project would not occur on a hazardous materials site that would create a risk to the public or the environment. Therefore, no impact would occur.

e-f. **No Impact.** Several airports and private airstrips are located within the proposed Project area, however, none are located within two miles of the proposed Project area. The proposed Project would not create a safety hazard associated with airport operations for people residing or working in the Project area. Therefore, no impacts related to airport operations would occur as a result of the proposed Project.

g. **No Impact.** The proposed project would not impair or physically interfere with an adopted emergency response plan or a local, state, or federal agency's emergency evacuation plan. Operationally, the project would not materially change the characteristics of the project site in a way that would alter emergency response or evacuation plans. Therefore, no impacts would occur.

h. **No Impact.** The California Department of Forestry and Fire Protection (CAL FIRE) classifies the area as a moderate fire hazard severity zone. The proposed Project would not add structures that could be exposed to fire risk as the four permanent water integration facilities would be located underground. No features of the proposed Project would change the fire hazard severity zones. Therefore, no impacts related to exposing people or structures to a significant risk of loss, injury or death involving wildland fires would occur as a result of the proposed Project.

14.9 Hydrology and Water Quality

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>
c) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) 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 that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 a failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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"/>

14.9.1 Existing Setting

Regional Groundwater Basin

The proposed Project is located within the Central Valley Groundwater Basin, an aquifer system which underlies 20,378 square miles in the Central Valley of California, extending between the Sacramento Delta and Bakersfield. The Central Valley Groundwater Basin lies within a large trough filled with Jurassic and Holocene sediments. The sediments are comprised of mixtures of gravel, sand, silt and clay, which form semi-confining and confining layers that affect drainage and vertical groundwater flows within the basin. The Central Valley Groundwater Basin stores approximately 800 million AF of freshwater within the upper 1,000 feet of sediments, as well as an unquantified amount of generally unusable saline water with concentrations of TDS above 2,000 mg/L (USGS 2009).

Groundwater in the aquifer system is recharged primarily through precipitation which contributes an estimated 1.5 million AFY of water to the Central Valley aquifer system; seepage from surface water sources flowing through the Central Valley contributes an additional 0.5 million AFY of recharge. The estimated 2 million AFY of natural flows through the Central Valley Groundwater Basin were in historic equilibrium prior to agricultural development in the Central Valley and groundwater storage remained relatively constant. With extensive agricultural development in the Central Valley, flows within the aquifer system increased to 12 million AFY after 1962 as a result of increased groundwater pumping and increased recharge from the application of irrigation water.

Although the Central Valley Groundwater Basin has a large storage capacity, water level records and studies indicate that groundwater withdrawals depleted 57.7 million AF between 1962 and 2003, with associated declines in groundwater levels as deep as 400 feet compared to predevelopment conditions. These effects were largest in the south and west side of the Central Valley. During this period, groundwater extraction was estimated to be approximately 10.5 million AFY, where the aquifer system had estimated net loss storage of 1.4 million AFY. In many areas of the San Joaquin Valley groundwater levels continue to be well below predevelopment levels (USGS 2009).

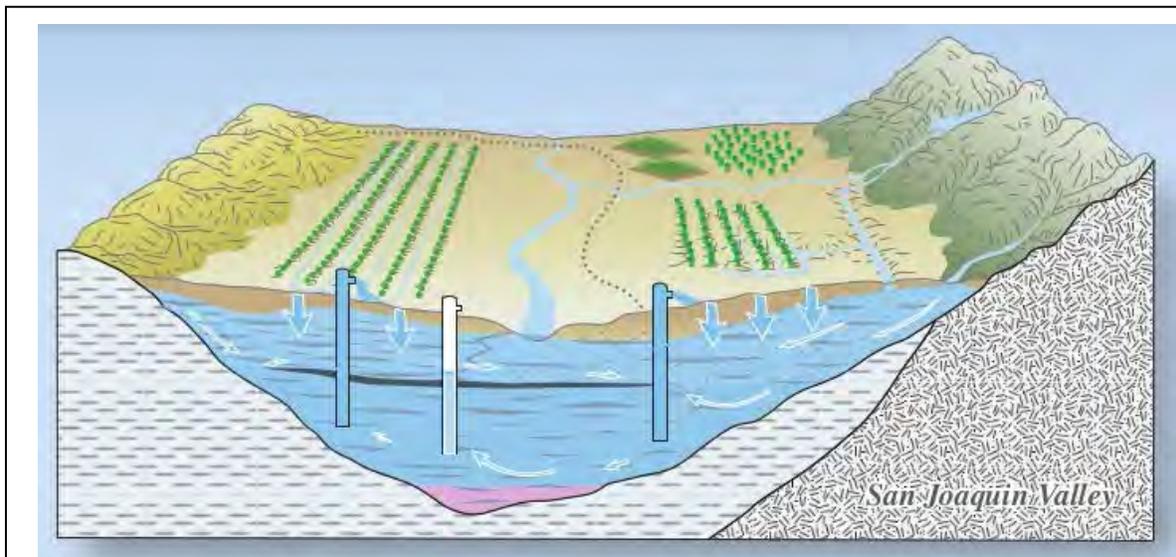
The proposed Project lies in the Westside Subbasin of the Tulare Lake Groundwater Basin within the Central Valley Groundwater Basin.

Tulare Lake Groundwater Basin

The Tulare Lake Groundwater Basin covers 8,074 square miles in the southern portion of the Valley and is bounded roughly by the San Joaquin River to the north, Sierra Nevada to the east, the Tehachapi Mountains to the south, and the Coast Ranges to the west. Within this basin, a Corcoran clay layer extends across most of this basin at 200 to 500 feet below ground surface (bgs) and ranges from 20 to 200 feet in thickness (Westlands 2014). The Corcoran clay layer separates the basin into two water-bearing zones in the majority of the basin: the upper and lower aquifers. However, it is not continuous within the Westside Subbasin and diminishes near the SLC (Westlands 2014; 1996). Recharge sources in the Tulare Lake Groundwater Basin includes runoff and percolation from several rivers, subsurface flows, Coast Range seepage and streams, and percolation from surface irrigation.

Groundwater throughout this basin is suitable for agricultural and urban use. Primary constituents of concern are TDS, arsenic, and nitrates. Groundwater within WWD contain high concentrations of TDS due to salts in sediment layers and the percolation of stream flows carrying marine deposits. Poor drainage and high evaporation rates also result in a higher concentration of salts on the surface of the Valley floor, which in turn percolate into groundwater supplies. In regions where the Corcoran Clay layer is present, groundwater quality is generally better below the clay layer as it limits the migration of water from shallow depths that generally contain high TDS concentrations.

Westside Subbasin



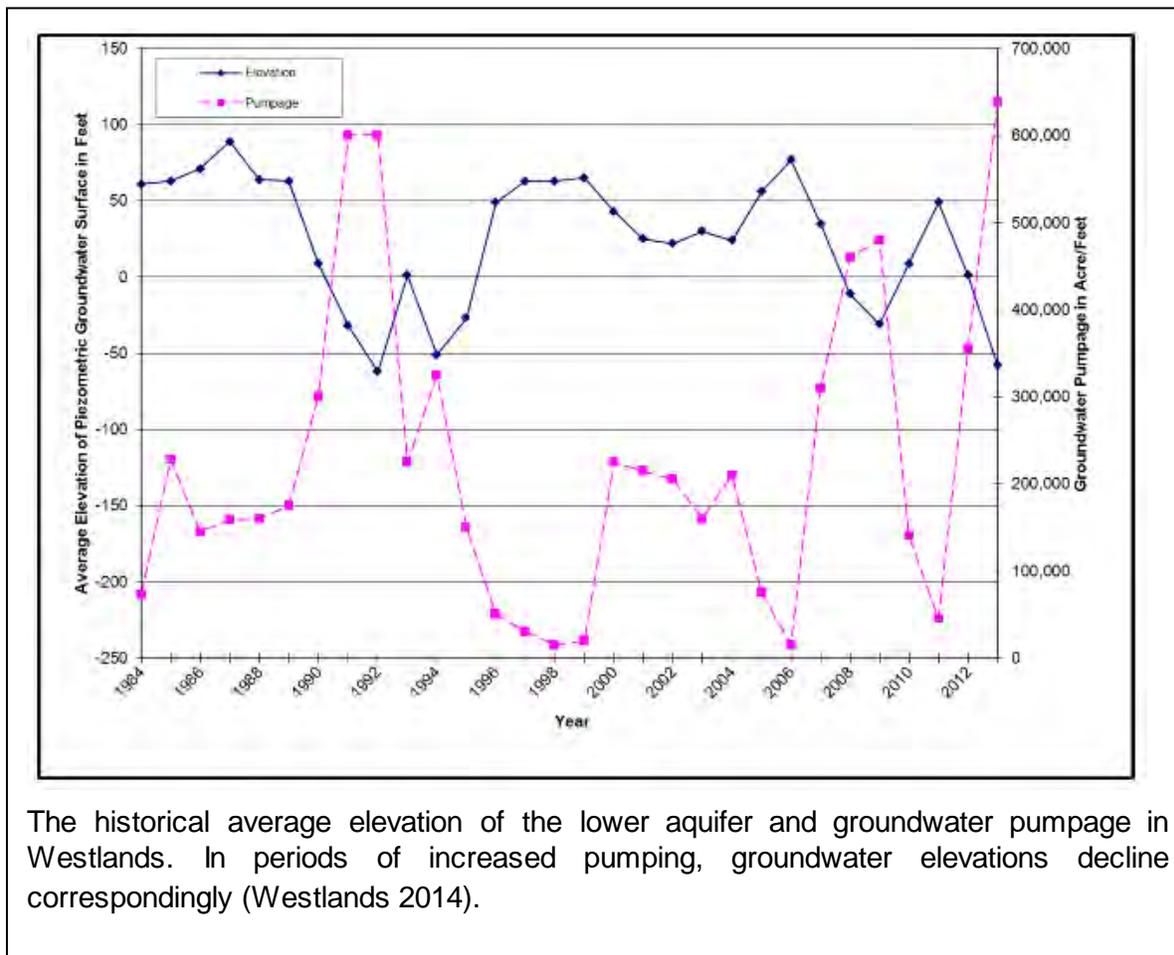
The upper aquifer lies above the Corcoran clay layer (shown in dark blue), while the lower aquifer lies below this layer. Wells draw from both the upper and deep aquifer. The lower aquifer is considered to be a confined aquifer. Natural replenishment or recharge of the groundwater basin comes from percolation from rainfall and inflow from rivers (blue arrows); however, due to the impermeable Corcoran layer, the lower confined aquifer is generally recharged from inflow from the east and west edges of the Valley (white arrows; USGS 2009).

Groundwater Levels and Overdraft. WWD lies entirely within the Westside Subbasin and water is extracted by multiple users, with excessive pumping from the lower aquifer causing declining water levels. Overdraft in the form of declining water levels are exacerbated by the Corcoran Clay layer that limits percolation and recharge of the lower aquifer. The perennial or safe yield of this subbasin has been established at a maximum withdrawal of 200,000 AFY (Westlands 2014; 1996). Westlands currently contains 643 operational wells and 116 non-operational wells (Westlands 2014). These wells are monitored for groundwater levels under the Westlands Groundwater Management Plan. Historic pumping data from these wells shows a correlation between the quantity of water pumped and estimated changes in groundwater elevations from the lower aquifer. The majority of this water is pumped from the lower aquifer due to poor water quality in the upper aquifer. The results of groundwater monitoring show that in 2013, 638,000 AF of groundwater was pumped, exceeding the established safe yield by more than three times. As a result of this pumping, groundwater levels in the lower aquifer decreased an average of 59 feet to an elevation of 58 feet below mean sea level (msl) (Westlands 2014). This decrease in groundwater elevation has not been seen since 1992 (at the end of a drought period), when similar quantities of groundwater were pumped due to decreases in CVP deliveries. In 2013, the depth to water in lower aquifer wells was up to 800 feet bgs, up to 200 feet lower than in 1995 (Westlands 1996; Westlands 2014). A summary of historic pumping in the WWD is shown in Table 4 below.

Table 4.
Westlands Water District Historic Pumping

Crop Year¹	Acre-feet Pumped	Elevation (feet)²	Crop Year	Acre-feet Pumped	Elevation (feet)	Crop Year	Acre-feet Pumped	Elevation (feet)
1952	1,000,000	NA ³	1972	NA	-54	1992	600,000	-62
1953	952,000	-35	1973	NA	-37	1993	225,000	1
1954	852,000	NA	1974	96,000	-22	1994	325,000	-51
1955	904,000	-52	1975	111,000	-11	1995	150,000	27
1956	964,000	-65	1976	97,000	-2	1996	50,000	49
1957	928,000	-56	1977	472,000	-99	1997	30,000	63
1958	884,000	-29	1978	159,000	-4	1998	15,000	63
1959	912,000	-77	1979	140,000	-13	1999	20,000	65
1960	872,000	-81	1980	106,000	4	2000	225,000	43
1961	824,000	-96	1981	99,000	11	2001	215,000	25
1962	920,000	NA	1982	105,000	32	2002	205,000	22
1963	883,000	NA	1983	31,000	56	2003	160,000	30
1964	913,000	NA	1984	73,000	61	2004	210,000	24
1965	822,000	NA	1985	228,000	63	2005	75,000	56
1966	924,000	-134	1986	145,000	71	2006	15,000	77
1967	875,000	-156	1987	159,000	89	2007	310,000	35
1968	596,000	-135	1988	160,000	64	2008	460,000	-11
1969	592,000	-120	1989	175,000	63	2009	480,000	-31
1970	460,000	-100	1990	300,000	9	2010	140,000	9
						2011	45,000	49
1971	377,000	-93	1991	600,000	-32	2012	355,000	1
						2013	638,000	-58

Source: Westlands Water District (Westlands). 2014. Deep Groundwater Conditions Report: December 2013. May.



The historical average elevation of the lower aquifer and groundwater pumpage in Westlands. In periods of increased pumping, groundwater elevations decline correspondingly (Westlands 2014).

Groundwater Quality. Groundwater quality in the Westside Subbasin varies greatly throughout the region. The Westside Subbasin in the WWD service area is known to have poor groundwater quality due to salts and trace elements leaching from the soils into the shallow depths of the upper aquifer. Evaporation and poor drainage in WWD due to shallow clay layers and limited permeability also contribute to conditions of high salinity within the region’s groundwater. Shallow groundwater in many areas have TDS concentrations exceeding 10,000 mg/L, with the highest concentration recorded as 35,000 mg/L. With increases in depth, TDS concentrations decrease, but are still generally high in the upper aquifer. Although salinity levels vary from well to well, high TDS concentrations impair use of groundwater for much of the upper aquifer, especially at shallow depths (DWR 2003). Below the Corcoran Clay layer, TDS concentrations are lower than in the upper aquifer, and contain TDS concentrations up to 3,000 mg/L, but water sampled from monitoring wells average at 520 mg/L. Currently, farmers often blend groundwater extracted from their wells in WWD that have high salinity content with CVP water to reduce the salinity before application to irrigated farmland. Further, as revealed from monitoring well data, many wells in the WWD have acceptable water quality with relatively low salinity. For example, the 51 wells that participated in this program in 2015 all met stringent TDS standards of 1100 mg/L or less.

Subsidence

Land subsidence is the lowering of the land surface elevation that results from changes that take place underground. The most common causes of land subsidence from human activity are: pumping water, oil, and gas from underground reservoirs; collapse of underground mines; drainage of organic soils; and initial wetting of dry soils. Land subsidence in the western and southern parts of the Central Valley has resulted primarily from groundwater extraction from the region's lower aquifer.

Groundwater pumping can result in compaction of the materials that make up the subsurface, potentially resulting in land subsidence. Compaction can be "elastic" or "inelastic", as defined below:

- "Elastic" compaction is a relatively immediate response to water level decline that can be reversed by expansion when groundwater levels recover. Elastic compaction is temporary in nature and does not contribute to long-term land subsidence.
- "Inelastic" compaction occurs when compaction during the irrigation season or other event(s) is greater than the subsequent expansion that occurs when groundwater levels recover. Inelastic compaction generally occurs over a longer time horizon and is not reversible, resulting in permanent land subsidence.

The aquifer system of the southern Central Valley has both unconfined and confined parts caused by alternating layers of coarse and fine-grained sediments. Water in the coarse-grained, unconfined or water-table aquifers can be extracted or recharged easily and causes only minor 'elastic' compaction reflected as seasonal subsidence and rebound of water levels and the land surface. Most water wells utilize the deeper confined aquifers, and withdrawal of water from them causes drainage of the fine-grained confining layers called aquitards. Significant water is available in the aquitards. However, aquitards drain slowly and compact both elastically as well as inelastically. In general, if water levels are not drawn too low, when pumping ceases water recharges the aquitards and their structure expands. However, if water levels are drawn too low, then an irreversible compaction of the fine-grained aquitards occurs. The water cannot recharge the layers, causing permanent subsidence and loss of some groundwater storage capacity (NASA 2015).

Most subsidence in the San Joaquin Valley has occurred due to groundwater extraction from below the Corcoran clay layer, present in some layers at depths of 100 to 400 feet below the surface, resulting in compaction and eventual subsidence in and below this layer. This is an ongoing concern in areas such as Westlands, where most groundwater wells are perforated below the Corcoran clay layer, potentially contributing to continued compaction and subsidence in this depth zone.

In the early 1970s, groundwater pumping in the San Joaquin Valley decreased based on availability of surface water imports brought to the region by the CVP. The shift from using local groundwater to using CVP surface water resulted in a steady recovery of groundwater levels and a reduced compaction rate. However, reduced availability of CVP water during drought events in 1976-77, 1986-92, and 2007-09 resulted in increased groundwater pumping in the

Valley, which led to reduced groundwater levels that reached near-historic lows and associated compaction (USGS 2013).

Subsidence in Westlands Water District

Prior to the delivery of CVP water to Westlands, beginning in 1968, annual groundwater extraction ranged from 800,000 to 1,000,000 AF during the period between 1950 and 1968, resulting in substantial compaction and subsidence. Because most wells in Westlands are perforated below the Corcoran Clay layer, the majority of this groundwater extraction was from the lower aquifer, causing groundwater levels in the lower aquifer to reach the lowest recorded average elevation of 156 feet below msl by 1968 (Westlands 2014). The large quantity of groundwater pumped prior to delivery of CVP water caused compaction in the Corcoran clay and other fine-grained sediments, resulting in land subsidence, which ranged from 1 to 24 feet between 1926 and 1970 (USGS 1988, as cited in Westlands 2008).

Six extensometers were installed by the USGS between 1958 and 1969 to monitor compaction in depth intervals ranging from about 900 to 2,300 feet bgs. Total land subsidence may be greater than the measured compaction, particularly as measured by the shallower extensometers, as a result of unmeasured compaction below the monitored depth intervals. The greatest compaction was recorded at extensometer T16S/R15E-34N1, which is located about 20 miles south of Mendota and has the longest period of recorded data, with a total measured subsidence of more than 11 feet between 1958 and 1976. Annual compaction measured at the other extensometers prior to 1976 ranged from less than one foot to about four feet (USBR 2004).

Beginning in 1968, surface water deliveries from the CVP substantially reduced groundwater extraction to support irrigation, resulting in a reduction in the rate of compaction and in some periods allowing expansion (recovery) of the compacted materials. However, pumping increased again during periods of reduced deliveries from the CVP related to droughts in 1976-77 and 1986-92, resulting in reduced water tables and periods of renewed subsidence (USGS 2013). Significant periods surrounding these dates are summarized below (USBR 2004):

- **1976-1977, Pumping and Compaction:** The 1976-77 drought resulted in a reduction by up to 75 percent in Westlands' entitlement of CVP water. In response, annual groundwater extraction increased from about 100,000 AF in 1976 to 470,000 AF in 1977. Groundwater levels in the lower aquifer decreased by almost 100 feet in 1977, and compaction measured at the extensometers during 1976-77 ranged from 0.10 to 0.53 foot.
- **1977-1979, Expansion:** Significant water level recovery occurred in the two years following the drought, resulting in recovery from compaction and expansion ranging from 0.02 to 0.20 foot at five of the extensometers. Only one extensometer recording compaction, with a measurement of 0.03 foot.
- **1979-1983, Data Gap:** In the early 1980s, responsibility for operation and maintenance of many extensometer sites was transferred to DWR. Due to difficulties during this transition, there is a data gap between 1979 and 1983.

- **1983-1986, Expansion:** Between 1983 and 1986, continued expansion was measured at four of the six extensometers.
- **1987-1992, Pumping and Compaction:** During the drought that began in 1987, extraction in Westlands increased to 600,000 AFY in 1991 and 1992. Compaction measured during the 1987-92 drought ranged from 0.12 to 0.95 foot.
- **1993-1998, Expansion:** Following the drought, four of the six extensometers indicated slight expansion between 1993 and 1998. The cumulative compaction measured at these extensometers for the entire period of record ending in 1998 ranged from about 1.5 feet to almost 12 feet.

These periods of compaction and expansion are clearly correlated with the amount of groundwater pumping that occurs and the resulting groundwater levels in Westlands, while the amount of groundwater pumping that occurs in Westlands is primarily related to the availability of water from the CVP. These relationships show that subsidence is greater during periods of greater groundwater pumping in WWD.

Surface Water

Surface water features in the proposed Project area include the San Luis Reservoir and the SLC, as well as a number of intermittent streams. Surface water flows in the western portion of the basin in Kings and Fresno Counties tend to be poorer quality due to salinity from marine sediments and naturally occurring trace elements such as selenium and molybdenum. Salinity is the primary constituent of concern affecting surface water quality in the Tulare Lake Basin and increases may limit the beneficial uses appropriate for this water.

Tulare Lake Basin

The Tulare Lake Basin covers 16,406 square miles and comprises the drainage area in the San Joaquin Valley south of the San Joaquin River. The Kings, Tule, and Kern Rivers are major tributaries that flow west from the Sierra Nevada into the Central Valley and provide the bulk of surface water supply to the basin. Water from the Sierra snowmelt is high quality. Imported water also enters the basin system through the Delta Mendota Canal, SLC, and Friant-Kern Canal. While these sources generally contain high quality water suitable for domestic, municipal and agricultural beneficial uses, these imported water supplies significantly increase salinity within the natural watershed, increasing EC measurements by 50 percent in surface waters (CVRWQCB 2004).

Applicable Groundwater and Water Resources Management Plans

Sustainable Groundwater Act

The Sustainable Groundwater Management Act, enacted in 2014, encourages local agencies to work cooperatively in managing groundwater resources and is intended to increase local control and protection over groundwater basins. The intent of this legislation is to manage the use of groundwater in a manner that can be maintained long-term without causing chronic lowering of groundwater levels, overdraft, significant reduction in groundwater storage, saline water intrusion, or subsidence (DWR 2015b).

In the context of statewide concerns over unmanaged groundwater resources and poor groundwater quality, the act provides framework and guidance for developing Groundwater Sustainability Plans (GSPs) and designates power to local Groundwater Sustainability Agencies. The DWR has designated groundwater subbasins within Fresno and Madera Counties as high priority basins. As such, these basins are required to adopt a GSP by 2020. GSPs must:

- Set objectives to achieve sustainability within 20 years of plan implementation;
- Report data on groundwater levels, water quality, subsidence, and surface water interaction;
- Provide a monitoring program for managing groundwater levels, water quality, subsidence, and changes to surface flow and surface water quality;
- Provide mitigation of overdraft;
- Address and control saline water intrusion;
- Address migration of contaminated groundwater and provide measures for groundwater contamination cleanup;
- Provide measures addressing recharge, diversion, water recycling as necessary;
- Provide well construction policies;
- Establish efficient water management practices;
- Address impacts on groundwater dependent ecosystems.

Water Quality Control Plan for the Tulare Lake Basin. The proposed Project is in the Westside Subbasin of the Tulare Lake Groundwater Basin. The Tulare Lake Basin Plan was developed in 1975 by the Central Valley Regional Water Quality Control Board (CVRWQCB) and approved by the State Board; it has been subsequently revised and approved several times. The most recent revisions to the Tulare Lake Basin Plan were completed in June 2015. The Basin Plan performs all the functions required by the Porter-Cologne Water Quality Control Act, including identifying the designated beneficial uses for surface and groundwater resources, defining applicable water quality objectives necessary to support these beneficial uses, and establishing programs that protect water quality.

Westlands Water District Groundwater Management Plan. Westlands developed a Groundwater Management Plan in 1996 pursuant to AB 3030 and the Central Valley Project Improvement Act. The Groundwater Management Plan contains goals to preserve groundwater resources and quality, ensure the long-term availability of high-quality groundwater, to maintain local control of groundwater resources, and to minimize the impacts of groundwater use including subsidence, overdraft, and soil productivity.

Warren Act. The Warren Act (1911) authorizes USBR to negotiate agreements to store or convey non-CVP water when excess capacity is available in federal facilities. USBR requires water quality monitoring to ensure that water quality is protected.

14.9.2 Discussion

a & f. **Less than Significant.** The proposed Project would consist of using existing facilities to convey water from approved wells to licensed water integration locations along the joint use federal and state operated portion of the SLC within the WWD. In order to ensure that water from the participating wells meets the applicable Title 22 California Drinking Water Standards, the water users' groundwater would be tested before the water is integrated into the SLC (see Appendix A for a complete list of water quality standards). Further, ensuring that the groundwater to be integrated into the SLC complies with the Title 22 California Drinking Water Standards would also ensure continued compliance with all water quality standards and associated beneficial uses of canal water.

Key constituents for testing would include TDS, metals, organic chemicals and other potential pollutants. Each well operator must provide sufficient information about each well to confirm that the pumped water would be consistent, predictable and acceptable in quality. The water would continue to be tested at periodic intervals during pumping to ensure no water quality violations occur. The wells within the WWD must meet the USBR 2015 SLC Water Quality Monitoring Program which is based off of the Title 22 California Drinking Water Standards in order to be used in the proposed Project. As a result of the water quality standards, it is estimated only approximately 13% of the 643 wells within WWD would qualify to participate in this program. The primary disqualifying factor would be high salinity levels, where any well with TDS exceeding 1,100 mg/L would be disqualified (SWQCB 2012). Mean daily salinity and EC would be assessed with the sensors located along the canal that report real-time data to the California CDEC. The mean daily salinity and EC data would be downloaded by USBR to monitor daily changes along the canal. Additionally, both WWD and USBR would use mass balance models to estimate the contribution of salinity to the canal from the actively pumping wells. Based on monitoring data, USBR and WWD have the authority to shut off inflows of the WWD distribution system or SLC if the quality or quantity of the inflow is unacceptable. Thus, design constraints included in the proposed Project design constraints regarding acceptable TDS levels and other constituents would ensure that no water quality standards would be violated. Therefore, impacts would be less than significant.

b. **Less than Significant.** The proposed Project would result in no more than 30,000 AFY of groundwater pumped annually from 2016 through 2019, for total of up to 120,000 AFY over the next four years. As groundwater within the upper aquifer of the Westside Subbasin is known to contain poor water quality, it is assumed that much of the groundwater resources for this Project would be from the lower aquifer below the Corcoran clay layer. The Groundwater Management Plan establishes 200,000 AFY as the estimated safe yield for groundwater pumping in the WWD service area (WWD 2013). Such pumping would constitute 15% of the safe yield of the lower aquifer within the Westside Subbasin.

However, this quantity of water is within the range of historical pumping during the irrigation season and would be pumped regardless of whether it is integrated into the SLC. Historical groundwater pumping in WWD has been up to 950,000 AFY based on records dating back to 1954, and was 638,000 AFY in 2013 (WWD 2014). As such, pumping under the Project would constitute approximate 3% to 10% of the groundwater resources extracted in WWD. Further, more than 30,000 AFY has been extracted annually as shown in Table 4. Thus, the proposed Project would not result in a substantial change in groundwater pumping compared to existing conditions. Thus, the proposed Project would utilize groundwater supplies at a rate that is consistent with historical pumping during the irrigation season.

Further, the groundwater pumping would be conducted in accordance with the Westlands Groundwater Management Plan. Thus, the proposed Project is not expected to result in substantial depletion of groundwater supplies above existing ongoing baseline conditions such that there would be an increase in the current net deficit in aquifer volume or a lowering of the local groundwater table beyond that which is already occurring. Therefore, impacts would be less than significant.

c-e. **No Impact.** The proposed Project would result in no more than 30,000 AFY of groundwater being pumped into the SLC annually from 2016 through 2019. This quantity of water is within the range of historical pumping during the irrigation season and would be pumped regardless of whether it is integrated into the SLC. The proposed Project would not have the potential for increased soil erosion or sediment deposition in water bodies as no physical alterations to any rivers or streams would occur. The proposed Project would neither alter existing drainage patterns nor the course of any stream or river that would result in flooding on or off site. The proposed Project would not involve any physical changes to the environment that would contribute or create runoff water that would exceed the capacity of existing drainage systems or provide a substantial source of polluted runoff. Therefore, there would be no impacts to water quality from erosion or runoff.

g & h. **No Impact.** The proposed Project includes the conversion of four temporary water integration locations to permanent water integration locations. These water integration locations were previously constructed as temporary facilities and utilized in 2014 and 2015. The water integration location facilities to be used for the proposed Project would place the existing temporary pipelines, which sit on top of the road, underneath the road before discharging into the canal. The proposed Project would not place any housing or new structures within the 100-year floodplain. Therefore, no impacts would occur.

i. **Less than Significant.** Subsidence in the San Joaquin Valley is an adverse cumulative problem caused by groundwater pumping at many locations throughout the area. Land subsidence can result in structural damage to buildings as well as damage to other infrastructure such as canals and levees; additionally, subsidence is known to cause an increase in the potential for flooding. The Groundwater Management Plan establishes 200,000 AFY as the estimated safe yield for groundwater pumping in the WWD service area. The proposed Project could contribute to ongoing subsidence trends. The proposed Project would result in no more than 30,000 AFY of groundwater being integrated into the SLC annually from 2016 through 2019. However, as discussed above, this quantity of water constitutes 3% to 10%

of groundwater that is historical pumped during the irrigation season and would be pumped regardless of whether it is integrated into the SLC. Thus, while the proposed Project would incrementally contribute to cumulative subsidence problems within the WWD service area, the proposed Project is not expected to result in substantial subsidence and would not cause damage to structures such as canals, levees, well casings or buildings, nor is it expected to substantially alter flood patterns beyond ongoing existing trends. Therefore, impacts would be less than significant.

j. **No Impact.** The proposed Project is not within an area that could be impacted by seiche, tsunami, or mudflow and would not result in inundation by seiche, tsunami or mudflow. No impact would occur.

14.10 Land Use and Planning

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

14.10.1 Existing Setting

The primary land use throughout the proposed Project area is agriculture, with this industry supporting many of the jobs and much of the economic output of the region. The vast majority of land within the WWD is designed for agricultural use under the General Plans of both Fresno and Kings Counties. Much of the land within this area is also classified as important farmlands by the California Department of Conservation as well as being enrolled in the Williamson Act contracts, as described below. As such, both Fresno and Kings Counties protect agricultural resources as an important land use through their General Plan and zoning ordinances. These measures are generally based on the quality of land in terms of potential production value.

Williamson Act

The Williamson Act protects important farmlands by incentivizing farmers to enter into agreements that commit their land to agricultural activities. The act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses in return for reduced property tax assessments. Specifically, this enables landowners who voluntarily agree to participate in the program to receive assessed property taxes according to the income-producing value of their property in agricultural use, rather than on the property's assessed market value. Private land within locally designated agricultural preserve areas is eligible for enrollment under Williamson Act contracts (California Department of Conservation 2013).

Farmland Mapping and Monitoring Program

The California Department of Conservation uses the Natural Resources Conservation Service soil classifications to characterize agricultural lands. The Farmland Mapping and Monitoring Program (FMMP) assesses the location, quality and quantity of agricultural lands and monitors the conversion of these lands to nonagricultural uses. The FMMP classifies important farmland into four categories based on agricultural soil quality and current land use: prime farmland, farmland of statewide importance, unique farmland, and farmland of local importance see Table 5). Important farmlands contain soils best suited for producing food and forage, particularly for producing high-yield crops.

**Table 5.
 Natural Resources Conservation Service Land Use Classifications**

Important Farmland	
Prime Farmland	Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields.
Farmland of Statewide Importance	Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture.
Unique Farmland	Farmland of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California.

**Table 5.
 Natural Resources Conservation Service Land Use Classifications
 (Cont.)**

Farmland of Local Importance	Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
Other Land Uses	
Grazing Land	Land on which the existing vegetation is well-suited to the grazing of livestock.
Urban and Built Up Land	Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
Important Farmland	
Other Land	Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies under 40 acres.
Water	Perennial water bodies with an extent of at least 40 acres.

Source: California Department of Conservation 2004. A Guide to the Farmland Mapping and Monitoring Program. Accessed at http://www.conservacion.ca.gov/dlrp/fmmp/Documents/fmmp_guide_2004.pdf on January 25, 2016.

14.10.2 Discussion

- a. **No Impact.** Implementation of the proposed Project would involve minor construction of the installment of four permanent water integration location facilities. The proposed Project would not involve changes in land use nor would it include the construction of new utilities or buildings. Therefore, the proposed Project would not divide an established community in the WWD service area.
- b. **No Impact.** The proposed Project would not involve any land use changes or actions that would conflict with applicable land use plans, policies or regulations in the WWD service area.
- c. **No Impact.** No Habitat Conservation Plans or Natural Community Conservation Plans are currently in place in Fresno and Kings Counties, therefore, the proposed Project would not conflict with any Habitat Conservation Plans or Natural Community Conservation Plans.

14.11 Mineral Resources

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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"/>

14.11.1 Existing Setting

Fresno County has been a leading producer of minerals because of the abundance and wide variety of mineral resources that are present in the County. Sand, gravel, and oil have been mapped in the vicinity of the WWD service area (Fresno County 2000).

14.11.2 Discussion

a & b. **No Impact.** The proposed Project consists of groundwater pumping and conveyance using existing infrastructure and burying licensed water integration pipelines at four locations where temporary pipelines currently exist. Mineral resources in the vicinity of the WWD service area would not be impacted by any of the Project components. The proposed Project would not require the use of mineral resources and would not result in the loss of availability of a known mineral resource. No impact would occur.

14.12 Noise

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) 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 type="checkbox"/>	<input checked="" type="checkbox"/>
d) 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 type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, 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"/>
f) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

14.12.1 Existing Setting

Noise is typically defined as unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. Prolonged exposure to high levels of noise is known to have several adverse effects on people, including hearing loss, interference with communications and sleep, physiological responses, and annoyance. The noise environment includes background noise generated from both near and distant noise sources, as well as the sound from individual local sources. These sources of noise can vary from an occasional aircraft or train passing by to continuous noise from sources such as traffic on a major road.

The standard unit of measurement of the loudness of sound is the Decibel (dB). Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more useable range of numbers in a manner similar to the way that the Richter scale is used to measure earthquakes. In terms of human response to noise, studies have indicated that a noise level increase of 3 dBA is barely perceptible to most people, a 5 dBA increase is readily noticeable, and a difference of 10 dBA would be perceived as a doubling of loudness. Everyday sounds normally range from 30 to 100 dBA.

Noise and vibration sources in the WWD service area are dominated by agricultural activities, vehicular traffic on local area roadways, and air traffic. There are no sensitive receptors (e.g., schools) located in close proximity to any of the temporary water integration locations. Sensitive receptors are also generally well removed from the locations of the wells participating in this program.

14.12.2 Discussion

a – f. **No Impact.** The groundwater pumping and conveyance activities are existing and ongoing uses in the WWD service area and would not constitute a new noise source. No permanent increase in ambient noise levels would result from the proposed Project compared to existing conditions. Temporary construction noise would occur from undergrounding the temporary water integration crossings in four locations to make them permanent water integration locations. The construction duration for each crossing is anticipated to take no more than one week to complete. Given the short term and temporary nature of this construction activity, no impact is anticipated.

No temporary or permanent increase in groundborne vibration would result from the proposed Project compared to existing conditions. The proposed Project would not introduce any permanent sources of noise. In addition, it would not alter the local environment, such as by increasing the noise production/exposure associated with existing, permanent sources of noise in the area of the proposed Project. Ambient noise in the WWD service area is generally low because of the existing rural and agricultural land uses. Agricultural noise sources would continue to be intermittent in nature. The proposed Project would not impact any airport

operations and would not expose people on- or off-site to excessive noise levels. Lastly, the proposed Project would not impact any airstrip operations and would not expose people on- or off-site to excessive noise levels. No impacts associated with noise are anticipated from the proposed Project.

14.13 Population and Housing

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

14.13.1 Existing Setting

WWD serves approximately 600 family-owned farms in Fresno and Kings County. There are no major cities located within the WWD service area. However, small communities such as Westside, Cantua Creek, Three Rocks, Huron, Five Points and Lemoore are located throughout the counties.

14.13.2 Discussion

a – c. **No Impact.** The proposed Project would not result in the creation of a long-term or permanent water supply that would allow construction of new homes or businesses or extending roadways or other infrastructure that could increase the population in the vicinity of the proposed Project. Implementing the proposed Project would not directly or indirectly induce substantial population growth. The proposed Project potentially would keep some farmland from becoming fallowed due to the drought conditions, but it would not expand agricultural activities beyond existing levels. Further, implementation of the proposed Project would not displace existing housing or necessitate construction of replacement housing elsewhere. Lastly, the

proposed Project would not displace people or necessitate construction of replacement housing elsewhere. Not impact would occur.

14.14 Public Services

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
The Project would be considered to have significant impacts if the Project would 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.				
Would the Project impact the below public services:				
a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

14.14.1 Existing Setting

The WWD service area is covered by the Fresno and Kings County Sheriff's Department and Fire Protection Districts. School districts in the WWD service area include Mendota Unified School District, Central Union School District, and Coalinga-Huron School District. Several recreational areas are located in the WWD service area, including fishing access.

14.14.2 Discussion

a – e. **No Impact.** The proposed Project would not generate new residents and it would not include construction of any structures that would require additional fire protection services. The proposed Project would not require changes in law enforcement services and it would not include any new housing, businesses, or other development that would increase demand for police protection services and facilities. The proposed Project would not provide any new housing that would generate new students or residents in the community and would not increase the demand for school services and facilities or new or expanded park facilities. No other public facilities would be impacted by the proposed Project. No impact would occur.

14.15 Recreation

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially conflict with the area's established recreational uses?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

14.15.1 Existing Setting

Several recreational areas are located in the WWD service area, including fishing access.

14.15.2 Discussion

a – c. **No Impact.** Implementing the proposed Project would not cause physical deterioration of existing recreational facilities. No impact on recreational areas in the WWD service area would occur. The proposed Project would not increase the population by introducing new housing or employment opportunities, and thus it would not contribute to increased use of existing regional or local parks, or other recreational facilities, causing their deterioration. No recreational facilities are proposed and the Project would not require the construction or expansion of recreational facilities. Lastly, the proposed Project would not conflict with any established recreational uses in the WWD service area. No impact would occur.

14.16 Transportation/Traffic

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>

14.16.1 Existing Setting

Roads in the WWD service area are primarily rural in character. Interstate 5 runs in a north-south direction along the western boundary of the WWD service area. There is a dirt road (partially paved in areas) that runs along either side of the SLC through the WWD service area.

14.16.2 Discussion

a – f. **No Impact.** The proposed Project would not adversely affect traffic or transportation patterns. The proposed Project would not increase traffic or cause a substantial change in existing traffic patterns and would not add sufficient trips to degrade the levels of service or conflict with an applicable congestion management program. There would be no interference with air traffic patterns from the proposed Project. The proposed Project would not include any change to roadway design or introduce incompatible uses. Implementation of the proposed Project would not require any road closures and no traffic flow would be significantly interrupted on any roadway so as to impair or interfere with emergency access to local roads, and would not result in traffic delays that could substantially increase emergency response times or reduce emergency vehicle access. The proposed Project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, nor would it otherwise decrease the performance of such facilities. The conversion of four temporary water integration locations to permanent water integration locations would require temporary, short term construction on the road that runs along either side of the SLC in four locations. These locations are at canal mile marker 141.02R, 156.36R, 157.98L, and 159.98L. The conversion of these temporary water integration locations to permanent water integration locations would require approximately one week of construction with very limited related traffic and would not disrupt access along the road during construction. No impact would occur.

14.17 Utilities and Service Systems

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Exceed 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 checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in a determination by the wastewater treatment provider that 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?	<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 type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

14.17.1 Existing Setting

WWD serves approximately 600 family-owned farms in Fresno and Kings Counties.

14.17.2 Discussion

a – c and e – g. **No Impact.** The proposed Project would not result in the need for wastewater service and would not include any new development that would require wastewater treatment. Thus, the Project would not result in wastewater discharges that would exceed Regional Water Quality Control Board's requirements. The proposed Project would not include changes to water treatment requirements for WWD and the expansion of existing or construction of new waste or wastewater facilities would not be required. The proposed Project would not create or contribute runoff that would exceed the capacity of any stormwater drainage systems. Further, the proposed Project would not include construction of new impervious surfaces or other development that would require new stormwater drainage facilities or expansion of existing facilities. The proposed Project would not result in changes to wastewater generation and would not exceed a wastewater treatment provider's capacity. Solid waste generated during proposed Project activities would be incidental and no different than current conditions, and would be disposed in local landfills. Transportation and disposal would be in accordance with all applicable federal, state, and local statutes and regulations. No impact would occur.

d. **Less Than Significant.** No new water supplies would be required for the proposed Project. In addition, the proposed Project would not include any new development that would require public water supplies. Thus, no new or expanded water supply entitlements would be needed. The proposed Project would integrate up to 30,000 AFY in the SLC to augment its water supply when WWD receives 20% of their allocation or less from USBR as a result of drought conditions. The water would come from existing groundwater wells that currently pump groundwater and would continue to pump groundwater regardless of the proposed Project. The water would be used within the WWD service area in support of ongoing agricultural operations. The impact would be less than significant.

14.18 Mandatory Findings of Significance

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

14.18.1 Discussion

a. **Less than Significant.** The analysis conducted in this initial study concludes that implementation of the proposed Project would not have a significant impact on the environment. As evaluated in Section 14.4, Biological Resources, impacts on biological resources would be less than significant. Therefore, the proposed Project would not substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or reduce the number or restrict the range of an endangered, rare, or threatened species.

As discussed in Section 14.5, Cultural Resources, the proposed Project would not eliminate important examples of the major periods of California history or prehistory, and impacts to cultural resource would be less than significant.

b. **Less than Significant.** As discussed in this initial study, the proposed Project would result in less than significant impacts or no impacts to aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, geology and soils, GHG emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, and utilities and service systems. Measures would be included in the Project design to ensure water quality meets then current DWR regulations.

The groundwater pumping, conveyance, and conversion of four temporary water integration facilities to permanent water integration facilities would result in no impacts or less than significant environmental impacts on the physical environment. None of the proposed Project's impacts make cumulatively considerable, incremental contributions to significant cumulative impacts. To the contrary, the proposed Project provides benefits to agricultural production by keeping more highly productive farmland in production by discharging groundwater that would be pumped with or without the Project, into the SLC for use throughout the WWD service area. Overall, these are beneficial effects during a drought and conducted without significant direct, indirect, or cumulative impacts.

c. **Less than Significant.** The proposed Project would result in less than significant impacts and would not cause substantial adverse effects on human beings, either directly or indirectly. The impact would be less than significant.

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APPENDIX A

WATER QUALITY STANDARDS – FULL ANALYSIS

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**Appendix A
 Water Quality Standards – Full Analysis**

Constituent	Units	Maximum Contaminant Level	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method
Primary					
Aluminum	mg/L	1 (1)	0.05(2)	7429-90-5	EPA 200.7
Antimony	mg/L	0.006 (1)	0.006 (2)	7440-36-0	EPA 200.8
Arsenic	mg/L	0.010 (1)	0.002 (2)	7440-38-2	EPA 200.8
Asbestos	MFL	7 (1)	0.2 (2)	1332-21-4	EPA 100.2
Barium	mg/L	1 (1)	0.1 (2)	7440-39-3	EPA 200.7
Beryllium	mg/L	0.004 (1)	0.001 (2)	7 440-41-7	EPA 200.7
Cadmium	mg/L	0.005 (l)	0.001 (2)	7440-43-9	EPA 200.7
Chromium. total	mg/L	0.05 (1)	0.01 (2)	7440-47-3	EPA 200.7
Chromium, hexavalent	mg/L	0.01 (1)		18540-29-9	EPA 218.6
Cyanide	mg/L	0.15 (1)	0.1 (2)	74-90-8	EPA 335.2-4
Fluoride	mg/L	2 (14)	0.1 (14)	7681-49-4	EPA 340.1,2
Mercury, inorganic	mg/L	0.002 (1)	0.001 (2)	7439-97-6	EPA245.1
Nickel	mg/L	0.1 (1)	0.01 (2)	7440-02-0	EPA 200.7
Nitrate (as N03)	mg/L	45 (1)	2 (2)	7727-37-9	EPA 300.1
Nitrate + Nitrite (sum as nitrogen)	mg/L	10 (1)		17778-88-0	EPA 353.2
Nitrite (as nitrogen)	mg/L	1 (1)	0.4 (2)	14797-65-0	EPA 300.1
Perchlorate	mg/L	0.006 (l)		14797-73-0	EPA 314.0
Selenium, total	mg/L	0.02 (10)	0.005 (2)	7782-49-2	EPA 200.8
Thallium	mg/L	0.002 (1)	0.001 (2)	7440-28-0	EPA 200.8
Secondary					
Aluminum	mg/L	0.2 (6)		7429-90-5	EPA 200.7
Chloride	mg/L	250- 600 (7)		16887-00-6	EPA 300.1
Color	Units	15 (6)			EPA 334
Copper	mg/L	1.0 (6)	0.05 (8)	7440-50-8	EPA 200.7
Iron	mg/L	0.3 (6)		7439-89-6	EPA 200.7
Lead	mg/L	0.015 (8)	0.005 (8)	7439-92-1	EPA 200.8

**Appendix A
 Water Quality Standards – Full Analysis (Cont.)**

Constituent	Units	Maximum Contaminant Level	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method
Manganese	mg/L	0.05 (6)		7439-96-5	EPA 200.7
Methyl tertiary butyl ether (MTBE)	mg/l	0.013 (6)		1634-04-4	EPA 8020
Odor	TON	3 (6)			EPA 140.1
pH	Units	6.5-8.5 (6)			EPA 150.1
Silver	mg/L	0.1 (6)		7440-22-4	EPA 200.7
Specific Conductance	µS/cm	900- 2200 (7)			SM 2510.B
Sulfate	mg/L	250 - 600 (7)		14808-79-8	EPA 300.1
Thiobencarb	mg/L	0.001 (6)		28249-77-6	EPA 525.2
Total Dissolved Solids	mg/L	500- 1500 (7)			SM 2540.C
Turbidity	NTU	5 (6)			EPA 180.1
Zinc	mg/L	5.0 (6)		7440-66-6	EPA 200.7
Other Constituents of Concern					
Boron	mg/L	2 (10) (12)		7440-42-8	EPA 200.7
Bromide	mg/L	(16)		24959-67-9	EPA 300.1
Chlorpyrifos	µg/L	0.025 (11)		2921-88-2	EPA 8141
Diazinon	µg/L	0.16 (11)		333-41-5	EPA 507
Molybdenum	mg/L	0.015 (10)		7439-98-7	EPA 200.7
Sodium	mg/L	69 (12)		7440-23-5	EPA 200.7
Total organic carbon	mg/L	(16)		7440-44-0	EPA 415.1
Radioactivity					
Gross Alpha	pCi/L	15 (3)	3 (3)	12587-46-1	SM 7110C
Organic Chemicals – VOC					
Benzene	mg/l	0.001 (4)	0.005 (5)	71-43-2	EPA 524.2
Carbon tetrachloride	mg/l	0.0005 (4)	0.0005 (5)	56-23-5	EPA 524.2
1,2-Dichlorobenzene	mg/l	0.6 (4)	0.0005 (5)	95-50-1	EPA 524.2
1,4-Dichlorobenzene (p-DCB)	mg/l	0.005 (4)	0.0005 (5)	106-46-7	EPA 524.2
1,1-Dichloroethane (1,1-DCA)	mg/l	0.005 (4)	0.0005 (5)	75-34-3	EPA 524.2

**Appendix A
 Water Quality Standards – Full Analysis (Cont.)**

Constituent	Units	Maximum Contaminant Level	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method
1,2-Dichloroethane (1,2-DCA)	mg/l	0.0005 (4)	0.0005 (5)	107-06-2	EPA 524.2
1,1-Dichloroethylene (1,1-DCE)	mg/l	0.006 (4)	0.0005 (5)	75-35-4	EPA 524.2
cis-1,2-Dichloroethylene	mg/l	0.006 (4)	0.0005 (5)	156-59-2	EPA 524.2
trans-1,2-Dichloroethylene	mg/l	0.01 (4)	0.0005 (5)	156-60-5	EPA 524.2
Dichloromethane (Methylene chloride)	mg/l	0.005 (4)	0.0005 (5)	75-09-2	EPA 524.2
1,2-Dichloropropane	mg/l	0.005 (4)	0.0005 (5)	78-87-5	EPA 524.2
1,3-Dichloropropene	mg/l	0.0005 (4)	0.0005 (5)	542-75-6	EPA 524.2
Ethylbenzene	mg/l	0.3 (4)	0.0005 (5)	100-41-4	EPA 524.2
Methyl tertiary butyl ether (MTBE)	mg/l	0.013 (4)	0.003 (5)	1634-04-4	EPA 524.2
Monochlorobenzene	mg/l	0.07 (4)	0.0005 (5)	108-90-7	EPA 524.2
Styrene	mg/l	0.1 (4)	0.0005 (5)	100-42-5	EPA 524.2
1,1,2,2-Tetrachloroethane	mg/l	0.001 (4)	0.0005 (5)	79-34-5	EPA 524.2
Tetrachloroethylene	mg/l	0.005 (4)	0.0005 (5)	127-18-4	EPA 524.2
Toluene	mg/l	0.15 (4)	0.0005 (5)	108-88-3	EPA 524.2
1,2,4-Trichlorobenzene	mg/l	0.005 (4)	0.0005 (5)	120-82-1	EPA 524.2
1,1,1-Trichloroethane (1,1,1-TCA)	mg/l	0.2 (4)	0.0005 (5)	71-55-6	EPA 524.2
1,1,2-Trichloroethane (1,1,2-TCA)	mg/l	0.005 (4)	0.0005 (5)	79-00-5	EPA 524.2
Trichloroethylene (TCE)	mg/l	0.005 (4)	0.0007 (5)	79-01-6	EPA 524.2
Trichlorofluoromethane (Freon 11)	mg/l	0.15 (4)	0.005 (5)	75-69-4	EPA 524.2
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	mg/l	1.2 (4)	0.01 (5)	76-13-1	EPA 524.2
Vinyl chloride	mg/l	0.0005 (4)	0.0005 (5)	75-01-4	EPA 524.2
Xylenes. total	mg/l	1.75 (4)	0.0005 (5)	95-47-6	EPA 524.2
SOC					
2,3,7,8-TCDD (Dioxin)	mg/L	3x10 ⁻⁸ (14)	5x10 ⁻⁹	1746-01-6	EPA 1613
2, 4, 5-TP (Silvex)	mg/L	0.05 (4)	0.001 (5)	93-72-1	EPA 515.1-4
2,4-D	mg/L	0.07 (4)	0.01 (5)	94-75-7	EPA 515.1-4
Alachlor	mg/L	0.002 (14)	0.001	15972-60-8	EPA 535

**Appendix A
 Water Quality Standards – Full Analysis (Cont.)**

Constituent	Units	Maximum Contaminant Level	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method
Atrazine	mg/L	0.001 (4)	0.0005 (5)	1912-24-9	EPA 508.1
Bentazon	mg/L	0.018 (4)	0.002 (5)	25057-89-0	EPA 515.1-4
Benzo(a)pyrene	mg/L	0.0002 (1)	0.0001	50-32-8	EPA 8310
Carbofuran	mg/L	0.018 (4)	0.005 (5)	1563-66-2	EPA 531.1-2
Chlordane	mg/L	0.0001 (4)	0.0001 (5)	57-74-9	EPA 505
Dalapon	mg/L	0.2 (14)	0.01	75-99-0	EPA 552.1
1,2-Dibromo-3-chloropropane (DBCP)	mg/L	0.0002 (4)	0.00001 (5)	96-12-8	EPA 504.1
Di(2-ethylhexyl) adipate	mg/L	0.4 (4)	0.005 (5)	103-23-1	EPA 525.2
Di(2-ethylhexyl) phthalate (DEHP)	mg/L	0.004 (4)	0.003 (5)	117-87-7	EPA 36108
Dinoseb	mg/L	0.007 (4)	0.002 (5)	88-85-7	EPA 515.1-4
Diquat	mg/L	0.02 (4)	0.04 (5)	85-00-7	EPA 549.1-2
Endolhall	mg/L	0.1 (4)	0.045 (5)	145-73-3	EPA 548.1
Endrin	mg/L	0.002 (4)	0.0001 (5)	72-20-8	EPA 505
Ethylene Dibromide (EDB)	mg/L	0.00005 (4)	0.00002 (5)	106-93-4 E	EPA 504.1
Glyphosate	mg/L	0.7 (4)	0.025 (5)	1071-83-6	EPA 547
Heptachlor	mg/L	0.00001 (4)	0.00001 (5)	76-44-8	EPA 505
Heptachlor Epoxide	mg/L	0.00001 (4)	0.00001 (5)	1024-57-3	EPA 505
Hexachlorobenzene	mg/L	0.001 (4)	0.0005 (5)	118-74-1	EPA 505/508
Hexachlorocyclopentadiene	mg/L	0.05 (4)	0.001 (5)	77-47-4	EPA 8120
Lindane (BHC-gamma)	mg/L	0.0002 (4)	0.002 (5)	58-89-9	EPA 505
Methoxychlor	mg/L	0.03 (4)	0.01 (5)	72-43-5	EPA 505
Molinate	mg/L	0.02 (4)	0.002 (5)	2212-67-1	EPA 525.2
Oxamyl	mg/L	0.05 (4)	0.02 (5)	23135-22-0	EPA 531.1-2
Pentachlorophenol	mg/L	0.001 (4)	0.0002 (5)	87-86-5	EPA 4010A
Picloram	mg/L	0.5 (4)	0.001 (5)	1918-02-1	EPA 515.1-4
Polychlorinated biphenyls (PCB)	mg/L	0.0005 (14)	0.0005	1336-36-3	EPA 505
Simazine	mg/L	0.004 (4)	0.001 (5)	122-34-9	EPA 508.1

Appendix A Water Quality Standards – Full Analysis (Cont.)

Constituent	Units	Maximum Contaminant Level	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method
Thiobencarb	mg/L	0.07 (4)	0.001 (5)	28249-77-6	EPA 525.2
Toxaphene	mg/L	0.003 (4)	0.001 (5)	8001-35-2	EPA 505

Sources:

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http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Lawbook.shtml

http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2014-07-01.pdf

- (1) Title 22. Table 64431-A Maximum Contaminant Levels, Inorganic Chemicals
- (2) Title 22. Table 64432-A Detection Limits for Reporting (DLRs) for Regulated Inorganic Chemicals
- (3) Title 22. Table 64442 Radionuclide Maximum Contaminant levels (MCLs) and Detection levels for Purposes of Reporting
- (4) Title 22. Table 64444-A Maximum Contaminant Levels, Organic Chemicals
- (5) Title 22. Table 64445.1-A Detection Limits for Purposes of reporting (DLRs) for Regulated Organic Chemicals
- (6) Title 22. Table 64449-A Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Levels"
- (7) Title 22. Table 64449-B Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Level Ranges"
- (8) Title 22. Section 64672.3 Action levels for Lead and Copper
- (9) Title 22. Section 64678 (d) Lead Action level

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http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr.pdf

(10) Basin Plan. Table III-1 Trace element water quality objectives

(11) Basin Plan. Table III-2A (ug/L) (chlorpyrifos & diazinon in San Joaquin River from Mendota to Vernalis)

Ayers, R. S. and D. W. Westcot *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations - Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985).

<http://www.fao.org/DOCREP/003/T0234E/T0234E00.HTM>

(12) Ayers, Table 1 (mg/L) (sodium and boron)

(13) Ayers. Table 16 (mg/L) (boron tolerance in sensitive crops)

(14) US. Environmental Protection Agency. May 2009. National Primary Drinking Water Regulations. EPA 816-F-09-004

<http://www.ehso.com/ehshome/DrWater/drinkingwaterpastds.php#list>

(15) US. Environmental Protection Agency. Secondary Drinking Water Regulations.

<http://www.ehso.com/ehshome/DrWater/drinkingwaterpastds.php#second>

(16) Disinfection byproduct pre-cursors; Analyses requested by DWR, no MCL

revised: 08 June 2015

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