DRAFT
INITIAL STUDY/NEGATIVE DECLARATION

WESTLANDS WATER DISTRICT GROUNDWATER PUMPING AND CONVEYANCE PROJECT

September 2020

LEAD AGENCY:

Westlands Water District
3130 N. Fresno Street
Fresno, CA 93703-6056
(559) 241-6226

PREPARED 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
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
CH4	methane
CIP	Canalside Integration Project
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CO	Carbon Monoxide
CO2	Carbon Dioxide
CVP	Central Valley Water Project
CVPIA	Central Valley Project Improvement Act
CVRWQCB	Central Valley Regional Water Quality Control Board
dB	Decibel
dBA	A-weighted decibel scale
District	Westlands Water District
DMC	Delta-Mendota Canal
DTGW	depth to groundwater
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EC	electro-conductivity
Farmland	Farmland of Statewide Importance
FMMP	Farmland Mapping and Monitoring Program
GHG	greenhouse gas
gpm	gallons per minute
GPS	Global Positioning System
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HCFCs	hydrochlorofluorocarbons
I-5	Interstate 5
IMS	Irrigation Management System
IS	Initial Study
LSCE	Ludhorff & Scalmanini Consulting Engineers
N2O	nitrous oxide
NAS Lemoore	Lemoore Naval Air Station

ACRONYMS AND ABBREVIATIONS

ND	Negative Declaration
NO	nitric oxide
NO2	Nitrogen Dioxide
NOx	Nitrogen oxides
NRHP	National Register of Historic Places
Ozone	Ground-level Ozone
PM10	Respirable Particulate Matter
PM2.5	Fine Particulate Matter
Project	Westlands Water District Groundwater Pumping and Conveyance Project
SB	Senate Bill
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLC	San Luis Canal
SMGA	Sustainable Groundwater Management Act
SO2	Sulfur Dioxide
SWP	State Water Project
SWRCB	State Water Resources Control Board
TACs	Toxic Air Contaminants
TDS	Total Dissolved Solids
USBR	United States Bureau of Reclamation
USGS	United States Geological Survey
VOC	volatile organic compounds
WSGM	Westside Groundwater Model

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CHAPTER 1
INTRODUCTION AND PROJECT DESCRIPTION

1.0 PROJECT TITLE

Westlands Water District Groundwater Pumping and Conveyance Project

2.0 LEAD AGENCY NAME AND ADDRESS

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

3.0 CONTACT PERSON AND PHONE NUMBER

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4.0 PROJECT VICINITY AND LOCATION

The Westlands Water District Groundwater Pumping and Conveyance Project (Project) is located in Fresno and Kings Counties within the Westlands Water District (District), which lies on the westside of the San Joaquin Valley (Figure 1). The District overlies the Tulare Lake Groundwater Basin. The groundwater wells proposed for pumping under the proposed Project are located within the Westside Subbasin of the Tulare Lake Groundwater Basin (Figure 2). Water conveyance throughout the District consists of licensed water integration outlets located along the San Luis Canal (SLC), although private pipelines may also be used.

5.0 PROJECT SPONSOR'S NAME AND ADDRESS

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

6.0 GENERAL PLAN DESIGNATION

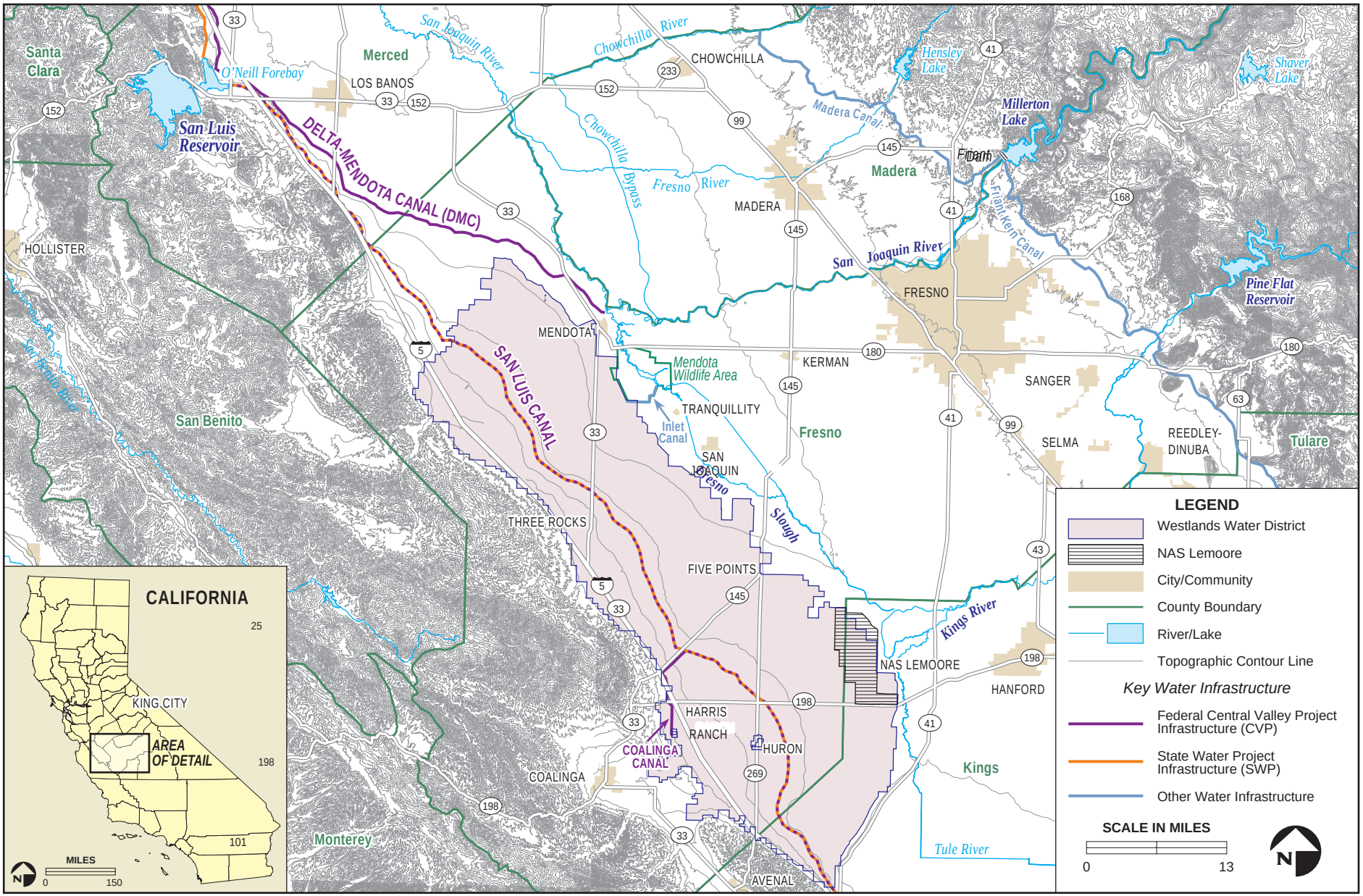
Agricultural

7.0 ZONING

Various agricultural and rural; See Section 15.11, *Land Use and Planning*

8.0 INTRODUCTION

This Initial Study (IS) and Negative Declaration (ND) was prepared in accordance with the California Environmental Quality Act (CEQA) and Guidelines for Implementation of CEQA (CEQA Guidelines). It serves as the environmental document for the proposed 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.



wood.

Project Location

FIGURE 1

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 District's Groundwater Pumping and Conveyance Project to determine the range of potential environmental impacts of that project and define the scope of the environmental review document. As specified in the CEQA Guidelines Section 15064(f), the lead agency may prepare a ND if, through the IS analysis, there is no substantial evidence that the project may have a significant effect on the environment. As the lead agency for the proposed Project, the 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 Project-related impacts would be less than significant. Therefore, a ND was prepared for the proposed Project.

In April 2020, the District prepared and published a Draft IS/ND for the Project (State Clearinghouse #2020050434). The Draft IS/ND was circulated for public review on April 5, 2020 for a period of 30 days. The Draft IS/ND was not adopted and has since been rescinded by the District. This new Draft IS/ND prepared by the District incorporates new information and minor revisions to the text of the previous Draft IS/ND and was republished to align with timing of publication of the United States Bureau of Reclamation's (USBR's) Draft Environmental Assessment for the Westlands Water District Groundwater Warren Act Contract (published July 22, 2020). This new Draft IS/ND wholly replaces the prior Draft IS/ND that was published in April 2020 and initiates a new public comment period on the adequacy of this new IS/ND.

During public review of the Draft IS/ND, a total of three (3) comment letters were received. These include a comment letter received from: (1) the California Department of Fish and Wildlife (CDFW); (2) Law Offices of Stephan C. Volker, representing the North Coast Rivers Alliance, California Sportfishing Protection Alliance, Pacific Coast Federation of Fishermen's Associations, San Francisco Crab Boat Owners Association, and Institute for Fisheries Resources; and (3) a joint letter from the Center for Biological Diversity, Planning and Conservation League, California Water Impact Network, CA Save Our Streams Council, California Sportfishing Protection Alliance, Winnemem Wintu Tribe, Sierra Club, Environmental Water Caucus, Friends of the River, and Southern California Watershed Alliance. In the interest of full disclosure, this Draft IS/ND includes additional discussion to address relevant issues raised in those comment letters to the extent applicable. The District will respond in detail to any relevant revised, new, or additional comment letters submitted on this new IS/ND. However, comment letters received on the previous Draft IS/ND will not be responded to unless resubmitted as formal comments on this new IS/ND.

9.0 PROJECT BACKGROUND

9.1 Historic District Water Supplies

In 1990, the District adopted the Canalside Integration Program (CIP), comprising short-term groundwater conveyance programs for emergency drought relief. In times of drought and low water supply, the California Department of Water Resources (DWR) has allowed the District's water users to participate in the CIP where groundwater is pumped and conveyed through the San Luis Canal (SLC).

DWR first adopted specific operating criteria for access to the California Aqueduct in 1990. The program was renewed yearly through 1994. Pump-ins from District water users participating in the CIP into the SLC were approximately 9,600 acre-feet (AF) in 1990; 72,000 AF in 1991; 97,000 AF in 1992; 12,400 AF in 1993; and 84,500 AF 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 (District 2016).

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, the District and DWR entered into an agreement for the Introduction and Conveyance of Local Groundwater in the California Aqueduct. The agreement became effective on August 8, 2008, and provided for conveyance of up to 20,000 AF of groundwater through September 30, 2008. The District ultimately conveyed approximately 14,000 AF from approximately 30 groundwater wells.

From 2012 to 2016, the State of California experienced unprecedented water management challenges due to severe drought. The Governor proclaimed a Drought State of Emergency on January 14, 2014 and extended the provisions within this proclamation until May 31, 2016 (State of California 2014). 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 (SWRCB) to implement mandatory water reductions in cities and towns across California to reduce water usage by 25 percent (State of California 2015). During the severe drought period, water allocations to the District from the Central Valley Project (CVP) were substantially reduced due to both dry years and environmental restrictions.[1] 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. For example, the allocation percentage for the District from the CVP in 2013, 2014, 2015, and 2016 was reduced to 20 percent, 0 percent, 0 percent, and 5 percent, respectively. Following the drought period, the District's CVP allocations exceeded 20 percent, and in 2019, the District's CVP allocation was 75 percent (897,700 AF) (District 2019).

9.2 Project Setting

The District is the largest agricultural water district in the United States, encompassing more than 600,000 acres of farmland located in western Fresno and Kings counties, and serves approximately 700 family-owned farms that average 875 acres in size. The District is a CVP contractor with a water service contract to receive up to 1,195,383 acre-feet per year (AFY) from the CVP. The San Luis Unit of the CVP receives water from the Sacramento-San Joaquin Delta through the 70-mile-long Delta-Mendota Canal (DMC) to the San Luis Reservoir. Water delivered directly to lands in the District is pumped through the Dos Amigos Pumping Plant, and then conveyed through the SLC and the Coalinga Canal. Water also may be stored temporarily in the San Luis Reservoir for later delivery. Once diverted from the SLC, water is delivered to farmers through 1,034 miles of underground pipe and over 2,900 metered delivery outlets within the District. All water deliveries are measured by meters along the SLC at each diversion lateral and at each field outlet. All meters are tested and calibrated regularly. 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 the District 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

[1] The CVP is a multi-purpose network of dams, reservoirs, canals, hydroelectric power plants and other facilities over approximately 400 miles in California's Central Valley. The CVP provides flood protection and water supplies for domestic and industrial water to rural and urban customers. It also provides water to restore and protect fish and wildlife, and to enhance water quality.

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.[2] 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.

Groundwater quality within the District 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 to be delivered to state or federally-operated conveyance systems. Water from groundwater wells is regularly tested to demonstrate that its quality is suitable for a specific purpose or distribution system.

The SLC is a concrete-lined canal through the District 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 District 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 SLC is periodically bridged by roads and railroads and is sometimes crossed by natural drainages.

9.3 Existing District Water Conservation Program

Efficient use of water resources is a primary focus of the District and a key factor in the ongoing productivity of its customers. The design of the District'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 varying in diameter from 10 to 96 inches, rather than open unlined canals used in some parts of the Central Valley. These closed, buried pipelines ensure water is delivered with zero losses to seepage, evaporation, or spills during transportation and delivery. In addition, the District 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.

The District'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 USBR 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 District farmers and was mailed weekly. The District 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, the District has also increased the use of drip irrigation throughout the District and approximately 93 percent of the District's irrigated lands are served by efficient drip irrigation systems.

The District maintains 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. The

[2] Soil subsidence refers to the gradual caving in or sinking of an area of land. Within the Central Valley, the primary cause of soil subsidence is declining groundwater levels and dewatering the clay layers.

most recent Water Management Plan (2017) was adopted in 2019. The District also established an Expanded Irrigation System Improvement Program, 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 (District 2020).

9.3.1 Current Activities

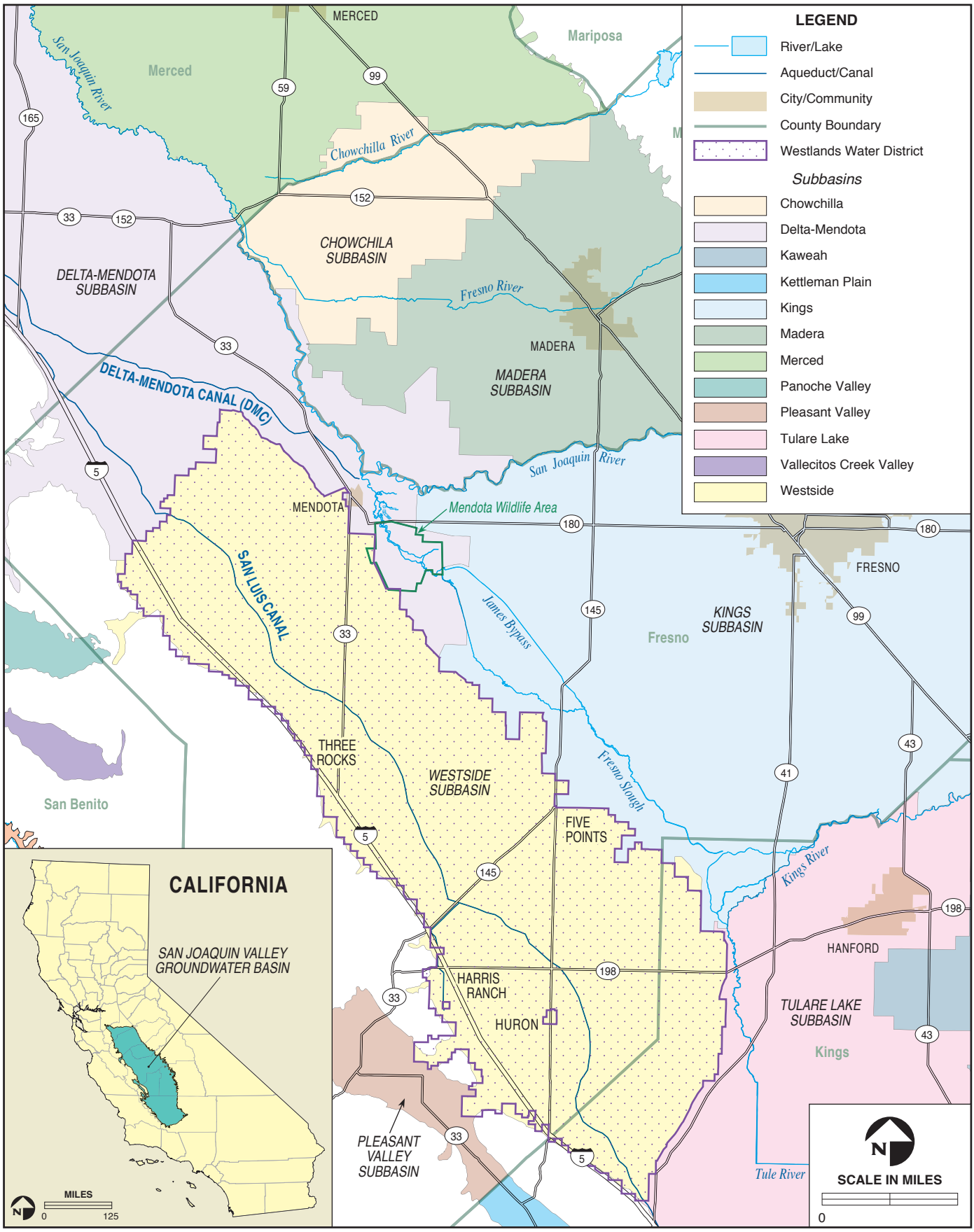
The District spends more than $1,000,000 annually on water conservation program activities. The current program, as presented in the 2007 Water Conservation Plan and the 2008 Water Conservation Plan Update, consists of the following elements:

- Providing growers with current Irrigation Guides detailing water requirements for crops based on actual weather and computer modeling. A separate weekly Guide is sent to growers providing detailed information on the three climatic regions throughout the District.
- Providing growers with The Water Conservation and Management Handbook, containing specific water management information on the District's farming conditions.
- Organizing regular workshops and meetings with small groups of growers to facilitate a two-way flow of water management information. These seminars grant growers firsthand access to District staff, private sector water management experts, scientists, and government figures as they share innovative and advanced information on water supply, equipment, and available resources.
- Providing technical assistance and conservation computer programs to growers, allowing growers to personally study irrigation management issues and solutions.
- Maintaining an aggressive program to install, upgrade, and repair water meters.
- Monitoring groundwater to provide growers with up-to-date information on the quality and depth of groundwater.
- Ongoing efficiency testing for the District's pumps, preventing potentially catastrophic system downtime and reducing electrical consumption and costs.
- Improving overall water supply reliability through the efficient use of surface and groundwater to extract maximum benefit and preserve environmental resources.
- Offering opportunities to growers to lease or own innovative equipment such as drip, micro-spray, sprinkler, and aluminum piping to encourage conversion to more efficient irrigation technology.

9.4 Sustainable Groundwater Management Act and the District's Groundwater Sustainability Plan

Enacted in 2014, the Sustainable Groundwater Management Act (SGMA) encourages local agencies to work cooperatively in managing groundwater resources and is intended to empower 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 any of the six identified undesirable results identified in SGMA: 1) a chronic lowering of groundwater levels; 2) significant and unreasonable reduction in groundwater storage; 3) significant and unreasonable seawater intrusion;, 4) significant and unreasonable degraded water quality (including the migration of contaminated plumes); 5) significant and unreasonable land subsidence that substantially interferes with surface land uses; or 6) depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

In the context of statewide concerns over mismanaged groundwater resources and poor groundwater quality, the SGMA provides framework and guidance for developing Groundwater Sustainability Plans (GSPs) and designates authority to local Groundwater Sustainability Agencies (GSAs). SGMA requires all groundwater basins designated as high or medium priority by the DWR to be managed in a sustainable manner, and GSAs overlying basins designated as critically overdrafted must submit plans to DWR by January 31, 2020. The subbasin within the Project area, the Westside Groundwater Subbasin (see Figure 2), was designated as critically overdrafted and high priority basins. The District prepared and adopted the Westside Subbasin GSP on January 8, 2020 and submitted the GSP to the DWR for review on January 23, 2020. The GSP includes various management strategies and actions for achieving sustainability of the groundwater basin, including groundwater level and land subsidence monitoring, utilization of surface water imports, increased aquifer storage and recovery, and targeted pumping reductions.



wood.

Groundwater Basins in the Project Area

FIGURE 2

10.0 PROJECT DESCRIPTION

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

Under the Project, USBR would enter into a five-year Warren Act Contract[3] with the District to allow the District to introduce up to 30,000 AFY, or up to 150,000 AF over the five-year life of the Project, of local acceptable-quality groundwater into the SLC. The Project would occur over the period 2020-2025, in years which the District's CVP allocation is 20 percent or less. The period of introduction would be between April 1 and August 31 of a given year. However, if it is not possible to begin conveyance by April 1, 2020, the conveyance period for this year would be shifted by four months, to between August 1 and December 31. All subsequent years would use the April 1 to August 31 window. The proposed Project would involve four main components: groundwater pumping, water conveyance, ground subsidence monitoring, and water quality monitoring, as further described herein.

The source of the non-CVP water would be pumped groundwater from groundwater wells within the District. The groundwater would be pumped into the SLC via licensed water integration (discharge) facilities located on either side of the SLC. 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.

Because of water quality criteria and anticipated pumping restrictions, actual annual Project volume may be less than the maximum value. There are approximately 117 operating groundwater wells within the District, although well participation would be limited to those wells meeting Title 22 water quality standards. 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 District distribution system;
- seasonal limitations on groundwater pumping related to groundwater overdraft and potential subsidence; and
- GSP management actions, including non-structural programs or policies that are intended to incentivize reductions in groundwater pumping.

Prior to introduction into the SLC, all wells would be tested to demonstrate compliance with the USBR's SLC Non-Project Water Pump-in Program – 2020 Water Quality Monitoring Plan (Water Quality Monitoring Plan) standards (based off Title 22 water quality standards). The draft 2020 Water Quality Monitoring Plan is provided as Appendix B of this IS/ND. Only groundwater wells that meet these water quality standards

[3] The Warren Act of February 21, 1911 authorized the United States to execute contracts for the conveyance and storage of non-project water in Federal facilities when excess capacity exists.

would be used for integration into the SLC. Water sourced from the Mendota Pool Inlet Canal would be tested at laterals discharging to the SLC.

Non-CVP water introduced into the SLC would either be directly delivered to agricultural users located downstream of discharge points, or operationally exchanged with USBR for an in-kind amount, minus conveyance losses, of the District's available water supplies in the San Luis Reservoir. Exchanged water would either be delivered to agricultural users located upstream of introduction points in the District or stored in the San Luis Reservoir as non-CVP water for later delivery to the District via the SLC. Introduction of the District's non-CVP water and storage of the exchanged water would be annually scheduled with USBR and would be subject to excess capacity, operational constraints, and CEQA requirements, as applicable. The District intends to use the water in the same year in which it is introduced into federal facilities. However, if the District is unable to make use of water introduced into the facilities within the designated window, it may be necessary to carry the water over through storage in the San Luis Reservoir until it can be put to productive use.

Under the proposed Project, no new facilities or modifications to the SLC would be authorized. Given the Project proposes to utilize existing facilities for pumping of groundwater and introduction of supplies into the SLC, no ground disturbance or construction/installation of new facilities is proposed under this Project. However, the existing discharge facilities have expired licenses and are expected to renew this year. USBR proposes to issue a combined 25-year license authorization for all discharge points involved in the proposed Project. In addition, all water delivered would be subject to existing water banking, place of use, water allocation and credit provisions. 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 Project. These matters are discussed in more detail below.

The proposed Project would complement a proposal to be approved by USBR in 2020 which would issue a Warren Act Contract for the introduction of up to 30,000 AFY of groundwater into the federal and state operated facilities on the SLC by the District or private growers as excess capacity is available. The federal Warren Act Contract would be effective through 2025.[4,5]

10.1 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 District facilities, where needed by Project participants;
3. Ensure pumped groundwater meets standards pursuant to the 2020 Water Quality Monitoring Plan;[6] and
4. Ensure compliance with the Westside Subbasin GSP.

[4] 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-CVP 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.

[5] USBR's approval of the District's 2020-2025 Warren Act is subject to environmental review under the National Environmental Protection Act (NEPA) pursuant to the Council on Environmental Quality regulations (40 Code of Federal Regulations Parts 1500-1508). Review of USBR's approval of the District 2020-2025 Warren Act pursuant to the requirements of NEPA is being prepared under an Environmental Assessment.

[6] The 2020 Water Quality Monitoring Plan and water quality standards are currently being prepared and may be subject to change prior to publication and adoption of the final plan. The Project will be subject to the final water quality standards and requirements of the plan once adopted.

10.2 Water Conveyance

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 District. Water conveyance would be accomplished either directly into the SLC via pipelines or through District laterals. The proposed Project would utilize 88 existing, permanent separate water integration locations with associated wells (see Table 1; see Figure 3 and Figure 4), however, additional wells and water integration locations may participate if they meet the Water Quality Monitoring Plan requirements described in Appendix A, which are based off the applicable Title 22 California Drinking Water Standards. The draft 2020 Water Quality Monitoring Plan is included as Appendix B of this IS/ND.

Table 1. Proposed Water Integration Locations

#	San Luis Canal Milepost	Facility Type	State Well ID
1	105.00L	Direct Discharge	141202R01
2	105.20L	Direct Discharge	141202R02
3	107.10R	Direct Discharge	141225D01
4	107.63R	Direct Discharge	141319R01
5	108.85L	Direct Discharge	141316N05
6	110.49L	Direct Discharge	141322P01
7	110.52L	Direct Discharge	141323EO2
8	111.02R	Direct Discharge	141327E01
9	111.91R	Direct Discharge	151305D02
10	113.77	Direct Discharge	141628P01
11	114.00R	Direct Discharge	151316L01
12	114.95L	Direct Discharge	151407E01
13	115.43L	Lateral 7	151509R03 151509R04 151509R05 151503A02 151504A03 151503H01
14	116.91R	Direct Discharge	151322M01
15	117.52L	Direct Discharge	151419F01 151419Q01
16	118.46R	Direct Discharge	151431D02
17	119.56R	Direct Discharge	151431D02
18	120.80L	Direct Discharge	161404D01
19	122.59RA	Direct Discharge	161427P01
20	123.05L	Direct Discharge	161403H01
21	123.89R	Direct Discharge	161424E01
22	124.18L	Direct Discharge	161412N02
23	125.33R	Direct Discharge	161506P02
24	125.99L	Direct Discharge	161518P04
25	126.65L	Lateral 12L	161520H01
26	127.40L	Direct Discharge	161521L01 161521N03
27	128.49R	Direct Discharge	171413A01
28	128.50L	Direct Discharge	161533J01
29	128.54L	Direct Discharge	161532A06
30	130.81R	Direct Discharge	171510M01
31	132.77L	Direct Discharge	171513A01
32	133.80L	Direct Discharge	171601N03

Table 1. Proposed Water Integration Locations (Continued)

#	San Luis Canal Milepost	Facility Type	State Well ID
33	133.81L	Direct Discharge	171623J01 171623M01 181606F01 171614Q01
34	135.48RA	Direct Discharge	171526A01
35	135.96R	Lateral 14R	171526L01
36	136.03L	Direct Discharge	171614Q01 171623J01 171623M01
37	137.00R	Lateral 15R	171536Q02
38	137.31L	Direct Discharge	181606F01
39	137.83L	Direct Discharge	171623J01 171623M01 171614Q01 171601N03
40	138.24L	Direct Discharge	181605N01
41	139.40L	Direct Discharge	181609R01
42	140.55LA	Direct Discharge	181617R02
43	141.02R	Direct Discharge	181620F01
44	141.07R	Direct Discharge	181620M01
45	141.55L	Direct Discharge	181621Q02
46	142.58R	Direct Discharge	181629N02
47	143.00L	Direct Discharge	181627N01
48	143.20L	Direct Discharge	191610E01
49	143.21R	Direct Discharge	191615N01
50	146.35L	Direct Discharge	181720N02
51	147.75RC	Direct Discharge	191720B01
52	152.75L	Direct Discharge	191723R01
53	153.10R	Direct Discharge	191726H01
54	154.10L	Direct Discharge	191836N01
55	155.15L	Direct Discharge	191831N01
56	155.63L	Direct Discharge	201806F01
57	156.36R	Direct Discharge	201714K01 201712H01
58	156.37LA	Direct Discharge	201806Q01
59	156.40L	Lateral 31	201808M01
60	157.98L	Direct Discharge	201817G01
61	158.47R	Lateral 32	201714R01
62	158.95L	Direct Discharge	201820E01
63	159.90L	Direct Discharge	201829M01
64	159.98R	Direct Discharge	201830G02 201831C01
65	160.50RA	Direct Discharge	201734D01
66	160.68L	Direct Discharge	201832E01
67	161.49L	Direct Discharge	201831Q01
68	161.60L	Direct Discharge	211805C01 211809D02
69	162.08L	Direct Discharge	211805C01 211805M01
70	162.10R	Direct Discharge	211806G01
71	162.64L	Direct Discharge	211808B01 211809L01
72	163.18R	Direct Discharge	211807E01
73	163.59L	Direct Discharge	211805M01 211808Q01
74	164.00R	Lateral 27R	211818G01

Table 1. Proposed Water Integration Locations (Continued)

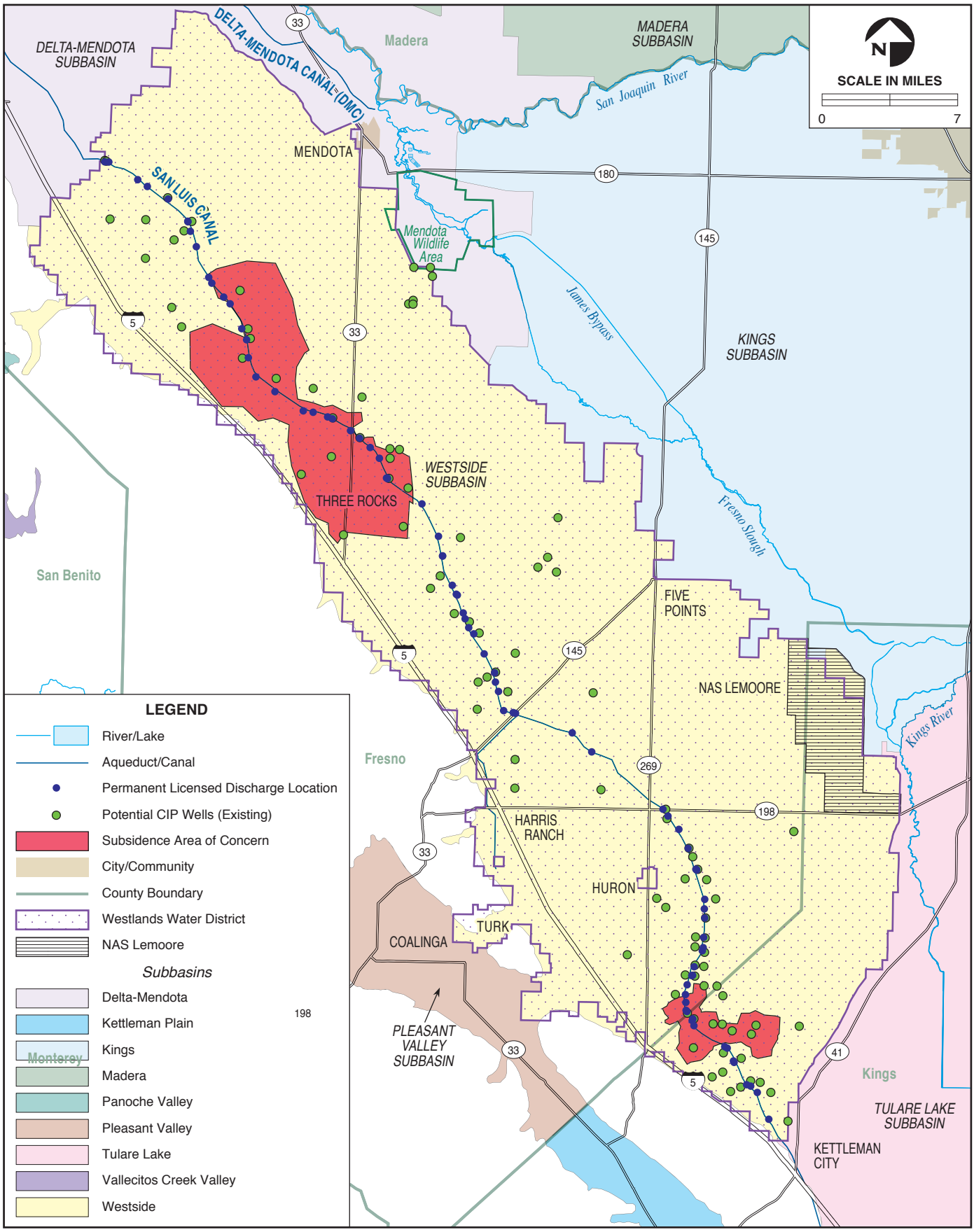
#	San Luis Canal Milepost	Facility Type	State Well ID
75	164.11R	Direct Discharge	211818G03
76	164.55L-A	Direct Discharge	211817N03 211816P01 211816N01 211822E01 211823E01 211823D06
77	164.55L-B	Direct Discharge	211816P01 211816N01 211822E01
78	164.63R	Direct Discharge	211818G03
79	164.95R	Direct Discharge	211833G01 211833N02 211829E01
80	166.70R	Direct Discharge	211828G06
81	166.90R	Direct Discharge	211827K02
82	167.04L	Lateral 37	211823D06 211919C03
83	167.84R	Direct Discharge	221804H01
84	167.86R	Direct Discharge	211833N02 211833G01
85	169.21R	Direct Discharge	221803B01
86	169.48L	Direct Discharge	211835Q01 211835N02
87	169.88L	Direct Discharge	221801E01
88	171.50LA	Direct Discharge	221812R01

Notes:
Some wells are capable of discharging at multiple locations along the along the SLC.

Water for delivery into the SLC would be conveyed through existing pipelines ranging from a few hundred feet to more than ten miles in length. These pipelines are currently used to distribute water supply throughout the District. At the SLC right-of-way, the buried pipelines pass through the SLC bank and are capable of discharging water directly into the SLC below the water line. Flows into the SLC would be metered by the District and verified by DWR. When direct conveyance into the SLC is impractical, qualified groundwater may be conveyed from a participating well into a District 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. 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 percent reduction assessed by USBR for transportation and other losses. The non-CVP water would either be directly delivered to agricultural users in the District, 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 the District via the SLC. The Project participants either take delivery of an equal amount of water through District laterals or receive a credit for an equivalent amount of water for later delivery, subject to the following options and limitations.

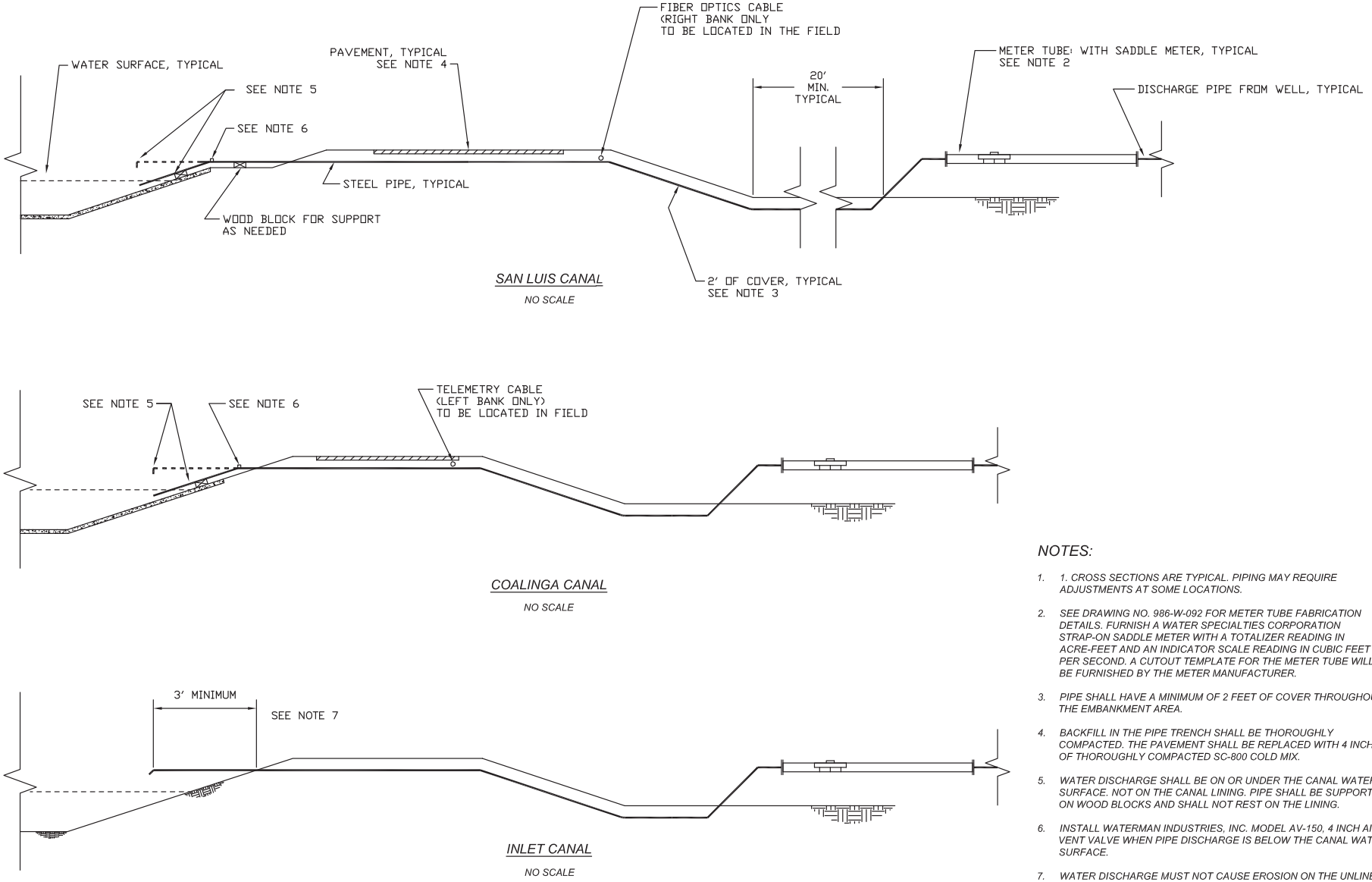
- At an additional cost, water can be exchanged for credit in San Luis Reservoir when adequate storage space exists in the USBR portion of storage space in the Reservoir and when adequate space is available in the SLC to receive participating water. Additional details are discussed below in Section 10.6, *Water Storage*.
- Banked non-CVP groundwater is among the first water to be spilled (lost) when storage space is no longer available in San Luis Reservoir for CVP water.



wood.

Licensed Water Integration Facility Locations, Potential CIP Wells, and Subsidence Prone Areas

FIGURE 3



NOTES:

1. *1. CROSS SECTIONS ARE TYPICAL. PIPING MAY REQUIRE ADJUSTMENTS AT SOME LOCATIONS.*
2. *SEE DRAWING NO. 986-W-092 FOR METER TUBE FABRICATION DETAILS. FURNISH A WATER SPECIALTIES CORPORATION STRAP-ON SADDLE METER WITH A TOTALIZER READING IN ACRE-FEET AND AN INDICATOR SCALE READING IN CUBIC FEET PER SECOND. A CUTOUT TEMPLATE FOR THE METER TUBE WILL BE FURNISHED BY THE METER MANUFACTURER.*
3. *PIPE SHALL HAVE A MINIMUM OF 2 FEET OF COVER THROUGHOUT THE EMBANKMENT AREA.*
4. *BACKFILL IN THE PIPE TRENCH SHALL BE THOROUGHLY COMPACTED. THE PAVEMENT SHALL BE REPLACED WITH 4 INCHES OF THOROUGHLY COMPACTED SC-800 COLD MIX.*
5. *WATER DISCHARGE SHALL BE ON OR UNDER THE CANAL WATER SURFACE. NOT ON THE CANAL LINING. PIPE SHALL BE SUPPORTED ON WOOD BLOCKS AND SHALL NOT REST ON THE LINING.*
6. *INSTALL WATERMAN INDUSTRIES, INC. MODEL AV-150, 4 INCH AIR VENT VALVE WHEN PIPE DISCHARGE IS BELOW THE CANAL WATER SURFACE.*
7. *WATER DISCHARGE MUST NOT CAUSE EROSION ON THE UNLINED CANAL SIDE SLOPE. EXTEND PIPE IF NECESSARY.*

Source: Westlands Water District, 2008

wood.

Typical Cross Section of Permanent Water Integration Facility Location

FIGURE 4

10.3 Ground Subsidence Monitoring and Protection

There are two subsidence prone areas located within the District along the SLC identified in the Westside Subbasin GSP (Figure 3). These two areas experienced increased rates of subsidence, which may threaten lands and infrastructure within their vicinity, namely the SLC. Within these areas, wells would be subject to more restrictive minimum thresholds to protect critical head levels, and extraction from the Lower Aquifer (deep aquifer below the Corcoran Clay layer) would be limited in all years to minimize or avoid subsidence in susceptible lower aquifers.[7]

Limits on groundwater extraction from these areas would be identified as part of detailed groundwater modeling conducted as part of GSP implementation and subject to final approval by the District's Board of Directors. These limitations are expected to be more restrictive than baseline pumping conditions identified in the Westside Subbasin GSP, which identified a restriction of up to 35 percent of their allocated pumping amount. These wells are also subject to limitations established in the Water Quality Monitoring Plan, which requires an individual well be shut off when its depth to groundwater (DTGW) reaches 75 percent of the difference between the Fall/Winter Median Groundwater Level and the Max DTGW (refer to Section 15.10, *Hydrology and Water Quality* for additional discussion of these limitations). Monitoring for subsidence would continue to be conducted by the District as part of the existing robust subsidence monitoring network, which includes data collection by the District, DWR, USBR, and UNAVCO from field/survey Global Positioning System (GPS) locations, extensometers, and satellite imagery.

10.4 Water Quality Monitoring and Protection

Groundwater in some areas of the District has generally high salinity content due to the historic buildup of salts in the soils from evapotranspiration of irrigation water, as well as naturally occurring saline groundwater within deep zones of the aquifer. Salinity is typically measured using EC, often stated as Total Dissolved Solids (TDS). To confirm that the groundwater from the participating wells meets the Water Quality Monitoring Plan, which is based off the applicable Title 22 California Drinking Water Standards, the Project participants' 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 include TDS, metals, organic chemicals, and other potential pollutants. Each well operator must provide sufficient information about each well to confirm that the pumped groundwater 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 District must meet the Title 22 California Drinking Water Standards to participate in the proposed Project.

Mean daily salinity and EC would be assessed with the sensors located along the SLC that report real-time data to the California Data Exchange Center. The mean daily salinity and EC data would be downloaded by the District to monitor daily changes along the SLC. Additionally, the District would use mass balance models to estimate the contribution of salinity to the SLC from actively pumping wells (USBR 2020; Appendix A). Based on monitoring data, USBR and the District have the authority to shut off inflows of the District distribution system or SLC if the quality or quantity of the inflow is unacceptable.

[7] A significant geological feature of the basin is the Corcoran Clay layer, formed by periodic filling and draining of ancient lakes in the San Joaquin Valley. The Corcoran Clay layer is a generally impermeable barrier that divides the water bearing layers within the basin into two distinct aquifers: the upper aquifer and the lower aquifer. As the Corcoran Clay layer is largely impermeable to groundwater movement, groundwater levels in the upper and lower aquifers are generally independent of one another and do not mix vertically.

10.5 Water Storage

The SLC is used jointly by USBR and DWR and is divided into federal and state shares. While the SLC 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 SLC, would mix with state and federal water, the pumped water could be used in the District and downstream in lieu of releases from San Luis Reservoir of stored CVP water. The release from San Luis Reservoir could be reduced by the amount of pumped groundwater integrated to the SLC. This practice, known as water storage, allows an exchange of CVP 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.

10.6 Water Allocation and Credit System

Under the District's credit system, groundwater delivered to the SLC would be credited to Project participants. Credit for water delivered into the SLC is reduced by 5 percent of the amount delivered to account for losses from evaporation and seepage in the SLC. Given the maximum groundwater delivery of 30,000 AFY under the proposed program, the 5 percent conveyance loss equates to a maximum of 1,500 AFY. The District takes delivery of this net amount of water through other laterals along the SLC in the same month it is introduced, the water is not stored.

10.7 Place of Use of Project Water

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

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

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

11.0 REQUIRED PERMITS AND APPROVALS

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

12.0 PURPOSE OF THIS INITIAL STUDY

This IS/ND was prepared for the proposed Project in compliance with CEQA requirements. This document provides a project-level assessment of the potential environmental consequences of adoption and implementation of the proposed Project.

13.0 CONSULTATION WITH NATIVE AMERICAN TRIBES

Pursuant to Assembly Bill (AB) 52 and in accordance with Public Resources Code 21080.3.1, subd.(b), the Santa Rosa Rancheria Tachi Yokut Tribe on August 8, 2016, and the Dumna Wo-Wah Tribal Government on

August 23, 2017, provided requests for formal notifications of and information on proposed projects for which the District serves as Lead Agency under CEQA. Notification and information on the Project were provided to the tribes on March 31, 2020. No responses were received during the 30-day review period.

14.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

☐ Aesthetics	☐ Agriculture and Forest Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☐ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation/Traffic	☐ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

CHAPTER 2
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.

Russ Freeman

Digitally signed by Russ Freeman
DN: cn=Russ Freeman, o=Westlands Water District, ou, email=rfreeman@wwd.ca.gov, c=US
Date: 2020.08.31 09:15:25 -07'00'

Russ Freeman, P.E.

Deputy General Manager - Resources

CHAPTER 3
DISCUSSION OF ENVIRONMENTAL CHECKLIST

A discussion of the environmental checklist is included below. In general, the format followed includes a discussion of the setting and an impact analysis for each resource category.

15.0 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 if 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 offsite as well as onsite, 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, 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 when the incorporation of mitigation measures has reduced an effect from a "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.
5. Earlier analyses may be used if, pursuant to 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:
    a. Earlier Analysis Used. Identify and state where earlier analyses are available for review.
    b. 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.
    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Incorporated," describe the mitigation measures that 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, when 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 a less-than-significant level.

15.1 Aesthetics

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

15.1.1 Existing Setting

The proposed Project is located within boundaries of the District in rural western Fresno and Kings counties. 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 utilize existing facilities, including existing wells and conveyance infrastructure. No visual changes would occur. The constructed embankments and the concrete-lined sides of the SLC do not support existing native vegetation, trees, or other scenic features. There are no scenic vistas or designated state scenic highways within the District area.

15.1.2 Discussion

a – d. No Impact. The Project would not result in visual changes as no physical development is proposed associated with the water conveyance through existing infrastructure. 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. The proposed Project does not propose any development or change in use of land within the District and would not result in adverse effects to scenic resources, visual character, or the quality of the site

and its surroundings. In urbanized areas, the proposed Project would not conflict with applicable zoning or other regulations governing scenic quality. No new light or glare would be created during or after the proposed Project. Therefore, no impacts would occur.

15.2 Agricultural and Forestry Resources

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board (CARB). **Would the Project:**				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

15.2.1 Existing Setting

Agricultural production is the dominant land use in western Fresno and Kings counties and within the District, providing Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP). 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. There are no forestry resources within the District.

15.2.2 Discussion

a – e. No Impact. The proposed Project would integrate pumped groundwater into the SLC for conveyance to agricultural lands for irrigation throughout the District, including Prime Farmland, Unique Farmland, or Farmland of Statewide Importance per the FMMP. 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 does not propose any development or change in use of land within the District 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 District. The proposed Project area does not include forestry resources and would not conflict with existing zoning of forest land or lead to 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. 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.

15.3 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?	☐	☐	☒	☐
b) 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?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒

15.3.1 Existing Setting

The District 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 (SJVAPCD) 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 (NOx) 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 (PM2.5): PM10 and PM2.5 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. PM2.5 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 PM2.5 levels. Potential health effects include skin, eye and throat irritation, respiratory infections, and asthma attacks. Daily fluctuations in PM2.5 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 NOx. NO2 results in reduced visibility. NO2 also contributes to the

formation of ground-level ozone and PM2.5. Major sources of NOx include power plants, large industrial facilities, and motor vehicles. NOx 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 1980 to 2005, lead emissions in the U.S. dropped by 98 percent (United States Environmental Protection Agency 2020). 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 can cause chronic and acute health effects. These effects include increased risk of cancer. Most 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. The SJVAPCD is responsible for preparing attainment plans for each nonattainment criteria pollutant for which the SJVAPCD does not meet the federal or state standard, which currently include ozone, PM 10 (state standard only), and PM2.5. The SJVAPCD has developed plans and established strategies to attain state and federal ozone and PM standards. To meet federal and state Clean Air Act requirements, the SJVAPCD adopted the following plans: 2018 PM2.5 Plan, 2016 Ozone Plan, 2014 8-hour Ozone Implementation Plan; 2013 Revoked 1-hour Ozone Plan; 2007 Ozone Plan, and the 2007 PM10 Maintenance Plan. The SJVAPCD continues to coordinate emission reduction strategies to address multiple standards, to maximize efficiency for staff and stakeholders, and to maximize health benefits. Building on previous plans, the 2016 Ozone Plan addresses overlapping standards and streamlines the SJVAPCD's approach to reduce ozone precursors while meeting state and federal requirements. In a similar manner, the 2018 PM2.5 Plan addresses federal PM2.5 standards for the years 1997, 2006, and 2012. Preparing a single plan instead of three separate plans allows for the development of a more robust and health-protective plan that incorporates stronger control measures in a short timeframe than may otherwise be required.

The above plans include regulatory and incentive-based measures to reduce emissions of ozone precursors and PM generation 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 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 (SJVAPCD 2020).

15.3.2 Discussion

a - b. Less than significant. The Project would not involve the construction of any new facilities (e.g., water conveyance pipelines, water integration locations, groundwater pumping or monitoring wells) and would therefore not result in any construction-related emissions. With ongoing pumping over the five-year Project life, operation and maintenance of wells, water conveyance infrastructure, and water integration locations 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 District, associated direct or indirect emissions would remain similar to existing conditions and would not result in a cumulatively considerable net increase of any criteria pollutants. Therefore, impacts would be less than significant.

c. No Impact. The Project would not involve the construction of any new facilities (e.g., water conveyance pipelines, water integration locations, groundwater pumping or monitoring wells) and would therefore not result in any construction-related emissions. With ongoing pumping over the five-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 District, associated direct or indirect emissions would remain similar to existing conditions. Therefore, operational impacts of the proposed Project would have no impact to existing conditions. 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, the proposed Project would have no impact.

d. No Impact. As the Project would not involve construction or physical changes to the SLC, San Luis Reservoir, and District infrastructure, implementation of the proposed Project would not create new objectionable odors or result in other emissions adversely affecting a substantial number of people. Therefore, no impact would occur.

15.4 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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Have a substantial adverse effect on sate or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.), through direct removal, filling, hydrological interruption or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

15.4.1 Existing Setting

The District area includes more than 600,000 acres and facilities such as the San Luis Reservoir, SLC, and agricultural lands within the District that would receive limited portions of their irrigation water from the proposed program. Known federally and state listed animal species that may occur in the area are the blunt-nosed leopard lizard, Fresno kangaroo rat, giant garter snake, giant kangaroo rat, longhorn fairy shrimp, Nelson's antelope squirrel, San Joaquin kit fox, Swainson's hawk, Tipton kangaroo rat, and the tricolored blackbird. These species may utilize agricultural lands for foraging and possibly nesting habitat, such as the Swainson's hawk and San Joaquin kit fox. In addition, federally and state listed plant species known to occur within the District include the California jewelflower and the San Joaquin woollythreads. There is no designated critical habitat for any species present within the District.

A complete list of state and federally listed species is summarized in Table 2 below. The species list was obtained from a California Natural Diversity Database (CNDDB) search in April 2020, and other information were used to compile the species table below.

Table 2. Listed Species Potentially Present in Project Area

Common Name	Scientific Name	Federal Listing Status / State Listing Status	Critical Habitat	Range/ Habitat Use	Occurrence in Project Area	Impacts
Longhorn fairy shrimp	*Branchinecta longiantenna*	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
Blunt-nosed leopard lizard	*Gambelia sila*	Endangered / 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 the District, but not on actively-farmed lands	No impact; the water involved in the proposed Project cannot be used to bring native lands into production

Table 2. Listed Species Potentially Present in Project Area (Continued)

Common Name	Scientific Name	Federal Listing Status / State Listing Status	Critical Habitat	Range/ Habitat Use	Occurrence in Project Area	Impacts
Giant garter snake	*Thamnophis gigas*	Threatened / Threatened	None	Found in and near wetland habitat in Mendota Pool and the Grasslands	Occurs at Mendota Wildlife Area, which is located at the north eastern boundary of the District	No impact. The proposed Project would not convey flows to the Mendota Wildlife Area
Giant kangaroo rat	*Dipodomys ingens*	Endangered / 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. The proposed Project would not result in any new development or land use changes.
Fresno kangaroo rat	*Dipodomys nitratoides exilis*	Endangered / 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. The proposed Project would not result in any new development or land use changes

Table 2. Listed Species Potentially Present in Project Area (Continued)

Common Name	Scientific Name	Federal Listing Status / State Listing Status	Critical Habitat	Range/ Habitat Use	Occurrence in Project Area	Impacts
Nelson's antelope squirrel	*Ammospermophilus nelsoni*	-- / Threatened	None	Generally only occurs on slopes and ridge tops west of the Project area	Does not occur in the proposed Project area	No impact on the species. The proposed Project would not result in any new development or land use changes
Tipton kangaroo rat	*Dipodomys nitratoides*	Endangered / 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. The proposed Project would not result in any new development or land use changes
San Joaquin kit fox	*Vulpes macrotis mutica*	Endangered / Threatened	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 new development or land use changes
Swainson's hawk	*Buteo swainsoni*	-- / Threatened	None	Occurs in open and semi-open county and favors prairie, hayfields, and pastures over wheat and alfalfa fields	Records of the species are known from the proposed Project area	No impact on the species. The proposed Project would not result in any new development or land use changes

Table 2. Listed Species Potentially Present in Project Area (Continued)

Common Name	Scientific Name	Federal Listing Status / State Listing Status	Critical Habitat	Range/ Habitat Use	Occurrence in Project Area	Impacts
Tricolored blackbird	*Agelaius tricolor*	-- / Threatened	None	Occurs in cattail or tule marshes; forages in fields and farmland	Records of the species are known from the proposed Project area	No impact on the species. The proposed Project would not result in any new development or land use changes
California jewelflower	*Caulanthus californicus*	Endangered / 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. The proposed Project would not result in any new development or land use changes
San Joaquin woolly-threads	*Monolopia congdonii*	Endangered / --	None	Found in arid grasslands and saltbush scrub habitat	May still occur on the western fringes of the District	The proposed Project would not result in any new development or land use change

15.4.2 Discussion

a-c. Less than Significant. 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 1950s and 1960s. 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, the proposed Project wells would be used to irrigate existing cultivated agricultural lands, and Project groundwater withdrawals would not increase overdraft beyond existing baseline conditions, which include long-term pumping of these wells. Therefore, no impact to streamflow or wetlands that are fed by groundwater discharge would occur.

Additionally, there are no sensitive natural communities identified in local or regional plans, policies, or regulations, or by the CDFW 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. Therefore, there would be no direct impacts to sensitive species, natural communities, vernal pools, marshes, or wetlands as a result of implementation of the proposed Project.

Subsidence has and continues to present risk to the Mendota Wildlife Area (MWA), which experienced significant subsidence and damage to water conveyance facilities from increased groundwater pumping from adjacent properties during the 2012-2016 drought. Impacts to the MWA water conveyance facilities have the potential to cause indirect or secondary impacts to both common and special status plant and wildlife species. The MWA is located within the Delta-Mendota Subbasin and borders the Westside Subbasin and Project area. Over the years, subsidence within the vicinity of the MWA has resulted in lowering of water levels within the Fresno Slough, resulting in a lack of flow or water levels at several gravity flow inlets and lift pump inlets at the MWA. These inlets are operated by CDFW to deliver water to habitat and management areas within the MWA that support resident and migratory common and special status wildlife species. Recent historic rates of subsidence, particularly during the 2012-2016 drought, resulted in increased operating costs and could pose risk of loss of associated protected wetlands and riparian habitat features within this area, with potential for impacts to resident and migratory special status wildlife species. Two existing potential CIP wells that would be operated under the Project are located directly adjacent to the MWA, and are unlikely to contribute to ongoing subsidence because of the shutdown provision described in Section 15.10, *Hydrology and Water Quality* which protect the water level from achieving historic lows. As discussed therein, under the Project, groundwater pumping would be closely monitored and managed by the District, USBR, and DWR in a manner so as to prevent the District's contribution to undesirable or adverse rates of subsidence within the Westside Subbasin per the adopted Westside Subbasin GSP. The rate of groundwater pumping under the Project is not anticipated to result in an undesirable or adverse rate of subsidence which would impact CDFW operations or the quantity or quality of habitat within the MWA. Per the adopted Westside Subbasin GSP, if the rate of subsidence with any area of the Westside Subbasin were observed to exceed 0.3 feet/year, groundwater pumping would be limited in the area and the District would be required to utilize in-lieu surface water supplies from the CVP, open market purchases or other sources. In the event that in-lieu surface water supplies would be utilized, imported supplies would, at a minimum, be required to comply with Title 22 water quality standards. In addition to the subsidence limits established under the Westside Subbasin GSP, the Project would be subject to the even more restrictive requirements of the Water Quality Monitoring Plan, which includes strict shutoff criteria for CIP wells (refer to Section 15.10, *Hydrology and Water Quality* for additional discussion of these limitations).

Further, per SGMA, it is the requirement of all GSPs, including the Westside Subbasin GSP, adopted for designated critically overdrafted groundwater subbasins to monitor and manage groundwater pumping actions so as to prevent or reverse undesirable rates of subsidence. If undesirable rates of subsidence or damage to facilities as a result of subsidence occurs, each GSA would be required to implement similar actions. Because of these existing monitoring and management actions of the Westside Subbasin GSP and other GSPs within the region, Project-specific and cumulative impacts to the MWA resulting from subsidence are not considered to result in potential adverse effects on any sensitive special status species, riparian habitats or other sensitive natural communities, or have an adverse effect on protected wetlands. Impacts are considered less than significant.

d. Less than Significant. Under the proposed Project, the conveyed water would help to keep existing 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. Groundwater pumped from wells within the vicinity of the MWA under the Project would be conveyed directly to Lateral 7 and conveyed away from the MWA towards the SLC. Groundwater supplies conveyed through Lateral 7

would not mix with water supplies in the MWA to avoid introduction of any potential constituents of concern with regard to wildlife (e.g., selenium, TDS) into the MWA. The 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 adverse effect on wildlife, which is 2 parts per billion (0.002 mg/L) as measured in the water column (USBR and San Luis & Delta-Mendota Water Authority 2009 and references therein). Water introduced under the Project would be monitored and managed to ensure the quality of water does not exceed the requirements of the Water Quality Monitoring Plan, which establishes limits on the quality of water for selenium to 2 micrograms per liter (equivalent to 2 parts per billion), as well as a selenium Detection Limit for Reporting (DLR) of 0.001 mg/L (see Appendix A). The DLR of the Water Quality Monitoring Plan is more stringent than the required DLR of Title 22, which is 0.005 mg/L. In addition, water discharged as part of the Project would meet Title 22 water quality standards and no adverse increases in salinity of water discharged to these wildlife areas is anticipated. No drainage would be generated that could make its way into aquatic habitat potentially used by the Giant garter snake. Therefore, impacts would be less than significant.

e. No Impact. There are no sensitive natural communities identified in local or regional plans, policies, or regulations, or by the CDFW or U.S. Fish and Wildlife Service located in the Project vicinity. 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. Because discharged water under the Project would be subject to rigorous monitoring and testing to meet Title 22 water quality standards and the requirements of the 2020 Water Quality Monitoring Plan, salinity levels of the Kern National Wildlife Refuge water supplies would also be protected. The proposed Project would not convey flows to the MWA. There are instances where the MWA receives non-Project water from Lateral 7; however, water introduced to Lateral 7 would not be conveyed to the MWA. Therefore, no impacts would occur.

15.5 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?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

15.5.1 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 of Historic Places (NRHP) and have been prepared for inclusion through a multiple property nomination. The concrete slopes of the SLC are 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/grubbing of cultivated areas) 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.

15.5.2 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 utilize existing infrastructure for its intended purpose and no new development or potential ground disturbance is anticipated. Therefore, no impacts would occur.

b-c. 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 and that the Project does not proposed any development or ground disturbance activities, it is extremely unlikely that undiscovered archeological, cultural resources, or human remains would be encountered due to operation of the proposed Project. Therefore, no impacts would occur.

15.6 Energy

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

15.6.1 Discussion

a - b. No Impact. Operation of District water conveyance infrastructure, SLC water integration facilities, and groundwater pumping, and monitoring wells results in the demand for energy resources, primarily electricity and diesel fuels, which can include nonrenewable energy use. The proposed Project involves the continued operation of these existing facilities. There is no proposed increase in capacity or productivity. Implementation of the proposed Project would not result in the development of new facilities, the construction or operation of which would result in new demand for energy supplies. Operation of the Project would result in the continued use of these energy supplies and is not anticipated to substantially increase demand for supplies or result in the wasteful, inefficient, or unnecessary consumption of energy resources. While the potential exists that some water would be moved further than under existing conditions, thereby incrementally increasing energy demand, such minor incremental increases would not be wasteful or inefficient; these potential nominal increases cannot be reasonably forecasted and it would be speculative to do so. Further, in recent years, the District has designated retired farmlands for the production of solar energy, which is sold into the California Electrical Grid and becomes a part of the energy matrix that would meet the electrical demands of the region, including the District. Implementation of the Project and the continued use of existing energy supplies at a rate similar to existing conditions would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, implementation of the Project would not result in impacts to use of energy resources.

15.7 Geology and Soils

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

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

15.7.1 Existing Setting

The District area is located in the Great Valley geomorphic province, which is an alluvial plain approximately 400 miles long and 50 miles wide. While California is seismically active and the potential for earthquakes is never zero, the District area is not located in an Alquist-Priolo Earthquake Fault Zone or in a mapped landslide or liquefaction zones.

15.7.2 Discussion

a. No Impact. The proposed Project would not involve construction or activities that would expose people or structures to adverse effects involving rupture of a known earthquake fault, strong seismic ground shaking, ground failure, liquefaction, or landslides. Implementation of the Project would have no impact with regard to these geologic hazards.

b. Less than Significant. The proposed Project would not include any new development activities or land use changes 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 District area. The proposed Project would potentially keep some farmland from becoming fallowed due to potential 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. The proposed Project area is not located on a mapped liquefaction zone nor located within geologic units or soil that would be unstable as a result of the proposed Project. The proposed Project would not include activities that could result in soil becoming unstable and thus resulting in on- or off-site landslides, lateral spreading, liquefaction, or collapse. Therefore, impacts would be less than significant. Potential land subsidence effects are discussed in Section 15.10, *Hydrology and Water Quality*.

d. Less than Significant. The proposed Project would not result in significant risks to life or property from expansive soils, as the Project does not propose the development of land or construction of new facilities that would involve the disturbance of soils. 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.

f. No Impact. The proposed Project would not include any ground disturbance or new development that could destroy a unique paleontological or geological resource, as groundwater pumping and conveyance would utilize existing infrastructure and not involve disturbance due to grading or excavation.

15.8 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?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

15.8.1 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. GHG emissions are emissions that trap heat in the atmosphere and regulate the Earth's temperature, and include water vapor, carbon dioxide (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 (41 percent), industry (24 percent), electricity generation (15 percent), agriculture and forestry (8 percent), residential (7 percent) and commercial (5 percent) (CARB 2020).

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 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 2018). In 2015, the Governor issued Executive Order B-30-15, extending the AB 32 GHG reduction target to 40 percent below 1990 levels by 2030 to make it possible to reach the ultimate goal of reducing emissions by 80 percent under 1990 levels by 2050, as established in Executive Order S-3-05. Subsequently, in 2017, the State of California enacted Senate Bill (SB) 32, which codified the GHG emissions target of Executive Order B-30-15, and AB 197 which is a measure that increases legislative oversight over CARB to ensure strategies to lower emissions favor those most impacted by climate change. Lastly, in September 2018, the state issued Executive Order B-55-18, which established a statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, further demonstrating the state's continued commitment to address climate change.

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 provides 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 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 SJVAPCD Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency (SJVAPCD 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 SJVAPCD 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 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 SJVAPCD 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.

15.8.2 Discussion

a. Less than Significant. 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 energy demand and associated 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. Therefore, impacts related to generation of 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 the CCAP adopted by the SJVAPCD. Therefore, impacts related to GHG emissions would be less than significant.

15.9 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?	☐	☐	☐	☒

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan 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 or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☐	☒

15.9.1 Existing Setting

The Hazardous Waste and Substances Sites List (Cortese List) is compiled by the California Department of Toxic Substances Control (DTSC) in accordance with §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 2020). In addition, a search was conducted using the SWRCB's GeoTracker database (SWRCB 2020). Leaking Underground Storage Tanks and other cleanup sites are also located in the District area. Several schools are located within the District area, including Westside Elementary School, Cantua Elementary School, Columbia College - Lemoore, Neutra Elementary School, Akers Elementary School. Airports in the District area include, Harris-Agro West Airport, West Side Field Station Airport, Harris Ranch Airport, Willet Field, and Stone Land Company Airport.

15.9.2 Discussion

a-b. No Impact. Agricultural activities would not create a significant hazard to the public or environment, although the use and storage of hazardous materials could be involved. However, use and storage would be conducted in accordance with existing regulations. Further, the use, transport, and disposal of hazardous materials would not change from existing conditions as a result of the proposed Project. Therefore, the proposed Project would have no impact.

c. Less than Significant. Several schools are located within the District area; however, 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 that would likely be used as part of the program and would not change from ongoing operations with no change or increase in emissions and would be well removed from sensitive receptors. Agricultural activities in the District 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. No Impact. Several airports and private airstrips are located within 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.

f. 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 proposed 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 (2007a; 2007b). 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.

15.10 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 or otherwise substantially degrade surface or groundwater quality?	☐	☐	☐	☒
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would:	☐	☐	☐	☒
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☐	☒
ii) substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☐	☒
iii) 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; or	☐	☐	☐	☒
iv) impede or redirect flood flows?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

15.10.1 Existing Setting

Regional Groundwater Setting

The proposed Project is located in the Westside Subbasin within the San Joaquin Valley Groundwater Basin, within Fresno and Kings Counties. The San Joaquin Valley is surrounded on the west by the Coast Ranges, on the south by the San Emigdio and Tehachapi Mountains, on the east by the Sierra Nevada and on the north by the Sacramento-San Joaquin Delta and Sacramento Valley. The northern portion of the San Joaquin Valley drains toward the Delta by the San Joaquin River and its tributaries, the Fresno, Merced, Tuolumne, and Stanislaus Rivers. The southern portion of the valley is internally drained by the Kings, Kaweah, Tule, and Kern Rivers that flow into the Tulare drainage basin including the beds of the former Tulare, Buena Vista, and Kern Lakes (DWR 2006).

San Joaquin Valley Groundwater Basin

The San Joaquin Valley Groundwater Basin comprises the San Joaquin River Hydrologic Region and Tulare Lake Hydrologic Region. The San Joaquin Valley Groundwater Basin is composed of 16 subbasins: 9 in the San Joaquin River Hydrologic Region and 7 in the Tulare Lake Hydrologic Region (DWR 2006; USBR 2011). The primary aquifer in the San Joaquin Valley Groundwater Basin extends as deep as 1,000 feet below ground surface (bgs) in the southern portion of the basin (DWR 2003). The aquifers are generally thick in this region, with groundwater wells commonly extending to depths of up to 800 feet. The aquifer system is divided into two major aquifers: an unconfined to semiconfined aquifer above the E-clay and a confined aquifer beneath the E-clay (USBR 2011). The unconfined to semiconfined aquifer can be divided into three hydrogeologic units based on the source of the sediment: Coast Range alluvium, Sierra Nevada sediments, and flood-basin deposits. The maximum thickness of freshwater-bearing deposits (4,400 feet) occurs at the southern end of the San Joaquin Valley. Typical well yields in the San Joaquin Valley range from 300 gallons per minute (gpm) to 2,000 gpm with yields of 4,000 gpm possible (DWR 2003). Usable storage capacity for the San Joaquin River Hydrologic Region is estimated to be 24 million AF in DWR Bulletin 160-93 (1994).

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 (United States Geologic Survey [USGS] 2009).

Although the San Joaquin Valley Groundwater Basin has a large storage capacity, water level records and studies indicate that groundwater withdrawals caused 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 across the Central Valley 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).

Groundwater throughout this basin is suitable for agricultural and urban use. Primary constituents of concern are TDS, metals, organic chemicals, and other potential pollutants. 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 Westside Subbasin (Subbasin No. 5-22.09) is in the western portion of the San Joaquin Valley Groundwater Basin, within Fresno and Kings Counties. The Westside Subbasin covers approximately 972 square miles (622,215 acres) and is characterized by a relatively flat topographic setting along the west side of the San Joaquin Valley (Luhdorff & Scalmanini Consulting Engineers [LSCE] 2020). The District's boundaries lie entirely within the Westside Subbasin. The Westside Subbasin is bordered by the Pleasant Valley Subbasin to the southwest, the Tulare Lake Subbasin to the southeast, the Kings Subbasin to the east, the Delta-Mendota Subbasin to the north and northeast, and the Tertiary marine sediments of the Coast Ranges to the west (DWR 2006). The fresh groundwater bearing geologic deposits in the Westside Subbasin are generally subdivided into two units: the Upper Aquifer and the Lower Aquifer, which are separated by the Corcoran Clay layer. The shallow zone is a portion of the Upper Aquifer defined as the upper most 100 feet bgs. Groundwater encountered in the shallow zone is not hydrologically connected to the rest of the Upper Aquifer, and does not experience seasonal or long-term variation. Groundwater elevation in the shallow zone is likely supported by recharge from irrigation; therefore, it is not defined as one of the primary aquifer units for the Westside Subbasin.

Inflows of water into the surface water system budget in the Westside Subbasin include precipitation, imported surface water, and groundwater pumping (LSCE 2020). Surface water outflows include evaporation and deep percolation. Groundwater inflows include net deep percolation from precipitation and irrigation, seepage from streamflow to the aquifer system from ephemeral streams and lateral subsurface flow from the east and west edges of the Valley (LSCE 2020). Outflows from the groundwater system include groundwater pumping and lateral subsurface outflow to adjacent subbasins. Wells in the Westside Subbasin draw from both the Upper and the Lower Aquifers. There is a total of 979 groundwater wells in the Westside Subbasin, and 171 groundwater wells in the District that may be utilized for the proposed Project (LSCE 2020; refer to Table 1. Proposed Water Integration Locations in Section 10.2, *Water Conveyance)*.

Groundwater Levels and Overdraft. The District lies entirely within the Westside Subbasin and water is extracted by multiple users, with excessive historic 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 Westside Subbasin GSP utilized a numerical integrated groundwater flow model referenced as the Westside Groundwater Model (WSGM) to support development of the Subbasin water budgets and quantify groundwater overdraft. As described in the Westside Subbasin GSP, total simulated outflow from the Subbasin's groundwater system ranges from 241,000 to 865,000 AFY and averages at 493,000 AFY. Of this outflow, groundwater pumping accounts for an average of 324,000 AFY. Annual declines in groundwater storage range up to 568,000 AF and with annual increases in storage of up to 427,000 AF depending on the hydrologic year type (LSCE 2020).

The WSGM simulates a decline in groundwater storage averaging 19,000 AFY over the entire Westside Subbasin between 1987 and 2015. Given a long-term average pumping of 324,000 AFY and a decline in storage of 19,000 AFY, the approximate sustainable yield for the basin estimated by the WSGM is 305,000 AFY. Previous estimates of sustainable yield in the Westside Subbasin have been up to 312,000 AFY (225,000 AF for the lower zone and 87,000 AF for the upper zone; USBR 1978). According to the Westside Subbasin GSP, there are approximately 979 total wells in the District, including 38 domestic, 930 agricultural production, and 11 public supply (LSCE 2020). These wells are monitored for groundwater levels under the Westlands Groundwater Management Plan. Historic pumping data from these wells shows a correlation between the quantities 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 high levels of pumping during 2013 through 2016, which correlated with California's most recent historic drought. The increase in groundwater pumping is

correlated to decreased groundwater levels and elevated risk of groundwater overdraft (LSCE 2020). A summary of historic pumping in the District is provided in Table 3 below.

Table 3. District Historic Water Supply

Water Year	CVP Allocation %	Net CVP (AF)	Groundwater (AF)	Water User Acquired (AF)	Additional District Supply (AF)	Total Supply (AF)	Fallowed Acres
1988	100	1,150,000	160,000	7,657	97,712	1,415,369	45,632
1989	100	1,035,369	175,000	20,530	99,549	1,330,448	64,579
1990	50	625,196	300,000	18,502	(2,223)	941,475	52,544
1991	27	229,666	600,000	22,943	77,399	930,008	125,082
1992	27	208,668	600,000	42,623	100,861	952,152	112,718
1993	54	682,833	225,000	152,520	82,511	1,142,864	90,413
1994	43	458,281	325,000	56,541	108,083	947,905	75,732
1995	100	1,021,719	150,000	57,840	121,747	1,351,306	43,528
1996	95	994,935	50,000	92,953	172,609	1,310,497	26,754
1997	90	968,408	30,000	94,908	261,085	1,354,401	35,554
1998	100	945,115	15,000	54,205	162,684	1,177,004	33,481
1999	70	806,040	60,000	178,632	111,144	1,155,816	37,206
2000	65	695,693	225,000	198,294	133,314	1,252,301	46,748
2001	49	611,267	215,000	75,592	135,039	1,036,898	73,802
2002	70	776,526	205,000	106,043	64,040	1,151,609	94,557
2003	75	863,150	160,000	107,958	32,518	1,163,626	76,654
2004	70	800,704	210,000	96,872	44,407	1,151,983	70,367
2005	85	996,147	75,000	20,776	98,347	1,190,270	66,804
2006	100	1,076,461	25,000	45,936	38,079	1,185,476	54,944
2007	50	647,864	310,000	87,554	61,466	1,106,884	96,409
2008	40	347,222	460,000	85,421	102,862	995,505	99,663
2009	10	202,991	480,000	68,070	70,149	821,210	156,239
2010	45	590,059	140,000	71,296	79,242	880,597	131,339
2011	80	876,910	45,000	60,380	191,686	1,173,976	59,514
2012	40	405,451	355,000	111,154	123,636	995,241	112,755
2013	20	188,448	638,000	101,413	143,962	1,071,823	131,848
2014	0	98,573	655,000	59,714	26,382	839,669	220,053
2015	0	82,429	660,000	51,134	34,600	828,163	218,112
2016	5	9,204	612,000	72,154	174,374	867,732	179,784
2017	100	911,307	54,000	(50,009)	174,490	1,089,788	146,275
2018	50	580,050	328,000	42,338	55,872	1,006,270	148,320
2019	75	788,852	89,000	37,985	53,433	1,007,270	158,103
2020*	15	144,542	448,000	80,000	119,000	791,542	160,000

*Estimated
Source: District 2020.

Groundwater Quality. Groundwater quality in the Westside Subbasin varies greatly throughout the region and is difficult to quantify over the Subbasin with certainty due to spatial and temporal data gaps. The Westside Subbasin in the District 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. Groundwater quality is characterized by elevated levels of TDS, boron, selenium, arsenic, and sulfate that in some locations may exceed drinking water standards in the shallow zone of the Upper Aquifer (Carollo Engineers & LSCE 2015). These constituents of concern are primarily naturally occurring as a result of the geologic composition of the aquifer materials; there is little evidence that groundwater quality degradation in the Westside Subbasin is a result of agricultural or industrial related activities (LSCE 2020).

Evaporation and poor drainage in the District 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 result in TDS concentrations exceeding 2,000 mg/L, and historically measured TDS concentrations exceeding 10,000 mg/L (DWR 2006; LSCE 2020). The majority of wells located north of Highway 198 and west of the Fresno-Kings County lines within the District have Upper Aquifer TDS concentrations below 1,000 mg/L, while wells along the eastern edge of the northern and central Westside Subbasin have high densities of wells with TDS concentrations over 2,000 mg/L (LSCE 2020). 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. Groundwater below 300 feet and above the Corcoran Clay shows a tendency of decreased TDS with increased depth (DWR 2006). With increases in depth, TDS concentrations decrease, but are still generally high in the Upper Aquifer.

Within the Lower Aquifer beneath the Corcoran Clay layer, TDS concentrations are lower, and the majority of wells TDS concentrations are below 2,000 mg/L (LSCE 2020). Further, as revealed from monitoring well data, many wells in the District 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 1,000 mg/L or less.

Subsidence

Land subsidence is the lowering of the land surface elevation that results from human-induced 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. Subsidence has the potential to damage local, state, and federal infrastructure, including reducing the freeboard and flow capacity of the SLC irrigation water-delivery canals, bridges, and roads.

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 Westside Subbasin's aquifer system has both unconfined and confined parts caused by alternating layers of coarse and fine-grained sediments, including clays, silts, and sand or silty clays that are susceptible to compaction if depressurized by groundwater extraction. In addition, the Corcoran Clay layer separates the unconfined to semiconfined Upper Aquifer from the Lower Aquifer. 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.

The majority of groundwater in the Westside Subbasin is pumped from the Lower Aquifer due to its greater thickness, increased water quality, and well yields compared to the Upper Aquifer. Withdrawal of water from the Lower Aquifer 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 and inelastically. In general, if water levels are not drawn to critical head limits, when pumping ceases water recharges the aquitards and structure expands. However, if water levels are drawn to the critical head limits, then an irreversible compaction of the fine-grained aquitards occurs. When the hydraulic head in the Lower Aquifer reaches historical lows, inelastic compaction is observed in the Lower Aquifer. The water cannot recharge the layers, causing permanent subsidence and loss of some groundwater storage capacity. It has been estimated that the most subsidence in the Westside Subbasin has probably resulted from compaction of relatively this aquitards in the Lower Aquifer system (USGS 2009). 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 bgs, resulting in compaction and eventual subsidence in and below this layer. This is an ongoing concern in areas such as the District, 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 the Westside Subbasin was historically concentrated in the western San Joaquin Valley; however, recent subsidence data indicates a shift to two depressions in the central-eastern Valley near the towns of Corcoran and El Nido, both of which are outside the Westside Subbasin and outside of the Project's pumping influence.

Subsidence in Westlands Water District

Land subsidence is a concern in the District due to the use of groundwater from the Lower Aquifer to supplement variable surface water supplies. Prior to the delivery of CVP water to the District, 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 the District 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 150 feet below mean sea level by 1968 (District 2017). 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 (District 2017).

Land subsidence is often measured through the use of extensometers. Of the twelve historical extensometer sites within the vicinity of the Subbasin, six sites are currently being measured for water-level changes and compaction (Oro Loma, Panoche, Fordel, Yearout, DWR Yard, and Rasta), two are not operational (14S/12E-12H1 and 15S/16E-31N3), and four cannot be located (15S/13E-11D2,Cantua Creek, 17S/15E-14Q1, and 20S/18E-11Q1; LSCE 2020). Nine extensometers were installed by the USGS between 1958 and 1969 to monitor compaction in depth intervals ranging from approximately 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 approximately 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 1 foot to approximately 4 feet (LSCE 2020).

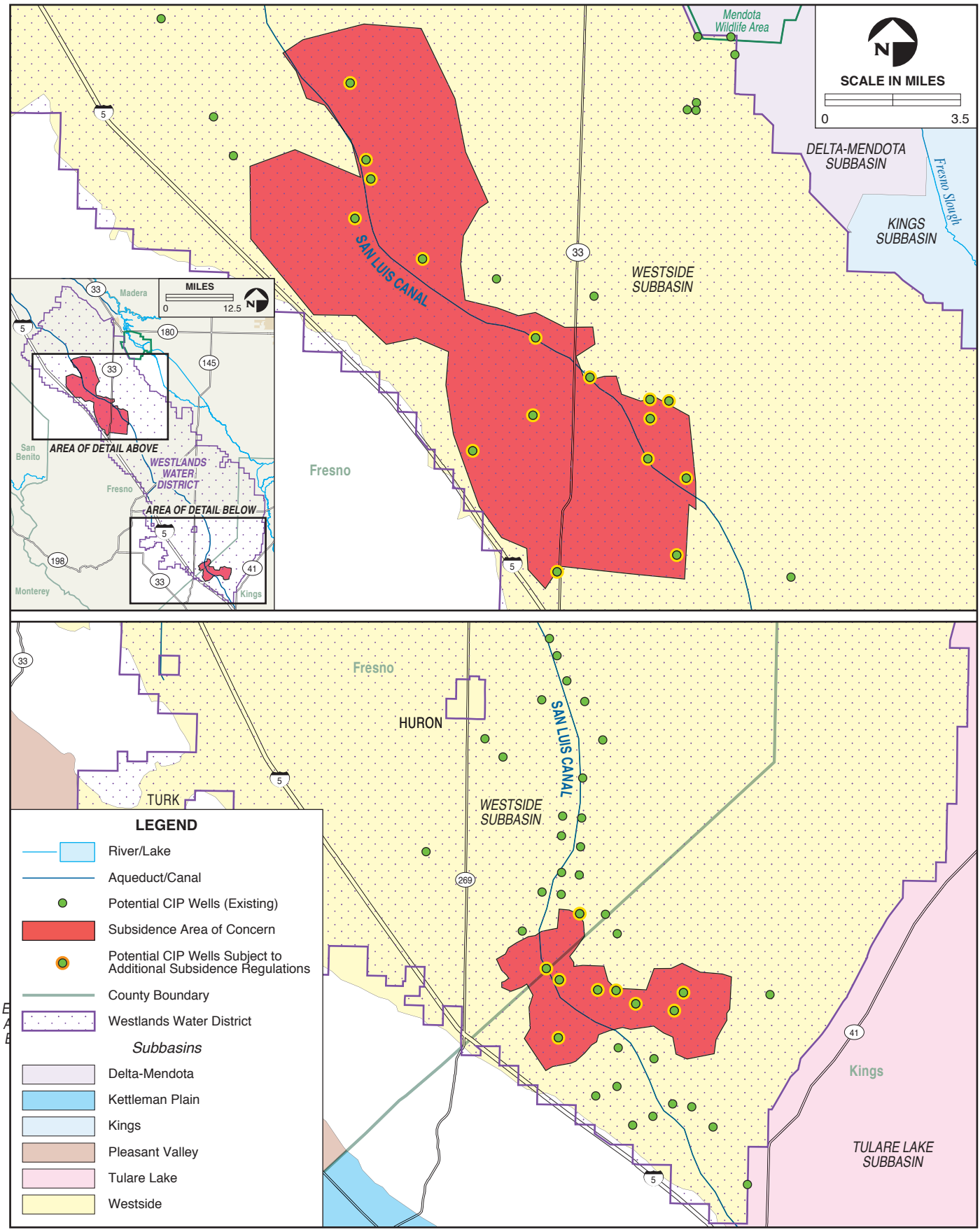
Beginning in 1968, surface water deliveries from the CVP substantially reduced groundwater extraction to support irrigation, resulting in a reduction in the rate of compaction and in some periods allowing expansion (recovery) of the compacted materials. However, pumping increased again during periods 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. 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 the District's entitlement of CVP water. In response, annual groundwater extraction increased from approximately 97,000 AF in 1976 to 472,000 AF in 1977. Groundwater levels in the Lower Aquifer decreased by almost 97 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 the District 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 approximately 1.5 feet to almost 12 feet.

These periods of compaction and expansion are correlated with the amount of groundwater pumping that occurs and the resulting groundwater levels in the District, while the amount of groundwater pumping that occurs in the District 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 the District.

Subsidence monitoring shows that subsidence is increasing around the California Aqueduct in the southern portion of the Subbasin (LSCE 2020). There are two subsidence prone areas located within the District along the SLC identified in the Westside Subbasin GSP. Increases in subsidence have been measured at these two areas along the SLC correlated to increases in groundwater pumping, located south of Check 15 to Check 17, near Check 20 and east of Check 20 (see Figure 5; LSCE 2020). Subsidence along the SLC between 2000 and 2015 measured from Checks 14 to 21 varied from approximately from 0 to -2 feet (LSCE 2020). A summary of recent subsidence along the SLC includes (LSCE 2020):

- 2000-2006: Subsidence along the SLC was less than 0.25 feet, and in some places even rebounded, due to the relatively stable amount of surface water deliveries (over 800,000 AFY) and associated low levels of groundwater pumping.
- 2006-2009: Subsidence increased to over 0.5 feet around Check 17 due to reduced surface water deliveries and an increase in groundwater pumping in 2008 and 2009 (from approximately 400,000 to 600,000 AFY)



wood.

Subsidence Prone Areas

FIGURE 5

- 2009-2015: Subsidence at most stations along the SLC increased to over 1 foot between mile post 143 to 167 and a maximum of nearly 2 feet between milepost 129 to 133. This recent increase in subsidence levels is also attributable to reductions in imported water in 2014 and 2015 and a resulting increase in groundwater pumping to over 600,000 AFY in the Subbasin (LSCE 2020).

Increased rates of subsidence along these two areas may threaten lands and infrastructure within the area, namely the SLC. In addition, though not identified as a subsidence prone area, other areas within the District and particularly within the vicinity of the MWA are subject to risk or damage as a result of subsidence (refer to below discussion regarding Project effects on subsidence).

Surface Water

Surface water features in the proposed Project area include the San Luis Reservoir and the SLC, as well as three creeks and several intermittent streams. Creeks within the District include the Arroyo Pasajero Creek (Los Gatos and Zapato Chino Creeks), Panoche-Silver Creek, and Cantua Creek, which all flow eastward from the foothills. 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 Westside Subbasin and increases may limit the beneficial uses appropriate for this water.

The District is in the San Luis Unit of the CVP and includes the SLC and the 12-mile concrete-lined Coalinga Canal facilities. The District has a permanent distribution system that consists of a closed, 1,034-mile buried pipeline network that conveys irrigation water from the SLC, Coalinga Canal, and a 7.4-mile unlined canal from the Mendota Pool to agricultural land. The distribution system was built between 1965 and 1979 and serves approximately 88 percent of the irrigable land within the District's boundaries (LSCE 2020). Lands not served by the distribution system use farmer-constructed temporary diversions. Conjunctive use of surface and groundwater improves overall water supply reliability making more efficient use of water that is available. Surface water deliveries to the Subbasin from the CVP began in 1968 with the goal to reduce groundwater pumping (District 2015). Since 1990, however, CVP water supplies have been reduced annually due to drought and regulatory actions resulting from the Central Valley Project Improvement Act (CVPIA), the Endangered Species Act, Bay/Delta water quality requirements, and court orders. The use of low salinity surface water for irrigation within the Subbasin has resulted in an increase in groundwater levels and decreasing trends in soil and shallow groundwater salinity in agricultural areas during the irrigation season (Carollo Engineers & LSCE 2015). Surface water deliveries experienced a long-term declining trend since the mid-1980s, from a high of almost 1.4 million AF in 1984 to a low of approximately 200,000 AF in 2014 and 2015 (LSCE 2020).

Tulare Lake Basin

The Tulare Lake Basin, a subdivision of the Central Valley Regional Water Quality Control Board (CVRWQCB), covers 16,406 square miles (10.5 million acres) 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 Nevada Mountains 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 2018).

Applicable Groundwater and Water Resources Management Plans

Sustainable Groundwater Management Act (SGMA). The SGMA, 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, and significant reduction in groundwater storage, saline water intrusion, or subsidence. The Westside Subbasin was designated as high-priority basin in critical overdraft by the DWR, requiring development of a GSP for the area (DWR 2003). The Westside Subbasin GSP, prepared for the District's GSA and the County of Fresno GSA-Westside, was developed and adopted by both the District Board of Directors and County of Fresno GSA-Westside (Board of Supervisors) in January 2020. The GSP's sustainability goal is to develop projects and management actions that result in the sustainable management of the groundwater resources of the Westside Subbasin for long-term community, financial, and environmental benefits of residents and businesses in the Westside Subbasin (LSCE 2020). The GSP sets forth measurable objectives, minimum thresholds, and interim milestones to achieve the sustainability goal and avoid undesirable results in each sustainability indicator by 2040.

The GSP also sets forth the monitoring network and proactive management program to maintain the sustainability goal, and details the Projects and Management Actions that will be implemented. The GSP was adopted by the District in January 2020 with the following objectives:

- 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; and
- Address impacts on groundwater dependent ecosystems.

Projects and Management Actions that would particularly affect groundwater allocations during the Project period include Project No. 2 – Initial Allocation of Groundwater Extraction and Project No. 4 – Targeted Pumping Reductions. Project No. 2 establishes a groundwater allocation program with a "transition period" in which a uniform annual allocation is established at 1.3 AF per acre and then subsequently reduced each year by 0.1 AF per acre until 2030. The groundwater will be distributed based on per-acre land ownership for all qualifying lands. Under Project No. 4, groundwater pumping in subsidence prone areas near the SLC have more restrictive minimum thresholds to protect critical head levels and Lower Aquifer levels. This management action may require surface water substitution, if necessary/available, to reduce groundwater pumping and avoid significant and unreasonable land subsidence.

The measurable objective set forth in the GSP for land subsidence along the SLC is 0.1 feet/year. This value reflects the residual inelastic subsidence that would continue regardless of groundwater level recovery as a result of historical groundwater pumping that occurred in the region prior to the construction of the SLC and prior to development of the GSP. The District's minimum threshold for acceptable land subsidence along the SLC is 0.3 feet/year in a given year, which is based upon the recent rate of subsidence that has not reportedly resulted in significant damage to lands or infrastructure in other parts of the Subbasin and is not projected to occur every year. Thus, subsidence rates along the SLC that exceed 0.3 feet/year have the potential to interfere with surface land uses and cause undesirable results (e.g., adverse effects on land or damage to infrastructure, including water conveyance). Under the GSP, subsidence along the SLC and in other areas of the Subbasin will be monitored through a network of extensometers, groundwater levels,

and benchmark survey locations. The District will also continue to collaborate with DWR to address subsidence along the SLC to ensure undesirable results do not occur and to prevent or minimize damage to water conveyance infrastructure (LSCE 2020). In the event that thresholds are exceeded, groundwater pumping would be limited in the area and in-lieu surface water supplies would be provided to the area. Managing and monitoring subsidence resulting from groundwater pumping are discussed in Section 15.10.2(b) on page 56.

USBR 2020 SLC Non-Project Pump-in Program Water Quality Monitoring Plan. The proposed Project would utilize the SLC to convey non-CVP water to agricultural users located downstream of discharge points, or operationally exchange with USBR for a like amount of CVP water. The Water Quality Monitoring Plan is being developed to establish the monitoring and reporting protocol for participating wells under the proposed Project (Appendix B). The 2020 Water Quality Monitoring Plan, published for public review on July 22, 2020, establishes thresholds for certain constituents of concern to protect the quality of water conveyed through the SLC for beneficial uses. The 2020 Water Quality Monitoring Plan provides an update to USBR's prior 2017 Water Quality Monitoring Plan, with updated requirements in light of recently adopted GSPs, observed rates of subsidence, and more restrictive established thresholds for water quality. Established thresholds in the draft 2020 Water Quality Monitoring Plan for criteria constituents of concern include TDS, metals, organic chemicals, and other potential pollutants. The majority of these proposed thresholds are consistent with and implement the requirements of the Title 22 California Drinking Water Standards.[8] For those criteria constituents of concern not covered under the Title 22 California Drinking Water Standards, the Water Quality Monitoring Plan proposes thresholds and standards based on best available technical information, regional plans, and programs established for protecting the quality of water for agricultural and other beneficial uses. These sources include the *Fourth Edition of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (CVRWQCB 2015), *Water Quality for Agriculture* (Ayers and Wescot 1985), and the Regional Water Quality Control Board, Division of Drinking Water's perflourooctanoic acid (PFOA) and perflourooctanesulfonic (PFOS) standards (Regional Water Quality Control Board, Division of Drinking Water 2020). Refer to Appendix A for the complete list of thresholds for criteria constituents of concern included in the 2020 Water Quality Monitoring Plan. Once adopted, the Water Quality Monitoring Plan would require regular testing of water conditions to ensure that the quality of CVP water is suitable for downstream users. The Water Quality Monitoring Plan requires that each well permitted to introduce water to the SLC be tested weekly during the first four weeks of pumping for primary constituents, then monthly while actively pumping into the SLC to confirm that the water quality is consistent, predictable, reliable, and that thresholds for primary constituents of concern are not exceeded. USBR, in coordination with DWR and the State Water Contractors, may allow minor exceedances of certain Secondary Title 22 constituents if all primary standards are met due to the less adverse risks to human health presented by those constituents at the secondary maximum contaminant levels.[9] The Water Quality Monitoring Plan is scheduled to be adopted by USBR in Summer 2020 (E. Leal,

[8] The Title 22 Drinking Water Quality Standards (Title 22) set maximum contaminant levels (thresholds) for a number of criteria constituents of concern; however, Title 22 does not set maximum contaminant level for TDS, specific conductance, chloride, and sulfate. Instead, maximum contaminant level ranges (an acceptable range of concentration of the constituent of concern) are established for these constituents. For the purposes of the Water Quality Monitoring Plan, USBR is afforded the discretion of establishing a set maximum contaminant level for those four constituents, so long as they occur within the range established in Table 64449-B of the Title 22 Drinking Water Quality Standards § 64449.

[9] Primary water quality standards established under Title 22 reflect a threshold for the quality of water at which an adverse effect on human health would not occur, and as such, are much more restrictive, regulated, and monitored than secondary standards. Secondary water quality standards under Title 22 reflect non-mandatory standards established as guidelines to assist public water systems in managing water supplies for aesthetic considerations (e.g., taste, color, and odor of the water). The secondary standards are not considered to present a risk to human health at the secondary maximum contaminant level, and exceedance of these thresholds may be allowed without presenting a risk to human health.

USBR, personal communication, June 16, 2020). Per the Water Quality Monitoring Plan, all non-CVP water introduced to the SLC must meet the standards listed in the Water Quality Monitoring Plan prior to entering the SLC. No dilution in the SLC will be allowed. Manifolded wells may discharge if the blend meets the standards listed in the Water Quality Monitoring Plan (see Appendix A and Appendix B). All flow and water quality data collected by the District will be presented each month to USBR and DWR via e-mail. The pumping and conveyance of water under the proposed Project would not be authorized to occur until the Warren Act Contract is issued by USBR, which would occur concurrently with adoption of the Water Quality Monitoring Plan.

The Water Quality Monitoring Plan also sets forth groundwater level monitoring and reporting requirements for participating wells to measure changes to groundwater resources and prevent subsidence. Project participants are required to measure the initial depth to groundwater in each well before pumping into the SLC, in addition to monthly testing during April through August and bi-monthly testing from September through March while the 2020 Pump-in Program is in effect. Measurements must be made using industry approved methods. The groundwater level requirements set forth by the Water Quality Monitoring Plan include:

An individual well will be shutoff when its DTGW reaches 75% of the difference between the Fall/Winter Median Groundwater Level and the Max DTGW using the following equation:

Shutoff Trigger= 0.75(Max DTGW[10]-Fall/Winter Median[11]) + Fall/Winter Median*

If an individual well is shut off due to groundwater levels reaching the shutoff trigger, it will not be allowed to resume pumping until it reaches 70% of the difference between the Fall/Winter Median Groundwater Level and the Max depth to groundwater using the following equation:

Well Resumption= 0.70 (Max DTGW-Fall/Winter Median) + Fall/Winter Median*

Groundwater level measurements under the Water Quality Monitoring Plan will follow a strict schedule. If a well is shut off, it will not be measured again until the next scheduled measurement date. The participants must notify USBR in writing when a well is shut off or resuming.

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 CVRWQCB and approved by the SWRCB; it has been subsequently revised and approved several times. The most recent revisions to the Tulare Lake Basin Plan were completed in May 2018. 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. The District developed a Groundwater Management Plan in 1996 pursuant to AB 3030 and the CVPIA. 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.

[10] 'Max DTGW' represents the maximum depth to groundwater measurement collected from an individual well.

[11] Fall/Winter Median Groundwater Level represents the average historical recovery level for each well. Determined by using groundwater level data recorded in the Fall/Winter after the well has had time to recover from irrigation season. Current historical Fall/Winter Median Groundwater Levels use data through 2016. USBR reserves the right to re-evaluate these data, if needed, as new data becomes available.

Westlands Water District Water Management Plan

The District's water service contracts with USBR require that the District adopt a Water Management Plan that demonstrate that the District is implementing best management practices to promote water conservation. The plan is to be updated every five years in conjunction with USBR's Standard Criteria for Agricultural and Urban Water Management Plans. The most recent Water Management Plan developed to meet 2017 USBR criteria was adopted by the District in February 2019.

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.

15.10.2 Discussion

a. No Impact. The proposed Project would consist of using existing facilities to convey water from existing approved wells to licensed water integration locations along the joint use federal and state operated portion of the SLC within the District. Water introduced to the SLC under the Project would be regularly monitored and strictly managed to ensure the quality of water does not exceed the requirements of the draft 2020 Water Quality Monitoring Plan, which also largely reflect standards and thresholds established in the Title 22 California Drinking Water Standards (see Appendix A for a complete list of water quality standards; see Appendix B for a copy of the draft 2020 Water Quality Monitoring Plan). Key constituents for testing would include TDS, metals, organic chemicals, and other potential pollutants. Each well operator will be subject to the requirements of the Water Quality Monitoring Plan. Program participants would be required to provide sufficient information about each well to confirm that the pumped water would be consistent, predictable, and acceptable in quality so as not to exceed the proposed thresholds in the draft Water Quality Monitoring Plan as well as the adopted maximum contaminant levels established in Title 22. Pursuant to standard District operating procedures, the standards for maximum contaminant levels within Title 22 and the requirements of the Water Quality Monitoring Plan, the water would continue to be tested at periodic intervals during pumping to ensure no water quality violations occur.

While the percentage of participating wells in the District is to be determined, each well would be required to be sampled prior to discharging any groundwater into the SLC. The primary disqualifying factor would be high salinity levels, where any well with TDS exceeding 1,000 mg/L would be disqualified. 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. The mean daily salinity and EC data would be downloaded by USBR to monitor daily changes along the canal. Additionally, the District 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 the District have the authority to shut off inflows of the District distribution system or SLC if the quality or quantity of the inflow is unacceptable. Ensuring that the groundwater to be integrated into the SLC complies with the Title 22 California Drinking Water Standards and the standards within the 2020 Water Quality Monitoring Plan would also ensure continued compliance with all water quality standards and associated beneficial uses of SLC water, avoiding potential direct, indirect, and cumulative impacts on surface and groundwater quality. Thus, design constraints included in the proposed Project regarding acceptable TDS levels and other constituents would ensure that no water quality standards would be violated. No impact would occur.

b. Less than Significant. The proposed Project would result in no more than 30,000 AF of groundwater pumped annually from 2020 through 2025, for total of up to 150,000 AFY over the next five years. Under the proposed Project, non-CVP water introduced into the SLC would either be directly delivered to agricultural users located downstream of discharge points, or operationally exchanged with USBR for a like amount, minus conveyance losses, of the District's available water supplies in the San Luis Reservoir. Exchanged water would either be delivered to agricultural users located upstream of introduction points in

the District or stored in the San Luis Reservoir as non-CVP water for later delivery to the District via the SLC. The Westside Subbasin GSP identifies 305,000 AFY as the estimated safe yield for groundwater pumping in the District area (LSCE 2020). The proposed Project pumping would constitute less than 10 percent of the sustainable yield of 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, in accordance with the GSP. Historical groundwater pumping in the District has been up to 950,000 AFY based on records dating back to 1954, and was 638,000 AFY in 2013 (District 2015). As such, pumping under the Project would constitute approximately 3 to 10 percent of the groundwater resources extracted in the District. Further, more than 30,000 AFY has been extracted annually as shown in Table 3. Thus, the proposed Project would utilize groundwater supplies at a rate that is consistent with historical pumping during the irrigation season and would not result in a substantial change in groundwater pumping compared to existing conditions. It is worth noting that in the absence of the proposed Project, groundwater pumping within the District may increase, particularly during drought years, due to a lack of delivery of reliable supplies to agricultural users or the lack of allowance for the storage of exchanged water in the San Luis Reservoir which could be delivered to agricultural users when needed. These provisions would be afforded under the Project and were also included under the District's prior Warren Act contracts, which have helped to reduce reliance on groundwater pumping during prior dry years when groundwater resources are most critically impacted. Thus, these provisions may reduce overall groundwater pumping and the potential for increased overdraft or secondary effects, such as subsidence.

Further, the groundwater pumping would be conducted in accordance with the 2020 Water Quality Monitoring Plan and its requirements for groundwater level management. As described therein, well owners participating in the proposed Project are required to measure the initial depth to groundwater in each well before pumping into the canal, monthly from April to August, and bi-monthly from September to March. Individual wells will be shut off if the depth to groundwater reaches 75 percent of the difference between the Fall/Winter median groundwater level and the maximum depth to groundwater. Adherence to the stringent groundwater level monitoring requirements protects the critical head levels in the Subbasin and thresholds for shutoff set forth by the Water Quality Monitoring Plan would ensure that substantial decrease in groundwater supplies as a result of the Project would not occur.

As it relates to subsidence, groundwater pumping would be managed and monitored in compliance with the Westside Subbasin GSP, including the District's measurable objective and minimum threshold for acceptable land subsidence (refer to above discussion under *Sustainable Groundwater Management Act (SMGA)* on page 51). Land subsidence refers to the lowering of the land surface elevation that results from changes that take place underground. Within the Central Valley, the primary cause of subsidence is groundwater extraction from the region's Lower Aquifer, which results in the compaction of soils and clay layers prominent throughout the region. Permanent subsidence, resulting from inelastic compaction, is caused when fluid pressure within clay layers declines (LSCE 2018). Required adherence to the standards of the adopted GSP, along with required monitoring and adaptive management measures (e.g., cessation of pumping; use of imported surface water), would prevent any significant impacts associated with subsidence.

Within the two identified areas which are prone to subsidence, wells would be subject to more restrictive minimum thresholds to protect critical head levels and extraction from the Lower Aquifer (deep aquifer below the Corcoran Clay layer) and would be limited in all years in order to minimize or avoid subsidence to which the Lower Aquifer is susceptible. Limits on groundwater extraction from these areas would be identified as part of detailed groundwater modeling conducted as part of GSP implementation and subject to final approval by the District's Board of Directors. Due to the stringent standards set forth by the applicable water management plans, including the Westside Subbasin GSP and the 2020 Water Quality Monitoring Plan (refer to above discussion under *Applicable Groundwater and Water Resources*

Management Plans on page 51), 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, a lowering of the local groundwater table beyond that which is already occurring, or an increased rate of subsidence. Subsidence monitoring and management under the Project and in compliance with the adopted Westside Subbasin GSP would ensure avoidance of direct, indirect, and cumulative impacts to subsidence. Therefore, impacts would be less than significant.

c (i-iv). No Impact. The proposed Project would result in no more than 30,000 AFY of groundwater being pumped into the SLC annually from 2020 through 2025. No new facilities or modifications to the SLC would be authorized. This quantity of water is within the range of historical pumping from Project wells during the irrigation season and would be pumped regardless of whether it is integrated into the SLC, subject to the requirements set forth in the GSP. 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 result in substantial increase of surface runoff, contribute or create runoff water that would exceed the capacity of existing drainage systems or impede or redirect flood flows. Therefore, there would be no impacts to existing drainage patterns of the site or area.

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

e. No Impact. The proposed Project would be implemented in compliance with all applicable programs including but not limited to those described above in Section 15.10.1, *Existing Setting*. The Project would be implemented in compliance with the Water Quality Monitoring Plan, which requires stringent water quality testing and water level monitoring to avoid adverse impacts to the SLC and surrounding areas (see Appendix B). Under the Water Quality Monitoring Plan, all sources of non-CVP water must comply with California Title 22 Standards for drinking water, and must be tested regularly to confirm that it is consistent, predictable, and acceptable in quality. Prior to introduction, all wells would be tested to demonstrate compliance with then-current water quality standards for conveyance of non-CVP water in the SLC. Water coming from the Mendota Pool Inlet Canal would be tested at the laterals discharging to the SLC.

Further, the Water Quality Monitoring Plan requires strict monitoring and reporting for groundwater levels to ensure sustainable groundwater management and avoid impacts of subsidence. Well owners participating in the proposed Project are required to measure the initial depth to groundwater in each well before pumping into the canal, monthly from April to August, and bi-monthly from September to March. Individual wells will be shut off if the depth to groundwater reaches 75 percent of the difference between the Fall/Winter median groundwater level and the maximum depth to groundwater. Groundwater level monitoring under the Project would ensure compliance with 75 percent threshold for groundwater level set by USBR and would avoid adverse impacts to water quality in the SLC and subsidence in the area. Implementation of the Project would facilitate implementation of the Water Quality Control Plan; therefore, the Project would not obstruct a water quality control plan or sustainable groundwater management plan.

Further, implementation of the proposed Project would occur in compliance with the Westside Subbasin GSP, including objectives for water levels, groundwater quality, and subsidence. As described above, the Project would be subject to the Projects and Management Actions set forth by the GSP. Projects and Management Actions that would affect groundwater allocations during the Project period include Project No. 2 – Initial Allocation of Groundwater Extraction and Project No. 4 – Targeted Pumping Reductions. Project No. 2 includes reductions in total groundwater allocations through 2030, however, the “transition period” from 2022-2030 is unlikely to substantially effect the Project. Further, while the 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 2020 through 2025. As discussed above, this quantity of water constitutes 3 percent to 10 percent of groundwater that is historical pumped during the irrigation season and would be pumped regardless of whether it is integrated into the SLC. Under Project No. 4, wells located in the subsidence prone areas have more restrictive minimum thresholds to protect Lower Aquifer groundwater levels and avoid significant and unreasonable land subsidence (see Figure 5). Therefore, the Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. The measurable objective for land subsidence along the SLC is 0.1 feet/year, and the minimum threshold is 0.3 feet/year. The CIP wells used for the Project would be subject to these regulations, and the Project would ensure that groundwater levels are managed in accordance with the Westside Subbasin GSP to maintain annual subsidence rates under 0.1 feet/year and avoid undesirable results. No impact would occur.

15.11 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?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

15.11.1 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 (Fresno County 2000a). The vast majority of land within the District is designed for agricultural use under the General Plans of both Fresno and Kings Counties (Kings County 2010a; Fresno County 2000b). 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 (Kings County 2010b; Fresno County 2000c). 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.

Farmland Mapping and Monitoring Program

The California Department of Conservation uses the Natural Resources Conservation Service soil classifications to characterize agricultural lands. The 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 seven categories based on agricultural soil quality and current land use: prime farmland, farmland of statewide importance, unique farmland, farmland of local importance, grazing land, urban and built-up land, and other land (see Table 4).

Table 4. Natural Resources Conservation Service Land Use Classifications

Important Farmlands	
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.
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.
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.
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.

Source: California Department of Conservation 2019.

15.11.2 Discussion

a. No Impact. 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 District area. Therefore, no impacts would occur.

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 District area. The proposed Project would implement a groundwater transfer program that would support ongoing agricultural land uses in the District area. Therefore, no impacts would occur.

15.12 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

15.12.1 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, gypsum, and oil resources have been mapped in the vicinity of the District (Fresno County 2000d).

15.12.2 Discussion

a – b. No Impact. The proposed Project consists of groundwater pumping and conveyance using existing infrastructure. Mineral resources in the vicinity of the District 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 that is of value to the local area, regional area, or the state. No impact would occur.

15.13 Noise

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) For a project located within the vicinity of a private airstrip or an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

15.13.1 Existing Setting

Noise is typically defined as unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. The noise environment includes background noise generated from both near and distant noise sources, as well as the sound from individual local sources. 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. 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.

The District is primarily agricultural in nature and relatively quiet with agricultural activities contributing to the existing noise environment. Noise measurements conducted in the proposed Project area in small agricultural communities similar in character to those throughout the District found that daytime noise levels ranged from the low 40s dBA with peak noise levels in the high 60s and 70s dBA (Kings County 2010c; Fresno County 2000e). These highest measured levels typically resulted from raised voices, dogs barking, or individual vehicle passbys and were typically sustained only briefly. Other considerable noise and vibration sources in the District area include vehicle traffic from Interstate 5 (I-5), which runs through the west area of the District and operations of the Lemoore Naval Air Station (NAS Lemoore) of the located on the border of Kings and Fresno counties. Noise levels at the NAS Lemoore base a measured in community noise equivalent level (CNEL). CNEL represents a time-weighted 24-hour average noise level based on the A-weighted decibel, where “time-weighted” refers to the fact that noise occurring during evening or early morning hours are received with greater sensitivity and therefore, are penalized with additional dBAs. Noise levels near the center of NAS Lemoore base can surpass 85 CNEL, while noise levels approximately 10 miles off base than could reach approximately 60 CNEL (Department of the Navy 2010). Several airfields used by crop dusters and personal aircraft are located throughout the counties and contribute to ambient noise environment (Kings County 2010c). Noise generated from these sites however are substantially lower than that generated by NAS Lemoore. There are no sensitive receptors (e.g., schools) located in close proximity to any of the water integration locations. Sensitive receptors are also generally well removed from the locations of the wells participating in this program.

15.13.2 Discussion

a – c. No Impact. The groundwater pumping and conveyance activities are existing and ongoing uses in the District and would not constitute a new noise source. The proposed Project would utilize existing facilities and would not involve their modification or the construction and installation of new facilities. No temporary or permanent increase in ambient noise levels would result from the proposed Project compared to existing conditions. Agricultural noise sources would continue to be intermittent in nature. No temporary or permanent increase in ground borne vibration would result from the proposed Project compared to existing conditions. The proposed Project would not impact operations of any private airstrip, public airport, or public use airport and would not expose people residing or working in such areas to excessive noise levels. No impacts associated with noise are anticipated from the proposed Project.

15.14 Population and Housing

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Induce substantial unplanned 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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

15.14.1 Existing Setting

The District serves approximately 700 family-owned farms in Fresno and Kings County. There are no major cities located within the District. However, small communities such as Westside, Cantua Creek, Three Rocks, Huron, and Five Points are located throughout the counties.

15.14.2 Discussion

a – b. No Impact. The proposed Project would utilize existing groundwater pumping and conveyance infrastructure and would not expand existing or facilitate the installation of new facilities or infrastructure that could increase the population in the vicinity of the proposed Project. As such, 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 or otherwise affect existing housing or necessitate construction of replacement housing elsewhere. No impact would occur.

15.15 Public Services

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

15.15.1 Existing Setting

Police protection services are provided to the District by the Fresno and Kings County Sheriffs (Kings County 2010d; Fresno County Sherriff's Office 2020).

Fire protection services are provided to the District by the Fresno and Kings County Fire Departments (Kings County 2010e; Fresno County Fire 2020).

School districts in the District area include Firebaugh-Las Deltas Unified, Mendota Unified School District, Central Union School District, Golden Plains Unified School District, Coalinga-Huron School District, Riverdale Joint Unified School District, Island School District, Lemoore High School District, and Reef-Sunset School District (Central Union School District 2020; Kings County Office of Education 2020; National Demographics Corporation 2020). Several recreational areas are located in the District area, including fishing access (Kings County 2010e; Fresno County 2020).

Library services are provided by the Fresno County Public Library and Kings County Library.

15.15.2 Discussion

a – e. No Impact. The proposed Project would not affect performance objectives of public services in the District area. The proposed Project would not create a need for new or altered government facilities and would not create a substantial adverse physical impact associated with the construction or extension of such facilities. The proposed Project is limited to the implementation of a groundwater pumping and transfer program that would utilize existing pumping and conveyance facilities. As such, the proposed Project would not include any new housing, businesses, or other development that would generate new residents or structures that would require additional fire or police protection services. 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, new or expanded park facilities, or new or expanded libraries. No other public facilities would be impacted by the proposed Project. No impact would occur.

15.16 Recreation

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

15.16.1 Existing Setting

Several recreational areas are located in the District area, including fishing access, that are owned and managed by Fresno and Kings counties (Kings County 2010f; Fresno County 2020). The CVP also provides recreational amenities such as fishing and boating opportunities.

15.16.2 Discussion

a & b. No Impact. Implementing the proposed Project would not cause physical deterioration of existing recreational facilities. No impact on recreational areas in the District 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 or demand for existing local or regional parks, or other recreational facilities, accelerating their deterioration. No recreational facilities are proposed, and the Project would not require the construction or expansion of recreational facilities. No impact would occur.

15.17 Transportation

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

15.17.1 Existing Setting

Roads in the District are primarily rural in character and function. I-5 is the primary route through the District and runs in a north-south direction along the western boundary of the District. There is a dirt road (partially paved in areas) that runs along either side of the SLC through the District.

15.17.2 Discussion

a – d. No Impact. The proposed Project would not adversely affect circulation programs/infrastructure or transportation patterns. The proposed Project would not conflict with adopted programs, policies, plans, ordinances, or plans regarding public transit, roadway, bicycle, or pedestrian facilities, nor would it otherwise decrease the performance of such facilities. The proposed Project is not a transportation project and would not increase traffic or cause a substantial change in existing traffic patterns. As such, the proposed Project would not impact vehicle miles traveled and would not conflict with CEQA Guidelines Section 15064.3, subdivision (b). The proposed Project would not include any change to roadway design that could substantially increase hazards or introduce incompatible uses. Implementation of the proposed Project would not require any road closures and traffic flow would not be significantly interrupted on any roadway so such that emergency access to local roads would be hindered. Additionally, the Project would not result in traffic delays that could substantially increase emergency response times or reduce emergency vehicle access. No impacts to transportation would occur.

15.18 Tribal Cultural Resources

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

15.18.1 Existing Setting

Native American Tribes existed throughout the region for at least a thousand years prior to the existence of western frontier expansion and settlements, and included, but were not limited to the Mono, Yokut, Chuckchansi, Choinumi, Wachumni, Wahtokes, and Tachi Yokut tribes (Kings County 2010g; Fresno County 2000f). Land within the District area has previously undergone disturbance during the establishment of agricultural land use. Deep excavation and place of fill that occurred during construction of the SLC likely disturbed or destroyed subsurface tribal cultural resources along and adjacent to the canal, reducing likelihood of tribal cultural resources remaining in the area.

15.18.2 Discussion

a – b. Less than significant. The proposed Project would not involve construction or ground-disturbing activities and would not cause a substantial adverse change to any known tribal cultural resources. Pursuant to AB 52 and in accordance with Public Resources Code 21080.3.1, subdivision (b), notification and information on the Project was provided to the Santa Rosa Rancheria Tachi Yokut Tribe and the Dumna Wo-Wah Tribal Government on March 31, 2020. Consultation between the District and these tribes did not identify any concerns or potential impacts to tribal cultural resources, and no requests for further study, monitoring, or consultation were made. In the unlikely event that historic or archaeological resources are

encountered during implementation of the proposed Project, the District would adhere to CEQA Guidelines (California Code of Regulations [CCR] Title 14, Section 15064.5), which states that activities would cease in the affected area in the highly unlikely event an archaeological discovery is made. Once the discovery has been evaluated by a qualified archaeologist, (36 Code of Federal Regulations §800.11.1 and CCR, Title 14, Section 15064.5[f]) and if the resource is found to not be significant, the work can resume. If the resource is found to be significant, it shall be avoided or shall be treated consistent with Section 106 of the National Historic Preservation Act or State Historic Resource Preservation Officer Guidelines. As such, impacts to tribal cultural resources would be less than significant.

15.19 Utilities and Service Systems

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

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
regulations related to solid waste?				

15.19.1 Existing Setting

The District provides water for agricultural use to approximately 700 family-owned farms in Fresno and Kings Counties. Water is delivered directly to lands in the District through the SLC and the Coalinga Canal, or is stored temporarily in the San Luis Reservoir for later delivery. Once diverted from the SLC, water is delivered to farmers through 1,034 miles of underground pipe and over 2,900 metered delivery outlets within the District.

15.19.2 Discussion

a, c - e. No Impact. The proposed Project would not include any new development that would require the relocation or construction of expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunication facilities. 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. Any solid waste generated by the proposed Project would be negligible and would be disposed in local landfills in accordance with all applicable federal, state, and local statutes and regulations. No impact would occur.

b. No Impact. 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 allow for the continuation of integrating up to 30,000 AFY in the SLC when the District receives 20 percent or less of their allocation or less from CVP so that the District may augment its water supplies. The water would continue to come from existing groundwater wells within the District and be used within the District area in support of ongoing agricultural operations. As such, while implementation of the proposed Project would support augmentation of water supplies, the proposed Project would not cause changes to existing conditions or activities and therefore, would result in no impact.

15.20 Wildfire

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

15.20.1 Existing Setting

The majority of land within District does not fall into a locally or state designated fire hazard severity area. In Fresno County, land at the western edge of the District, just west of I-5, constitutes a very small percentage of land within District and is identified as a Moderate Fire Hazard Zone falling under a state responsibility area (CAL FIRE 2007c). A few small areas of land located along I-5 to are identified as Moderate Fire Hazard Zones under a local responsibility area (CAL FIRE 2007a). In King's County, areas of land immediately west of the I-5, which constitute a very small percentage of land within the District are identified as a Moderate Fire Hazard Severity Zones in a local responsibility area (CAL FIRE 2007b). The District is located within the San Joaquin Valley floor and characterized by the generally flat terrain and absence of slopes that could substantially exacerbate wildfire risk.

15.20.2 Discussion

a - d. No impact. The proposed Project does not involve construction or installation activities that could impair emergency response or emergency evacuation plans through the transport of materials or

obstruction of roadways. The District occupies a flat terrain and the proposed Project is limited to the implementation of a groundwater pumping program and would not require development of facilities or structures that would require occupation on-site. Therefore, the proposed Project would not place people or structures at risk of pollutant concentrations, the uncontrolled spread of wildfire, downslope/downstream flooding, or landslides. The proposed Project would not require the installation or maintenance of any roads, fuel breaks, emergency water sources, power lines, or other utilities to protect the Project site and the surrounding area from a wildfire. Therefore, implementation of the proposed Project would have no impact.

15.21 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 substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? "Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.	☐	☐	☒	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

15.21.1 Discussion

a. Less than Significant. The analysis conducted in this IS concludes that implementation of the proposed Project would not have a significant impact on the environment. As evaluated in Section 15.4, *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 15.5, *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 IS, 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, energy, 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, tribal cultural resources, utilities and service systems, and wildfire. Measures would be included in the Project design to ensure water quality meets then current DWR and USBR regulations.

The proposed groundwater pumping and conveyance 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 District. Overall, these are beneficial effects during a drought and conducted without significant direct, indirect, or cumulative impacts.

c. No Impact. The proposed Project would not result in significant impacts and would not cause substantial adverse effects on human beings, either directly or indirectly. The proposed Project would have no impact.

16.0 REFERENCES

Ayers, R. S. and D. W. Westcot. 1985. Water Quality for Agriculture. Food and Agriculture Organization of the Unite States – Irrigation and Drainage Paper No. 29, Rev. 1, Rome. Available: http://www.fao.org/DOCREP/003/T0234E/T0234E00.HTM. Accessed: June 11, 2020.

California Air Resources Board (CARB). 2018. "Assembly Bill 32 – Overview." Available: https://ww3.arb.ca.gov/cc/ab32/ab32.htm. Accessed 15, 2020.

———. 2020. "GHG Current California Emission Inventory Data." Available: http://www.arb.ca.gov/ghg-inventory-data. Accessed April 15, 2020

California Department of Conservation. 2019. Important Farmland Categories. Available: https://www.conservation.ca.gov/dlrp/fmmp/Pages/Important-Farmland-Categories.aspx Accessed April 14, 2020.

California Department of Education. 2020. Search Results. Available: https://www.cde.ca.gov/SchoolDirectory/results?districts=127&status=1&search=1. Accessed April 20, 2020.

California Department of Forestry and Fire Protection (CAL FIRE). 2007a. Fire Hazard Severity Zones in SRA – Fresno County. Available: https://osfm.fire.ca.gov/media/6671/fhszs_map10.pdf. Accessed April 20, 2020.

_____. 2007b. Draft Fire Hazard Severity Zones in SRA – Kings County. Available: https://osfm.fire.ca.gov/media/6690/fhszs_map16.pdf. Accessed April 20, 2020.

_____. 2007c. Draft Fire Hazard Severity Zones in LRA. Available: https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/. Accessed April 15, 2020.

California Department of Toxic Substances Control (DTSC). 2020. Envirostar Project Search Results Fresno County. Accessed April 20, 2020.

Carollo Engineers, & LSCE. 2015. Groundwater Quality Assessment Report for the Western Tulare Lake Basin Area. Available: https://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/water_quality/coalitions_submittals/westlands/ground_water/2015_0217_westlands_gar.pdf. Accessed April 20, 2020.

Central Unified School District. 2020. School Info. Available: http://www.central.k12.ca.us/school_info. Accessed April 13, 2020.

Central Valley Regional Water Quality Control Board (CVRWQCB). 2015. Water Quality Control Plan for the Sacramento River and San Joaquin River Basins Fourth Edition. Available: http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr.pdf. Accessed: June 11, 2020.

_____. 2018. Water Quality Control Plan for the Tulare Lake Basin Third Edition. Available: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/tlbp_201805.pdf. Accessed April 20, 2020.

Department of the Navy. 2010. Air Installations Compatible Use Zones Report. Accessed April 15, 2020.

Department of Water Resources (DWR). 1994 October. California Water Plan Update Volume 1 Bulletin 160-93:. Available: file:///Z:/Westlands%20IS/2020%20Pumping%20Program%20IS/Admin%20Record/DWR.%20199 4.%20California%20Water%20Plan%20Update.%20.pdf. Accessed April 29, 2020.

_____. 2003. California's Groundwater Bulletin 118 - Update 2003. Available: https://water.ca.gov/LegacyFiles/groundwater/bulletin118/docs/Bulletin_118_Update_2003.pdf. Accessed. April 20, 2020.

_____. 2006. San Joaquin Valley Groundwater Basin - Westside Subbasin. Available: https://water.ca.gov/LegacyFiles/groundwater/bulletin118/basindescriptions/5-22.09.pdf. Accessed April 20, 2020.

Fresno County. 2000a. Fresno County General Plan Background Report. p. 3-13 Available: https://www.co.fresno.ca.us/departments/public-works-planning/divisions-of-public-works-and-planning/development-services-division/planning-and-land-use/general-plan-maps. Accessed April 10, 2020.

_____. 2000b. Fresno County General Plan Background Report. Figure 1-5 Current Land Uses Available: https://www.co.fresno.ca.us/departments/public-works-planning/divisions-of-public-works-and-planning/development-services-division/planning-and-land-use/general-plan-maps. Accessed April 14, 2020.

_____. 2000c. Fresno County General Plan Policy Document. p. 2-10 – 2-18. Available: https://www.co.fresno.ca.us/departments/public-works-planning/divisions-of-public-works-and-planning/development-services-division/planning-and-land-use/general-plan-maps. Accessed April 14, 2020.

_____. 2000d. Fresno County General Plan Policy Document. Mineral Resource Location Figure 7-7. Available: https://www.co.fresno.ca.us/departments/public-works-planning/divisions-of-public-works-and-planning/development-services-division/planning-and-land-use/general-plan-maps. Accessed April 14, 2020.

_____. 2000e. Fresno County General Plan Policy Document. p. 10-23. Available: https://www.co.fresno.ca.us/departments/public-works-planning/divisions-of-public-works-and-planning/development-services-division/planning-and-land-use/general-plan-maps. Accessed April 14, 2020.

_____. 2000f. Fresno County General Plan Background Report. p. 6-8. Available: https://www.co.fresno.ca.us/departments/public-works-planning/divisions-of-public-works-and-planning/development-services-division/planning-and-land-use/general-plan-maps. Accessed April 10, 2020.

_____. 2020. Parks. Available: https://www.co.fresno.ca.us/departments/public-works-planning/divisions-of-public-works-and-planning/resources-and-parks-division/parks. Accessed on April 13, 2020.

Fresno County Fire. 2020. About Us. Available: https://www.fresnocountyfire.org/our-department/about-us/. Accessed April 13, 2020.

Fresno County Sherriff's Office. 2020. Patrol Areas. Available: https://www.fresnosheriff.org/units/enforcement/patrol-areas.html. Accessed April 13, 2020.

Kings County. 2010a Land Use Element p. LU-4, LU-27 -38. Available: https://www.countyofkings.com/departments/community-development-agency/information/2035-general-plan. Accessed April 13, 2020.

_____2010b. Open Space Element. p. OS-8-10. Available: https://www.countyofkings.com/departments/community-development-agency/information/2035-general-plan. Accessed April 13, 2020.

_____. 2010c Noise Element p. N-18, 19. Available: https://www.countyofkings.com/departments/community-development-agency/information/2035-general-plan. Accessed April 15, 2020.

_____. 2010d January 26. Health and Safety Element p. HS-29, 30. Available: https://www.countyofkings.com/departments/community-development-agency/information/2035-general-plan. Accessed April 13, 2020.

_____. 2010e January 26. Health and Safety Element p. HS- 30 - 32. Available: https://www.countyofkings.com/departments/community-development-agency/information/2035-general-plan. Accessed April 13, 2020.

_____. 2010f. Open Space Element p. S-8, 10. Available: https://www.countyofkings.com/departments/community-development-agency/information/2035-general-plan. Accessed April 13, 2020.

_____. 2010g. Resource Conservation Element. p. RC- 34 & RC-36 Available: https://www.countyofkings.com/departments/community-development-agency/information/2035-general-plan. Accessed April 14, 2020.

Kings County Office of Education. 2020. Our Districts & Schools. Available: https://www.kingscoe.org/domain/134. Accessed: April 28, 2020.

Leal, E. 2020. Personal communication with E. Leal of USBR, South-Central California Area Office, on June 16, 2020.

Ludhorff & Scalmanini Consulting Engineers (LSCE). 2018. Hydrogeologic Conceptualization Report – Westside Subbasin. Available: https://sgma.water.ca.gov/portal/gsp/preview/8. Accessed June 15, 2020.

_____. 2020. Westside Subbasin Groundwater Sustainability Plan. Available: https://sgma.water.ca.gov/portal/gsp/preview/8. Accessed April 15, 2020.

National Demographics Corporation (NDC). 2020. Fresno County Office of Education Map. Available: https://www.arcgis.com/apps/Viewer/index.html?appid=560f70cb529649f992982ad5da0cadc9. Accessed April 13, 2020.

Regional Water Quality Control Board, Division of Drinking Water. 2020. Perflourooctanoic acid (PFOA) and Perflourooctanesulfonic acid (PFOS). Available: https://www.waterboards.ca.gov/pfas/drinking_water.html. Accessed: June 11, 2020.

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2020. Available: http://www.valleyair.org/rules/1ruleslist.htm. Accessed April 14, 2020.

State Water Resources Control Board's (SWRCB). GeoTracker Project Search Results Fresno County. Accessed April 20, 2020.

United States Environmental Protection Agency. 2020. "Air Quality – National Summary." Available: https://www.epa.gov/air-trends/air-quality-national-summary. Accessed April 14, 2020.

United States Bureau of Reclamation (USBR). 1978. Special Task Force Report on San Luis Unit. Available: https://babel.hathitrust.org/cgi/pt?id=umn.31951002836772c&view=1up&seq=1. Accessed April 29, 2020.

_____. 2004. Final Environmental Impact Statement, Mendota Pool 10-year Exchange Agreements. EIS Number 01-81. 2004.

USBR and San Luis Delta-Mendota Water Authority. 2009 August. Grassland Bypass Project, 2010–2019 Environmental Impact Statement and Environmental Impact Report. Available: https://www.usbr.gov/mp/nepa/includes/documentShow.php?Doc_ID=4412. Accessed April 29, 2020.

United States Geologic Survey (USGS). 2009. Groundwater Availability of the Central Valley Aquifer, California. Available: https://pubs.usgs.gov/pp/1766/PP_1766.pdf. Accessed April 15, 2020.

_____.2011. Chapter 12.0 Hydrology-Groundwater. San Joaquin River Restoration Program Programmatic EIS/EIR Available: https://www.usbr.gov/mp/nepa/includes/documentShow.php?Doc_ID=7560. Accessed April 15, 2020.

_____.2013. Delta-Mendota Canal: Evaluation of Groundwater Conditions & Land Subsidence. Available: https://ca.water.usgs.gov/projects/central-valley/delta-mendota-canal.html. Accessed April 29, 2020.

Westlands Water District (District). 2015. Deep Groundwater Conditions Report. Available: https://wwd.ca.gov/wp-content/uploads/2016/05/2015-deep-groundwater-conditions-report.pdf. Accessed April 21, 2020.

_____. 2017. Water Management Plant 2017 Criteria. Available: https://cs.westlandswater.org/resources/resources_files/misc/environmental_docs/010120/water-management-plan-2017.pdf. Accessed April 28, 2020.

_____. 2020a. Expanded Irrigation System Improvement Program (EISIP). Available: https://wwd.ca.gov/water-management/water-use-efficiency/expanded-irrigation-system-improvement-program/

_____. 2020b. District Water Supply. Available: https://wwd.ca.gov/district-water-supply/. Accessed April 15, 2020.

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	0.01	(1)	0.002	(2)	7440-38-2	EPA 200.8
Asbestos	MFL	7	(1)	0.2 MFL>10µm	(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)	7440-41-7	EPA 200.7
Cadmium	mg/L	0.005	(1)	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
Copper	mg/L	1.3				7440-50-8	EPA 200.7
Cyanide	mg/L	0.15	(1)	0.1	(2)	57-12-5	EPA 335.2
Fluoride	mg/L	2.0	(1)	0.1	(2)	16984-48-8	EPA 300.1
Hexavalent Chromium	mg/L	0.010	(1)	0.001	(2)	18540-29-9	EPA 218.7
Lead	mg/L	0.015	(9)	0.005	(8)	7439-92-1	EPA 200.8
Mercury	mg/L	0.002	(1)	0.001	(2)	7439-97-6	EPA 245.1
Nickel	mg/L	0.1	(1)	0.01	(2)	7440-02-0	EPA 200.7
Nitrate (as nitrogen)	mg/L	10	(1)	0.4	(2)	7727-37-9	EPA 300.1
Nitrate + Nitrite (sum as nitrogen)	mg/L	10	(1)			14797-55-8	EPA 353.2
Nitrite (as nitrogen)	mg/L	1	(1)	0.4	(2)	14797-65-0	EPA 300.1
Perchlorate	mg/L	0.006	(1)	0.004	(2)	14797-73-0	EPA 314/331/332
Selenium	mg/L	0.002	(10)	0.001	(2)	7782-49-2	EPA 200.8
Thallium	mg/L	0.002	(1)	0.001	(2)	7440-28-0	EPA 200.8
Thiobencarb	mg/L	0.07				28249-77-6	EPA 527
Secondary							
Aluminum	mg/L	0.2	(6)			7429-90-5	EPA 200.7
Chloride	mg/L	500	(7)			16887-00-6	EPA 300.1

Constituent	Units	Maximum Contaminant Level		Detection Limit for Reporting		CAS Registry Number	Recommended Analytical Method
Color	units	15	(6)				EPA 110
Copper	mg/L	1	(6)	0.05	(8)	7440-50-8	EPA 200.7
Iron	mg/L	0.3	(6)			7439-89-6	EPA 200.7
Manganese	mg/L	0.05	(6)			7439-96-5	EPA 200.7
Methyl-tert-butyl ether (MTBE)	mg/L	0.013	(4)			1634-04-4	EPA 502.2/524.2
Odor -threshold	units	3	(6)				SM 2150B
Silver	mg/L	0.1	(6)			7440-22-4	EPA 200.7
Specific Conductance							

Constituent	Units	Maximum Contaminant Level		Detection Limit for Reporting		CAS Registry Number	Recommended Analytical Method
1,1-Dichloroethylene	mg/L	0.006	(4)	0.0005	(5)	75-35-4	EPA 502.2/524.2
cis-1,2-Dichloroethylene	mg/L	0.006	(4)	0.0005	(5)	156-59-2	EPA 502.2/524.2
trans-1,2-Dichloroethylene	mg/L	0.01	(4)	0.0005	(5)	156-60-5	EPA 502.2/524.2
Dichloromethane.	mg/L	0.005	(4)	0.0005	(5)	75-09-2	EPA 502.2/524.2
1,2-Dichloropropane.	mg/L	0.005	(4)	0.0005	(5)	78-87-5	EPA 502.2/524.2
1,3-Dichloropropene.	mg/L	0.0005	(4)	0.0005	(5)	542-75-6	EPA 502.2/524.2
Ethylbenzene.	mg/L	0.3	(4)	0.0005	(5)	100-41-4	EPA 502.2/524.2
Methyl-tert-butyl ether	mg/L	0.013	(4)	0.003	(5)	1634-04-4	EPA 502.2/524.2
Monochlorobenzene	mg/L	0.07	(4)	0.0005	(5)	108-90-7	EPA 502.2/524.2
Perflourooctanoic acid (PFOA)	ng/L	N/A		0.82	(15)	335-67-1	EPA 537.1
Perflouroctyl sulfonic acid (PFOS)	ng/L	N/A		2.7	(15)	1763-23-1	EPA 537.1
Styrene.	mg/L	0.1	(4)	0.0005	(5)	100-42-5	EPA 502.2/524.2
1,1,2,2-Tetrachloroethane.	mg/L	0.001	(4)	0.0005	(5)	79-34-5	EPA 502.2/524.2
Tetrachloroethylene (PCE)	mg/L	0.005	(4)	0.0005	(5)	127-18-4	EPA 502.2/524.2
Toluene	mg/L	0.15	(4)	0.0005	(5)	108-88-3	EPA 502.2/524.2
1,2,4-Trichlorobenzene	mg/L	0.005	(4)	0.0005	(5)	120-82-1	EPA 502.2/524.2
1,1,1-Trichloroethane	mg/L	0.2	(4)	0.0005	(5)	71-55-6	EPA 502.2/524.2
1,1,2-Trichloroethane	mg/L	0.005	(4)	0.0005	(5)	79-00-5	EPA 502.2/524.2
Trichloroethylene (TCE)	mg/L	0.005	(4)	0.0005	(5)	79-01-6	EPA 502.2/524.2
Trichlorofluoromethane	mg/L	0.15	(4)	0.005	(5)	75-69-4	EPA 502.2/524.2
1,1,2-Trichloro-1,2,2-Trifluoroethane.	mg/L	1.2	(4)	0.01	(5)	76-13-1	SM 6200B
Vinyl Chloride	mg/L	0.0005	(4)	0.0005	(5)	75-01-4	EPA 502.2/524.2
Xylenes	mg/L	1.750*	(4)	0.0005	(5)	1330-20-7	EPA 502.2/524.2
(b) Non-Volatile Synthetic Organic Chemicals (SOCs)							
Alachlor	mg/L	0.002	(4)	0.001	(5)	15972-60-8	EPA 505/507/508
Atrazine	mg/L	0.001	(4)	0.0005	(5)	1912-24-9	EPA 505/507/508
Bentazon	mg/L	0.018	(4)	0.002	(5)	25057-89-0	EPA 515.1

Constituent	Units	Maximum Contaminant Level		Detection Limit for Reporting		CAS Registry Number	Recommended Analytical Method
Benzo(a)pyrene	mg/L	0.0002	(4)	0.0001	(5)	50-32-8	EPA 525.2
Carbofuran	mg/L	0.018	(4)	0.005	(5)	1563-66-2	EPA 531.1
Chlordane	mg/L	0.0001	(4)	0.0001	(5)	57-74-9	EPA 505/508
2,4-D	mg/L	0.07	(4)	0.01	(5)	94-75-7	EPA 515.1
Dalapon	mg/L	0.2	(4)	0.01	(5)	75-99-0	EPA 515.1
Dibromochloropropane	mg/L	0.0002	(4)	0.00001	(5)	96-12-8	EPA 502.2/504.1
Di(2-ethylhexyl)adipate	mg/L	0.4	(4)	0.005	(5)	103-23-1	EPA 506
Di(2-ethylhexyl)phthalate	mg/L	0.004	(4)	0.003	(5)	117-81-7	EPA 506
Dinoseb	mg/L	0.007	(4)	0.002	(5)	88-85-7	EPA 5151-4
Diquat	mg/L	0.02	(4)	0.004	(5)	85-00-7	EPA 549.2
Endothall	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 505/508
Ethylene Dibromide	mg/L	0.00005	(4)	0.00002	(5)	106-93-4	EPA 502.2/504.1
Glyphosate (Roundup)	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 508
Heptachlor Epoxide	mg/L	0.00001	(4)	0.00001	(5)	1024-57-3	EPA 508
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 505/508
Lindane (gamma-BHC)	mg/L	0.0002	(4)	0.0002	(5)	58-89-9	EPA 505/508
Methoxychlor	mg/L	0.03	(4)	0.01	(5)	72-43-5	EPA 505/508
Molinate	mg/L	0.02	(4)	0.002	(5)	2212-67-1	EPA 525.1
Oxamyl	mg/L	0.05	(4)	0.02	(5)	23135-22-0	EPA 531.1
Pentachlorophenol	mg/L	0.001	(4)	0.0002	(5)	87-86-5	EPA 515.1-3
Picloram	mg/L	0.5	(4)	0.001	(5)	1918-02-1	EPA 515.1-3
Polychlorinated Biphenyls	mg/L	0.0005	(4)	0.0005	(5)	1336-36-3	EPA 130.1
Simazine	mg/L	0.004	(4)	0.001	(5)	122-34-9	EPA 505
Thiobencarb (Bolero)	mg/L	0.07	(4)	0.001	(5)	28249-77-6	EPA 527

Constituent	Units	Maximum Contaminant Level		Detection Limit for Reporting		CAS Registry Number	Recommended Analytical Method
Toxaphene	mg/L	0.003	(4)	0.001	(5)	8001-35-2	EPA 505
1,2,3-Trichloropropane	mg/L	0.000005	(4)	0.000005	(5)	96-18-4	SRL 524M
2,3,7,8-TCDD (Dioxin)	mg/L	3×10^{-8}	(4)	5×10^{-9}	(5)	1746-01-6	EPA 130.3
2,4,5-TP (Silvex)	mg/L	0.05	(4)	0.001	(5)	93-72-1	EPA 515.1
Other Organic Chemicals							
Chlorpyrifos	ug/L	0.015	(11)			2921-88-2	EPA 8141A
Diazinon	ug/L	0.10	(11)			333-41-5	EPA 8141A

Note: The 2020 Water Quality Monitoring Plan and water quality standards are currently being prepared and may be subject to change prior to publication and adoption of the final plan. The Project will be subject to the final water quality standards and requirements of the plan once adopted.

Sources:

Recommended Analytical Methods: https://www.nemi.gov/home/

Maximum Contaminant Levels:

Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010-4037), and Administrative Code (Sections 64401 et seq.), as amended.

(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 (DLRs)
(4) Title 22. Table 64444-A Maximum Contaminate 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. Table 64678-A DLRs for Lead and Copper
(9) Title 22. Section 64678 (d) Lead Action level

http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2015-07-16.pdf

California Regional Water Quality Control Board, Central Valley Region, Fourth Edition of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. Revised June 2015

(10) Basin Plan, Table III-1 (ug/L) (selenium in Grasslands water supply channels)
(11) Basin Plan, Table III-2A. 4-day average (chronic) concentrations of chlorpyrifos & diazinon in San Joaquin River from Mendota to Vernalis

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

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

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

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

(14) Requested by State Water contractors, no MCL specified.

California Regional Water Quality Control Board, Division of Drinking Water, Perflourooctanoic acid (PFOA) and Perflourooctanesulfonic acid (PFOS)

(15) DDW February 6, 2020 updated drinking water response levels

https://www.waterboards.ca.gov/pfas/drinking_water.html

APPENDIX B
DRAFT SAN LUIS CANAL NON-PROJECT WATER PUMP-IN PROGRAM 2020
WATER QUALITY MONITORING PLAN

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RECLAMATION

Managing Water in the West

San Luis Canal
Non-Project Water Pump-in Program
2020 Water Quality Monitoring Plan

U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region
South-Central California Area Office

Revised: May 2020

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

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

Contents

List of Tables

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List of Abbreviations and Acronyms

Check 13	San Luis Canal Milepost 66.74, O'Neill Forebay
Check 21	San Luis Canal Milepost 172.44, near Kettleman City
CVP	Central Valley Project
DWR	California Department of Water Resources
EC	Electrical conductivity, µS/cm
Lateral 7	Westlands Water District facility connected to the San Luis Canal at Milepost 115.43L
mg/L	milligrams per liter, equivalent to parts per million
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
San Luis Canal	The federal portion of the California Aqueduct
TDS	Total dissolved solids, mg/L
Title 22	California Drinking Water Standards
µg/L	micrograms per liter, equivalent to parts per billion
µS/cm	microSiemens per cm, salinity in water
Westlands/District	Westlands Water District

Definitions

Non-Project Water means surface or ground water:

1) Pumped, diverted, and/or stored based upon the exercise of water rights which have not been appropriated or acquired by, or apportioned to, the United States or others, or which have not been decreed, permitted, certificated, licensed, or otherwise granted to the United States or others, for a Reclamation project, or
2) Water not reserved or withdrawn from appropriation by the United States for, nor allocated by the United States to, a Reclamation project.

Excess Capacity means diversion, storage, conveyance, or pumping capacity in project facilities which is excess to that needed to achieve a Reclamation project's authorized purposes.

Max Depth to Groundwater (Max DTGW) represents the maximum depth to groundwater measurement collected from an individual well.

Fall/Winter Median Groundwater Level represents the average historical recovery level for each well. Determined by using groundwater level data recorded in the Fall/Winter after the well has had time to recover from irrigation season. The timeframe for median groundwater levels may vary depending on individual farm usage. Reclamation reserves the right to re-evaluate these data, if needed, as new data becomes available.

Introduction

Under the Warren Act of 1911, Reclamation may execute temporary contracts to convey non-project water in excess capacity in federal irrigation canals.

Reclamation proposes to enter into a 5-year Warren Act contract with Westlands. Under the terms of the contract, Westlands would introduce up to 30,000 acre-feet per year of non-Central Valley Project (CVP) water into the San Luis Canal (SLC) in years in which Westlands' CVP allocation is 20 percent or less. The period of introduction would be between April 1 and August 31 of a given year. However, as it was not possible to begin conveyance by April 1, 2020, the conveyance period for this year would be shifted by three months, to between July 1 and November 30 All subsequent years would use the April 1 to August 31 window.

The source of the non-CVP water would be pumped groundwater from groundwater wells within Westlands' district boundaries as well as other sources of non-CVP water by way of the Mendota Pool Inlet Canal. The amount of water from each source would vary, but the total quantity introduced under the Proposed Action would not exceed a combined volume of 30,000 acre-feet in a given year.

This document describes the plan for measuring the changes in the quality of water in the SLC caused by the conveyance of this non-project water, in addition to changes in groundwater elevation to estimate subsidence.

San Luis Canal Non-Project Water Monitoring Program fundamental assumptions:

1) All sources of non-project water discharged into the SLC must comply with California Drinking Water standards (Title 22)[1]. No in-canal dilution is allowed.

2) Each source of non-project water must be tested regularly to confirm that it is consistent, predictable, and acceptable in quality.

3) Staff from DWR will use real-time monitoring of salinity and turbidity in water in the SLC to identify any problems caused by the addition of the non-project water.

This document has been prepared by the U.S. Department of the Interior, Bureau of Reclamation (Reclamation), in cooperation with the California Department of Water Resources (DWR) and the State Water Contractors.

There are two main sources of non-project water:

1) Groundwater pumped from wells adjacent to the SLC (Canal Integration Program);

2) Groundwater from wells that pump into the Lateral 7 inlet canal.

Monitoring Mission and Goals

The mission of this monitoring program is to produce physical measurements that will determine the changes in the quality of water in SLC caused by the conveyance of non-project water. Data will be used to administer the terms of Warren Act Contracts and other exchange agreements, and to ensure that the quality of CVP water is suitable for downstream water users. The monitoring program will also measure changes to groundwater resources to prevent subsidence problems to local facilities.

The general goals of this monitoring plan are:

1) Evaluate the quality of water in each source of non-project water;

[1] California Code of Regulations, Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010 4037), and Administrative Code (Sections 64401 et seq.), as amended.
http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2017-04-10.pdf

2) Confirm that non-project water entering the SLC is suitable for all downstream users;

3) Provide reliable data for administration of the contracts and agreements; and

4) Provide measurements of depth to groundwater to prevent subsidence.

Study Area

The Study Area (**Figure 1**) encompasses the SLC from the O'Neill Forebay (Check 13) to Kettleman City (Check 21), which is the federal portion of the California Aqueduct. **Figure 2** depicts the wells in Westlands along the SLC.

The study area also includes Westlands Lateral 7. For this program, Lateral 7 will be treated as one point of discharge. Water quality in Lateral 7 will be measured at the Adams Avenue pumping plant.

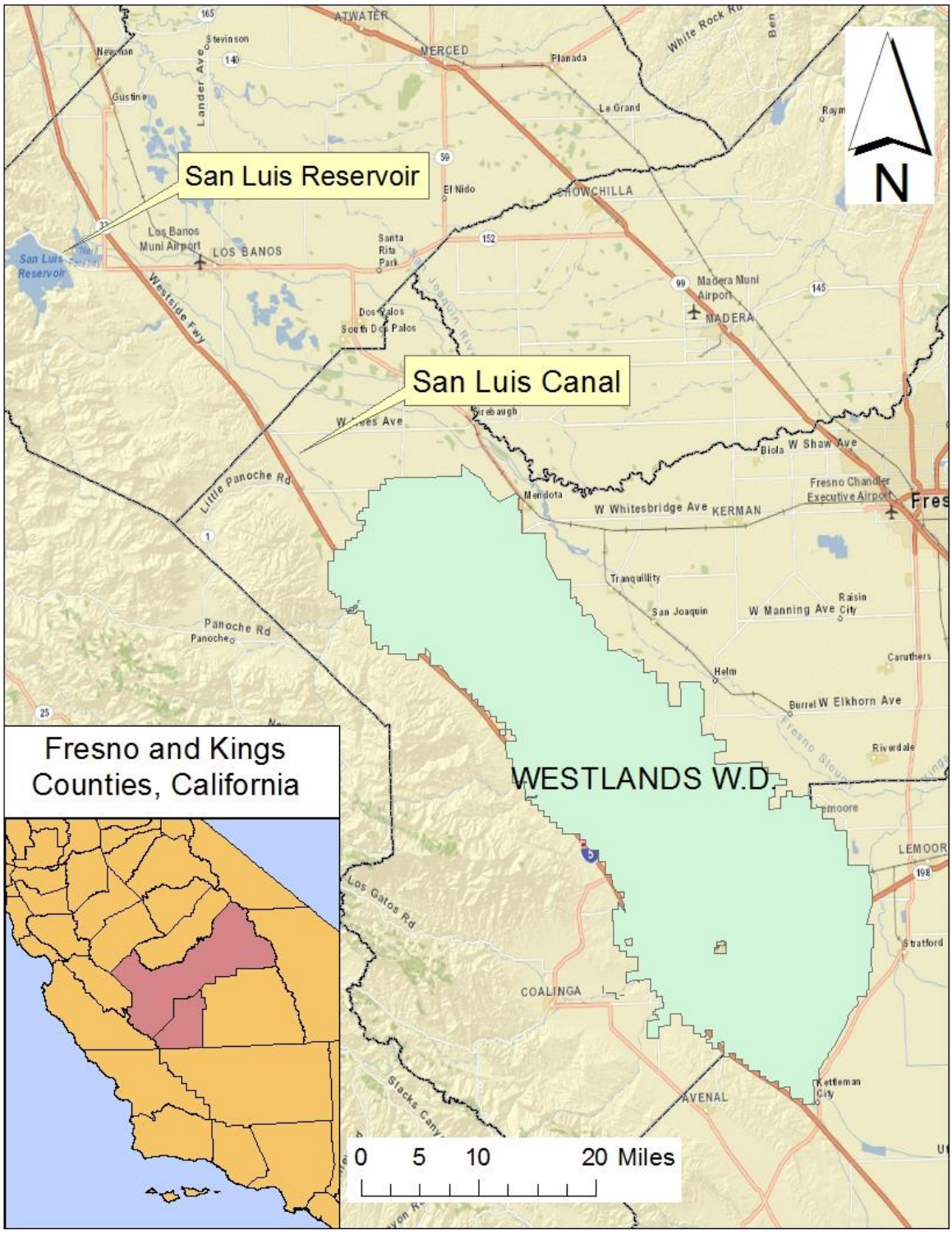

Figure 1. Project vicinity map

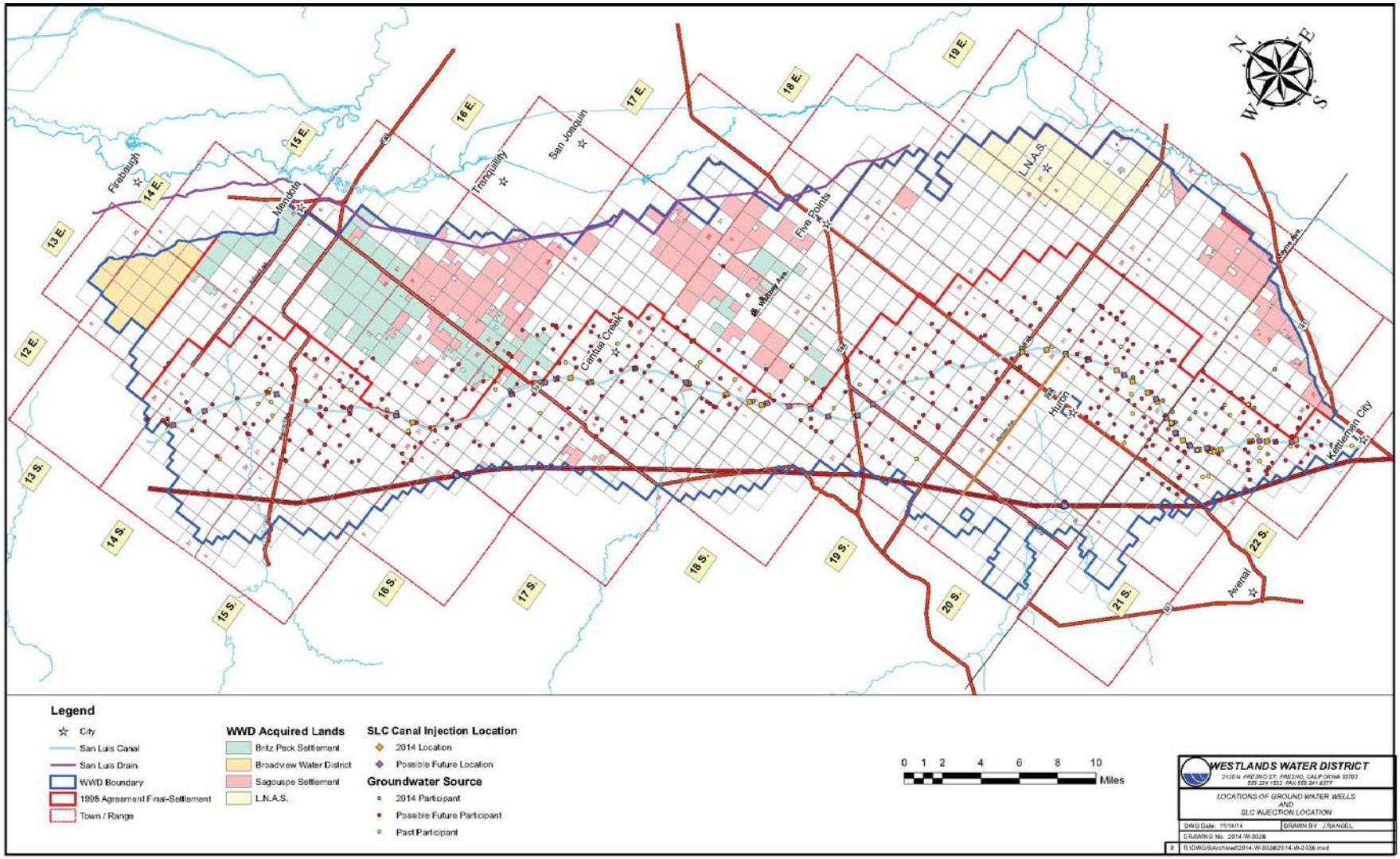

Figure 2. Location of Groundwater Wells within Westlands

Water Quality Monitoring Plan

All non-project water must meet the standards listed in **Tables 5 and 6** prior to entering the SLC. No dilution in the SLC will be allowed. Manifolded wells may discharge if the blend meets the standards listed in **Tables 5 and 6**.

All water quality analyses must be conducted by a laboratory listed in **Table 7**. All water samples must be sampled and preserved according to established protocols in correct containers. The costs of sampling and analysis of all non-project water will be borne by the well operators.

Sampling

Baseline Sampling of Individual Wells

Table 5 is a short list of constituents of concern to be measured in each well each year before pumping into the SLC to screen out non-compliant wells[2]. There will be a one-time screening for the presence of Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) and if detected, Reclamation and DWR will work with Westlands on conducting additional sampling. Reference **Table 5** for new PFOA and PFOS sampling. Wells that do not meet this short list may not participate in the program.

Each well must be tested every three years for all constituents listed in **Table 6** before pumping in the SLC. Each report must clearly identify the location of each source of non-project water.

Reclamation, in coordination with DWR and the State Water Contractors, may allow minor exceedances of certain secondary Title 22 constituents if all primary standards are met.

All new wells proposed to participate in the program must be approved by Reclamation prior to discharging any groundwater into the SLC or Lateral 7.

Routine Sampling of Individual Wells

Each well must be tested weekly during the first four weeks of pumping for the short list of constituents (**Table 5**), then monthly while actively pumping into the SLC to confirm that the water quality is consistent, predictable, and reliable.
The short list may be modified, in consultation with DWR, to add constituents of concern or drop non-detected constituents.

[2] Reclamation will provide instructions for sampling groundwater.

Reclamation will allow the introduction of water from two or more wells through one discharge point if the blended water meets the Title 22 standards. Special monitoring may be required for these situations.

The following information must be submitted to Reclamation prior to pumping groundwater into the SLC:

- the location of each well, pumping rate, and point of discharge into the SLC;
- complete Title 22 water quality analyses for each well
- the depth to groundwater in each well before pumping into the SLC commences

When the Project is operating, Westlands will provide DWR and Reclamation with weekly schedules which identify the flow from the active wells.

Westlands will provide weekly updates identifying the current and anticipated water quality changes within the SLC by using the daily model. The goal is to provide Reclamation and the State Water Project Facilitation Group with a day-to-day prediction of downstream water quality using real-time pump-ins, real-time upstream background flows, and current background water quality data.

Lateral 7 Sampling

Non-project water will only enter Lateral 7 when water is being pumped into the SLC, not when flow is entering the Mendota Pool.

In addition to non-project well sampling, Westlands must collect samples from Lateral 7 at the Adams Avenue pump station. Lateral 7 water must be tested for the full suite of Title 22 (**Table 6**) every year. **Table 5** constituents will be sampled weekly for the first four weeks, then monthly for the duration of pumping at the locations listed in **Table 3**. There will be a one-time screening for the presence of Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) from Lateral 7 at Adams Avenue pump station and if detected, Reclamation and DWR will work with Westlands on conducting additional sampling. Reference **Table 5** for new PFOA and PFOS sampling.

Westlands must take weekly field measures for EC and turbidity at locations listed in **Table 3**.

Depth to Groundwater

Well owners will measure the initial depth to groundwater in each well before pumping into the SLC, and monthly from April through August and every other month outside of that range while the 2020 Pump-in Program is in effect. Measurements must be made using industry approved methods.

An individual well will be shutoff when its Depth to Groundwater reaches 75% of the difference between the Fall/Winter Median Groundwater Level and the Max DTGW using the following equation:

Shutoff Trigger= 0.75(Max DTGW-Fall/Winter Median) + Fall/Winter Median*

If an individual well is shutoff due to groundwater levels reaching the shutoff trigger, it will not be allowed to resume pumping until it reaches 70% of the difference between the Fall/Winter Median Groundwater Level and the Max DTGW using the following equation:

Well Resumption= 0.70 (Max DTGW-Fall/Winter Median) + Fall/Winter Median*

Groundwater level measurements will follow a strict schedule. If a well is shutoff it will not be measured again until the next scheduled measurement date. The participants must notify Reclamation in writing when a well is shutoff or resuming. See Definitions section for explanation for Max DTGW and Fall/Winter Median.

Monitoring and Reporting

San Luis Canal Monitoring

Mean daily salinity and turbidity will be measured with the DWR sensors that report real-time data to CDEC (**Table 1**). Westlands will download daily average data for SLC Checks 13 and 21 to measure changes in the canal between these checks that may be attributable to the addition of the non-project water.

Westlands will use a mass balance model to estimate the contribution of salinity to the SLC from the actively pumping wells and Lateral 7 and compare this with the real-time data.

If the addition of the non-project water is increasing the salinity of water in the SLC more than 100 uS/cm between Check 13 and Check 21, Reclamation will work with Westlands and the well operators to turn off high salinity wells.

The addition of non-project water must not raise the salinity in the SLC at Check 21 above 700 uS/cm, equivalent to 450 mg/L Total Dissolved Solids.

If the salinity of water passing Check 13 is greater than 700 uS/cm, Reclamation and Westlands will coordinate with DWR to modify or restrict non-project pumping.

If the addition of the non-project water from Lateral 7 is increasing the turbidity of water in the SLC more than 10 NTU, Reclamation will work with Westlands to reduce discharge from the lateral. Changes in turbidity are measured by collecting samples upstream of and downstream of Lateral 7 (**Table 3**).

Westlands will run model simulations, as needed, to quantify anticipated improvements in conductivity with the termination of pumping from specific wells. The participating wells with the highest salinity will be targeted first, continuing to the wells with the lowest concentrations until canal water quality stabilizes or improves. As salinity at Check 21 improves, wells will be brought on-line to commence pumping.

DWR collects monthly grab samples at Checks 13 (KA007089) and 21 (KA017226) to measure trace metals and other minerals in the canal water. The data will be posted here:

San Luis Canal Check 13:
http://wdl.water.ca.gov/waterdatalibrary/waterquality/station_county/select_station.cfm?URLStation=KA007089&source=map

San Luis Canal Check 21:
http://wdl.water.ca.gov/waterdatalibrary/waterquality/station_county/select_station.cfm?URLStation=KA017226&source=map

DWR and Westlands will review these results to identify water quality changes in the SLC and will determine if they are caused by the addition of the non-project water.

Data Compilation and Review

All flow and water quality data collected by Westlands will be presented each month to Reclamation and DWR via e-mail. Reclamation will review the data to identify changes in the quality of water in the SLC and in individual wells, and potential changes in the local aquifer that could lead to overdraft or subsidence. Reclamation, in consultation with DWR, will direct Westlands on the continuation of pumping of groundwater into the SLC.

Access

Participating well owners must allow Reclamation and DWR staff permission to access the wells, if requested.

DWR Monitoring of Wells

DWR may collect samples for water quality testing for any constituents of concern from any Westlands source well or at any point of water entry into the Aqueduct for testing. DWR will use Bryte Chemical Laboratory or TestAmerica Labs for all DWR well sample analyses and the data will be available to Westlands for review. If any well tested by DWR is found to exceed the identified MCL's, Reclamation will direct Westlands to stop pumping immediately. The discharge must not resume unless it is demonstrated that adjustments have been made to the well or cluster of wells that allows it to discharge water that meets the required objectives.

Westlands will coordinate with well operators to provide access for DWR personnel to conduct any of the following activities on private property within Westlands' service area during the term of this Proposal:

- Verification of metering calibration standards and requirements for flow meters located at the point of entry into the Aqueduct and at the point of delivery out of the Aqueduct,

- Collection of water samples from source wells and at the point of pump-in to the Aqueduct for testing of water quality,

- Any other activities deemed necessary by DWR to comply with the terms of this Proposal.

Revision

Reclamation reserves the right to modify this monitoring program at any time.

Revised: 27 May 2020

Table 1. Real-Time Monitoring Stations

Location	Operating Agency	Parameters	Frequency	Remarks
San Luis Canal Check 13 O'Neill Forebay	DWR	Electrical conductivity, turbidity	Real-time	CDEC Site: C13
San Luis Canal Check 21 Kettleman City				CDEC Site: C21

Key: CDEC: California Data Exchange Center
DWR: California Department of Water Resources

Table 2. Routine San Luis Canal Water Quality Monitoring Stations

Location	Agency	Parameters	Frequency	Remarks
San Luis Canal Check 13 O'Neill Forebay	DWR	Minerals, trace metals, nutrients, pesticides	Monthly	Grab sample
San Luis Canal Check 21 Kettleman City				Grab sample

Source: DWR Water Data Library

Table 3. Routine Monitoring of WWD Lateral 7

Location	Agency	Parameters	Frequency	Remarks
San Luis Canal Milepost 113.82 Lincoln Ave (upstream site)	Westlands	EC, turbidity short list	Weekly Weekly x 4, Monthly[3]	Field measurements grab sample
Westlands Lateral 7 at Adams Avenue	Westlands	EC, turbidity short list	Weekly Weekly x 4, Monthly[3]	Field measurements grab sample
San Luis Canal Milepost 117.47 Manning Ave (downstream site)	Westlands	EC, turbidity short list	Weekly Weekly x 4, Monthly[3]	Field measurements grab sample

[3] This water will also be tested for the short list of constituents weekly for the four weeks and monthly for the duration while water is being pumped into the canal.

Table 4. Maximum allowable changes in the San Luis Canal caused by the addition of non-project groundwater

Constituent	Monitoring Location	Maximum concentration in the San Luis Canal
Electrical conductivity	Between San Luis Canal Checks 13 and 21	Less than 100 uS/cm increase between the checks
Turbidity	Between the Lateral 7 upstream site and downstream site	Less than 10 NTU
Electrical conductivity	In the San Luis Canal at Check 21	Not to exceed 700 uS/cm
Total dissolved solids		Not to exceed 450 mg/L
Concentration of selenium		Not to exceed 2 ug/L
Concentration of any Title 22 constituent		Less than half of a Title 22 MCL

If the maximum concentrations are exceeded in the canal, Reclamation will direct the District to reduce or terminate pumping of non-project water into the San Luis Canal. The District may provide a forecast from its water balance model to identify which wells to reduce or terminate, and whether to reduce or terminate pumping form Lateral 7.

San Luis Canal
Non-Project Water Pump-in Program
Water Quality Monitoring Plan

Table 5. Water Quality Standards, Short List

Constituent	Units	Maximum Contaminant Level		Detection Limit for Reporting		CAS Registry Number	Recommended Analytical Method
Arsenic	mg/L	0.01	(1)	0.002	(2)	7440-38-2	EPA 200.8
Boron	mg/L	2.0	(13)			7440-42-8	EPA 200.7
Bromide	mg/L		(14)				
Chloride	mg/L	250	(7)			16887-00-6	EPA 300.1
Chromium, total	mg/L	0.05	(1)	0.01	(2)	7440-47-3	EPA 200.7
Hexavalent chromium	mg/L	0.010	(1)	0.001	(2)	18540-29-9	EPA 200.8
Manganese	mg/L	0.05	(7)			7439-96-5	EPA 200.7
Nitrate (as nitrogen)	mg/L	10	(1)	0.4	(2)	7727-37-9	EPA 300.1
Selenium	mg/L	0.002	(10)	0.001		7782-49-2	EPA 200.8
Sodium	mg/L	69	(12)			7440-23-5	EPA 200.7
Specific Conductance	µS/cm	1,600	(7)				SM 2510B
Sulfate	mg/L	500	(7)			14808-79-8	EPA 300.1
Total Dissolved Solids	mg/L	1,000	(7)				SM 2540C
Total Organic Carbon	mg/L		(14)				EPA 415.3
Gross alpha[4]	pCi/L	15	(3)	3	(3)		SM 7110C
1,2,3-Trichloropropane	mg/L	0.000005	(4)	0.000005	(5)	96-18-4	SRL 524M

One-Time Screening					
Perfluorooctanic acid (PFOA)[5]	ng/L	N/A	0.82	(15)	EPA 537.1
Perfluorooctanesulfonic acid (PFOS)[5]	ng/L	N/A	2.7	(15)	EPA 537.1

Short list to be measured before pumping occurs, then weekly for four consecutive weeks, and monthly for the duration of pumping into the San Luis Canal.
(4) Monthly testing only
(5) One-time screening conducted prior to pumping individual wells and from Lateral 7 at the Adams Avenue pump station. Although there are no MCLs developed yet, there are notification levels and response levels. The notification levels are 5.1 PPT (PFOA) and 6.5 PPT (PFOS). The response levels are 10 PPT (PFOA) and 40 PPT (PFOS) based on a running four quarter average. The lowest concentration minimum reporting levels (LCMRL) are 0.82 ng/L (PFOA) and 2.7 ng/L (PFOS).

Revised: 27 May 2020

Table 6. Title 22 Water Quality Standards

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	0.01 (1)	0.002 (2)	7440-38-2	EPA 200.8
Asbestos	MFL	7 (1)	0.2 MFL>10µm (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)	7440-41-7	EPA 200.7
Cadmium	mg/L	0.005 (1)	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
Copper	mg/L	1.3		7440-50-8	EPA 200.7
Cyanide	mg/L	0.15 (1)	0.1 (2)	57-12-5	EPA 335.2
Fluoride	mg/L	2.0 (1)	0.1 (2)	16984-48-8	EPA 300.1
Hexavalent Chromium	mg/L	0.010 (1)	0.001 (2)	18540-29-9	EPA 218.7
Lead	mg/L	0.015 (9)	0.005 (8)	7439-92-1	EPA 200.8
Mercury	mg/L	0.002 (1)	0.001 (2)	7439-97-6	EPA 245.1
Nickel	mg/L	0.1 (1)	0.01 (2)	7440-02-0	EPA 200.7
Nitrate (as nitrogen)	mg/L	10 (1)	0.4 (2)	7727-37-9	EPA 300.1
Nitrate + Nitrite (sum as nitrogen)	mg/L	10 (1)		14797-55-8	EPA 353.2

Nitrite (as nitrogen)	mg/L	1	(1)	0.4	(2)	14797-65-0	EPA 300.1
Perchlorate	mg/L	0.006	(1)	0.004	(2)	14797-73-0	EPA 314/331/332
Selenium	mg/L	0.002	(10)	0.001		7782-49-2	EPA 200.8
Thallium	mg/L	0.002	(1)	0.001	(2)	7440-28-0	EPA 200.8
Thiobencarb	mg/L	0.07				28249-77-6	EPA 527
Secondary							
Aluminum	mg/L	0.2	(6)			7429-90-5	EPA 200.7
Chloride	mg/L	500	(7)			16887-00-6	EPA 300.1
Color	units	15	(6)				EPA 110
Copper	mg/L	1	(6)	0.05	(8)	7440-50-8	EPA 200.7
Iron	mg/L	0.3	(6)			7439-89-6	EPA 200.7
Manganese	mg/L	0.05	(6)			7439-96-5	EPA 200.7
Methyl-tert-butyl ether (MTBE)	mg/L	0.013	(4)			1634-04-4	EPA 502.2/524.2
Odor -threshold	units	3	(6)				SM 2150B
Silver	mg/L	0.1	(6)			7440-22-4	EPA 200.7
Specific Conductance	µS/cm	1,600	(7)				SM 2510 B
Sulfate	mg/L	500	(7)			14808-79-8	EPA 300.1
Thiobencarb	mg/L	0.001	(6)			28249-77-6	EPA 527
Total Dissolved Solids	mg/L	1,000	(7)				SM 2540 C
Turbidity	units	5	(6)				EPA 190.1/SM2130B
Zinc	mg/L	5	(6)			7440-66-6	EPA 200.7
Other Required Analyses							
Boron	mg/L	2.0	(13)			7440-42-8	EPA 200.7
Molybdenum	mg/L	0.01	(11)			7439-98-7	EPA 200.7
Sodium	mg/L	69	(12)			7440-23-5	EPA 200.7

Radioactivity							
Gross Alpha	pCi/L	15	(3)	3	(3)		SM 7110C
Organic Chemicals							
(a) Volatile Organic Chemicals (VOCs)							
Benzene	mg/L	0.001	(4)	0.0005	(5)	71-43-2	EPA 502.2/524.2
Carbon Tetrachloride	mg/L	0.0005	(4)	0.0005	(5)	56-23-5	EPA 502.2/524.2
1,2-Dichlorobenzene.	mg/L	0.6	(4)	0.0005	(5)	95-50-1	EPA 502.2/524.2
1,4-Dichlorobenzene.	mg/L	0.005	(4)	0.0005	(5)	106-46-7	EPA 502.2/524.2
1,1-Dichloroethane	mg/L	0.005	(4)	0.0005	(5)	75-34-3	EPA 502.2/524.2
1,2-Dichloroethane	mg/L	0.0005	(4)	0.0005	(5)	107-06-2	EPA 502.2/524.2
1,1-Dichloroethylene	mg/L	0.006	(4)	0.0005	(5)	75-35-4	EPA 502.2/524.2
cis-1,2-Dichloroethylene	mg/L	0.006	(4)	0.0005	(5)	156-59-2	EPA 502.2/524.2
trans-1,2-Dichloroethylene	mg/L	0.01	(4)	0.0005	(5)	156-60-5	EPA 502.2/524.2
Dichloromethane.	mg/L	0.005	(4)	0.0005	(5)	75-09-2	EPA 502.2/524.2
1,2-Dichloropropane.	mg/L	0.005	(4)	0.0005	(5)	78-87-5	EPA 502.2/524.2
1,3-Dichloropropene.	mg/L	0.0005	(4)	0.0005	(5)	542-75-6	EPA 502.2/524.2
Ethylbenzene.	mg/L	0.3	(4)	0.0005	(5)	100-41-4	EPA 502.2/524.2
Methyl-tert-butyl ether	mg/L	0.013	(4)	0.003	(5)	1634-04-4	EPA 502.2/524.2
Monochlorobenzene	mg/L	0.07	(4)	0.0005	(5)	108-90-7	EPA 502.2/524.2
Styrene.	mg/L	0.1	(4)	0.0005	(5)	100-42-5	EPA 502.2/524.2
1,1,2,2-Tetrachloroethane.	mg/L	0.001	(4)	0.0005	(5)	79-34-5	EPA 502.2/524.2
Tetrachloroethylene (PCE)	mg/L	0.005	(4)	0.0005	(5)	127-18-4	EPA 502.2/524.2
Toluene	mg/L	0.15	(4)	0.0005	(5)	108-88-3	EPA 502.2/524.2
1,2,4-Trichlorobenzene	mg/L	0.005	(4)	0.0005	(5)	120-82-1	EPA 502.2/524.2
1,1,1-Trichloroethane	mg/L	0.2	(4)	0.0005	(5)	71-55-6	EPA 502.2/524.2
1,1,2-Trichloroethane	mg/L	0.005	(4)	0.0005	(5)	79-00-5	EPA 502.2/524.2
Trichloroethylene (TCE)	mg/L	0.005	(4)	0.0005	(5)	79-01-6	EPA 502.2/524.2
Trichlorofluoromethane	mg/L	0.15	(4)	0.005	(5)	75-69-4	EPA 502.2/524.2

1,1,2-Trichloro-1,2,2-Trifluoroethane.	mg/L	1.2	(4)	0.01	(5)	76-13-1	SM 6200B
Vinyl Chloride	mg/L	0.0005	(4)	0.0005	(5)	75-01-4	EPA 502.2/524.2
Xylenes	mg/L	1.750*	(4)	0.0005	(5)	1330-20-7	EPA 502.2/524.2
(b) Non-Volatile Synthetic Organic Chemicals (SOCs)							
Alachlor	mg/L	0.002	(4)	0.001	(5)	15972-60-8	EPA 505/507/508
Atrazine	mg/L	0.001	(4)	0.0005	(5)	1912-24-9	EPA 505/507/508
Bentazon	mg/L	0.018	(4)	0.002	(5)	25057-89-0	EPA 515.1
Benzo(a)pyrene	mg/L	0.0002	(4)	0.0001	(5)	50-32-8	EPA 525.2
Carbofuran	mg/L	0.018	(4)	0.005	(5)	1563-66-2	EPA 531.1
Chlordane	mg/L	0.0001	(4)	0.0001	(5)	57-74-9	EPA 505/508
2,4-D	mg/L	0.07	(4)	0.01	(5)	94-75-7	EPA 515.1
Dalapon	mg/L	0.2	(4)	0.01	(5)	75-99-0	EPA 515.1
Dibromochloropropane	mg/L	0.0002	(4)	0.00001	(5)	96-12-8	EPA 502.2/504.1
Di(2-ethylhexyl)adipate	mg/L	0.4	(4)	0.005	(5)	103-23-1	EPA 506
Di(2-ethylhexyl)phthalate	mg/L	0.004	(4)	0.003	(5)	117-81-7	EPA 506
Dinoseb	mg/L	0.007	(4)	0.002	(5)	88-85-7	EPA 5151-4
Diquat	mg/L	0.02	(4)	0.004	(5)	85-00-7	EPA 549.2
Endothall	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 505/508
Ethylene Dibromide	mg/L	0.00005	(4)	0.00002	(5)	106-93-4	EPA 502.2/504.1
Glyphosate (Roundup)	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 508
Heptachlor Epoxide	mg/L	0.00001	(4)	0.00001	(5)	1024-57-3	EPA 508
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 505/508
Lindane (gamma-BHC)	mg/L	0.0002	(4)	0.0002	(5)	58-89-9	EPA 505/508
Methoxychlor	mg/L	0.03	(4)	0.01	(5)	72-43-5	EPA 505/508
Molinate	mg/L	0.02	(4)	0.002	(5)	2212-67-1	EPA 525.1
Oxamyl	mg/L	0.05	(4)	0.02	(5)	23135-22-0	EPA 531.1
Pentachlorophenol	mg/L	0.001	(4)	0.0002	(5)	87-86-5	EPA 515.1-3

Picloram	mg/L	0.5	(4)	0.001	(5)	1918-02-1	EPA 515.1-3
Polychlorinated Biphenyls	mg/L	0.0005	(4)	0.0005	(5)	1336-36-3	EPA 130.1
Simazine	mg/L	0.004	(4)	0.001	(5)	122-34-9	EPA 505
Thiobencarb (Bolero)	mg/L	0.07	(4)	0.001	(5)	28249-77-6	EPA 527
Toxaphene	mg/L	0.003	(4)	0.001	(5)	8001-35-2	EPA 505
1,2,3-Trichloropropane	mg/L	0.000005	(4)	0.000005	(5)	96-18-4	SRL 524M
2,3,7,8-TCDD (Dioxin)	mg/L	3×10^{-8}	(4)	5×10^{-9}	(5)	1746-01-6	EPA 130.3
2,4,5-TP (Silvex)	mg/L	0.05	(4)	0.001	(5)	93-72-1	EPA 515.1
Other Organic Chemicals							
Chlorpyrifos	ug/L	0.015	(11)			2921-88-2	EPA 8141A
Diazinon	ug/L	0.10	(11)			333-41-5	EPA 8141A

Sources:

Recommended Analytical Methods: https://www.nemi.gov/home/

Maximum Contaminant Levels:

Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010-4037), and Administrative Code (Sections 64401 et seq.), as amended.

(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 (DLRs)

(4) Title 22. Table 64444-A Maximum Contaminate 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. Table 64678-A DLRs for Lead and Copper

(9) Title 22. Section 64678 (d) Lead Action level

http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2015-07-16.pdf

California Regional Water Quality Control Board, Central Valley Region, Fourth Edition of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. Revised June 2015

(10) Basin Plan, Table III-1 (ug/L) (selenium in Grasslands water supply channels)

(11) Basin Plan, Table III-2A. 4-day average (chronic) concentrations of chlorpyrifos & diazinon in San Joaquin River from Mendota to Vernalis

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

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).

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

(13) Ayers, Table 1 (mg/L) (boron)

http://www.fao.org/3/T0234E/T0234E00.htm

(14) Requested by State Water contractors, no MCL specified.

California Regional Water Quality Control Board. PFAS Per-and Polyfluoroalkyl Substances.

(15) Testing Methods in California Drinking Water

https://www.waterboards.ca.gov/pfas/

revised: 29 April 2020

RECLAMATION
Managing Water in the West

Table 7. Approved Laboratory List for the Mid-Pacific Region Quality Assurance and Data Management Branch (MP-156) Environmental Monitoring and Hazardous Materials Branch (MP-157)

Alpha Analytical Laboratories, Inc.	**Address**	208 Mason Street, Ukiah, CA 95482
	Contact	Adam Angulo
	P/F	916-686-5190
	Email	adam@alpha-labs.com
	Methods	*Inorganics in Water, Organics in Water*

APPL Laboratory	**Address**	908 North Temperance Avenue, Clovis, CA 93611
	Contact	Chue Moua, Project Manager
	P/F	(559) 275-2175 / (559) 275-4422
	Email	cmoua@applinc.com; danderson@applinc.com;
	Methods	*Approved for inorganic and organic parameters in water and soil*

Basic Laboratory	**Address**	2218 Railroad Avenue Redding, CA 96001
	Contact	Josh Kirkpatrick, Nathan Hawley, Melissa Hawley
	P/F	(530) 243-7234 / (530) 243-7494
	Email	jkirkpatrick@basiclab.com (QAO and PM); nhawley@basiclab.com, mhawley@basiclab.com (invoices); poilar@basiclab.com (sample custody), khawley@basiclab.com (sample custody)
	Methods	*Approved for inorganic/organic parameters*

Brooks Applied Labs	**Address**	18804 North Creek Parkway Bothell, WA 98011
	Contact	Jeremy Maute
	P/F	(206) 632-6206
	Email	Jeremy@brooksapplied.com
	Methods	*Approved for selenium speciation and mercury speciation in water, solids, and tissue*

California Laboratory Services	**Address**	3249 Fitzgerald Road Rancho Cordova, CA 95742
	Contact	Scott Furnas
	P/F	(916) 638-7301 / (916) 638-4510
	Email	janetm@californialab.com (QA); scottf@californialab.com (PM)
	Methods	*Approved for inorganic, organic, and microbiological parameters*

Calscience Environmental Laboratories	**Address**	7440 Lincoln Way; Garden Grove, CA 92841
	Contact	Don Burley
	P/F	714-895-5494 (ext. 203)/714-894-7501
	Email	DBurley@calscience.com
	Methods	*Approved for inorganic and organic parameters in water, sediment, and soil.*

Eurofins Eaton Analytical, Inc. (formerly MWH Laboratories)	**Address**	750 Royal Oaks Drive Ste. 100 Monrovia, CA 91016 USA
	Contact	Linda Geddes
	P/F	(626) 386-1100, Linda - (626) 386-1163, Rick - (626) 386-1157
	Email	LindaGeddes@eurofinsus.com
	Methods	*Approved for all inorganic, organic, radiochemistry, total coliform, & E. Coli parameters in water*

Fruit Growers Laboratory	**Address**	853 Corporation Street Santa Paula, CA 93060 USA
	Contact	David Terz, QA Director
	P/F	(805) 392-2024 / (805) 525-4172
	Email	davidt@fglinc.com
	Methods	*Approved for the analysis of inorganic parameters in water and soil*

Moore Twining Associates, Inc.	**Address**	2527 Fresno St., Fresno, CA 93721 USA
	Contact	Juli Adams (Lab Director), Maria Manuel (QA Manager)
	P/F	(559) 268-7021
	Email	julia@mooretwining.com, mariam@mooretwining.com
	Methods	*BOD*

Oilfield Environmental & Compliance	**Address**	307 Roemer Way Ste 300, Santa Maria, CA 93454
	Contact	Will update when assigned a PM
	P/F	805-922-4772
	Email	info@oecusa.com
	Methods	*(Approval Pending) Hazardous Waste in Water/Soil*

Pacific EcoRisk	**Address**	2250 Codelia Road, Fairfield, CA 94534 USA
	Contact	Stephen L. Clark
	P/F	(707) 207-7760 / (707) 207-7916
	Email	slclark@pacificecorisk.com
	Methods	*Approved for acute and chronic toxicity.*

Physis	**Address**	1904 East Wright Circle, Anaheim, CA 92806
	Contact	Will update when assigned a PM
	P/F	1-714-602-5320 ext 204
	Email	markbaker@physislabs.com
	Methods	*(Approval Pending) Inorganics in Soil*

South Dakota Agricultural Laboratories	**Address**	Brookings Biospace, 1006 32nd Avenue, Suites 103,105, Brookings, SD 57006-4728
	Contact	Regina Wixon, Nancy Anderson, Jessie Davis (sample custodian)
	P/F	(605) 692-7325/(605) 692-7326
	Email	regina.wixon@sdaglabs.com, Nancy.Anderson@sdaglabs.com, jessica.davis@sdaglabs.com
	Methods	*Approved for selenium analysis*

Western Environmental Testing Laboratories	**Address**	475 East Greg Street # 119 Sparks, NV 89431 USA
	Contact	Scott Thompson (Client Services), Andy Smith (Lab Drctr)
	P/F	(775) 355-0202 / (775) 355-0817
	Email	scottt@wetlaboratory.com, andy@wetlaboratory.com
	Methods	*Approved for inorganic parameters (metals, general chemistry) and coliforms.*

Revised: 03 March 2020